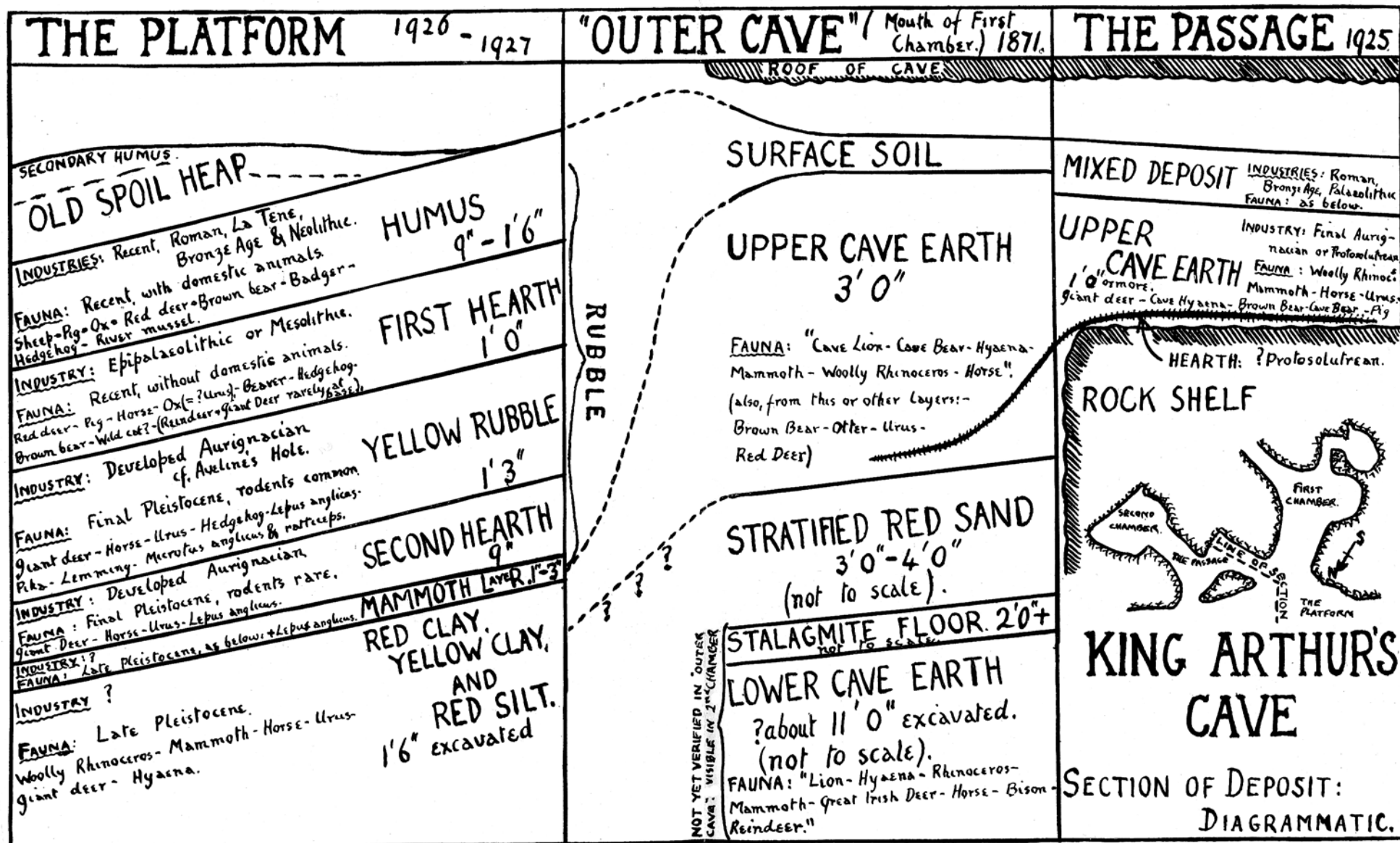




Stratification of King Arthur's Cave.

King Arthur's Cave, near Whitchurch, Ross-on-Wye.

Second Report¹: Excavations in 1926 and 1927.

BY HERBERT TAYLOR, M.C., M.B., Ch.B.

Excavations carried out in 1926 and 1927 at King Arthur's Cave have revealed an intact deposit, (more recent than the Upper Cave Earth), in which at least three Upper Palæolithic, a Mesolithic, Neolithic and later horizons can be recognized. About 120 retouched tools and 600 other pieces of flint have been found, together with abundant remains of animals. The Cave was originally one of the richest and most clearly stratified in this country; indeed all phases from Upper Aurignacian to Roman seem to have been represented.

The deposit has never been disturbed by man or animals save for the excavations of 1870—1871, which are easy to recognize. It is divided by hearths and other features into natural zones, each of which has been subdivided in excavation wherever any change occurred in its contents, and also when much over six inches in thickness. The method of excavation may be seen in Plate IIA; the steps are the natural zones, each of which was dug in fractional slices, (halves, thirds, etc.), conforming to its slope and thickness. The stones served to support the several working faces, and to isolate accidentally-fallen material upon its appropriate step.

The work will be described under the following heads: 1. Preliminary Work, etc. 2. The Old Spoil Heap. 3. The Passage. 4. The Platform.

PRELIMINARY WORK, ETC.

Attempts have been made to correlate recent results with those obtained in 1871.²

(1) All disturbed material removed from the Cave and old spoil heap has been re-sorted.

(2) The original level of the floor has been traced.

(3) Pits dug by Mr. P. B. Symonds in the First Chamber³ show that it was dug to rock bottom save along the south-west wall,

¹ For the first report see "Second Report on Excavations in the Wye Valley," *Proceedings U.B.S.S.*, Vol. 2, No. 3, p. 221 ff.

² Rev. W. S. Symonds, M.A., F.G.S., *Geolog. Mag.*, 1871, Vol. VIII, p. 433 ff, and Miss D. A. E. Garrod, B.Sc., "The Upper Palæolithic Age in Britain," p. 76 ff; *Proceedings*, loc. cit.

³ See Plan in First Report, loc. cit.

where it contracts to a narrow fissure and contains barren stratified red sand, continuous with that in the small passages at the back of the cave. The sand is evidently the third layer of the Rev. W. S. Symonds, but no trace was found of the thick stalagmite floor or lower cave earth, (fourth and fifth layers; see Section, Fig. I). The two latter can be seen in the Second Chamber, where a considerable part of the Lower Cave Earth seems to be intact, but barren.

(4) The Stratified Red Sand,—and probably much of the cave earths,—entered by pipes and fissures at the back of the cave; for its slope is downwards from back to front. This, the only point on which we have to disagree with the original excavator, relieves us of the awkward necessity of supposing that the Wye or a tributary flowed some 300 feet above its present level, in order to deposit material in King Arthur's Cave, at so recent a period as the Upper Aurignacian! The rolled pebbles from Breconshire quoted in support of that hypothesis may have been derived from the plateau of the Great Doward, where they are widely spread in what the Rev. W. S. Symonds himself claimed to be a boulder-clay or glacial drift.⁴ The Red Sand is probably a water deposit, as claimed, but of a type formed commonly by the streams of exit caves; our stream need not have been fifty yards in length.

Both at the Cave and upon the Dowards the pebbles are chiefly sandstones from the Old Red Sandstone, slates from the Lower Palæozoic, and a few igneous rocks; the two latter groups perhaps derived from the Old Red Conglomerate. Debris of the Old Red Sandstone is found upon the Dowards because once it rose on the North to a greater height than they. Whether the Breconshire pebbles reached the Dowards direct or via a conglomerate is immaterial, however.

Very probably a high-level river gravel exists in the truncated valley below the cave, but it is not exposed and must be very much older than the Red Sand, which apparently cannot be earlier than the Upper Aurignacian.⁵

(5) Source of raw material.

The numerous hammerstones, polishers, etc., found at the cave belong to the above mentioned groups of pebbles, and may have been obtained from the plateau or from a river gravel. They are very abundant in the present bed and terraces of the Wye. A few flake implements were made from the harder rocks.

⁴ Mr. Lucy suggested such an explanation in 1871.

⁵ A gravette point and an angle-graver are assigned to the Lower Cave Earth. Miss Garrod, *loc. cit.*

Carboniferous chert is believed to occur in the local limestone.

The flint and the celebrated greenstone pebble seem to have been imported. The flint of the Pleistocene deposits was derived from at least two sources; the cortex of one group suggests the chalk, or rather its debris; the other seems to have been obtained as small well-rounded ochreous pebbles. It is worth recalling that flint suitable for flaking occurs in the shingles of the Welsh coast and in certain glacial drifts, *e.g.* in Cardigan and Pembrokeshire.⁶

A poor cherty flint, in badly battered nodules, was utilized in later times; it may be local, and will be referred to again. Its cores and debris are plentiful, but there seem to be no cores and not much waste of the two former types.

