Excavation at the Caves, Cheddar

BY R. F. PARRY

MANY interesting artifacts of ancient man have been found at various times in the entrance to the well-known cave at Cheddar, discovered some thirty years ago by the late R. C. Gough. This entrance was known many years before the actual discovery of the greater portion of the cave. Unfortunately no records of any description were kept of these earlier finds, with the exception of those found in 1903, when the Cheddar man, part of a *bâton de commandement* and a number of flint implements were discovered. These were reported upon by H. N. Davies,[1] and C. G. Seligman and F. G. Parsons.[2]

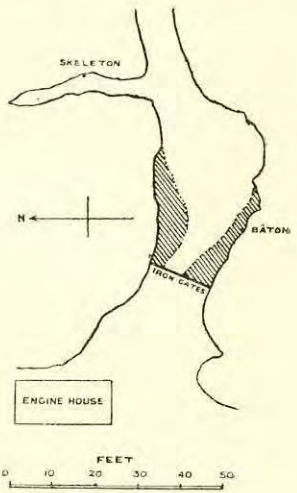
With the object of throwing some light on these, and with the hope of discovering others, an excavation of the banks on each side of the path leading into the cave was commenced on the 8 November 1927. The path had been cut down through the cave earth to a depth of 4 ft. 6 in., leaving the banks on either side undisturbed. These banks between the path and the cave walls were of varying width from 9 ft. to 2 ft. The excavation was carried down in 6 in. layers to a depth of 12 ft. 6 in., where the rock bottom was exposed. The whole of the earth was passed through a fine sieve, and a daily record of all finds was kept. The layers are numbered downwards.

There is, I think, little doubt that the cave was an old underground watercourse emptying at the foot of the Cheddar Gorge. The water eventually found a lower level, which left this cave fairly dry except in times of much rain, when it became flooded.

[1] *Quar. Journ. Geol. Soc.*, Aug. 1904, pp. 335–348.

[2] Seligman and Parsons, *Journ. Anthrop. Inst.*, xliv, 242–263.

Before the cave was drained in 1903, in heavy floods the water overflowed at the present entrance. The large admixture of sand between layers 8 and 16 was probably deposited in times of flood, and no doubt comparatively quickly. Between the periodical floodings the cave was occupied by man. The bone and flint implements show no signs of rolling,—and the flint cores and numerous chips seem to go to prove that the tools were manufactured on the spot. There was a total of 1,749 flints taken from the excavation, 244 of which were worked tools, a proportion of 14 per cent. The flint and bone implements were distributed through the various layers down to the floor of the cave, a fine graver being found in the joints of the rock bottom. Layers 11, 12, 13 and 14 gave us by far the greater number of artifacts.



ENTRANCE TO GOUGH'S CAVE, CHEDDAR
Excavated portion shown by hatched lines

The upper layers gave us pottery of Romano-British date followed by the Early Iron Age, and then by artifacts and tools of definitely Palaeolithic type. There was nothing that could be assigned to the Bronze or Neolithic Ages, and there were no intervening blank layers. In layers 8 and 9 the Early Iron Age and Palaeolithic things were found somewhat mixed together, a bronze ring and Early Iron Age pottery being found together with flint tools of Palaeolithic type. Miss Bate in her report also calls attention to the mixture of Recent and Pleistocene animal remains in these layers, and also includes layers 10 and 11.

Small pieces of charcoal were distributed throughout the excavation, and many of the bones showed signs of having been in the fire. In layer 6, close to the entrance, was a distinct hearth made of very tenacious imported clay about 2 in. thick, on which rested a thin layer of charcoal and very black earth.

This had been cut through by the cave path, but it showed very plainly on either side. In layer 7 on the left, and 10 ft. from the entrance, was a bed of charcoal about an inch thick, but without the clay foundation, and also in layer 13 was a band of very black earth with charcoal and burnt bones about 2 in. in thickness, not continuous, but very distinct in places. The layers were not dead-level but followed the dip of the cave.

The accompanying sheet shows the results in tabulated form.

Miss Dorothea M. A. Bate of the British Museum (Natural History) has very kindly identified the animal remains. She remarks that the animal remains from layers 1 to 5 are all Recent. Layers 6 to 11 inclusive contain remains of Recent and of Pleistocene age, the Recent bones gradually becoming scarcer until in layer 11 there are only a few of sheep or goat, and these may have come from a slightly higher level. Bones of *Sus* are absent below layer 10, and those of Sheep or Goat and of *Bos* do not occur after layer 11. Remains of *Ursus* are first seen in layer 9, and those of *Canis lagopus* and *Cervus giganteus* in layer 11. Fragmentary remains of a Hare occur earlier, but from material in layer 11 it has been possible to identify the species as *Lepus variabilis anglicus*.

Layers 12 to 24 inclusive contain remains of Pleistocene age only. Layer 14 has perhaps the greatest number of specimens, though no layer provided any great quantity, and from layers 15 to 24 there are very few, in some cases less than a dozen fragments.

Among the Pleistocene remains practically all the long bones and jaws are fractured both longitudinally and tranversely : one exception is that of a hind cannon-bone of *Equus caballus* 25·1 c.m. in length. Bones of a small Horse are more numerous than those of any other species. Excluding the first five layers which contain only Recent material, the following sixteen species of mammals have been identified :

Canis vulpes	Fox	Layers 6, 8, 10, 11, 18.
Canis lagopus	Arctic Fox	,, 11, 14. .
Canis lupus	Wolf	,, 13–17.
Meles taxus	Badger	,, 7, 8, 9.
Mustela putorius	Polecat	,, 6.
Ursus sp.	Bear	,, 9, 10, 14.

