

# PALÆOLITHS FROM BRICKEARTH IN SOUTH-EAST BUCKINGHAMSHIRE

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## I. INTRODUCTION

BRICKEARTH is the general trade name for the basic raw material won at different elevations above the River Thames and used in the making of the coarse earthenware that was formerly more widely manufactured in the south-eastern part of Buckinghamshire than today. So long was the term current and familiar that certainly since the middle of last century it has also served geologists. Indeed, on H.M. Geological Survey maps covering the stretch on the left bank of the Thames between Taplow and Burnham, in Buckinghamshire, and Yiewsley and West Drayton, in Middlesex, great spreads of superficial deposits labelled brickearth are shown as overlying the beds that rest upon the benches of the Boyn Hill, Taplow and Flood Plain terraces (in descending order). Some of these spreads, however, are not separated on the maps.<sup>1</sup> This suggests that the brickearth has presented problems to the field geologists, who recognised that it is of different composition and ages.

In that area on the left bank of the river there used to be many kilns for firing earthenware. This explains the former existence of pits opened solely for the extraction of brickearth. Most, however, have been completely worked out, filled and overbuilt; and the works are now derelict and in ruins, or have disappeared. Years ago in some of these commercial undertakings certain archaeological observations were made while digging was still in progress, or between the time of their being closed down and their obliteration. As a result of these inquiries there were found a fair number of palæoliths and later antiquities. Altogether, the various objects recovered in the region from brickearth topping the workings for gravel, which have been studied for so long, make quite an imposing assemblage. Some of its components are noteworthy for the new light they shed on knowledge of the Palæolithic industries of this part of the Thames valley. Not only so, but considered with examples in museums and private collections they may eventually help in the precise determining and dating of the containing deposits.

## II. BURNHAM

### PLATEAU

Material serving the brick-, tile- and pipe-baking ovens to the north-west and north of Burnham has been found in patches and hollows on top of formations older than those directly connected with the Pleistocene history of the river. Occurring so, and at the greatest elevations to be considered here, it is distinguishable macroscopically only by its finer consistency from other

similarly named deposits. Of considerable thickness, generally 10-12 ft., but sometimes nearly 20 ft., at the old Poyle or Pile Farm brickworks (1 in. Sh. 159, SU 925838), which stand about 180 ft. above O.D., and resting upon an uneven floor of chalk, the brickearth here appears to be a hillwash. Quite a heavy deposition has taken place even in the course of two thousand years, since at a depth of no less than 4 ft. the workmen found a quantity of Belgic pottery in the circumstances that have been recorded.<sup>2</sup>

One mile north-east of Poyle Farm, and half-a-mile north-west of East Burnham, brickearth at about 200 ft. above O.D. used, until the early years of this century, to be dug out of hollows on the plateau in what is now the picturesque Dorneywood Golf Course.<sup>3</sup> Here about sixty years ago there were recovered a number of flint tools, some being delicate bifaces of the most advanced Acheulian type and manifestly later than any from the aggraded gravels of the ancient river terraces. Until now none of the artifacts has been recorded. Five specimens form part of the Shrubsole collection that so enriches the Reading Borough Museum. They are identical in facies and workmanship with those constituting a larger group preserved in the County Museum, Aylesbury, by the favour of the former curators of which, Mr. R. Sansome and Mr. T. A. Hume, F.S.A., the writer was enabled to have the specimens drawn. Four, Fig. 1, nos. 1-4, are illustrated. Patinated cream and lightest fawn, yet retaining their pristine sharpness, they match exactly some of the handsome surface-changed but otherwise unaltered hand-axes that observant inquirer Worthington G. Smith recovered about 70 years ago from brickearth, said to consist of relaid Eocene clay, dug in pits situated between 500 and 600 ft. O.D. on the borders of Bedfordshire and Hertfordshire.<sup>4</sup>

The Dorneywood assemblage of heavily patinated artifacts now at Aylesbury comprises objects other than bifaces. If not so impressive as these, they are nevertheless such as to suggest that a working-floor must have existed not far from the finding-place of the group. This includes three flakes, two being so scarred as to point to their being waste from the manufacture of bifaces. The smallest specimen, no. 5, is so thin as to be a typical record of the use of a comparatively resilient hammer upon flint. Its companion, no. 6, is more profusely scarred, and from the wear apparent along its convex edge it may well have served to cut. The associated wide flake, no. 7, very evidently was struck off a well-prepared core. With plain, vertical and thin untreated butt-end, the specimen bears wide medial and regular lateral scars, all of which betoken developed Acheulian rather than Levalloisian industry.

After all this time since these palæoliths were collected, the exact finding-place has not been identified. However, at several spots in the golf-course there are exposures of the brickearth believed to be the same as that which yielded these products of Acheulian industry. So far as one can see, on this high ground the deposit is stoneless. Samples show precise identity with the composition of those taken at Poyle Farm, although at Dorneywood the archæological discoveries are so different.

From farther afield one recalls that near Ipswich Miss Nina Layard discovered advanced Acheulian implements on an old land-surface denoted by iron stain and gravel in the brickearth.<sup>5</sup> This deposit lay on a plateau<sup>6</sup> with

spreads of glacial sand and gravel like those in the neighbourhood of Dorneywood in Burnham parish, which are so mapped by the Geological Survey. Akin to these palæoliths, and therefore to the hand-axes from Dorneywood, there are the Acheulian tools extracted by the late J. Reid Moir from brickearth at Hoxne.<sup>7</sup> It was in this same brickearth that John Frere made his famous discovery in 1797.<sup>8</sup> The hand-axes of evolved Acheulian facies of which this classic find consisted are exactly matched by the bifaces from Dorneywood and by others described in the sequel.

Though small, the series of flakes from Dorneywood is interesting, not only on typology and technology, but because they are linked with the core-tools they strengthen comparisons with Worthington G. Smith's comprehensive and resemblant discoveries. For, very commendably for the time when Smith wrote, that archæologist noted flakes and flake-tools, and figured many he had found in the brickearth with the bifacial implements. As one interprets the evidence today, these flakes and their derivatives, by reason of their delicate workmanship and the circumstances of their discovery, appear to correspond closely to the beautifully executed flake-implements recovered from brickearth at High Lodge near Mildenhall, Suffolk. Long regarded as expressing highly evolved Clactonian industry,<sup>9</sup> they are now held by some authorities to be products of an advanced phase of Acheulian craftsmanship.<sup>10</sup> This typological parallelism was stressed by the late Reginald A. Smith in referring to the patinated scrapers worked on the edges of one face from the upper layers of Saint-Acheul.<sup>11</sup> It is brought out again in many of the advanced Acheulian flake-tools, especially Acheulian VI-VII (Micoquian) from the *argile rouge* at sites around Amiens (Somme) described by Harper Kelley.<sup>12</sup>

#### LOWER BOYN HILL TERRACE<sup>13</sup>

By now it is well known that from the implementiferous fluviatile gravels of the Thames a great variety of Lower Palæolithic flake-tools have been taken in association with hand-axes and the like. Many representative examples from the middle Thames area were recorded and described in detail by the writer in 1940.<sup>14</sup> As sharp and unaltered as the accompanying fresh-looking Acheulian bifaces, a great number of these flake-tools have been taken from the gravels overlying the Lower Boyn Hill Terrace. With them true blades have also been found, proving that such fine artifacts were produced alongside the better-known objects which typify the well-developed Acheulian culture of the Great Interglacial. Having Abbé H. Breuil's writings in mind, one has come to correlate this period with the Mindel-Riss interglacial of Alpine Quaternary chronology.<sup>16</sup> These flakes and blades and the implement-forms made on them are seldom so finely executed as the flake-tools from around Caddington and High Lodge.

In the locality under present consideration, however, brickearth at much lower levels than Dorneywood has given palæoliths that compare with W. G. Smith's finds, not only by their mode of occurrence but also by typology. For, from the brickearth occasionally containing scattered pebbles and overlying the fluviatile gravels of this Lower Boyn Hill Terrace, which rest upon the bench at an average height of 50 ft. above the Thames, in the gravel-pit formerly worked at Baker's (O.S. Biddle's; 1 in. Sh. 159, SU 956819) Farm (pl. X) and

in the pit that was excavated by the late G. W. Almond at Lent Rise (1 in. Sh. 159, SU 926821) in Burnham parish,  $1\frac{1}{2}$  miles farther upstream, the late J. G. Marsden and the writer have taken Acheulian pointed hand-axes, a cordiform biface and flakes, all of flint.