(6) PATINATION.

Except in the case of fire-crackled specimens, flint in the Upper Cave Earth is almost always of a slightly smoky white colour, and is patinated through and through. At the top of the layer the patina is whiter but quite as dense, save for a few Neolithic implements. The three flakes found at the base of the layer where its full thickness was reached were grey, but they too seem to be totally patinated. In the Pleistocene rubble which lies against the cliff, upon the cave earth, the patina usually extends through and through; the flint is soft and chalky, and white, except when stained by ochre or blackened, probably by lichens. A distinct glossy skin can often be split off.⁷

THE OLD SPOIL HEAP.

Objects found in disturbed material in the cave are included here.

FAUNA.

The following should be added to the list, but are not in the heavily mineralized condition characteristic of the cave earth,—

Pig, *sus scrofa*

Sheep, *ovis sp.*

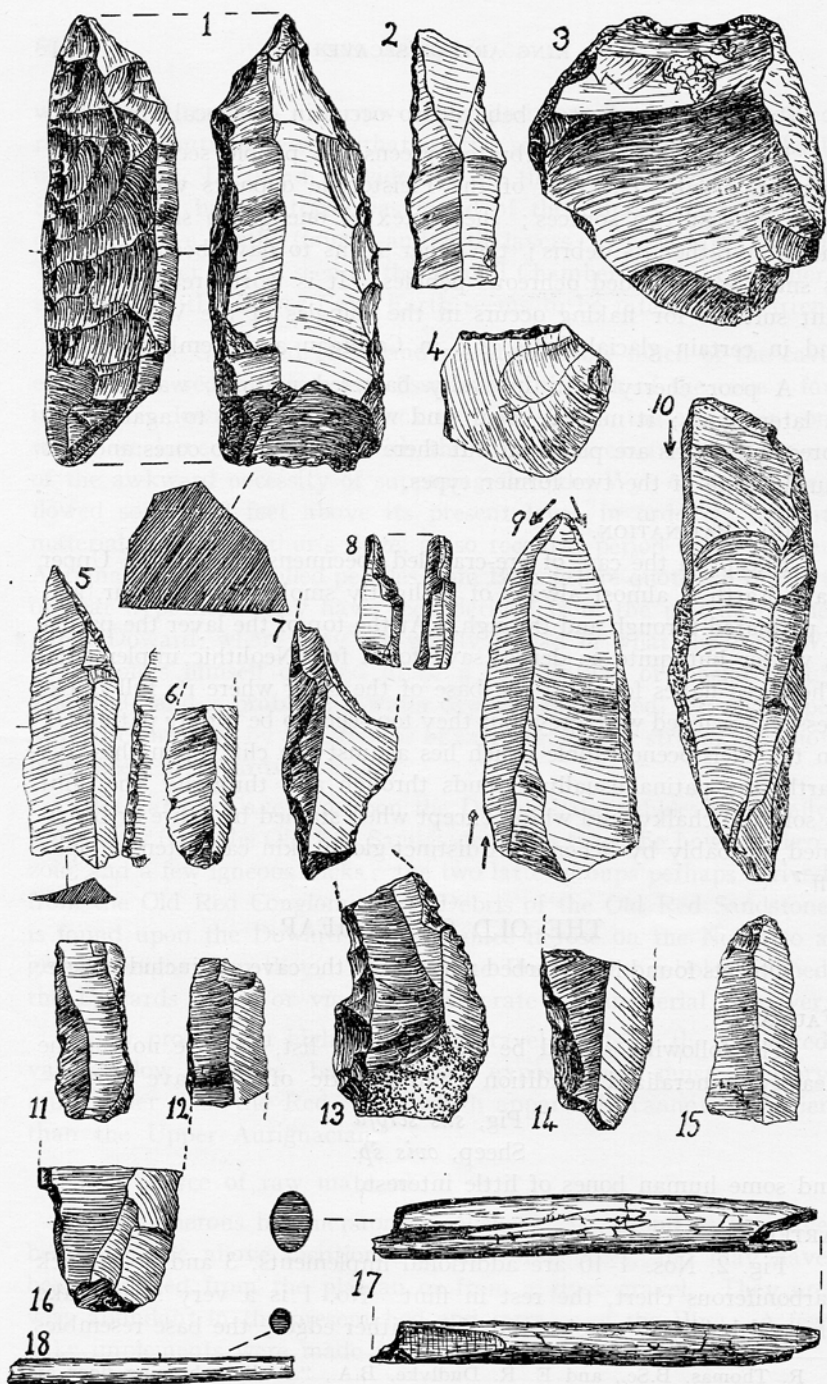
and some human bones of little interest.

ARTEFACTS.

Fig. 2, Nos. 1–10 are additional implements, 3 and 4 in black carboniferous chert, the rest in flint. No. 1 is a very stout flake chipped boldly to a point and along either edge; the base resembles

⁶ R. Thomas, B.Sc., and E. R. Dudleyke, B.A., "A flint chipping floor at Aberystwyth," *J.A.I.*, Vol. LV (1925), p. 75.

⁷ See "Paviland Cave," W. J. Sollas, F.R.S., Huxley Memorial Lecture, 1913, p. 31.



Nos. 1 to 10, Old Spoil Heap. 11 to 18, The Passage (Actual size)

FIG. 2.

the axe-edge of a tranchet. The tranchet edge is worn, but the lateral edges near the point are much more so. The very dense, slightly smoky patina is like that usual in the cave earth. 2 is a parallel-sided blade with blunted back, 3 a concave scraper of chert trimmed to shape by a peculiar technique well adapted to the material, and 4 a short chert flake having one retouched edge. 5 is a thin gravette point of angular type; the proximal segment of the back is retouched inversely. 7 is roughly tanged.

6 represents a group; it is the butt of a small flake having opposed notches, not chipped but produced by fracture; such fractures might occur in hafting by means of a thong. Butts of small unretouched flakes seem to be much commoner than their points, which might be expected were they used in handles or hafts; for on breakage the point would be the oftener lost, and the butt, still valuable in this flintless district, would probably be unbound and preserved.

8 is a spall struck from a three-blow burin, and 9 a median burin, the edge rounded and polished by long use; two minute spalls have been removed successively at the opposite end, producing a lateral graver. 10 is a lateral burin.

OTHER STONE IMPLEMENTS.

Two hammerstones were found, the one a large igneous pebble, the other a polished pebble of hard fine-grained sandstone from the Old Red Sandstone (Plate IIIB, No. 11). The blunt end of the latter is scarred by blows. Plate IIIB, No. 6 and 7 is a long finger-like pebble of fine-grained sandstone, subtriangular in section; one face has been rubbed nearly plane. What seems to have been a similar implement was obtained from the Lower Cave Earth in 1871, but its striking resemblance to a whetstone raised doubts as to its antiquity. The original shape is not uncommon, however, in the local gravels (Cf. No. 5).

THE PASSAGE.

The statement made in the first report that a considerable depth of the deposit had been removed everywhere is incorrect; recent, Roman and Bronze Age remains were found *in situ*, i.e., in the upper six inches or less of the deposit. The excavations of 1871 stopped at a step of rock⁸ which crosses the Passage, and skirts its southern wall; the cave earth dug in 1925 lay upon the step quite undisturbed. Between the step and the mouth of the cave we have cleared away spoil to a depth of eight feet, apparently reaching intact material.

⁸ Described previously as stalagmite.

The Proto-solutrean hearth can be traced along the South wall, falling steeply from 1-ft. 6-ins. to 3-ft. 1-in. as it leaves the rock shelf, and then more gradually towards the mouth.

FAUNA.

Sus scrofa, represented by the perforated tooth already described, should be added to the list.

ARTEFACTS.

At the depth of three feet, immediately below the hearth, was a rubbing-stone closely associated with three flint flakes. It is a thin oval pebble four inches in length of dark grey Lower Palæozoic slate; it is polished chiefly upon the flatter face. The flakes, (Fig. 2, Nos. 11-13), are of a uniform smoke-grey patina; 11 and 12 have regularly "nibbled" edges; 13, part of a boldly-chipped point, seems to be a survival of the Chatelperron type.

The remainder (Fig. 2), were found above the rock shelf also in undisturbed cave earth.

Zone 6"—18"; No. 14 is probably the basal end of a shouldered point in some greyish-green rock difficult to identify without a thin section.

Zone 0"—6"; No. 15 is a knife with trimmed end, and 16 the base of a shouldered implement, but the shoulder is partly accidental. No. 17 is a fragment of a polished bone rod, oval in section, bevelled at one end. The long axis is slightly curved. A fish(?), somewhat conventionalized, is engraved upon it, the hinder part deeply, the fore part faintly incised. The opposite side of the rod is also cut. There are a few tooth-marks, which scarcely obscure the engraving. In Plate IIIA, No. 8, the outlines have been filled in with an easily removable composition. No. 18 (Plate IIIA, No. 7), seems to be part of a bone needle.