LAYER	DESCRIPTION OF STRATA	ARTIFACTS
1	Reddish clayey cave earth with small angular limestones	Romano-British pottery
2		R.B. pottery
3		R.B. pottery
4		R.B. pottery, bone lance-head
5		R.B. pottery
6	Do., with sand	R.B. pottery, spindle-whorl
7	Do., with sand increasing with depth, with waterworn pebbles of limestone and some of sandstone. In section it has a laminated appearance caused by alternating bands of cave earth and sand. It forms a concrete like breccia against the rocks and round any bones, etc.	R.B. pottery, bone point, 5 worked flints
8		Early Iron Age pottery, bone point, 9 worked flints
9		E.I.A. pottery, bronze ring, bone point, forated fox's canine, 26 worked flints
10		20 worked flints, bone point
11		38 worked flints, bone point, perforated s
12		35 worked flints, ivory rod
13		31 worked flints, bone point
14		31 worked flints, perforated fox's can bone point
15		12 worked flints, bone piercer
16		15 worked flints, bone piercer
17	Gravel with waterworn pebbles and filling of sand and cave earth	6 worked flints
18		2 worked flints
19		4 worked flints, *batôn de commandement*
20		2 worked flints
21		1 worked flint
22		2 worked flints
23		3 worked flints
24	Clayey red loam and sand. Rock bottom	1 worked flint
25	Rock bottom	1 worked flint

NTRANCE. BEGUN 18TH NOVEMBER, 1927

ANIMAL REMAINS	HUMAN REMAINS	REMARKS
ecent only		
	Human	Hearth
	Human	Hearth
ecent and leistocene		Fall of heavy stones from roof appear in this layer on right of path, penetrating as far as layer 11
		No pottery after this Level of cave path
	Human skull, Human skull } child	
	Human skull, Human skull } adult	Layer of charcoal and burnt bones, 1 in. thick
leistocene only		
		Level of Cheddar man, found in 1903

Felis sylvestris	Wild Cat	Layers	9.
Sus sp.	Pig	,,	6–10.
Cervus giganteus	Irish Deer	,,	11, 12, 14, 16.
Cervus elaphus	Red Deer	,,	6, 7, 11, 12.
Capreolus caprea	Roe Deer	,,	14.
Rangifer tarandus	Reindeer	,,	7, 11, 14.
Sheep or Goat		,,	6–11.
Bos sp.	Ox	,,	7, 9, 10.
Equus caballus	Horse	,,	6, 8–24.
Lepus variabilis anglicus	British Pleistocene Varying Hare	,,	7–12, 15.

The Bird remains, like those of the Mammals, include species which at the present day are not found associated. As illustrative of this the occurrence of Swans, Thrushes and Ptarmigan may be mentioned, and the most obvious explanation of this is that the birds were brought to the cave as food. The Swans and Ducks might have come from estuaries and low-lying country now covered by the Bristol Channel. Bones of the Peregrine Falcon are the most numerous and occur in five layers, and bones of the Ptarmigan were found in four successive layers, 11 to 14; remains of this latter species have been recorded from as far south as Jersey. The following eleven species have been identified:

Turdus cf. *viscivorus*	? Mistle Thrush	Layers	17, 14, 18.
Turdus cf. *merula*	? Blackbird	,,	7, 10.
Asio flammeus	Short-eared Owl	,,	7.
Falco peregrinus	Peregrine Falcon	,,	11, 12, 14, 15, 16.
Cygnus musicus	Whooper Swan	,,	19.
Cygnus cf. *olor*	? Mute Swan	,,	18.
Anas boschas	Mallard	,,	5.
Fuligula sp.	? Pochard	,,	10, 11, 14.
Columba cf. *oenas*	? Stock Dove	,,	15.
Lagopus mutus	Ptarmigan	,,	11, 12, 13, 14.
Lyrurus tetrix	Black Grouse	,,	2.

The reports of Mr. A. J. Davies on the flint tools, of Mr. H. St. George Gray on the implements and ornaments of bone, antler, and other material, and the pottery, of Dr. N. C. Cooper and Sir Arthur Keith on the human remains, are included in this paper,

and our best thanks are due to these gentlemen for their kind help.

Unless otherwise stated the objects were found on the right-hand side of the explored site as one enters the cave. Those from the left-hand side have ' L ' following the number of the layer.

Flint Implements (figured) found in Gough's Cave, 1927–28

BY J. A. DAVIES, B.SC.