In their treatment by fine shallow flaking, the bifacially worked implements resemble those from W. G. Smith's brickearth sites at Gaddesden Row and Caddington in Hertfordshire, and Round Green near Luton in Bedfordshire, but are somewhat thicker at the butt. Of the hand-axes from Baker's Farm, one, Fig. 2, no. 1, triangular, pointed and symmetrical, is quite unchanged; the other, no. 2, patinated, cream-white; both are as sharp as when brand new. The small ovate, no. 3, found at the very base of the brickearth, just on top of the fluviatile gravel, in Almond's Pit at Lent Rise, Burnham, has already been described<sup>16</sup> as fashioned in a flake, slightly glazed, a little edge-bruised but otherwise unblemished. Only by its apparently more advanced treatment does it differ from the bifaces of characteristic Middle Acheulian type recovered in such numbers here in the fine river gravel under the brickearth.

Obviously detached from a core, upon which it was prepared, and pristinely sharp, a wide but short flake, no. 4, was extracted from the brickearth in the same gravel-pit. Its thin butt is finely dressed and exhibits truncated facets that proclaim its origin. Like the ovate, it could just as well have come from the implementiferous fluviatile gravel. Also from deep down in the brickearth, another flake-implement, no. 5, is attractive. Its long edges are very sharp, and its delicately faceted butt opposite the fine point bears additional retouches that transform the piece into a good end-scraper. The slightly glazed upper surface is scarred in such a manner as to indicate that the flake was deliberately struck for itself from a very well-prepared core of the Levalloisian sort, rather than that the specimen was trimming from a hand-axe in the making. In the writer's opinion, this tool would also be a product of a well-developed Acheulian industry in which the Levalloisian technique was practised. Thus, it can reasonably be linked with the objects discovered by Worthington Smith in the brickearth pits on the borders of Hertfordshire and Bedfordshire.

Considering the associations and links of the last two specimens, it is not difficult, despite its character, to place in the same category as all these artifacts from Baker's Farm, Lent Rise, and from Worthington Smith's sites, a truly remarkable small implement made on a flake, no. 6. Seemingly the trimmed waste from a hand-axe in the process of being manufactured, the piece which is triangular in section retains some crust at the pointed end. It is finely—almost flatly—retouched along one margin and rather steeply on the other. At the tip this working merges, giving the specimen the look of an artifact much later than even Middle Palæolithic. This effect is indeed heightened by the low dressing that on the main separation surface has obliterated the swelling of percussion. Notwithstanding, the flint displays exactly the same glaze as do its companions, and the depth at which the implement was found argues for the same Lower Palæolithic ascription. Not only so, but since the Acheulian culture, by flourishing during two interglacial periods (including the longest of the Pleistocene epoch) and by straddling two main glaciations, covered by far the greatest part of the whole of human history, it is not surprising that several techniques were

developed and so many tool-forms were devised during its unimaginably long course. This specimen therefore represents yet another expression of the ingenuity of man in that remote stage of cultural development. As such it is an interesting addition to the unusual items of Acheulian industrial output.

### III. IVER

#### IVER TERRACE<sup>17</sup>

The divisibility of the brickearth stressed by the geologists Sir Joseph Prestwich<sup>18</sup> and T. I. Pocock<sup>19</sup> appears locally on the ancient river terraces in the Middle Thames area. Nowhere has the writer observed a sharper demarcation than at Iver in the brickearth overlying the terrace of that name, intermediate between the Boyn Hill and Taplow formations. At Mansion Lane, Iver, particularly in the abandoned gravel-pit (1 in. Sh. 159, SU 023801), worked formerly by Messrs. W. and J. Lavender, the distinction was until the spring of 1958 as clear in one exposure (pl. XI) as when the deposits and their archaeological contents were described over twenty years ago.<sup>20</sup> As ordinarily containing a few small pebbles, and locally resting upon seams or contorted strings and festoons of solifluxion gravel (2 on pl. XI) that appear to separate it from the underlying gravel (1 on pl. XI), the brickearth here is, as a whole, of the usual brownish-red hue (3 on pl. XI) tending to yellowish in its lower part. It is burdened with a greyish and finer structureless material (4 on pl. 0) with a few scattered pebbles. This is capped in turn by the stony topsoil. When wet the lower and mainly red deposit, in common with most of the brickearth in the district, is like the *argile rouge* of the Somme valley, but when dry it is loess-like. The resemblance of both the lower and upper beds, red and grey, to loess was indeed commented on by Abbé Breuil.<sup>21</sup> Certainly in neighbouring utilitarian excavations also, the brickearth has the appearance of being stratified. In this regard, besides the cuts at Mansion Lane near Shreding Green, sections around Richings Park in Purser's Pit (1 in. Sh. 160, SU 030796) and in the former pit of the old Great Western Railway (1 in. Sh. 160, SU 033798) exhibited the same succession. Going back also to the older prehistoric annals of the district, one finds references to the brickearth workings of the Everlasting Tile Company (1 in. Sh. 160, TQ 035805) near Iver village.

At Iver the two layers of brickearth, lower and upper, have yielded some palæoliths. Those from the red deposit are often stained and sometimes lustrous, but the specimens from the upper and grey bed are virtually unchanged. As products of human industries, they are distinctive according to the bed from which they have come, and are the only unscathed and sharp artifacts recovered between the topsoil and the terrace bench. They consist of forms typologically and technologically matching objects that in north-eastern France have been assigned to advanced middle and even late Levalloisian divisions. Today some archaeologists, however, may prefer to regard the palæoliths from the red or lower part of the brickearth simply as Acheulian, or as Acheulio-Levalloisian because of the apparent blending of industrial methods expressed in the bifacial implements and flakes. However, the implements from the brickearth at Iver differ in several ways from the Acheulian and Levalloisian types recovered as derived elements from the solifluxion and fluvial gravels underneath. In

contradistinction to the yield of these gravels, the relics from the brickearth, though often stained and sometimes lustrous, are more advanced and quite uninjured of surface and edge.

Now, having noted the fine bifaces of developed Acheulian facies and the flakes of well-evolved Acheulio-Levalloisian aspect from Burnham parish, one has to recall the artifacts from Iver that appear to belong to stages even more advanced in the Palæolithic sequence. Thus, the red lower part of the brickearth has yielded flakes, blades and cores as well as extremely well-made hand-axes and ovates, all in unblemished state. On account of their mode of occurrence in the bed that rests upon fluviatile gravel, or locally upon intervening solifluxion deposits, and on the score of their workmanship, the bifacially treated implements have been likened to the Levalloisian products Abbé Breuil placed as IV and V in his Palæolithic order for the Somme valley. Whether or not such refinements in classification can be made in Britain still remains to be determined. Certain it is, however, that in execution the bifaces and flakes from the red brickearth, as figured here, differ from those found in the brickearth farther upstream.

A few artifacts from the red brickearth in the Iver pits have already been illustrated.<sup>22</sup> Drawings of a larger selection of the whole series are included in this article. They show how the relics compare with the various examples from the other Buckinghamshire localities mentioned in the foregoing paragraphs. In the group now figured, however, are represented two grey unabraded specimens, Fig. 3, nos. 1 and 2, typical of a small lot found at Iver after the publication of the report in 1936 on the sequence of deposits. They come from yet another commercial enterprise, a present-day southerly extension of which is worked by bulldozers, and therefore of scanty interest to geologists and archaeologists. Until about the outbreak of war in 1939, in the old part to the north, brickearth was won to supply the ovens at Reed's Brickworks (1 in. Sh. 160, TQ 044804) south-east of Iver village. Close to the Colne Brook, and therefore near the march with Middlesex, the red brickearth here, capped by arable soil and resembling that farther west, rewarded scrutiny. From it there were picked short flakes satisfying Levalloisian criteria. Sharp and as fresh as when first struck, these rank with the flakes from the same deposit in Purser's and Mansion Lane pits, and exposed in the old workings at Mead's Bridge (1 in. Sh. 160, TQ 031801) and near the site of the Everlasting Tile Company's manufactory.

Among all the objects from the red brickearth in Iver parish, however, the most outstanding is the large tool, no. 3, that caused some controversy when it was found sixty-seven years ago in a small excavation close to Mead's Bridge<sup>23</sup> just north of the Grand Union Canal. Exceptionally for a cleaver type, it is almost entirely flaked over its surfaces. The shallow scarring it bears is closely set, which style of treatment differs from that expressed in normal Acheulian bifaces. In shape and execution this imposing tool corresponds closely to two similar bifaces figured in the 1926 edition of the British Museum guide to the national Stone Age collections preserved at Bloomsbury.<sup>24</sup> One is from Tilbury, Essex, the other from Taplow, Bucks. Both are described as Mousterian, but today most archaeologists, having in mind Breuil's findings in the north of France and Belgium,<sup>25</sup> would agree that these and the bifacially-worked

specimen from the red brickearth at Iver rather express a developed Levalloisian industry strongly influenced by the Acheulian tradition. This would be quite consonant with the flakes and cores with which they have been found.