THE PLATFORM.

Upon the platform at the mouth of the cave the cave-earth is buried beneath three or four feet of rubble, which has fallen over the cliff. The rubble consists of small angular fragments of limestone, etc., so closely packed with pale ochreous sand that little or no slipping even of small objects has taken place. The stones are sharp and the bones often split up as if by frost.



EXCAVATIONS AT KING ARTHUR'S CAVE, 1927.
PLATE IIa,



SUN HOLE, CHEDDAR.
PLATE IIb,

About a score of flint pebbles were found in it, mostly so small and fissured that it is almost impossible to believe that they were imported by man as raw material ; moreover they occur in the Pleistocene levels, which contain neither cores nor flakes of similar flint. The First Hearth and Humus (see section, Fig. 1), contain flakes and cores such as might be made from some of the larger and better specimens, *e.g.*, Fig. 5, Nos. 7 and 8. The inference is that the Mesolithic and later folk obtained this flint from the rubble, but until nodules are found in an unoccupied area it must be drawn guardedly ; no other local flint seems to be known.

Pebbles of the Old Red Conglomerate(?) group have been found only in the two hearths ; a few very small, but quite different specimens seem to be native to the rubble and have still to be identified.

The following stratification was found about six feet in front of the cave-mouth (see section, Fig. 1, and Plate IIA).

1. Old Spoil Heap.
 2. Humus, 9-ins.—1-ft. 6-ins.
 3. First Hearth, 1-ft.
 4. Yellow Rubble, 1-ft. 3-ins.
 5. Second Hearth, 9-ins.
 6. Mammoth Layer, 1-in.—3-ins.
 7. Red and Yellow Clays, and Red Silt (Cave Earth, etc.).
- Layers 3—6 are the rubble described above ; 3 and 6 consist of weathered fragments, in 6 mixed with red sandy clay.

THE HUMUS.

The Humus, 9-ins.—1-ft. 6-ins. in thickness, contained Late Neolithic or Early Bronze Age, La Tène, Roman, and later remains, all hopelessly mixed, except occasionally at the extreme base. Only the first group will be described at present ; it included pottery (very small undecorated sherds, some resembling beaker ware) ; arrowheads ; remains of sheep ; "Tardenoisian" pygmy implements ; and tools recalling the Upper Palæolithic. The latter were not necessarily derived from below, for probably the Neolithic complex did not at once supercede the Epipalæolithic. The same association has been found on Mendip, where the use of pygmy tools continued at Rowberrow Cavern⁹ into the Early Bronze Age, and at Tynning's Farm Barrows¹⁰ even into the period of the Overhanging Rim Urn.

⁹ *Proceedings*, Vol. 2, No. 3, p. 201 ff, and Vol. 2, No. 1, p. 47.

¹⁰ North Barrow, Tynning's Farm ; not yet fully reported. Summary in *Proceedings*, Vol. 2, No. 3, p. 202.

FAUNA.

Besides human bones of little interest, the following have been found: (The figures in brackets place the more abundant species in order of frequency, in this and subsequent lists):—

- | | |
|---------------------------------|---------------------------------|
| (1) Sheep, <i>ovis sp.</i> | Brown bear, <i>ursus arctos</i> |
| (2) Pig, <i>sus scrofa</i> | Badger, <i>meles taxus</i> |
| (3) Deer, <i>cervus elaphus</i> | Hedgehog |
| (4) Ox, <i>bos sp.</i> | River mussel, |

Much material remains to be identified, including mammalian, avian, batrachian, piscian, and molluscan remains; this applies also to the subsequent layers.

ARTEFACTS.

The flint industry consists chiefly of simple flakes, of which there are a great number; the few retouched implements are shown in Fig. 3. No. 2, an elongated arrowhead having slightly concave edges, lay nearer the surface than Nos. 1 and 3, in which the edges are convex; 3 was probably leaf-shaped. 4—6 are pygmy tools; 4 is a "notch" or tiny concave scraper (cf. specimens from the Hastings kitchen-middens),¹¹ 5 a narrow parallel-sided blade having one blunted edge,—a type common in the next layer,—and 6 is chipped to a point.

12 and 13 are degenerate end-scrapers, 16 a rough side-scraper, 7 a pointed knife, 9 a serrated blade, and 10 a rough knife notched at the base perhaps for convenience in hafting.

No. 8 is a typical Tardenoisian micro-graver having a very small graver facet, and 11, though only a burin de fortune, seems to have been used as one as well as as a knife.

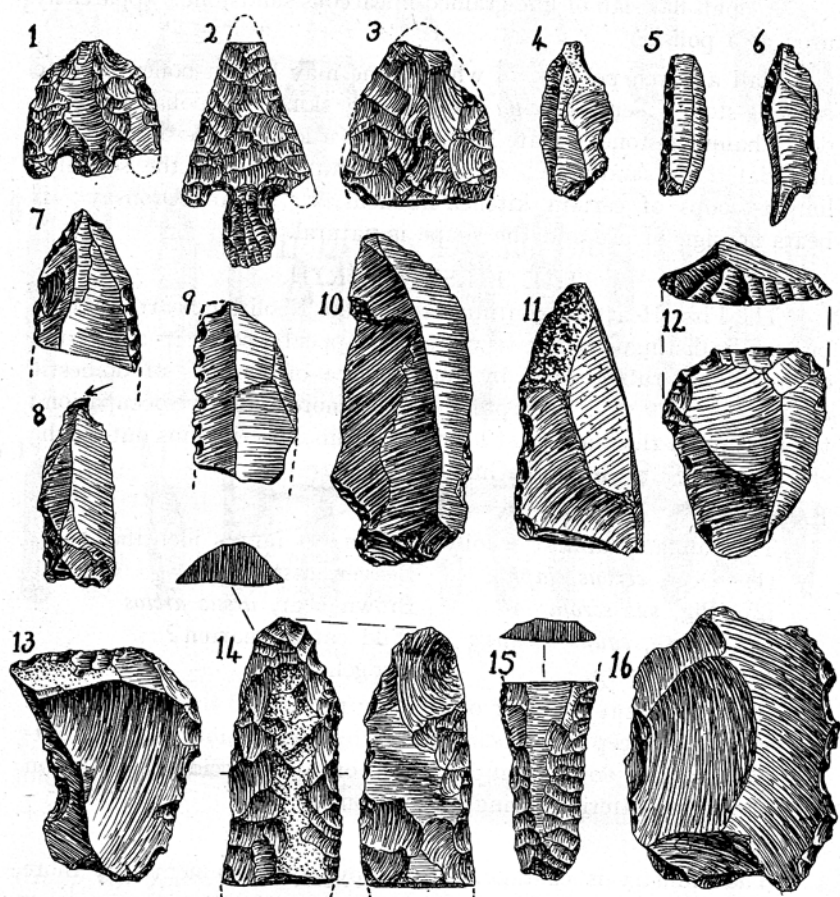
No. 14 in form and technique seems to be Protosolutrean; scale-flaking covers most of the outer surface, but is confined to the ends of the bulbar face. It may be compared with points from Kent's Cavern,¹² Paviland,¹³ Robin Hood's Cave,¹⁴ etc., but is relatively stouter and the end is scraper-like. The "slugs" referred to the Early Bronze Age are somewhat similar, but the bulbar face is said to be plain. The workmanship of the ordinary leaf-shaped arrowhead is not unlike the Solutrean, cf. also Nos. 1 and 3; only the scaled extremities of the bulbar face are difficult to reconcile with a Late Neolithic date. 14 and 15 were found beneath a bush, the roots of which had carried many ancient teeth (e.g. of rhinoceros

¹¹ W. J. Lewis Abbott, F.G.S., *J.A.I.*, Vol. XXV (1896), p. 122 ff.

¹² Miss D. A. E. Garrod, *loc. cit.*, p. 38.

¹³ Professor W. J. Sollas, F.R.S., *loc. cit.*, p. 28.

¹⁴ Sir Wm. Boyd Dawkins, "Early Man in Britain," Fig. 47, p. 183. Miss Garrod, *loc. cit.*, p. 123.



The Humus. (Actual size)

FIG. 3.

and hyæna) down into the humus from the Old Spoil Heap; it is possible that either may be Pleistocene. Fortunately no other bush was so near the cave.

No. 15 however is thinner, less densely patinated, and in better flint. The bulbar face is unchipped and the technique differs, being seen again on the arrowhead No. 2. It may be the basal end of a Bronze Age or Neolithic knife-dagger.

There were found also :—

Many simple flakes of flint, some over 3-ins. in length.

One narrow flake of compact limestone.

A conical piece of yellow ochre, possibly scraped to yield pigment.

A small flat slab of fine-grained micaceous sandstone, apparently used as a polisher.