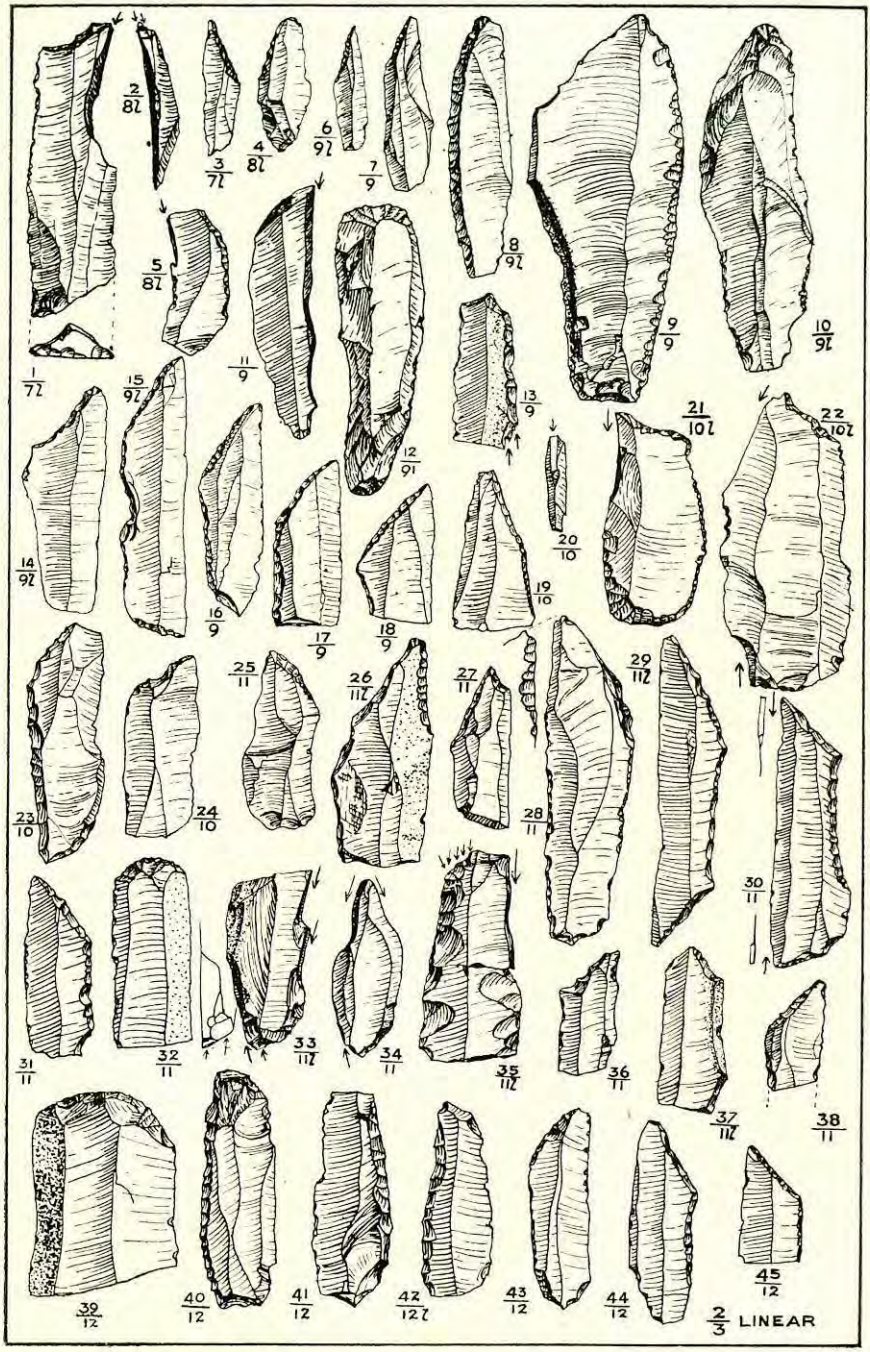
The Flint

Several hundred worked flints and fragments were found during the excavations. With the exception of a few pebble flints all the implements were made from fresh chalk-flint nodules. All the chalk flint has altered. The patination becomes denser to layer 13. Below this layer there is a tendency for it to lighten, so that the oldest artifacts look rather the newer. Very few of the implements display the very lively blue patina of the Flint Jack's Cave specimens now in the Weston-super-Mare museum. This fact has importance because there has been some doubt as to the origin of those specimens. We are therefore pleased to be able to state that there is a small collection of undoubted authenticity from Flint Jack's Cave now in the possession of Mr. R. F. Parry, which, in style and patination, is identical with the Weston museum collection labelled, ' From the Cheddar Caves ', and described by us under that heading.[1]

There is no sign of the severe economy of material that is so apparent in Aveline's Hole and King Arthur's Cave. A large proportion of the implements are elongate flakes. There are a few cores and a number of lumps of unutilised raw material. The longest blade is $4\frac{3}{4}$ in. ; the largest fragment is 3 in. square and $1\frac{1}{4}$ in. thick.