Besides resembling in its outlines these objects from outside our area, the large biface (no. 3) exhibits the same workmanship as characterises a small, thin cordiform chert ovate with a bezel edge, no. 4, that was extracted from the red brickearth in Lavender's Mansion Lane pit at Iver.<sup>26</sup> This implement is made on a chert flake obtained from a core of the typical "tortoise" or familiar Levalloisian kind. Evidence of the same technique appears again in the systematically disposed flake-scars on the nether and convex surface of a small tortoise-core, no. 5, found in the old pit near the derelict premises of the Everlasting Tile Company.<sup>27</sup> Struck from a much larger, but similar, profusely flaked core, an imposingly large utilised parallel-sided blade, no. 6, is another telling record to the credit of the red brickearth in the pit at Mansion Lane, Iver.<sup>28</sup> Indeed, were it needed to emphasise the Levalloisian aspect of industry in the artifacts from this bed, then such objects as that (also from Mansion Lane) figured with the last two specimens would assuredly do so.

#### IV. THE AGE OF THE DEPOSITS AND THEIR PALÆOLITHIC CONTENTS

##### THE RED BRICKEARTH OF BURNHAM AND IVER

Writing in 1864, Prestwich compared the brickearth of the Thames valley to the loess of the Rhine valley and other parts of central Europe.<sup>29</sup> To Pocock, however, credit is due for most acute descriptions of the deposit and for drawing attention to its varying character.<sup>30</sup> He recognised that, like the loess, the brickearth of the Thames valley owes its origin to different agencies and probably to varying conditions of climate, and that its time range must be long indeed. Although Pocock did not use the terms by which the main terraces of the Thames are known today, he saw that some of the brickearths were older than the Taplow Terrace, and that others were later even than the Flood Plain, since they spread thinly over the lowest gravels in Middlesex, west of London.

Around Dorneywood and Poyle Farm, from altitudes between say 200 and 170 ft., the brickearth, as stated in an early paragraph,<sup>31</sup> has the character of a hillwash. Here stoneless, there containing various elements in the sweepings of the ground, over the centuries it has accumulated and been carried down the slopes. Mainly as a structureless buff-hued, even yellowish, deposit, it has filled hollows and overspread confined flats, and in places remains attached to the flanks of small mounds, of ravines and lesser valleys. As was deduced in the case of the high ground on the borders of Hertfordshire and Bedfordshire principally, where credibly somewhat similar conditions obtained, man must have encamped on successive levels in what is now the northern part of Burnham parish. Some of the sites he occupied eventually became covered with the scourings of the land in times of flood. Evidence of such sojourns is afforded by a few palæoliths found on the surface, one having been recorded as from near Burnham Beeches,<sup>32</sup> and by the developed Acheulian implements brought to light at Dorneywood by the chance of the labourer's spade.

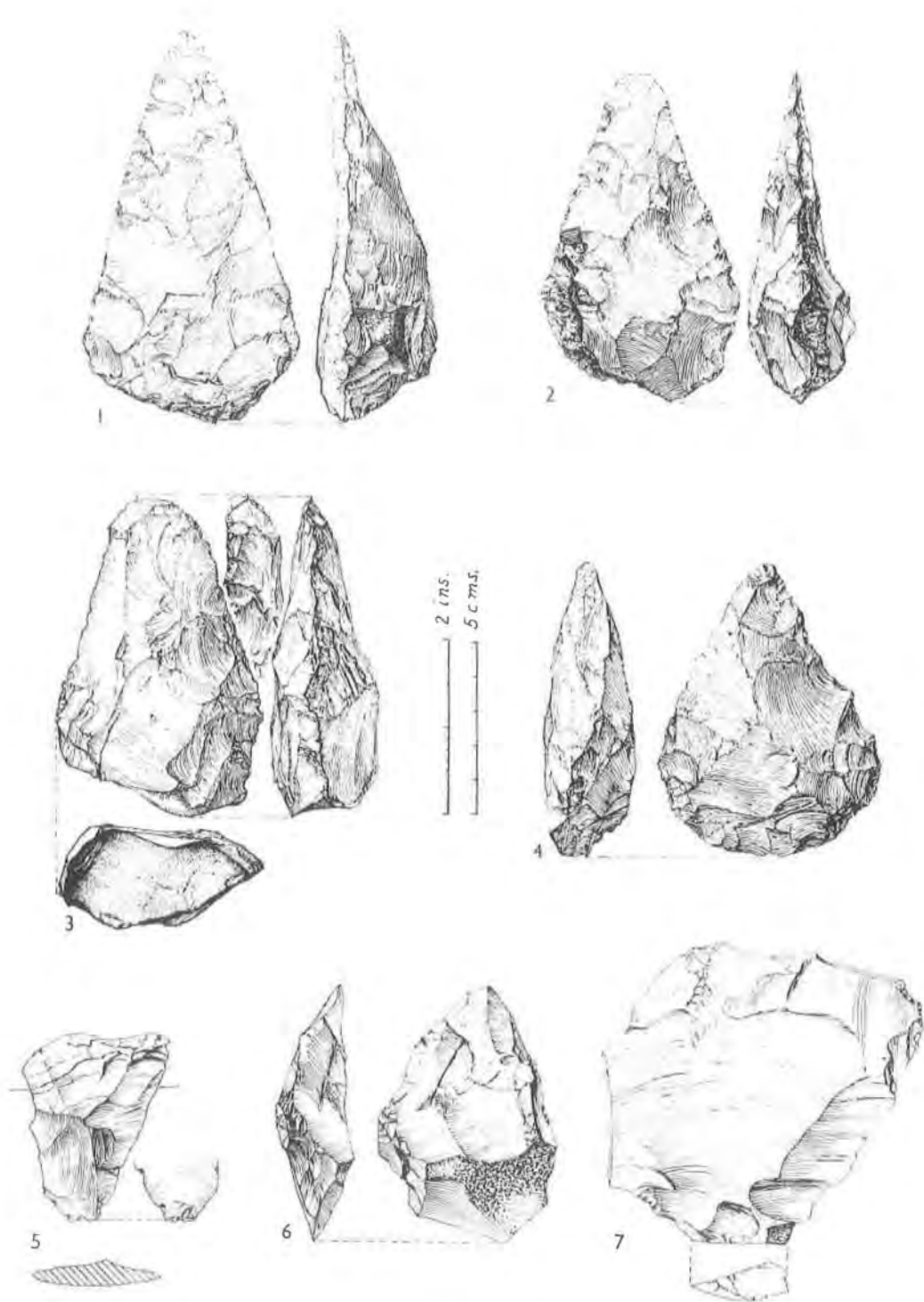


FIG. 1. Artifacts from brickearth on plateau at Dorneywood.