Half a dozen pebbles, of which some may be pot-boilers; some rubbing-stones (serving, *e.g.*, for dressing skins), or polishers; and one a hammer-stone. Plate IIIB, No. 5 is a long pebble of uncertain material, ? a sandstone; it may be compared with the so-called limpet-scoops of certain kitchen-middens, *e.g.* Oban, Oronsay; it bears no sign of use and the shape is natural.

THE FIRST HEARTH.

The First Hearth is continuous with the Neolithic hearths above, but can be distinguished by its more ashy appearance, by its admixture of weathered rubble, and by the absence of remains of domestic animals, pottery, etc. It represents a far more extensive occupation; the maximum thickness is at least 1-ft. 3-ins., but it thins out on the slopes, coming to lie in the humus.

FAUNA.

The fauna is almost wholly modern, so far as identified:—

- | | |
|----------------------------------|---------------------------------|
| (1) Deer, <i>cervus elaphus</i> | Beaver, <i>castor fiber</i> |
| (2) Pig, <i>sus scrofa</i> | Brown bear, <i>ursus arctos</i> |
| (3) Horse, <i>equus caballus</i> | Wild cat or marten ? |
| (4) Ox, <i>bos sp.</i> | Hedgehog, |

Reindeer and giant red deer occur very rarely and only at the base of the layer. Sheep is represented only by three or four teeth, doubtless either carried down from the humus or due to accidental inclusion of some later material during excavation.

ARTEFACTS.

The industry is characterized by pygmy implements, by more or less degraded Upper Palæolithic forms, and by the large number of imported pebbles.

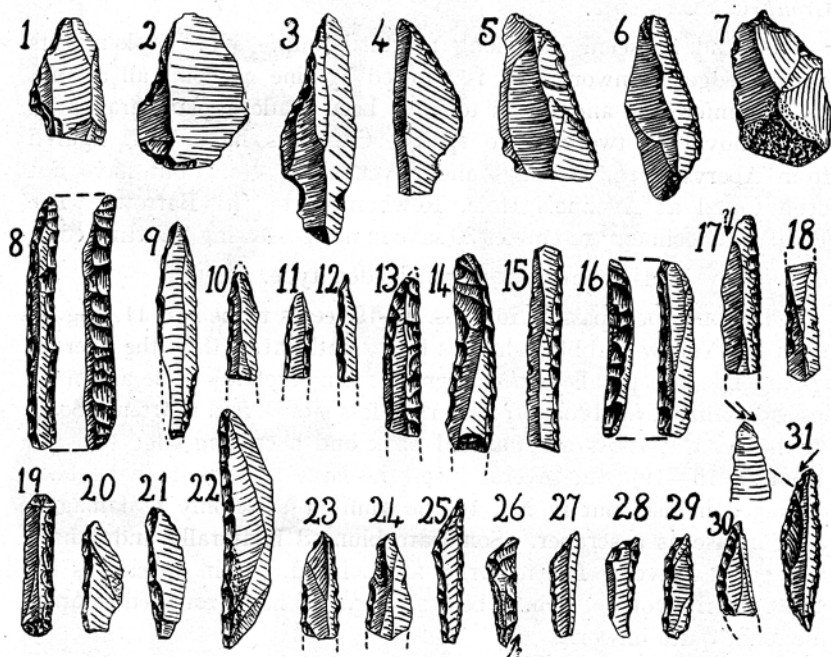
PYGMY IMPLEMENTS, Fig. 4.

These are all in flint; they may be subdivided as follows:—

Group A. Broad triangular knives.

Nos. 1—6 might be described as degenerate microlithic examples of the provincial or angular gravette point. All possess a cutting edge. The retouch upon the back is often incomplete, a feature common in late gravette points at Aveline's Hole and Mother Grundy's Platform. Very similar tools from the Transitional station at Aberystwyth¹⁵ seem to be slightly less gravetté-like, and are perhaps therefore later derivatives. No. 1 is shouldered, perhaps accidentally;

¹⁵ R. Thomas and E. R. Dudleyke, *loc. cit.*, Plate XVI.



The First Hearth (Actual size)

FIG. 4.

3, 4 and 5 have notches broken (not chipped), near the base. 2, found in the Old Spoil Heap, seems to belong to this series, a conclusion supported by the character of the adherent earth.

Group B. Narrow triangles.

Nos. 25-29 belong to the ubiquitous elongated triangle type which is found apparently in the Pleistocene at Aveline's Hole¹⁶ and the Transitional at Aberystwyth, and forms the bulk of the Bronze Age pygmies of Rowberrow Cavern and Tynning's Farm Barrows, to mention only neighbouring sites. In 25, 26 and 29 a steep retouch extends the whole length of either side; 27 and 28 have each an edge capable of cutting, but apparently not so used; in 28 the sharp edge is the lower segment of the back, the tool resembling a "pen-knife blade." No. 26 may have been transformed into a graver. In no case is the point worn.

¹⁶ *Proceedings*, Vol. 2, No. 2, pp. 104, 108; and other specimens.

Group C. Crescents.

30 and 31 seem to belong to this group. 30 is broken; its cutting edge is unworn. 31 is blunted by fine chipping all around its circumference, and seems to have been made a plane-graver by the removal of two minute spalls. Crescents have been figured from Aberystwyth, Hastings and Sevenoaks,¹⁷ etc.; but have not been found at Aveline's Hole, Rowberrow, or the Barrows. The Paviland specimen¹⁸ resembles 30 save in not possessing a cutting edge.

Group D. Rods, or narrow parallel-sided type.

The only local parallel for Nos. 8—19 seems to be No. 11, Fig. 6, from the Yellow Rubble, which is larger and flatter than the average specimen. The parallel-sided pygmies from Aveline's Hole are much less specialized, *i.e.* broader, flatter (or less stout), and shorter. Some of the group possess a retouched back and a cutting edge (Nos. 9, 10, 12; 15—19); in several cases the edge appears to have been damaged in use, but in No. 16 the blunted back only is damaged, as if in use as a scraper. Some are blunted bilaterally and cannot have been knives. The majority are pointed, but in no case is the point clearly worn. 17 may be a graver. 19 has a rounded scraper-like end, quite unworn.

Group E. Miscellaneous.

The crescent, 31, is probably a burin, and 17 and 26 may be others. 7 is a fine-pointed awl, not having the normal alternate retouch; 20—22 are thin knives with straight blunted backs, which perhaps might be included in Group D. The presence in the humus of a notch-scraper, two rods of Group D, and a Tardenoisian micro-graver, (Fig. 3, Nos. 4; 5 and 6; and 8), should be recalled.

OTHER TOOLS OF FLINT.

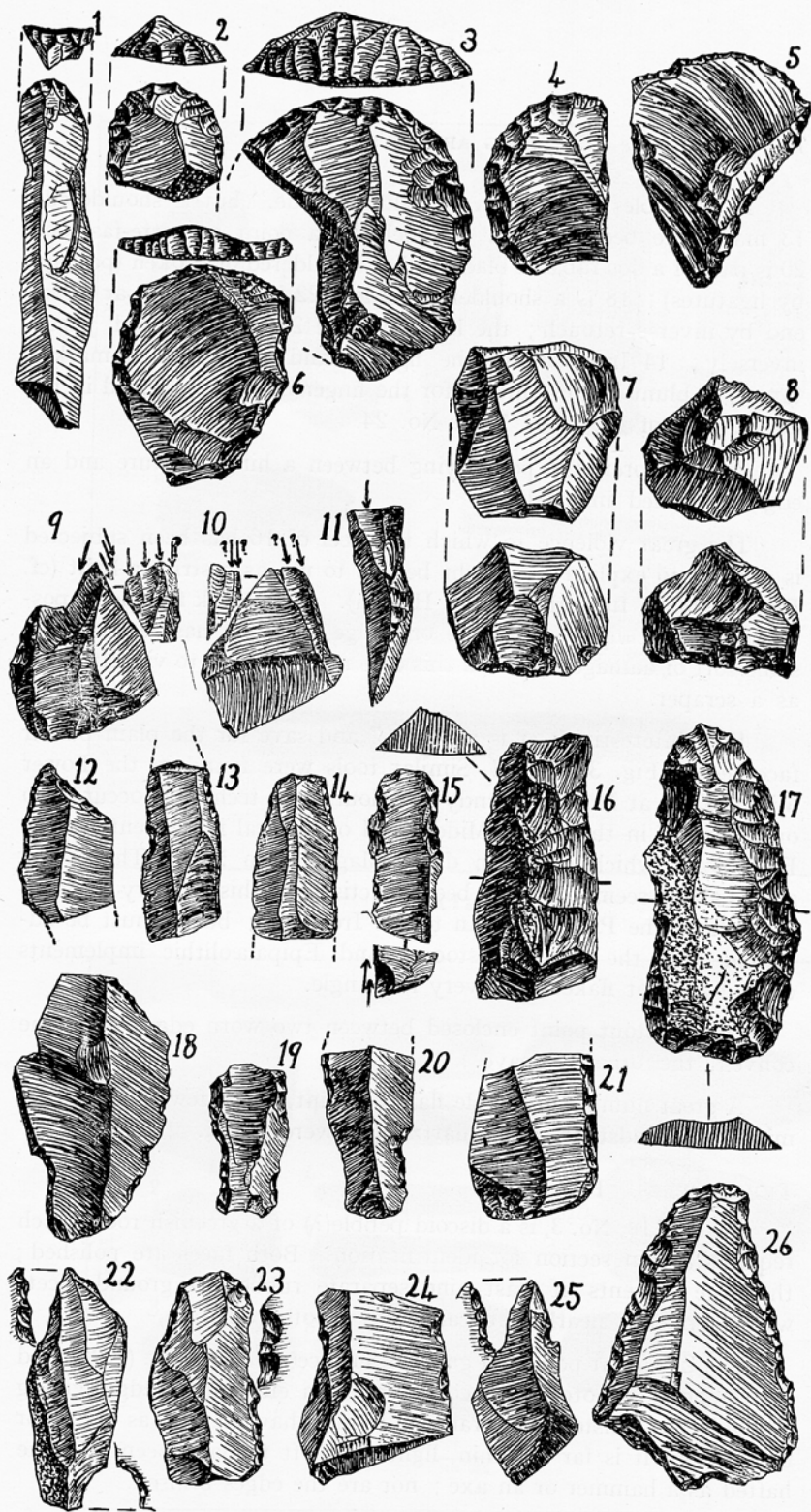
Fig. 5, Nos. 1—6 bear a striking resemblance to the scrapers of Mother Grundy's Platform.¹⁹ 1—3 are end-scrapers, 4 has a convex scraping edge, 5 a convex and a concave, and 6 a convex end and straight sides. 7 and 8 are cores perhaps utilized as scrapers.