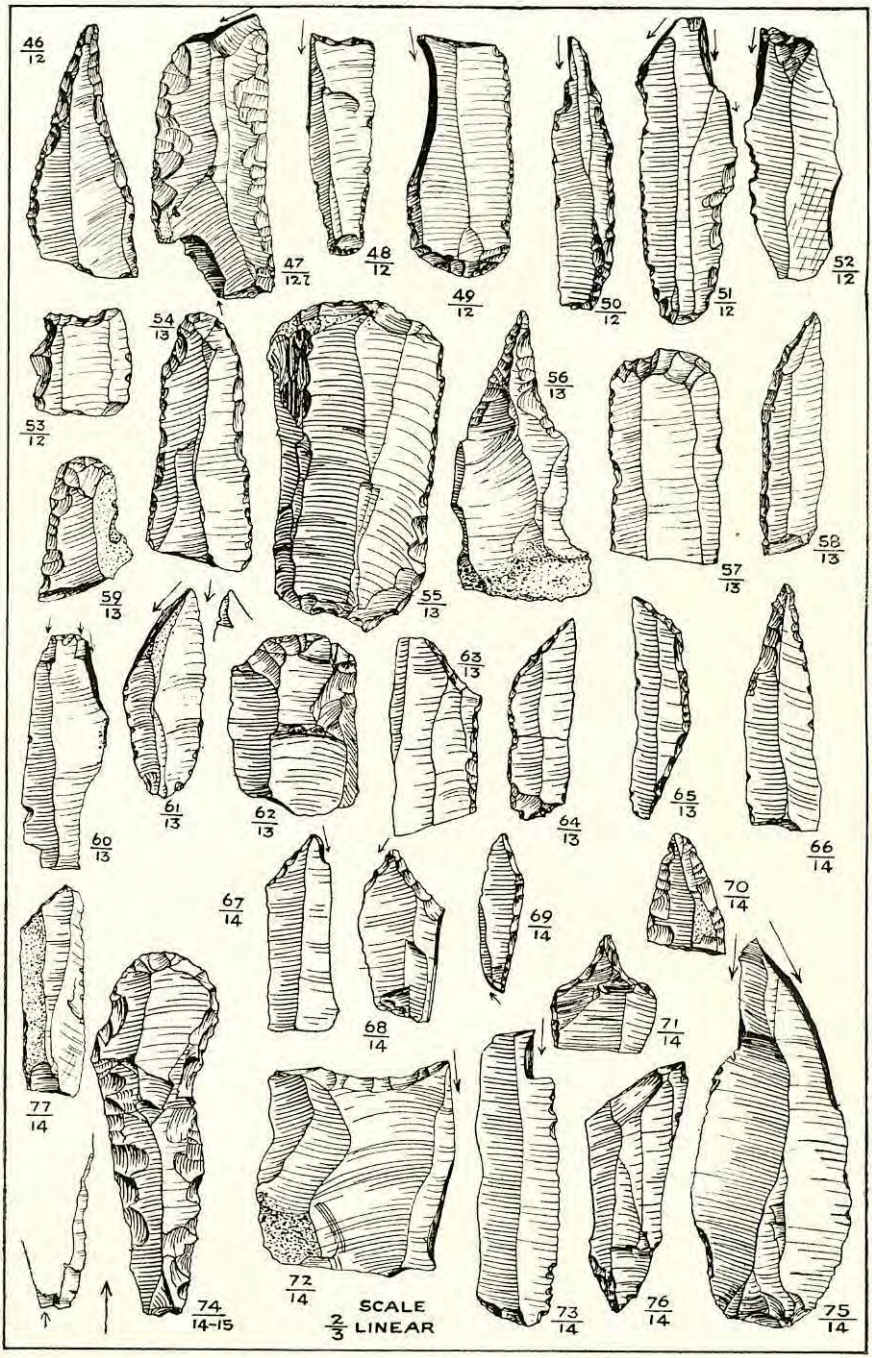
The layers are 6 in. thick, and are numbered from the surface downwards.

[1] *U.B.S.S. Proc.*, ii, 264.



FLINT IMPLEMENTS FOUND IN GOUGH'S CAVE, CHEDDAR, 1927–28

From Drawings by Mr. J. A. Davies, B.Sc.



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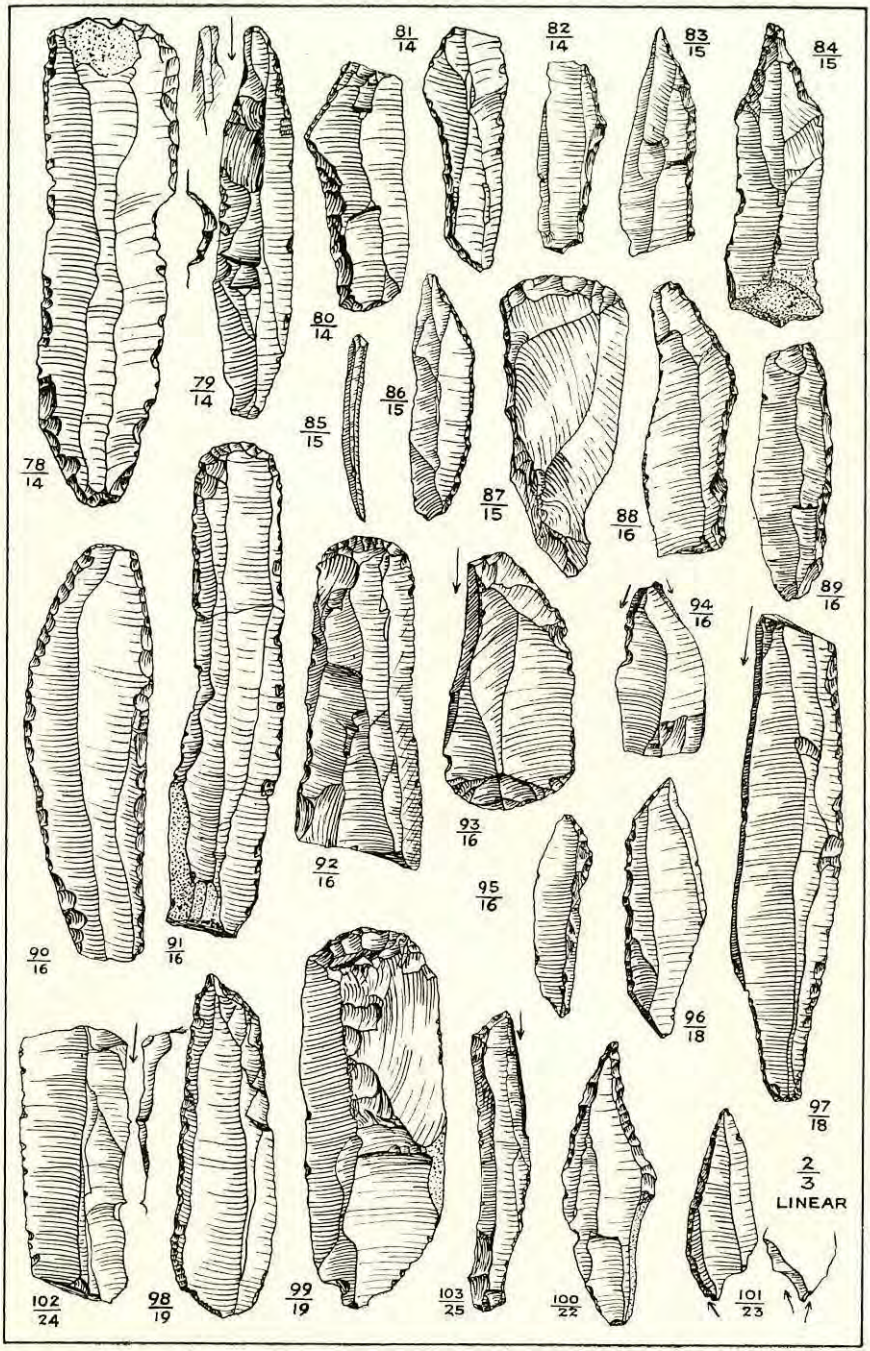