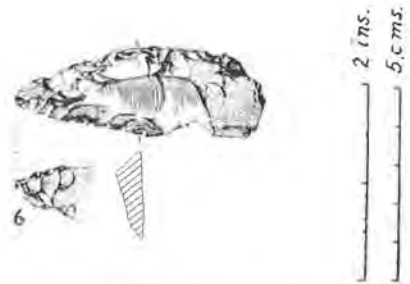
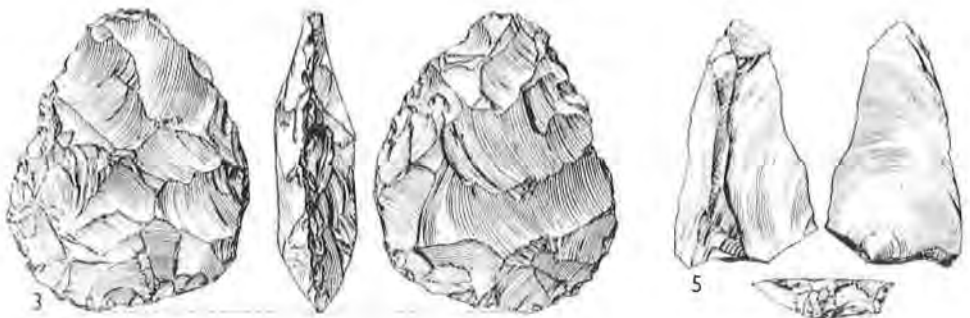
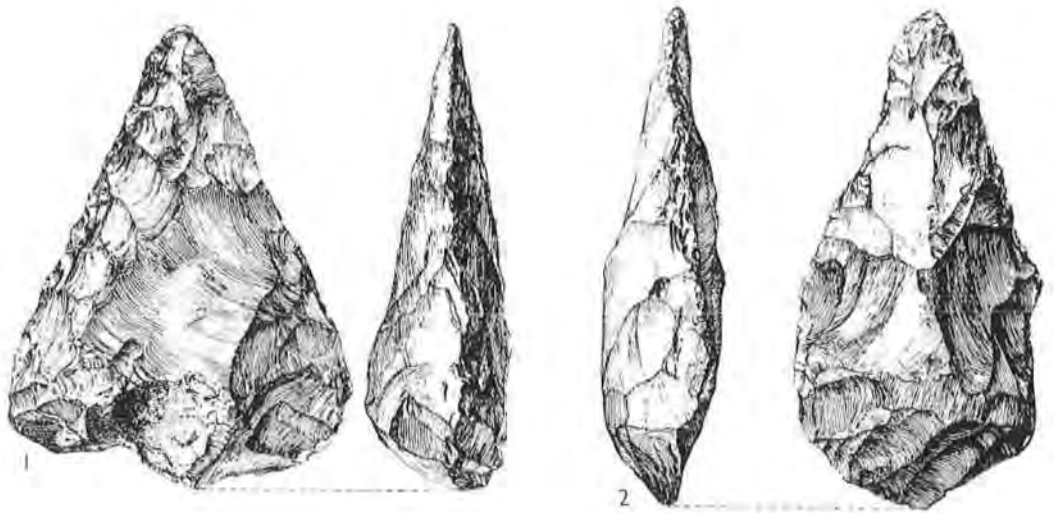


FIG. 2. Artifacts from brickearth overlying gravel: 1 and 2, Baker's Farm; 3-6, Lent Rise. (No. 3 reproduced from Lacaille 1940 by permission of the Society of Antiquaries of London.)

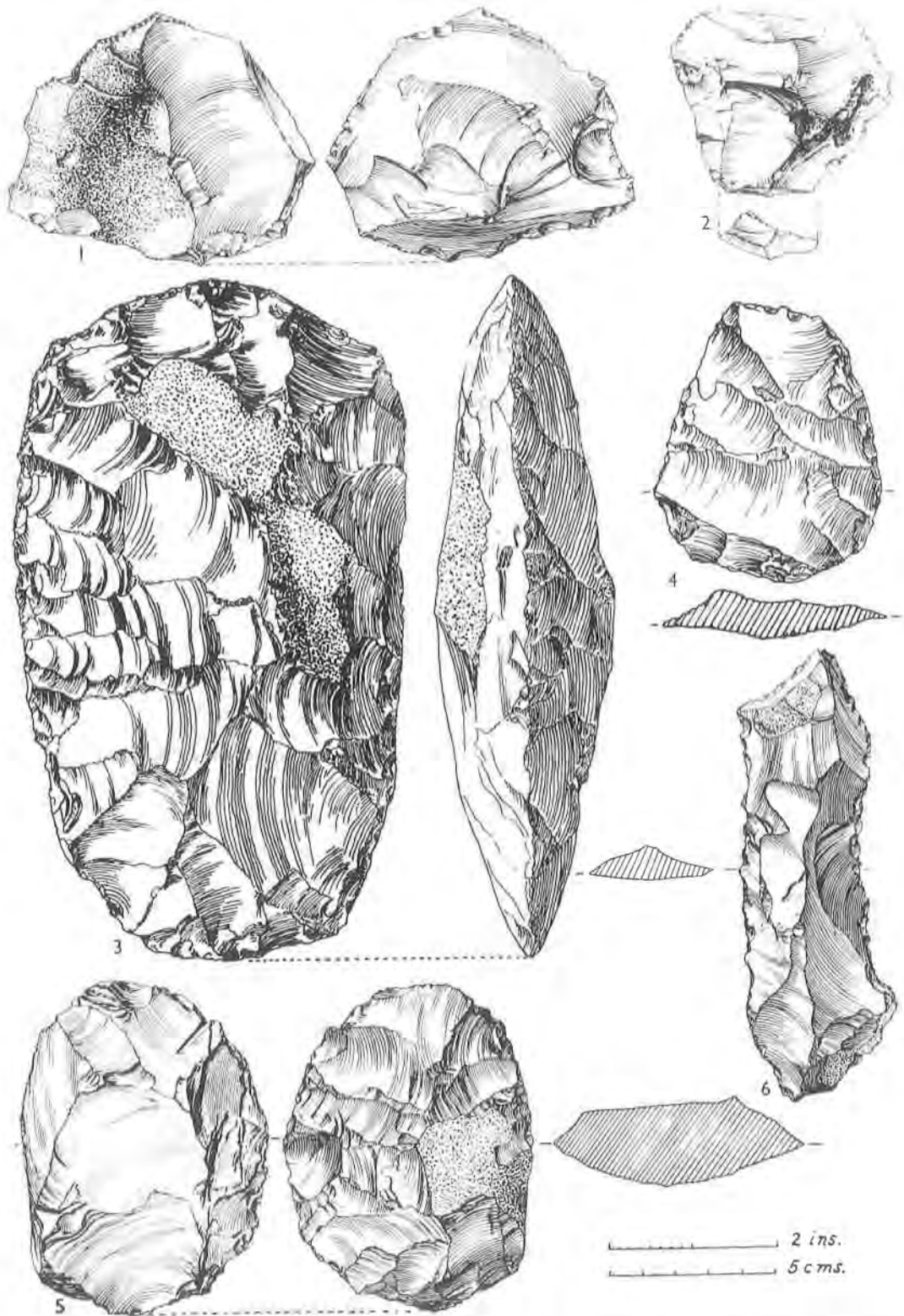


FIG. 3. Artifacts from the red brickearth at Iver: 1 and 2 from Reed's; 3 from Mead's Bridge; 4 and 6 from Mansion Lane; 5 from Everlasting Tile Company. (Nos. 3-6 reproduced from Lacaille 1936 by permission of the Society of Antiquaries of London.)

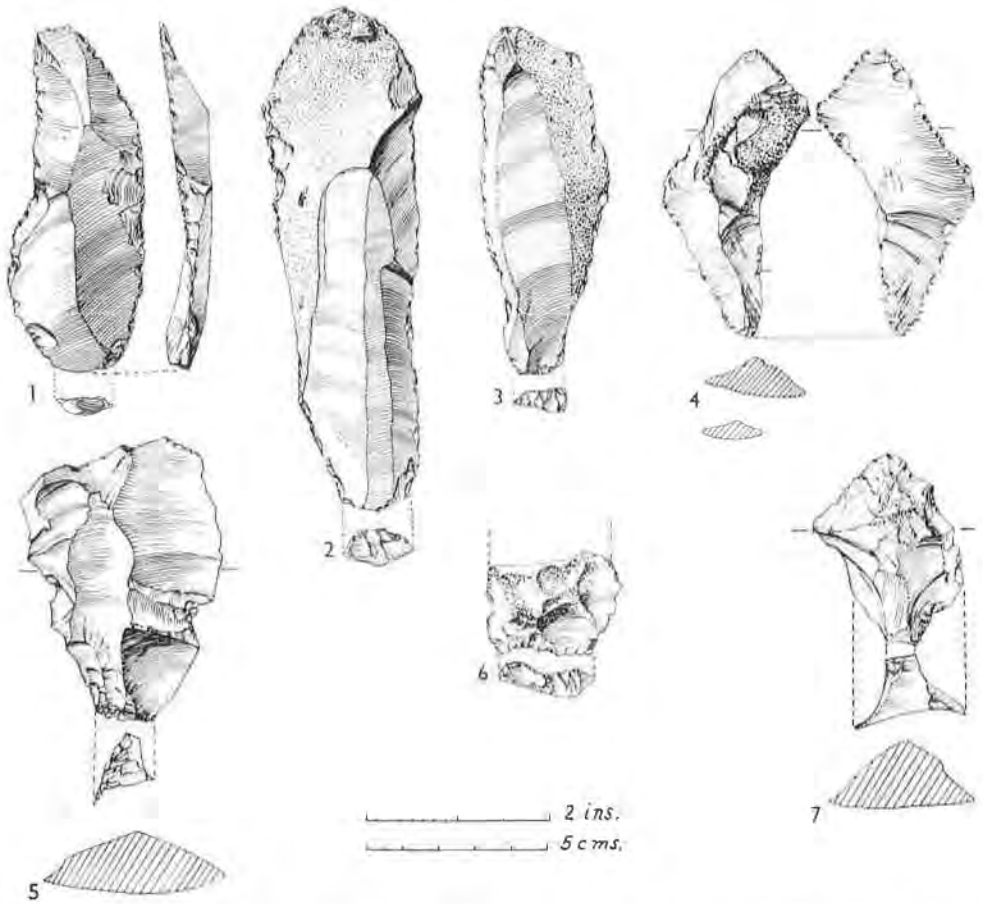


FIG. 4. Artifacts from the grey-buff loam at Iver: 1, 2 and 4 from Mansion Lane; 3, 5, 6 and 7 from Purser's, Richings Park. (Nos. 1, 2 and 3 reproduced from Lacaille 1936 by permission of the Society of Antiquaries of London.)