9 and 10 are composite median burins, each having an edge produced by the intersection of multiple facets; one or two of the facets are accidental, but most seem to be due to burin blows. 11 is a spall showing the facet left by a previous blow; 15 is a much-used microlithic knife which has been converted into a burin.

¹⁷ W. J. Lewis Abbott, F.G.S., *loc. cit.*

¹⁸ W. J. Sollas, F.R.S., *loc. cit.*, Fig. 15.

¹⁹ A. Leslie Armstrong, F.S.A., "Excavations at Mother Grundy's Parlour," *J.R.A.I.*, Vol. LV (1925), p. 146 ff.



First Hearth (Actual size)

12 resembles the Azilian "penknife blade." but is shouldered; 13 may have been chipped obliquely to a point gravette-fashion; 20 is part of a dos-rabattu blade, either shouldered or broken (perhaps by ligatures); 18 is a shouldered blade; 22 is shouldered at either end by inverse retouch; the long edges of 23 are retouched, partly inversely; 14 (reversed in the figure), and 19 possess ill-marked tangs; a blunt hollow surface for the finger has been chipped in the dorsal edge of the stout knife No. 24.

25 is a borer, the point lying between a hinge-fracture and an edge retouched inversely.

The great violence to which the keel of 16 has been subjected is difficult to explain; it might be due to use as a strike-a-light (cf. Fig. 7, No. 10, from the Second Hearth). 21, a thick fragment, possesses a vertically-chipped side one edge of which has received the same sort of damage, which in this case might be due to violent usage as a scraper.

17 is interesting; it is a "slug," and save for the plain bulbar face recalls Fig. 3, No. 14. Similar tools were found in the Lower Middle Zone at Mother Grundy's Parlour; the technique occurs also on a scraper in the Lower Middle and on several implements in the Base Zone, which has been dated Magdalenian 5—6. The art of scale-flaking seems to have been practised in this country at most times from the Protosolutrean to the Iron Age; but it must be admitted that the Late Pleistocene and Epipalæolithic implements quoted are not flaked at a very low angle.

26 is a stout point enclosed between two worn edges,—the one convex, the other concave.

A great number of simple flakes of flint, and a few of limestone, micaceous sandstone, and quartzite(?), were found.

THE PEBBLES. Plate IIIB.

Plate IIIB, No. 3, is a discoid pebble(?) of a greenish rock which requires a thin section for identification. Both faces are polished; the edge presents at least nine separate rubbed or ground facets which render it nearly vertical,—like a pot-cover.

No. 2 is a flat pebble of greenish micaceous sandstone (? Old Red Sandstone). A notch has been chipped in either long edge, giving the object a waisted appearance. It may have served as a line or net-sinker; it is far too thin, light and soft to have been of value hafted as a hammer or an axe; nor are the edges bruised.

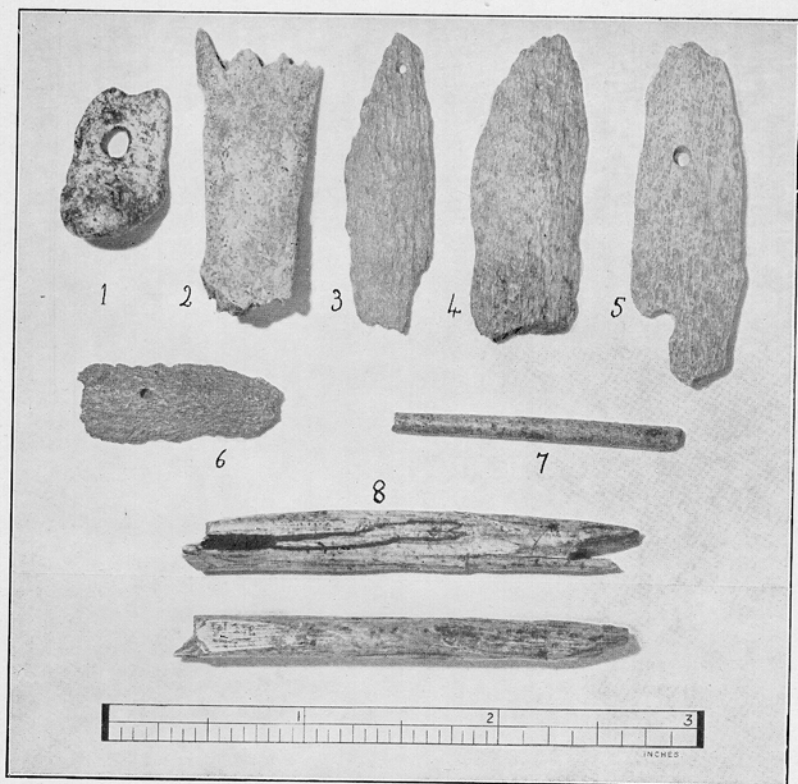


PLATE IIIa.

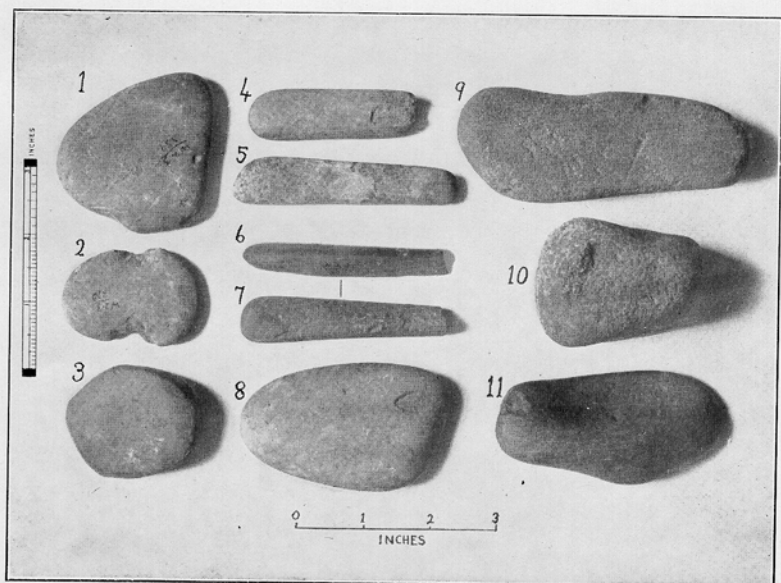


PLATE IIIb.

No. 10 is an igneous pebble, the broad end of which is much scarred by use as a hammer-stone.

No. 9 is a heavy pebble of dark-red micaceous sandstone (Old Red Sandstone), one face of which has been rubbed to an almost perfect plane; a feature which seems to be rather characteristic of this cave, cf. No. 6 and 7 from the Old Spoil Heap; the rubber from the Passage; the small sandstone slab from the Humus; and No. 3.