FLINT IMPLEMENTS FOUND IN GOUGH'S CAVE, CHEDDAR, 1927-28

From Drawings by Mr. J. A. Davies, B.Sc.

Plate XVI

1/7 L.—Double end-scraper in the form of a parallelogram ; a lateral beak at one end and a large graver on the other which has bitten deep. The steep end-scraper with lateral beak recalls the only scraper so far found in Aveline's Hole. 2/8 L.—Graver spall. 3/7 L.—Pigmy knife having oblique chipping, and a delicate point. 4/8 L.—Pigmy knife blade. 5/8 L.—Angle graver. 6/9 L.—Pigmy knife blade. 7/9.—Microlithic knife blade. 8/9 L.—Gravette point ; the retouch is directed from both faces so that the back is square to them. 9/9.—Blade with an edge strengthened by feeble scaling. 10/9 L.—' Beak ' ; i.e. a thick blade with lateral scraping surfaces at the pointed end, which in this case is polished by wear. Simpler examples were found in Aveline's Hole. The wear was not caused by extensive work against other flints, and the term ' fabricator ' does not fit the implement. 11/9.—Screwdriver burin : faint patina. 12/9 L.—Keeled end-scraper ; there is a small distal end-scraper or beak. 13/9.—Renewed graver. 14/9 L.—Knife blade. 15/9 L.—Trapezoidal point. 16/9.—Ditto. 17/9.—Broken ditto. 18/9.—Broken ditto, with hollow back. 19/10.—Thin knife, with nibbled back. 20/10.—Graver spall. 21/10 L.—Beaked burin with distal keeled scraper, on a nibbled blade. 22/10 L.—Double graver. 23/10.n—Penknife, similar to an example from King Arthur's Cave. 24/10.—Knife blade. 25/11.—Ditto. 26/11 L.—Piercer wrought by heavy pressure chipping. It is fire-crackled and has seen little or no use as an awl. 27/11.—Piercer. 28/11.—Chatelperron point having nibbled back and edge : bulbar scaling at the point. 29/11 L.—Trapezoidal gravette point with hollow back, i.e. an atypical shouldered point. 30/11.—Ditto, with double Noaille graver thereon. 31/11.—Trapezoidal gravette point. 32/11.—Weak keeled scraper on a broken blade. 33/11 L.—Burin, once renewed, on a stout broken blade. At the other end there is a dihedral graver against a scraper. The intended graver edge was treated to a preparatory thinning by percussion (see 35/11 L). The scars were truncated when the spalls left the flint. 34/11.—Screwdriver burin distal Noaille graver. 35/11 L.—This blade scraper had its edges reduced by percussion flaking (deep cones), a graver was then struck on the right. A determined but unsuccessful attempt was made to produce the same on the left, with the result that the corner is battered beyond description. Besides this bruising several blows have gone the wrong way, tearing flat chips off the bulbar surface in that region. 36/11.—Knife blade : there is a feeble notch in the edge below its point. 37/11 L.—Blunt piercer, having opposed chipping at the point. 38/11.—Tip of a trapezoidal gravette point. 39/12 L.—Keeled scraper on stout blade. 40/12.—Gravette point. 41/12.—Gravette point. 42/12 L.—Blade with steep scaling at its

edge. 43/12.—Knife blade, feebly chipped. 44/12.—Geometrical gravette point having a hollow back. 45/12.—Tip of a geometrical gravette point.