PLATE X. Section in Baker's Farm pit, south of Farnham Royal.

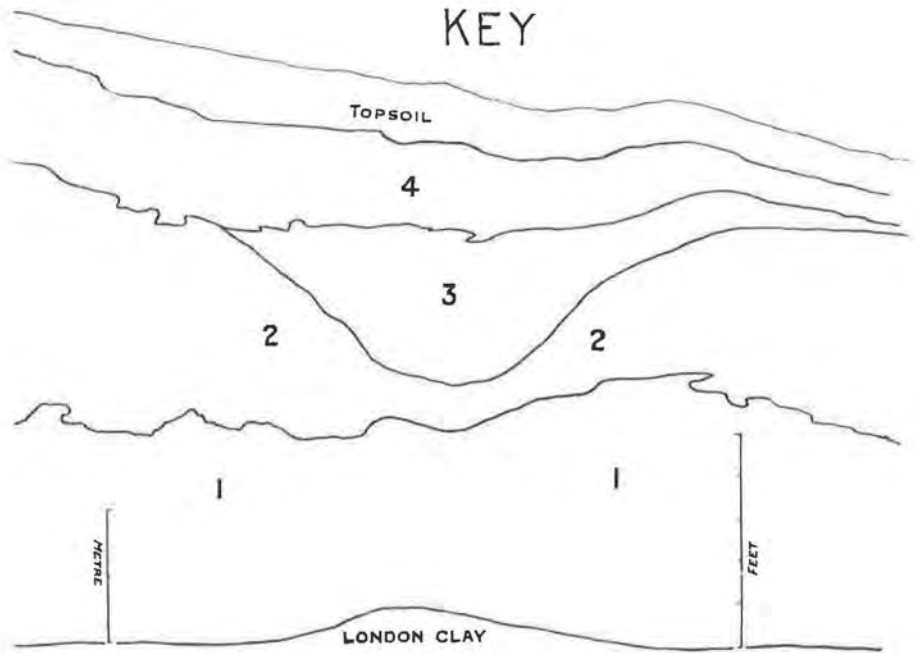
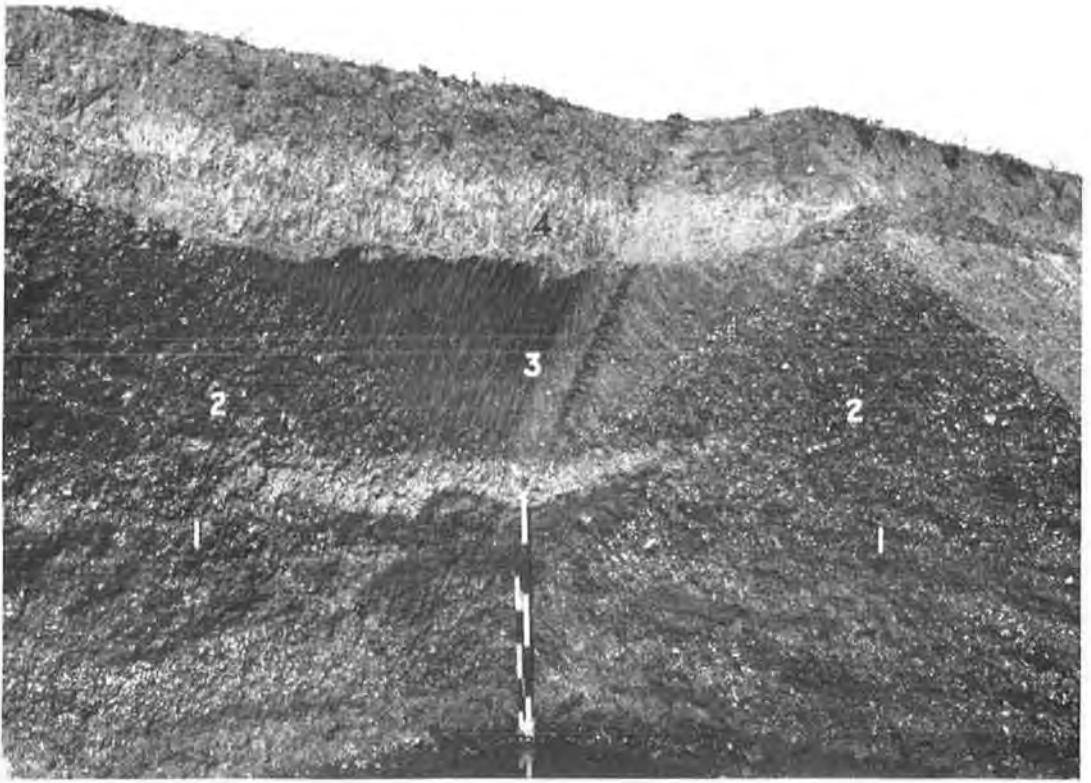


PLATE XI. Section in Mansion Lane gravel-pit, Iver. From the London Clay at the bottom to the topsoil the deposits are: 1. Fluvial gravel; 2. Solifluxion gravel; 3. Red brickearth; 4. Grey-buff loam.

At elevations lower than the above-indicated in the Middle Thames area considered here, whatever the bed it overlies, the brickearth most commonly takes the form of an unstratified dark red loam, compact when damp, fissuring vertically in the course of drying, but flaky and pulverable when completely desiccated. So far the writer is unable to report that faunal vestiges have been detected in samples taken at the sites named herein. Pocock thought that the deposit owes its origin to the breaking up by sub-aerial agencies of the land surface and to re-distribution by wind and rainwash on the slopes of the valley.<sup>33</sup> Such would certainly appear to be the case between Slough and Taplow on the left or north bank where the flanks of the valley are distinctly more accentuated than farther downstream and on the south bank of the river. In this context it is therefore interesting to note the gist of a report drawn up by Dr. I. W. Cornwall.<sup>34</sup> To him the writer is much indebted for having kindly examined samples of the brickearth that overlies the fluvial gravels of the lower Boyn Hill Terrace, and at Lent Rise and Baker's Farm has yielded the evolved Acheulian bifaces and finely treated flake-implements.

Dr. Cornwall's grading is: sand, 4 per cent; coarse and medium silt 83 per cent; fine silt and clay 13 per cent.

Under the microscope the sand fraction was seen to be for the most part quartz, well-rounded with some typical smooth-surfaced and wind-transported grains, though the greater part were lustrous, indicating water as the immediate transporting agency. Grains of limonite (hydrated iron oxide) were fairly frequent. These, together with the red-brown colour of the silt, suggested chemical weathering of the material before deposition. The acid reaction and the absence of calcium carbonate confirm this.

Though the high percentage of silt points to a loess as the parent of this material, it is evident that weathering and oxidation have considerably changed it, with these chemical results and a marked increase in the amount of the finest fraction.

Finally, he suggests that the specimens may be representative of an interglacial flood loam largely derived from loess.

As might be expected, however, there are differences even in the restricted area of distribution between Taplow and the River Colne. For instance, on the lower spreads where the slopes are less marked and where flats occur, it has been noticed that the brickearth frequently contains pebbles or small shattered flints disposed horizontally in a way that suggests ancient land-surfaces. These sprinklings are quite distinct from the festoons and rafts of solifluxion gravel. Where these conditions have been found to obtain, as in Iver parish, the upper brickearth may comprise a lower bed of normal consistency and appearance and be topped by a bed of finer material of greyish shade tending to become dusty when dry. Between the two there occurs locally an irregular band of shattered stones, undoubtedly a product of solifluxion. Of the sections in the commercial diggings so long visited in Iver parish, Lavender's, Purser's and the Great Western Railway pits presented the best exposures of brickearth and made plain its divisibility. This feature can even now be seen where some short, straight and vertical cuts survive in the second-named of these long-derelict gravel-pits.