Some of the remainder may possibly be little-used hammerstones, polishers or rubbing-stones; two seem to have been through the fire and may be cooking-stones (the usual term, "pot-boilers," would be an anachronism). No. 4, of micaceous sandstone (Old Red Sandstone) may be compared with the "limpet-scoops" of the kitchen-middens; it is unworn; so too is No. 8, a green slate pebble.

Many of the pebbles can hardly have served any practical purpose; yet we owe their presence to man, for none have been found in the rubble apart from the hearths, nearly all come from the First Hearth, and most from near its centre. Their colours, quite attractive reds and greens when damp, may have intrigued prehistoric man; the folk of Paviland too seem to have been collectors of unusual stones.²⁰ On the other hand, some magic or ritual purpose may have been served; though none are painted it seems not impossible that we have here the same cult as at Mas d'Azil.

BONE AND TOOTH. Plate IIIA.

Plate IIIA, No. 1 is the perforated canine of a sow. The tooth is blunter crowned, shorter and broader than the Pleistocene specimen from the Passage figured in 1925, and than those from Aveline's Hole. No. 2 is a toothed fragment of bone. No. 3 is a bone slip perforated for suspension, or perhaps a nutrient foramen has been used for the purpose; 4 would have been similar, a perforation having been begun on one face. There is also a small fragment of polished antler believed to be reindeer.

The First Hearth seems to be an Epipalæolithic-Mesolithic station; no Neolithic features are present, and as we begin to expect, at least in the South-West, the sheep, pottery, leaf-shaped and barbed-and-tanged arrowheads appear to be introduced all at about the same level. The industry differs from the normal Azilio-Tardenoisian in the scarcity of typical micro-gravers, absence of small round scrapers, and relative abundance of the stout pygmy "rods" and pygmy gravette points.

²⁰ W. J. Sollas, F.R.S., *loc. cit.*, p. 29.

THE YELLOW RUBBLE.

The yellow rubble, which varies from one to two feet in thickness, is composed of sharp-edged fragments, packed with sand.

FAUNA.

- | | |
|---------------------------------------|---------------------------------|
| (2) Giant red deer, <i>cervus sp.</i> | (1) Lemming, <i>dicrostonyx</i> |
| (3) Horse, <i>equus caballus</i> | <i>Microtus anglicus</i> |
| Ox, <i>bos ?primigenius</i> | <i>Microtus ratticeps</i> |
| Hare, <i>lepus anglicus</i> | Hedgehog, |
| Pika, <i>ochotona spelæa</i> | |

As at Aveline's Hole, the giant deer is much commoner than the horse and urus.

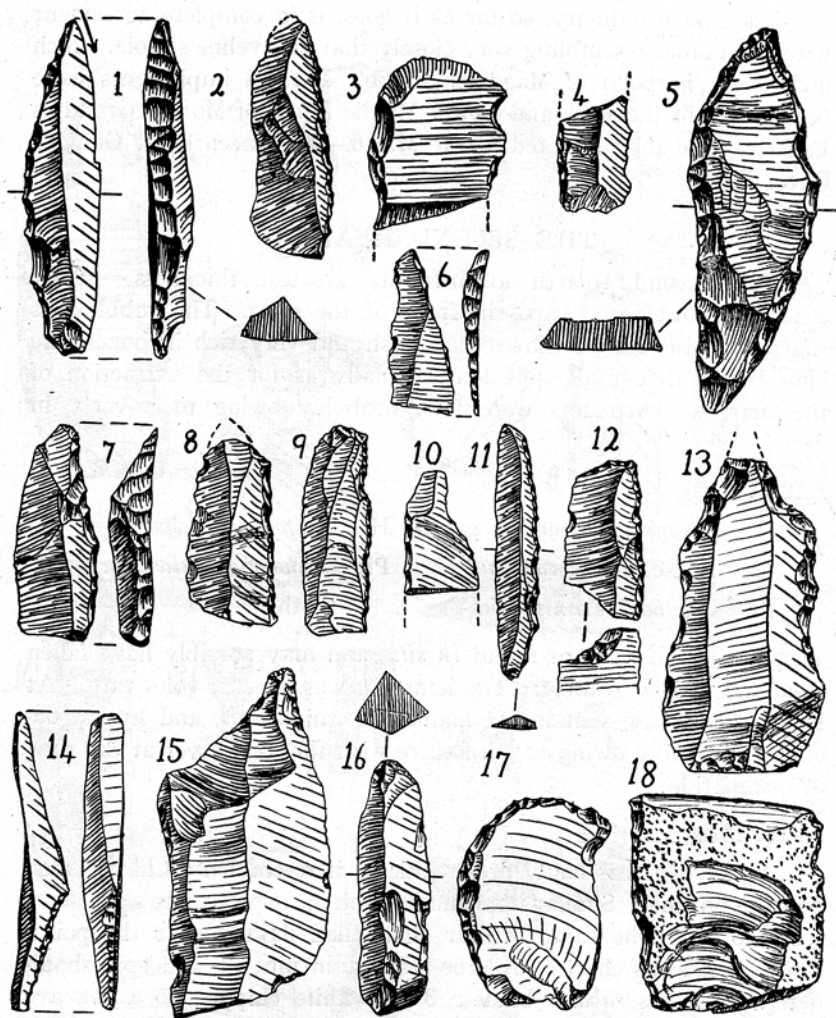
ARTEFACTS.

Fig. 6, Nos. 1—6 are derived from the upper half of the layer, 7—18 from the lower. All are in flint.

No. 1 is a well-made gravette point of the classical outline, on a keeled flake. A narrow burin-spall has been struck from one end; except for that and its small size it can be matched from Aveline's Hole, where 6, a thin flake chipped obliquely to a point, has also a parallel. 2 is a nearly straight-sided *dos rabattu* blade; 3 and 4 are fragments of similar implements.

5 is a point retouched around its whole circumference, for the most part almost vertically; such points were found in the Lower Middle and Middle Zones of Mother Grundy's Parlour; No. 5 differs chiefly in that at one end it is covered by low-angle flaking. But pointed extremities thus chipped all over seem to be quite typical of the Base and Lower Middle Zones. The upper point is rounded off by use, and the lower third of the right-hand edge is extensively worn as if by scraping.

7 is a gravette point, 10 perhaps a fragment of another, and 8 and 9 parallel-sided *dos rabattu* blades; 8 seems to have had an oblique retouched edge above. 11 is a *dos rabattu* pygmy knife; 12 is like a "pen-knife blade" but is shouldered by inverse retouch. 13 seems to have possessed a fine point, and may be matched from the Base and Lower Middle Zones of Mother Grundy's Parlour, and from Gough's Cave, Cheddar. 14 is a burin-spall, bearing the facet of a previous blow; it was struck from an implement with a "nibbled" edge. 15 possesses a short scraper-like edge rendered prominent by what looks like a burin-blow, but it was probably a borer or piercer, to judge by the worn edges. 16 is a prismatic piece of cherty flint, or chert, flaked to a point which has been damaged in use; 17 is a convex scraper and 18 possibly a straight-edged one.



The Yellow Rubble. 1 to 6 Upper half, 7 to 18 Lower half. (Actual size).

FIG. 6.

Very few unworked flakes were found; the Second Hearth and Upper Cave Earth contained a much higher proportion, and in the First Hearth and Humus the majority of the flakes were unworked. But one flake of limestone and one of carboniferous chert were discovered.

The Old Red Conglomerate(?) pebbles so abundant in the First Hearth were wanting.

The above industry, so far as it goes, is in complete agreement with the fauna, resembling very closely that of Aveline's Hole, which included a harpoon of Magdalenian 6b. Parallel implements have been found in the Base and Lower Middle Zones of Mother Grundy's Parlour,—the former dated about M.5-6,—and recently at Gough's Cave, Cheddar.²¹

THE SECOND HEARTH.

The Second Hearth attained its greatest thickness,—nearly a foot,—about three yards in front of the cave. The rubble was sharp. It was full of charcoal and ash and very rich in bones, the long bones almost all split longitudinally as for the extraction of the marrow. Artefacts were few, probably owing to poverty in flint.

FAUNA.