Plate XVII

46/12.—Piercer, showing no signs of rotary bruising. 47/12 L.—The scaling at the edges of this blade equally recalls examples from the French Solutrean, from the 'late Neolithic' of Rowberrow Cavern and Sun Hole, Cheddar, and from a horizon which may be Mesolithic, in the platform outside King Arthur's Cave in the Wye Valley. In the absence of definite Solutrean forms it seems unwise to regard such scaling as evidence of the Solutrean culture, or even as a reminiscence of it. Anyone can reproduce such scaling at the edge of a blade with ease by holding a file, or another flint blade, or even a round pebble, with the longer axis askew to the blade, so that the fabricator rests against the blade and passes under it; then twist the fabricator against the blade sharply until the axes of fabricator and blade are at right-angles, and in perpendicular planes. It is often assumed that the flat scaling which results from this simple operation is produced with a bone fabricator. No bones or fragments of bones from this cave display signs of the considerable crushing that would have been produced by such work on even the more delicate blades. There are gravers at both ends of this blade. 48/12.—Noaille graver. 49/12.—Graver on a keeled and nibbled blade-scraper. The nibbling and the scraper end appear to have been conceived with a view to comfort in handling the graver. 50/12.—Parrot-beak, or Noaille graver struck against a notch. 51/12.—One facet of this simple graver is feebly retouched. 52/12.—Simple graver on a blade of unpatinated drift flint (waxy cortex). Unpatinable flint of this kind is found in the Bristol Avon gravel terraces. 53/12.—Small blade scraper. 54/13.—Chipped and nibbled blade. 55/13.—Scraper. 56/13.—Piercer, without signs of rotary wear. There is a small flat graver in the bulbar surface of the tip. 57/13.—Keeled blade scraper. 58/13.—Gravette point neatly hinge fractured at the butt. 59/13.—This little scraper has a trimmed butt and is therefore a complete instrument. 60/13.—Double graver. 61/13.—Screwdriver burin, one facet being flat, the other is along a hinge fracture. 62/13.—Short end-scraper, heavily patinated and of very low sp. gr. 63/13.—Angular gravette point, fragmentary. 64/13.—Geometrical gravette point, with notched back. 65/13.—Small trapezoidal gravette point. 66/14.—The fine scaling by which this point was wrought was supplemented with a small angle graver directed into the bulbar face. The butt is trimmed. 67/14.—Noaille graver. 68/14.—'Rotary' awl. The graver technique has been called in. Butt and point have been thinned by vertical striking. 69/14.—The back

of this little knife is square with both faces. It is probably a dressed graver spall. There is a small angle graver on the butt. 70/14.—The broken tip of a stout scaled point or ' beak '. 71/14.—Awl. 72/14.—Graver on a hollow scraper. 73/14.—Graver on broken blade, with trimmed butt. 74/14.—Dihedral graver. The edges of the implement were first dressed by percussion and pressure. The flint has a resin-like fracture. 75/14.—Screwdriver burin in unpatinated pebble flint. 76/14.—Rough flake having a true awl at one extremity, and a chipped point on the other. 77/14.—Knife blade, feeble chipping.

Plate XVIII

78/14.—This large blade-scraper is apparently notched for hafting, in the same manner as are some stone daggers of the Beaker period. The chipping of the three notches is directed from above. 79/14.—Angle graver on a pencil flake. The distal end is notched and polished by wear. 80/14.—This shouldered implement was never a point. The longitudinal ridge has been reduced by vertical striking. 81/14.—Shouldered point without its tip. 82/14.—Small shouldered implement. The fracture has been trimmed by chipping from above. 83/15.—Gravette point. 84/16.—Pointed blade having a small grattoir end, unbruised by rotary chipping. There is a notch in one blade edge. 85/15.—Graver renewal spall. 86/15.—Slightly angular gravette point. 87/15.—Scraper on a blade that was battered before it left the nucleus. 88/16.—Atypical shouldered point. 89/16.—Gravette point. 90/16.—Chatelperron point ; the edge is strengthened all round by not very wide scaling. 91/16.—Weak scraper on a long blade. 92/16.—End scraper. 93/16.—Graver on a keeled scraper. 94/16.—Worn screwdriver burin on a broken blade. One graver facet has been kept in bounds by a notch. 95/16.—Pointed knife with battered back. 96/18.—Trapezoidal gravette point. 97/18.—Graver on a trimmed broken blade. 98/19.—Blade with nibbled edges and lateral piercer on one end. 99/19.—Stout end-scraper : the high keel has been reduced by heavy pressure. 100/22.—Piercer, without rotary bruising. 101/23.—Screwdriver burin on the butt of a small gravette point. 102/24.—Angle graver on broken blade. 103/25.—Noaille graver.

Other Flints from Gough's Cave

There is an atypical shouldered point among the few authentic specimens in the Weston museum.[1] A series in harmony with

[1] *U.B.S.S. Proc.*, ii, 261-3.

the one here figured was described by Parsons and Seligman in the Journal of the Anthropological Institute for 1914.

A further series of very beautiful flints that were found in the vestibule of the cave in the early years of this century is now in the cavern museum. Some of these were discovered in association with the human remains. There are 17 gravers, 9 geometrical gravette points, 10 end-scrapers, and 3 shouldered points in this series.

The Industry

This is Aurignacian developed along native lines; the 'Creswellian' of Miss Garrod.