Although varying in appearance and character, the brickearths in the Middle Thames area, as the containers of the palæoliths described here, have yet one attribute in common. This is that their unscathed Palæolithic contents are all of later facies than the artifacts recovered in derived or unaltered conditions from the fluvial gravels of the upper and lower Boyn Hill and Iver Terraces. As is well established, the laying down of these gravels took place during the Great Interglacial of England, the generally accepted correlative of the Mindel-Riss interglacial period of Penck's and Brückner's Continental scheme based on the movements of the Alpine glaciers. Now, the artifacts from the brickearths that have prompted this study are types in the main later than that period of climatic improvement. Hence it would follow that the principal solifluxion masses locally separating the implementiferous brickearth, with which we are concerned, are assignable to a spell of glacial intensity that is correlatable with one of the maxima of the Riss glaciation on the Continent. The corresponding complex of ice-movements in these islands was of lesser amplitude, but its memorials are locally pronounced in such periglacial regions as the middle and lower Thames areas.

The Great Interglacial, during which Acheulian industries developed and spread widely, may not actually have terminated in Britain until the second Riss maximum on the Continent.<sup>35</sup> One would expect, therefore, to find that the equivalent of that episode was recorded by some deposit in the Middle Thames area, especially since links seem to exist with the Kentish brickearths which have been so admirably studied, particularly by the late A. S. Kennard at Crayford,<sup>36</sup> in their geological, faunal and archæological aspects. Their interglacial loams, seams of gravels and remains of land-surfaces have yielded many artifacts akin to those implements dealt with in these pages. For besides F. C. J. Spurrell's well-known Levalloisian working-floor bared in them eighty years ago,<sup>37</sup> they have produced flattish bifaces, which may perhaps be best termed Acheulio-Levalloisian, and delicate Levalloisian blades, patinated as well as unchanged of surface.<sup>38</sup> If such fine geological distinctions supported by organic remains have not been perceived in the region under review, the archæological contents of the brickearth therein are nevertheless remarkable. They are definitive enough to help demonstrate that the containing materials belong to several periods.

On the score of archæology the author thinks that the laying down of the brickearth upon the Iver Terrace may have taken place after it was deposited upon the lower Boyn Hill formation that is represented at Lent Rise and Baker's Farm. This would appear from the facts that (a) only derived artifacts occur in the gravels of the Iver Terrace under the brickearth, and (b) these derived artifacts include forms more advanced than the developed Middle Acheulian elements yielded in mint condition by the fluvial gravel under the brickearth at these two places.<sup>39</sup> The Iver Terrace gravels have also given Levalloisian flakes, flake implements and cores in much the same abraded state as the Acheulian specimens. These Levalloisian products are of far more evolved type than the various flakes and flake-implements with nascent Levalloisian traits found associated in the river gravel with the Middle Acheulian specimens at Lent Rise and Baker's Farm. Indeed, many of the pointed, finely flaked

but abraded bifaces from the river gravel in the Iver Terrace are to all appearance closest to the implements from the brickearth at Dorneywood, Lent Rise and Baker's Farm. By extension these implements can therefore bear comparison with the other highly evolved tools of Acheulian type mentioned from other Home Counties and East Anglia.

All these relics from the red brickearths are matched by late Acheulian and late Middle Levalloisian implements from the beds that overlie the fluvial gravels of the corresponding intermediate terraces in the valley of the Somme and lower basin of the Seine. In north-eastern France these relatively well-developed objects are assignable to various phases of the Riss-Würm interglacial period as denoted by a complex of argillaceous and loessic beds and intercalated loams, loose pebbles and other evidences of climatic changes and ancient land-surfaces.<sup>40</sup> So far the Middle Thames area offers no such succession of layers that permits us to subdivide Palæolithic industries as has been done on the other side of the Channel. However, we may be guided by the knowledge that some differentiation in Acheulio-Levalloisian and Levalloisian implements has been achieved in the case of the Crayford brickearths. Signs of stratification in these sediments are clearer than elsewhere. At Crayford they appear in the brickearth as finely bedded sands and loams containing remains of a fresh-water fauna.<sup>41</sup> All this suggests deposition during the overflowing of the river in floods. Presumably these occurred towards the end of cold conditions that alternated with congenial periods. In what today is south Britain that age of variations was the equivalent of the Riss-Würm interglacial period of the Continent, punctuated as it was by cold spells.

Since all the artifacts from the brickearth on the terraces in Burnham and Iver parishes are unabraded, they may on the whole be regarded as of an age with the containing deposits. Surface-staining and slight glazing in the case of some of the palæoliths, from the red brickearth at Iver particularly, are probably due to the chemical effects of decalcification of the brickearth.<sup>42</sup> To the same cause may be attributed the dull greenish-brown surface-change on the sharp-pointed and keen-edged, beautifully symmetrical, triangular hand-axe (Fig. 2, no. 1) from fairly deep down in the red brickearth at Baker's Farm. The four fine hand-axes (Fig. 1, nos. 1-4) and three flakes (Fig. 1, nos. 5-7) from Dorneywood, and one hand-axe (Fig. 2, no. 2) from Baker's Farm, however, owe their partial and complete patination to very long exposure on a land-surface before they came to be covered with the brickearth which, as indicated above,<sup>43</sup> is thought to be hillwash. Because the pointed and elongated bifacial tool from Baker's Farm was taken from the upper part of the red brickearth, quite near its junction with pebbles at the base of the overlying topsoil, it is assumed that the Dorneywood specimens were found in like manner close to the top of the containing earthy and brownish-red brickearth. At none of these places can there be any question of the carriage of heavy material down slopes such as is exemplified by recent hill-washing observed by the author at Poyle Farm<sup>44</sup> where the decline to a level and hollow from high ground is marked.



#### THE GREY-BUFF LOAM OF IVER

Charged impersistently at its base with shattered pebbles, and in places demarcated from the darker topsoil above by long, irregular, loosely compacted clumps of stones, the greyish-buff material that on the Iver Terrace locally overlies the red brickearth, with which it was first bracketed,<sup>46</sup> must now be considered as a distinct deposit. Although not unlike a loess,<sup>46</sup> it has been called a loam.<sup>47</sup> Owing to the well-defined junction between it and the red brickearth, it has been suggested that the material beneath was decalcified and reddened before the greyish-buff bed was laid down.<sup>48</sup> That Levalloisian artifacts extracted from this greyish-buff layer are quite unaltered, and include types more advanced than the palæoliths from the red brickearth, may be taken to signify deposition of the containing bed in conditions different from those obtaining when the underlying material was laid down. The presence of these advanced Levalloisian flakes and blades indicates further that the brickearths in this district of the Middle Thames area may be linked in part at least with those in Kent. Full correlations, however, must be postponed until the Levalloisian industries in the region—and indeed in England as a whole—are better known. In this respect, therefore, a knowledge of their spread and the conditions of their representative occurrence must be a first requisite. For this reason one welcomes Dr. M. Posnansky's recent notice of Levalloisian types in the Midlands.<sup>49</sup> His promised paper on the Pleistocene succession in the Middle Trent basin is awaited as a helpful and necessary contribution.

The shattered pebbles clustered under the grey-buff layer may well correspond to the solifluxion gravel noted as overlying red brickearth at Croxley Green in the Gade-Colne valley<sup>50</sup> on a formation regarded as the tributary equivalent of the Iver Terrace. If these coarse, irregular, stony masses do indeed agree, then, despite the difficulty raised by difference in altitudes, correlation can be envisaged with the pebbly bed which, lying at the base of the Ebbsfleet loam and yielding Late Levalloisian flakes, has been held by Mr. J. P. T. Burchell, F.S.A., to be referable to the cold Ponder's End Stage.<sup>51</sup> This is thought to be the southern response to the great waxing of the ice in the north.<sup>52</sup> As the New Drift glaciation of these islands, the event has commonly been correlated with the first Würm extension of the Alpine glaciers. On the Iver Terrace the rough, stony, trail-like matter between the grey-buff loam and the topsoil assuredly registers a rigorous episode during the protracted period of fluctuations that marked this last glaciation and its waning.