- | | |
|--|--|
| (1) <i>Cervus</i> sps. (mostly giant), Hare, <i>lepus anglicus</i> | |
| (2) Horse, <i>equus caballus</i> | Pika, <i>ochotona spelæa</i> , (a single |
| (3) Ox, <i>bos ?primigenius</i> | tooth). |

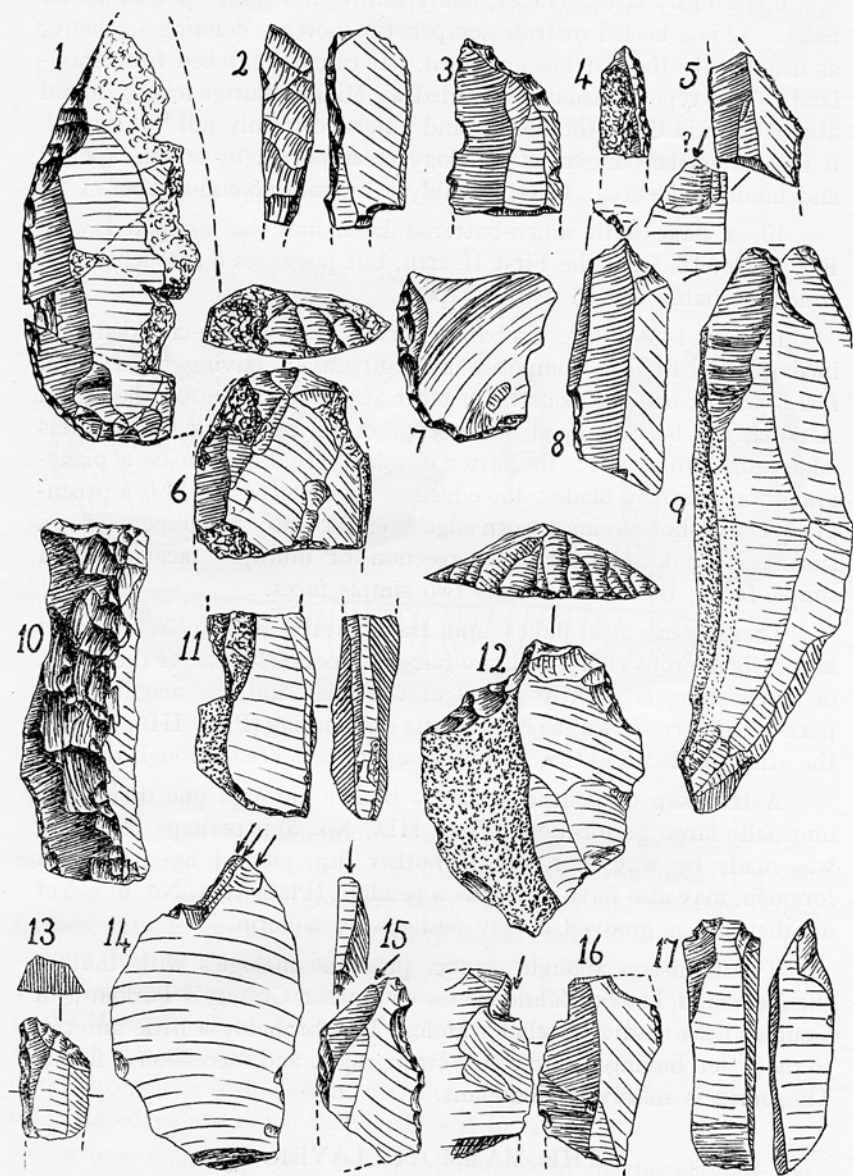
The pika tooth was not found *in situ*, and may possibly have fallen from the Yellow Rubble. The lemming was absent, voles rare. At the extreme base remains of mammoth, rhinoceros, and hyæna occurred, probably owing to admixture with the next layer at the time of occupation.

ARTEFACTS.

Fig. 7, No. 1 is badly fire-crackled ; it resembled a Chatelperron point in outline. Similar implements from Mother Grundy's Platform seem to have the same regular channelled flaking near the point. 2, (in cretaceous chert ? All the rest are in flint), is a deeply shouldered stout *dos rabattu* blade ; 3 is a knife chipped to a concave oblique end, (again compare Mother Grundy's Parlour) ; 4 a fire-crackled *dos rabattu* pygmy knife ; and 5 probably a fragment of a typical angular or trapezoidal gravette point, perhaps converted into a plane-graver after breakage.

8, a shouldered blade, has an awl point sharpened by the removal of a few chips from the bulbar face. The point of 9, a borer with normal alternate retouch, is much worn ; the proximal half, restored to place in the figure, was found separately ; it impairs the efficiency of the tool and may have been removed intentionally.

²¹ A preliminary notice appears elsewhere in this number.



The Second Hearth (Actual size)

FIG. 7.

6 is a fairly steep scraper, badly burnt, and 7 a scaper on a thin flake. 12 is a keeled rostrate scraper, two notches defining a salient; as usual, only the notches are worn. It can be matched from Paviland. The type is usually regarded as Middle Aurignacian; found about the middle of the hearth and almost certainly not "derived," it illustrates the dangers of typology unsupported by stratigraphical and faunal evidence. 13 is probably a microlithic end-scraper.

10, a flake with much-battered keel, may be compared with Fig. 5, No. 16, from the First Hearth, but possesses a retouched end which probably served as a scraper.

11 and 14—17 are probably graters. 11 is fire-crackled and incomplete. 14 is a composite median grater, having three burin facets on the one side, one main facet and a small one on the other. A notch has been chipped in the edge of 15, rendering the business edge more prominent; the latter is worn. 16 seems to be a plane-grater on a broken blade; the edge has been renewed. 17 is a prismatic piece of flint having a worn edge at either end; the upper convex surface is produced by the intersection of multiple facets with a simple face; the lower bounds two simple faces.

There were also flakes and fragmentary implements of flint and carboniferous chert, and two fair-sized pebbles; one of the latter, of green slate, is slightly pitted at one edge and the neighbouring part of the face shown, as if by gentle hammering (Plate IIIB, No. 1); the other, of Old Red Sandstone, seems to have been through the fire.

A thin slip of polished bone is broken through one of its two unusually large perforations (Plate IIIA, No. 5); perhaps the other was made by way of repair. Another slip, pierced by a nutrient foramen, may also have served as a pendant (Plate IIIA, No. 6). Yet another slip is grooved deeply perhaps by a burin.

The industry, though scanty, presents analogies with that of the Base and Lower Middle Zones of Mother Grundy's Parlour; of Gough's Cave and of Aveline's Hole. It is probably a little anterior to the latter, having regard to the stratigraphy and succession of fauna. The burin is relatively abundant.

THE MAMMOTH LAYER.

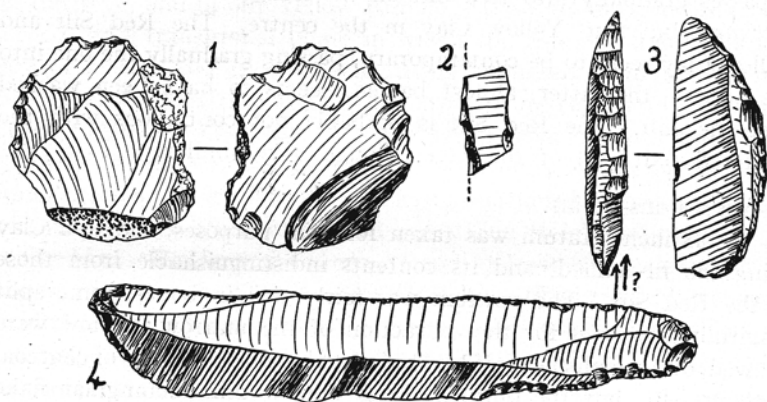
This deposit, 1-in. to 8-ins. or more in thickness, was so called because in it the mammoth, woolly rhinoceros, and cave hyæna make their last appearance. Consisting of somewhat weathered rubble in a matrix of Upper Cave Earth, at least near the cave, it shows that the formation of these two deposits overlapped.

Traces of charcoal occur, and bone is plentiful and often split by human agency, but artefacts are rare.

FAUNA.

- | | |
|--|-------------------------------|
| (1) <i>Equus</i> | <i>Bos primigenius</i> (?) |
| (2) <i>Rhinoceros tichorhinus</i> | <i>Elephas primigenius</i> |
| (3) <i>Hyæna spelæa</i> | <i>Lepus anglicus</i> (rare). |
| (4) <i>Cervus</i> , <i>sps.</i> (mostly giant) | |

No lemming, pika, or voles have been found.



The Mammoth Layer (Actual size)

FIG. 8.

ARTEFACTS.

Besides half a dozen rough flakes of flint and two small fragments with retouched edges, the following were obtained (Fig. 8).

No. 3, a well-made gravette point, the butt end possibly transformed into a burin. It may have been trodden down from the Second Hearth (but not in recent times), for it is non-lustrous and yellowish white, quite unlike the lustrous milky-white patina usual in the Mammoth Layer. 2 is a fragment of an implement with almost vertical retouch upon its edge; and 1 a flake having a "scaled" outer face,—the scale-flaking was done before the flake was struck off. Its edges are much damaged as if in use.

4 was found upright, the point embedded in the clay of the next layer to the depth of over half an inch; so unusual a position would seem to imply deliberate placing, perhaps to render it conspicuous. It is a long narrow flake chipped carefully around either end. A regular, minute, "nibbling" retouch extends along most of one edge, a bolder but still fine retouch along the distal third of the other.

While not, perhaps, a very typical implement, such another has not been found at King Arthur's Cave, nor at Aveline's Hole ; but the type occurs at Gough's Cave, in a deposit apparently slightly later than the Mammoth Layer.