Industrially the floor may be divided—rather arbitrarily, perhaps—into two zones:

I. The Upper,—Including everything from layers 7, 8, and 9.
II. The Lower,—Layers 10 to 25.

By this mode of division the three adjacent layers in which the three rather large pigmy knives occurred are separated from the rest. These pigmies are near to some examples from Aveline's Hole. There is only a difference in degree between them and the microlithic knives from the French Magdalenian. The associated implements are much the same as those from Zone II. They include five gravers and four geometrical gravette points. The industry of this zone is certainly no later than the Magdalenian 6 (*b*) of Aveline's Hole; where only two gravers and one scraper were found among about fifty typical implements.

Zone II contained 27 gravers; 12 piercers; 10 gravette points of the geometrical type native to Britain, 5 shouldered implements, and 10 end-scrapers. Nothing was found which is not represented in the Base, Lower-Middle, and Middle Zones of Mother Grundy's Parlour, Creswell Crags, with the exception of the awl gravers and a single beaked burin. No primitive quartzite implements were turned up in Gough's Cave.

In regard to technique, the gravers are more numerous and on the whole larger than the Magdalenian 5–6 zones of Mother Grundy's Parlour. The technical resources of the Cheddar men were great and they freely drew on them. Though the

forms are few the implements are not stereotyped, the same type of artifact is sometimes fashioned in two or three different ways. A study of the awls will make this clear.

The end-scrapers and gravers are typical of the French Magdalenian, e.g. l'Abri Mege, and la Grotte de la Mairie at Teyjat, Dordogne. The points, especially the awl gravers, have their counterparts in the Upper Aurignacian of the Trilobite ; where proto- Solutrean implements were first found.[1]

The affinity with the industry in the neighbouring Flint Jack's Cave is strong, except that in Gough's the proportion of gravers is higher ; moreover in Gough's we see very little pressure chipping directed towards the bulbar surface.

Antiquities other than those of Flint found in Gough's Cave, 1927–28

BY H. ST. GEORGE GRAY, F.S.A.

The antiquities below described were discovered near the entrance of Gough's Cave in Mr. Parry's excavations during the winter, 1927–28, and they have been submitted to me for inspection and report.

All of them were found between layer 1 (pottery) and layer 19 (*bâton*). No pottery was found below layer 9. The lowest object of the early iron age was the bronze ring found in layer 9 ; it was, however, under a stone which had fallen from the roof. One of the small awls was found in layer 8, but there is no reason why it should not be later in date than the late palaeolithic period. On the other hand one of the perforated teeth, typically of late palaeolithic type, was found in layer 9 (another came from layer 14).

When early iron age man arrived he may have disturbed the upper layers he found to some extent in certain places.

I. 'Bâton-de-Commandement'

Part of a so-called bâton-de-commandement formed from an antler (probably reindeer), one of a class of implement supposed

[1] *Revue Anthropologique*, 1918, p. 316, fig. 9.

to have been used as sceptres, emblems or ceremonial wands of authority, or as arrow-shaft straighteners. Found in 1927 in layer 19 ; Aurignacian or Magdalenian. Figured in Plate XIX.

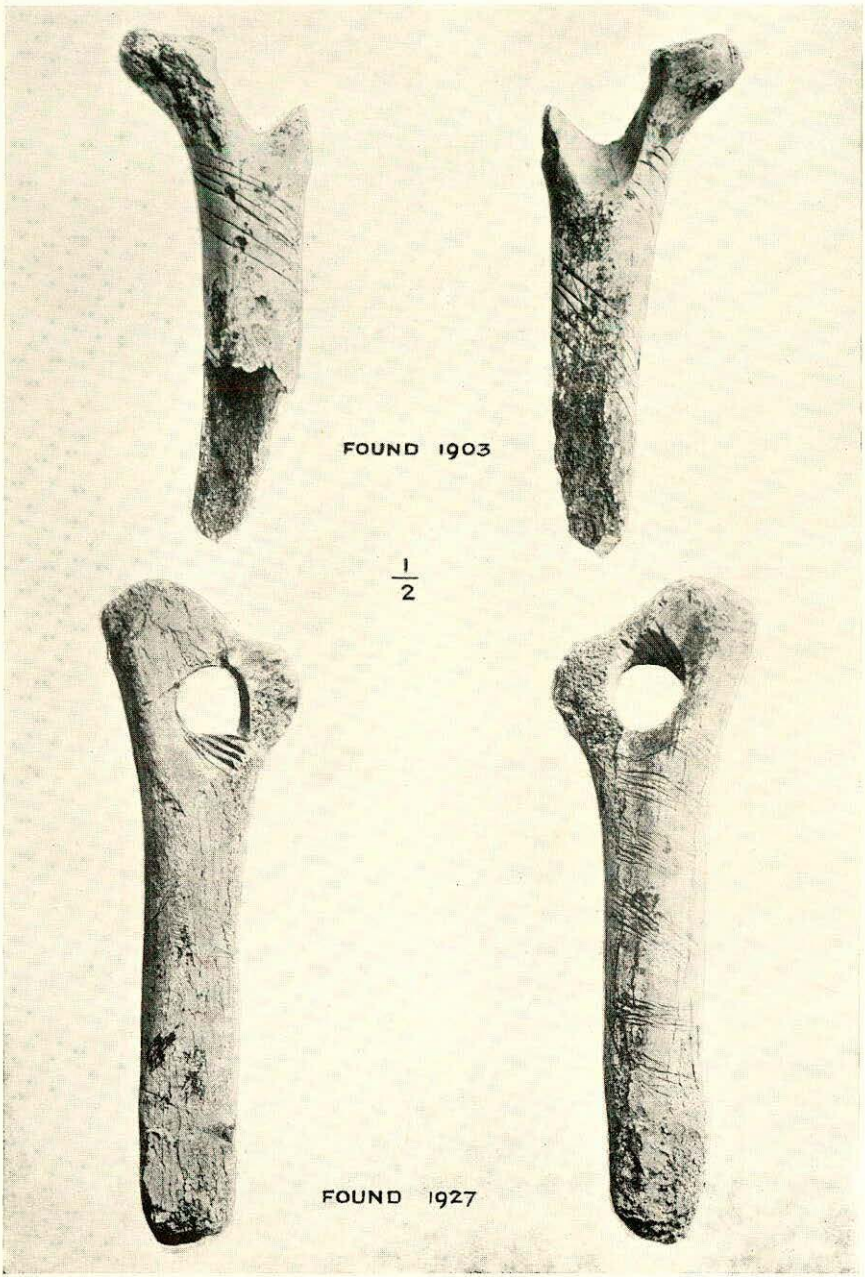
This specimen is considerably weathered at the ends, the present length being 177 mm. (about 7 in.). From the tint of the smoothed surface it is obvious that it was taken from the red cave-earth. On the upper or most rounded face the antler is scored, rather faintly, with six oblique bands of roughly incised lines, all more or less in one direction. This is decidedly clumsy work,—no doubt regarded by the maker as of quite secondary importance. On the opposite face there is another band of oblique scorings, very faint but better executed than on the other side.