That the spell recorded in Iver parish by the grey-buff loam between the two stony memorials of climatic severity was, in the main, dry and cold is indicated by the character of the layer and of its contained artifacts. Seven specimens from this deposit are illustrated here. Three, Fig. 4, nos. 1–3, which have already been figured,<sup>53</sup> typify the advanced character of the archaeological yield. Of this trio, nos. 1 and 2 are from the Mansion Lane pit, and no. 3 from Purser's, Richings Park. Compared with these fine blades, the remainder are rough objects, but they repay study as they show well that there is always a less spectacular output in Old Stone Age industries than usually appears imaged in papers and in the manuals. For instance, from Baker's Hole, Northfleet, Kent, there have been illustrated many superb standard forms, but not the crude

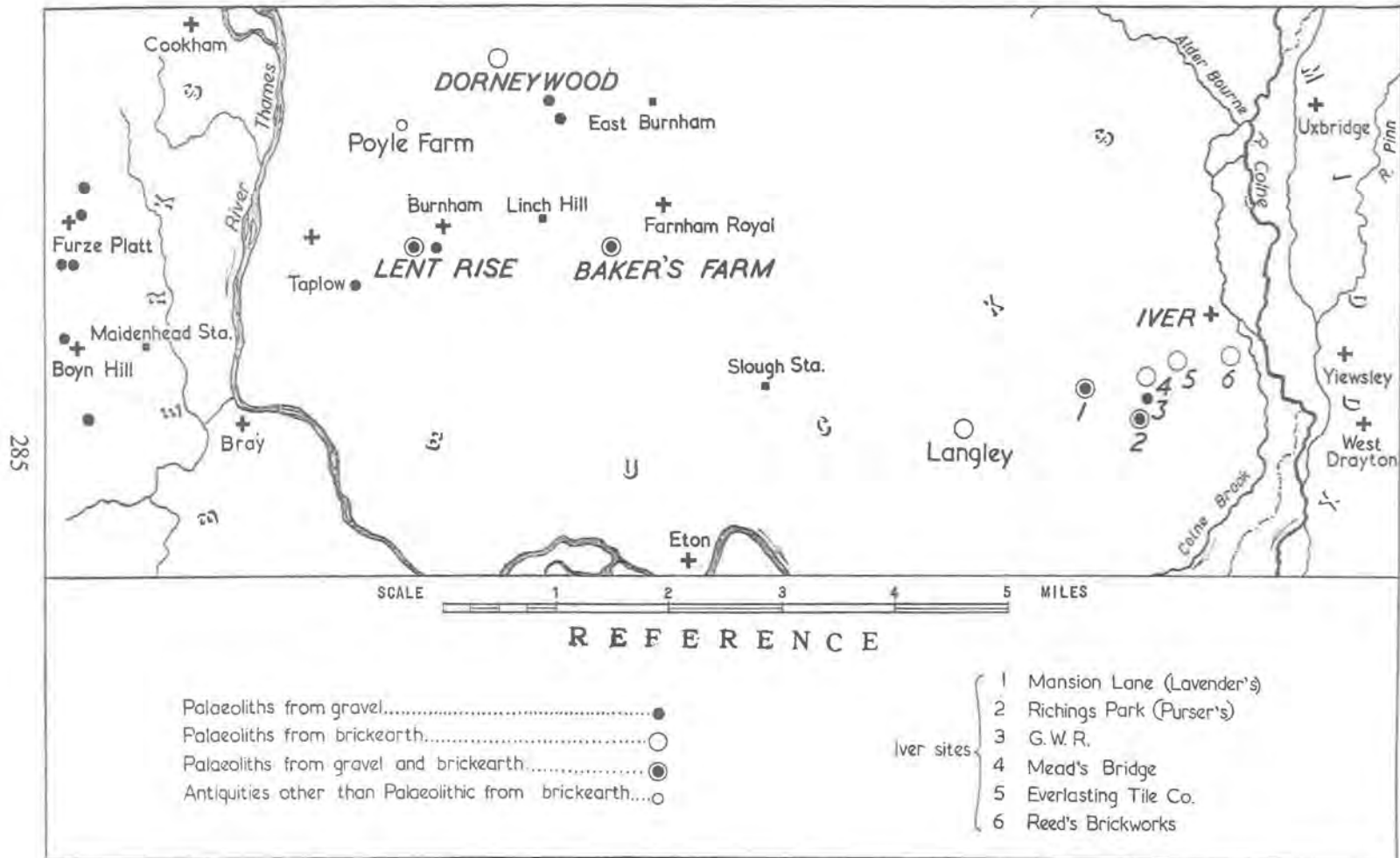


FIG. 5. Map showing principal sites of Palaeolithic finds in South-east Bucks.

and corticated pieces from preliminary blocking-out and shaping. As the author can vouch, however, among examples he has from that classic site of the Levalloisian industry in south-eastern England, many pieces are identical with these in the group under review. Here then from Iver are some of the specimens that resemble coarser flakes from Baker's Hole. They are an irregular flake, no. 4, from Mansion Lane, with edges much worn by use; no. 5, from Purser's pit, a coarse flake with a finely faceted but seemingly disproportionately high platform; no. 6, found in the same working, an edge-retouched faceted butt-end of a flake; and no. 7, also from Pursers, Richings Park, a much flake-scarred fragment struck off the corner of a core. Unblemished and sharp, these products of an industry believed to be advanced Levalloisian, which was active during such climatic conditions as are indicated, are quite in keeping with the generalisation that in the older Palæolithic cultural order of the Pleistocene epoch the presence of flake-implements to the exclusion of bifaces is indicative of the colder periods. Unfortunately, their place cannot as yet be determined in relation to the Levalloisian artifacts from the brickearth on top of the Taplow Terrace at a lower elevation, at Langley Marish, Bucks.,<sup>54</sup> about two miles south-west of Iver village. This is greatly owing to the want of precise information on these constituents of the Sturge Collection in the British Museum. However, though many of the artifacts from the grey layer under the topsoil at Iver lack typological appeal, yet several, as the illustrations show, so closely approach the fine blade in style as to herald a new cultural complex and its industries. Hence they must definitely be ranked among the most evolved of their kind in the country.

\* \* \* \* \*

The finding-places of the relics from the brickearth mentioned in the foregoing and the principal sites of Palæolithic discoveries are shown on the sketch-map of south-east Buckinghamshire and closely adjoining territory, Fig. 5.

#### APPENDIX

Other than those mentioned as being in the County Museum, Aylesbury, Fig. 1, nos. 1-7, the specimens illustrated in these pages are distributed as follows: Fig. 2, nos. 1-6 in the author's collection; Fig. 3, nos. 1 and 2 in the author's collection, nos. 3, 4 and 6 in the British Museum, Bloomsbury, no. 5 in Hounslow Public Library; Fig. 4, nos. 1-3 in the British Museum, Bloomsbury, nos. 4-7 in the author's collection.

<sup>1</sup> 1 inch to the mile sheets: Beaconsfield, 255; Windsor, 269.

<sup>2</sup> A. D. Lacaille and Philip Corder, "A Belgic Clay Pot-stand", in *Antiq. Journ.*, vol. xxiii, 1943, pp. 58-9; Philip Corder and A. D. Lacaille, "Belgic Pottery from Poyle Farm Brickworks, near Burnham, Bucks.", in *Records of Bucks.*, vol. xiv, 1943, pp. 174-83.

<sup>3</sup> Ll. Treacher, "Excursion to Taplow and Burnham Beeches", in *Proc. Geol. Assoc.*, vol. xxi, 1909-10, pp. 397-8.

<sup>4</sup> *Auct. cit.*, *Man the Primeval Savage* . . ., London, 1894, chapters III-XI (pp. 60-175); *idem*, "Notes on the Palæolithic Floor near Caddington", in *Archæologia*, vol. lxxvii, 1916, pp. 49-74.

<sup>5</sup> N. F. Layard, (1) "A Recent Discovery of Palæolithic Implements in Ipswich", in *Journ. Roy. Anthropol. Inst.*, vol. xxxiii, 1903, pp. 41-3; (2) "Further Excavations on a Palæolithic Site in Ipswich", in *Journ. Roy. Anthropol. Inst.*, vol. xxxiv, 1904, pp. 306-10; (3) "A Winter's Work on the Ipswich Palæolithic Site", in *Journ. Roy. Anthropol. Inst.*, vol. xxxvi, 1906, pp. 233-6.

<sup>8</sup> Reginald A. Smith, "Implements from Plateau Brickearth at Ipswich", in *Proc. Geol. Assoc.*, vol. xxxii, 1921, pp. 1-16.

<sup>7</sup> J. Reid Moir, "The Silted-up Lake of Hoxne and its Contained Flint Implements", in *Proc. Prehist. Soc. East Anglia*, vol. v, 1927, pp. 137-65.

In their admirable paper "The Quaternary Deposits at Hoxne, Suffolk, and their Archaeology", in *Proc. Prehist. Soc.*, vol. xx, 1954, pp. 131-54, Drs. R. G. West and C. M. B. McBurney demonstrate that the Acheulian artifacts from Hoxne are assignable to the Great Interglacial, and that they are therefore of earlier make than that to which archaeological opinion in the past thirty years has referred them.