THE RED CLAY, YELLOW CLAY, AND RED SILT.

A trial trench 18-ins. in depth has been dug.

The Red Clay, with the Mammoth Layer, probably represents the Upper Cave Earth ; its thickness is at most four inches. Below it passes gradually into Red Silt on the left, or North-East, of the entrance, but into Yellow Clay in the centre. The Red Silt and Yellow Clay seem to be contemporary, passing gradually the one into the other ; the latter, almost barren, seems to have been washed over the cliff. The Red Silt is probably not continuous with the stratified red sand of the cave, though very similar.

STRATUM 0-ins.—6-ins.

A six-inch stratum was taken for trial purposes, the Red Clay being too ill-defined, and its contents indistinguishable from those of the Red Silt. The stratum was fairly rich in bones, some split longitudinally as if for the extraction of the marrow ; a few were gnawed, others polished as if by the feet of hyænas. Traces of charcoal were present, but the only artefacts were a thin rectangular flake and a fragment of flint.

FAUNA.

- | | |
|-----------------------------------|---|
| (1) <i>Equus caballus</i> | (4) <i>Cervus</i> , <i>sps.</i> (chiefly giant) |
| (2) <i>Rhinoceros tichorhinus</i> | <i>Bos</i> , ? <i>primigenius</i> |
| (3) <i>Hyæna spelæa</i> | <i>Elephas primigenius</i> |

There were no rodents.

STRATUM 6-ins.—1-ft. AND STRATUM 1-ft.—1-ft. 6-ins.

- (a) Yellow Clay ; a few bones of deer only were discovered.
- (b) Red Silt : Split bone and a very little charcoal was found, with the same species as in stratum 0-ins.—6-ins.

NOTES.

The change in the focus of occupation in the Late Pleistocene from the cave to the platform is interesting, for the same thing seems to have occurred at Mother Grundy's Parlour, and some of us believe that the main occupation-site at Aveline's Hole was outside the mouth. Factors may have been an improved climate, a change in the season at which the cave was occupied, or greater security.

The small size of the flint implements and the peculiar forms of some is probably due to economy in that material.

The faunal succession (see Fig. 1), appears to be of some importance, but requires confirmation from other sites. As on the Continent, the mammoth, rhinoceros, and hyæna become extinct long before the end of the Pleistocene; they are succeeded by what might be called the Final Pleistocene fauna, characterized by hordes of pika, lemming, and voles; *lepus anglicus* becomes fairly common, and the giant red deer the commonest large mammal. This phase is well seen at Aveline's Hole,²² (Magdalenian 6b), Merlin's Cave²³ on the Wye, and in our Yellow Rubble. It seems to have been preceded by a transitional phase in which the lemming and voles are rare or absent and the horse relatively common, as in the Second Hearth at King Arthur's Cave and perhaps at Gough's Cave²⁴ and Chelm's Combe,²⁵ Cheddar. The two latter seem to cover the whole period of the Yellow Rubble also, but no mammoth horizon has been found at their base. The Final Pleistocene fauna is present at the following other recently-excavated sites: Sun Hole²⁶ and other caves at Cheddar; Rowberrow Cavern;²⁷ and at least one rock-shelter at Ebbor Rocks near Wells.²⁸ Sun Hole and Rowberrow have each yielded a few implements of the period,—*dos rabattu* knives, etc.

Excepting Gough's Cave and Chelm's Combe, all the sites just mentioned are in a sandy, ochreous, angular limestone rubble, unstratified and sharp except when it has been transported by a stream, (e.g. the exit streams of Sun Hole and Merlin's Cave); such rubbles are very common in the Mendip district. They lie immediately below the Neolithic deposits, but may be separated therefrom by a layer of stalagmite. They seem to indicate a period of intense frosts,—a

²² One battered fragment of rhinoceros tooth was found at Aveline's Hole, probably washed in along with the rubble.

²³ *Proceedings*, Vol. 2, No. 3, p. 147 ff.

²⁴ In recent excavations carried out (thanks to the termination of the lease), at Gough's Cave under the direction of the Somerset Archæological Society, the deposit was dug to rock bottom with important results. A prolific Developed Aurignacian industry was found, including a second *bâton-de-commandement*. So far as I can discover the rhinoceros, mammoth, and hyæna were not present, and there is reason to fear that some of the material formerly ascribed to the cave was derived from elsewhere, e.g. from Great Oon's Hole, where Mr. Porch is said to have found remains of these mammals; I am told that his material was mixed from the first in Mr. Gough's shop. Our thanks are due to those in charge of the work, who kindly allowed access at all times.

²⁵ "Excavations at Chelm's Combe, Cheddar, 1925-1926," *Somerset Archæological Society*.

²⁶ Not completed. A first report appears in this number.

²⁷ Recent work not yet reported, and *Proc.* Vol. 2, No. 2, p. 123; No. 3, p. 207 ff.

²⁸ H. E. Balch, F.S.A., *The Antiquaries' Journal*, Vol. VIII, No. 2, p. 197 ff.

hypothesis supported by the fauna. At Walton²⁹ near Clevedon, and at Brean Down³⁰ near Weston, two layers of similar sandy rubble are separated by a layer of blown sand; they have been equated with the Coombe Rocks of the South Coast, of which an upper and a lower series can be distinguished, sometimes separated by æolian sand. The latter sand seems to correspond with the Upper Loess, which on the Continent is of Aurignacian age. On this hypothesis the upper³¹ rubble at Walton and Brean Down and the whole of the other deposits mentioned would be analogous with the Upper Coombe Rock, and of Magdalenian age,—perhaps in part Solutrean. Their fauna, though differing slightly from place to place, is on the whole very uniform; it contains no elephant, rhinoceros, nor hyæna, whereas remains of these animals do occur below the rubble. Their industry, where determinable, seems to be a late developed Aurignacian.

The Black Band of Kent's Cavern, if undisturbed, would give a limiting date for the commencement of this phase,—Magdalenian 5—6a; for the mammoth is not quoted by Pengelly,³² who mentions rhinoceros and hyæna at the close of a list which seems to be in order of frequency. Their remains therefore were presumably rare, perhaps even derived from disturbed material.

On the other hand, further North at Mother Grundy's Parlour all three seem to survive to the very close of the Pleistocene; they were found in the Lower Middle Zone, which is succeeded,—apparently without a break,—by the Middle with its recent fauna and Transitional industry. The late date is confirmed by the "Azilian" pen-knife blades found even in the Base Zone, which moreover is dated M.5—6 by the Pin Hole harpoon; and by the many parallels between the industry of the Base and Lower Middle Zones and those of Aveline's Hole³³ and King Arthur's Cave Rubble. Further, I am informed that lemming and voles have been found associated in the cave-earth

29 Prof. S. H. Reynolds, *Proc. Bristol Nat. Soc.*, 4th Series, Vol. 1, Pt. III., and L. S. Palmer, D.Sc., *Proc. U.B.S.S.*, Vol. 1, No. 3, p. 128 ff.

30 Described locally as a raised beach,—a singularly inappropriate term, for it appears to be a terrestrial deposit resting upon a platform which is at or below the present sea-level.

31 The sand and the lower rubble at Walton and Brean Down may also be contemporary with the Upper Coombe Rock. An earlier date has been assigned on rather slender evidence, viz. the presence of remains of nivaloid voles which may have migrated from Switzerland at any phase of the Pleistocene.

32 *Brit. Ass. Report*, 1867, p. 29, and Miss Garrod, "The Upper Palæolithic Age in Britain," p. 40 ff.

33 Cf. Miss Garrod, *Proc. U.B.S.S.*, Vol. 2, No. 3, p. 300.

of the Pin Hole³⁴ itself. At Langwith³⁵ also the "Final Pleistocene" fauna of the South-West seems to have been represented.

Work upon the Platform is being continued this summer ; afterwards it is hoped to examine the Lower Cave Earth and certain intact deposits in the cave itself.

My thanks are due to Lord and Lady Levett, the owners, for permission to continue the work ; to Mr. Osmaston, H.M. Deputy Surveyor ; to Mr. P. B. Symonds, of Whitchurch, the President of the Woolhope Club ; to Mr. M. A. C. Hinton, for identifying a part of the fauna ; to Dr. F. S. Wallis and Mr. J. W. Tutcher, who have kindly identified the geological specimens ; and to Mr. F. B. A. Welch, who examined the gravels at the Biblings as far as time permitted.

³⁴ By Mr. E. K. Tratman, who found specimens (with Mr. Armstrong).

³⁵ Rev. E. H. Mullins, "The Ossiferous Cave at Langwith," *Derbyshire Arch. and Nat. Hist. Soc. Journal*, 1913. D. A. E. Garrod, "The Upper Palæolithic Age," p. 150 ff.