<sup>8</sup> "Account of Flint Weapons discovered at Hoxne in Suffolk. by John Frere, Esq., F.R.S. and F.S.A. In a letter to the Rev. John Brand, Secretary. Read June 22, 1797." *Archæologia*, vol. xiii, 1800, pp. 204-5.

<sup>9</sup> Abbé H. Breuil, "Le Clactonien", in *Préhistoire*, vol. i, fasc. ii, 1932 (a), pp. 125-90.

<sup>10</sup> Cf., K. P. Oakley, *Man the Tool-Maker*, British Museum (Natural History), 1949, p. 49.

<sup>11</sup> *A Guide to Antiquities of the Stone Age . . .*, third edition, British Museum, 1926, p. 48.

<sup>12</sup> "Acheulian Flake Tools", in *Proc. Prehist. Soc.*, vol. iii, 1937, pp. 15-28, and particularly figs. 6 and 7.

<sup>13</sup> Professor F. K. Hare has chosen to refer to this as the Linch Hill Terrace, holding that the feature appears at its clearest in the locality of this name east of Burnham. ("The Geomorphology of a part of the Middle Thames", in *Proc. Geol. Assoc.*, vol. lviii, 1947, pp. 319-20.) If such apparently more appropriate naming of the lower of the two terraces after a type-locality were accepted, then it would only be reasonable to discontinue the use of the term Upper Boyn Hill Terrace for the higher of the two terraces and simply call it the Boyn Hill Terrace. This is considered by the present writer in a forthcoming paper dealing with the archaeological contents of the gravels at the altitude of Boyn Hill itself.

Hare urges that his Linch Hill Terrace also contains that commonly known for several years now as the Iver Terrace following the published results of the author's and Dr. K. P. Oakley's inquiries. ("The Palæolithic Sequence at Iver, Bucks.", in *Antiq. Journ.*, vol. xvi, 1936, pp. 420-43; see also pp. 278-9, below.) In their archaeological yield, however, the gravels differ. Whereas the Palæolithic artifacts from the gravels on the said Linch Hill, Lower Boyn Hill or Furze Platt-Lent Rise Terrace, west of Iver, occur in both derived and mint condition, the analogous palæoliths have been found without exception as derived and abraded elements in the Iver gravels. This may be a factor that would point to the Iver Terrace's being but a stage. On this possibility and the use of a double nomenclature, Oakley spoke in the discussion that followed the reading of Hare's paper on 6th December, 1946. (Op. cit., 1947.)

<sup>14</sup> A. D. Lacaille, "The Palæoliths from the Gravels of the Lower Boyn Hill Terrace around Maidenhead", in *Antiq. Journ.*, vol. xx, 1940, pp. 245-71, *passim*.

<sup>15</sup> *Act. cit.*, "Le Paléolithique Ancien en Europe Occidentale et sa Chronologie", in *Bull. Soc. Préhist. Franç.*, vol. 29, 1932(b), pp. 573 and 576.

<sup>16</sup> A. D. Lacaille, *op. cit.*, 1940, pp. 258 and 269, and pl. XLVIII, no. 37.

<sup>17</sup> (1) Hare, *op. cit.*, 1947, pp. 319-20; (2) p. 278.

<sup>18</sup> "The Loess of the Valleys of the South of England, and of the Somme and the Seine", in *Phil. Trans. Roy. Soc.*, vol. 154, 1864, pp. 247-309.

<sup>19</sup> "On the Drifts of the Thames Valley near London", in *Summary of Progress for 1902*, Appendix viii, Mem. Geol. Survey, pp. 199-207.

<sup>20</sup> A. D. Lacaille, "The Palæolithic Sequence at Iver, Bucks." "With an Appendix on the Geology", by K. P. Oakley, in *Antiq. Journ.*, vol. xvi, 1936, pp. 420-43.

<sup>21</sup> Verbally on 1st June, 1933, to the writer who conducted the abbé to this and many other pits in the region. M. Breuil confirmed this in his classic essay on the evidences of solifluxion, "De l'Importance de la Solifluxion dans l'Etude des Terrains Quaternaires de la France et des Pays Voisins", in *Revue de Géographie Physique et de Géologie Dynamique*, vol. vii, fasc. 4, 1934, fig. 42.

<sup>22</sup> Lacaille, *op. cit.*, 1936, pl. LXXI, nos. 33-38.

<sup>23</sup> Reginald A. Smith, *The Sturge Collection . . . Britain*, British Museum, 1931, p. 96 and fig. 390; Lacaille, *op. cit.*, 1936, pp. 430 and 442-3, pl. LXXXI, 38.

<sup>24</sup> *Cit. supra*, p. 45 and figs. 35 and 36.

<sup>25</sup> "Etudes de Stratigraphie Paléolithique dans le Nord de la France, la Belgique et l'Angleterre", in *L'Anthropologie*, [France] t. xlii, 1932, pp. 27-47; *ibid.*, 291-314; [Belgium] t. xliv, 1934, pp. 249-90.

<sup>26</sup> Lacaille, *op. cit.*, 1936, pp. 430 and 442, pl. LXXXI, 37.

<sup>27</sup> *Idem*, pp. 430 and 442, pl. LXXXI, 36.

<sup>28</sup> *Idem*, p. 442, pl. LXXXI, 34.

<sup>29</sup> *Op. cit. supra*.

<sup>30</sup> *Op. cit.*, 1902.

- <sup>51</sup> P. 275.
- <sup>52</sup> A. D. Lacaille, "The Palæolithic Contents of the Gravels at East Burnham, Bucks.", in *Antiq. Journ.*, vol. xix, 1939, p. 171.
- <sup>53</sup> Pocock, op. cit., 1902, p. 205.
- <sup>54</sup> University of London Institute of Archæology, Inner Circle, Regent's Park, London, N.W.1, 10th May, 1951.
- <sup>55</sup> K. P. Oakley, "Swanscombe Man", in *Proc. Geol. Assoc.*, vol. lxiii, 1952, p. 290.
- <sup>56</sup> *Auct. cit.*, "The Crayford Brickearths", in *Proc. Geol. Assoc.*, vol. lv, 1944, pp. 121-69. Includes an extensive list of works from 1838 to 1942.
- <sup>57</sup> *Auct. cit.*, "On the discovery of the place where Palæolithic Implements were made at Crayford", in *Quart. Journ. Geol. Soc.*, vol. xxxvi, 1880, pp. 544-8; *idem*, "On implements and chips from the floor of a Palæolithic workshop", in *Arch. Journ.*, vol. xxxvii, 1880, pp. 294-9.
- <sup>58</sup> Kennard, op. cit.
- <sup>59</sup> Above, pp. 282-3.
- <sup>60</sup> Breuil, op. cit., 1932 (b), pp. 577-8.
- <sup>61</sup> Kennard, op. cit.
- <sup>62</sup> K. P. Oakley in Lacaille, op. cit., 1936, p. 435.
- <sup>63</sup> P. 275.
- <sup>64</sup> Lacaille in Corder and Lacaille, op. cit., 1943, p. 175.
- <sup>65</sup> Lacaille, op. cit., 1936, table on p. 431.
- <sup>66</sup> See above, p. 278.
- <sup>67</sup> Oakley in Lacaille, op. cit., 1936, p. 436.
- <sup>68</sup> *Idem*, p. 437.
- <sup>69</sup> "A Levalloisian implement from Lake Welbeck, Nottinghamshire", in *Antiq. Journ.*, vol. xxxviii, 1958, pp. 85-7.
- <sup>70</sup> Oakley in Lacaille, op. cit., 1936, p. 437.
- <sup>71</sup> "Evidence of a Late Glacial Episode within the Valley of the Lower Thames", in *Geol. Mag.*, vol. lxxiii, 1936, p. 91.
- <sup>72</sup> W. B. R. King and K. P. Oakley, "The Pleistocene Succession in the Lower Parts of the Thames Valley", in *Proc. Prehist. Soc.*, vol. ii, 1936, pp. 65-7.
- <sup>73</sup> Lacaille, op. cit., 1936, pp. 431 and 443, pl. LXXXI, nos. 39-41.
- <sup>74</sup> Reginald A. Smith, op. cit., 1931, p. 96, and figs. 392-3.

#### ACKNOWLEDGMENTS

It is pleasing to record that Mr. T. A. Hume displayed a series of the finds from the brickearth with other prehistoric antiquities resulting from recent inquiries in south-east Bucks. in a special exhibition in the County Museum, Aylesbury. Here it seems that the artifacts and accompanying samples of soil, a map, diagrams, photographs and descriptive labels attracted much notice.

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