The object consists of a part of the shaft of an antler bearing the stump of one of the tines, and the hole is drilled through the expanded region at the angle of branching. This single perforation is well cut and of considerable interest, as it has been carefully grooved internally with five continuous and nearly parallel incisions,—no doubt cut by means of a flint implement. Owing to wear one of the incised grooves has disappeared for a part of its length.

Viewed from one side the hole is considerably bevelled or counter-sunk in one position, and this bevelling tapers away both to right and left. On the other side the hole is similarly bevelled in the opposite direction. These features make the hole oblique with the line of the shaft of the antler. Before the bevelling was executed the aperture was about 16 mm. in diameter ; on the line of the bevelling the hole is increased to about 26 mm. on the outer faces of the bâton.

From the above description it will be realized that the grooving of the hole is on the twist, as the illustration shows. This device, supposing the implement to have been used as an arrow-shaft straightener, would serve as a grip for the wooden shaft, to prevent slipping.[1]

[1] In this connection the remarks of Professor W. J. Sollas should be read in *Ancient Hunters*, 1924, p. 530, where he writes of the bâtons: 'In the Magdalenian implement, on the other hand, the hole is always circular or cylindrical, and generally takes a straight course, at right angles to the two faces.'



'BÂTONS DE COMMANDEMENT,'
FOUND IN GOUGH'S CAVE, CHEDDAR

From Photographs by Mr. H. St. George Gray, F.S.A.

This specimen and that discovered with the Cheddar man previously appear to be the only examples yet found in Britain. They are sometimes found in Continental palaeolithic occupation floors, and are often finely ornamented and carved.

The example formerly found at Cheddar (1903), which is incomplete, has been figured and briefly described.[1] It is figured here again in Plate XIX. It is broken across the hole, but sufficient remains to suggest that it bears a close resemblance in form to a part of the left femur of a child. The maximum length of the specimen is 136 mm. Beginning at the side of the hole 'it has engraved upon it a number of incised irregularly spaced lines which evidently ran round the shaft in an oblique spiral, though only a little more than a single complete turn has survived'. In addition to these incisions 'there is a number of irregular and much lighter scratches'.

II. Rod of Ivory

Parts of a cylindrical rod of ivory (probably mammoth), split along the natural grain, having a diameter of 12·5 mm. The longest piece measured 139 mm. ($5\frac{1}{2}$ in.). Found in layer 12.

A similar ivory rod was found in Kent's Cavern (diam. 13 mm.).[2] Ivory rods of similar type, varying in diameter up to 13 mm., were found in the Paviland Cave, Gower Peninsula, in 1912.[3] They are placed in the Aurignacian horizon, and in that connection it might be repeated that although several experts regard the previous Palaeolithic remains from Gough's Cave as Magdalenian, M. Breuil was doubtful whether they may not be Aurignacian.

III. Necklace Ornaments

Two canine teeth of fox; length in straight line 27 mm. and 29 mm. respectively; each perforated by a small hole close to

[1] *Journ. Ryl. Anthrop. Inst.* xliv, 245.

[2] D. A. E. Garrod, *The Upper Palaeolithic Age in Britain*, p. 43.

[3] *Op. cit.*, Plate II; and *Journ. Ryl. Anthrop. Inst.*, xliii (1913), Plate XXII.

the root. One of them was found in layer 9, the other in layer 14. Figured in Plate XX, figs. 1, 2.

Perforated teeth for necklaces are frequently discovered with Palaeolithic remains. Three perforated wolves' teeth were found in the Paviland Cave, Glam.[1]

Shell of *Neritoides obtusatus*, Linn., length 13·5 mm., with rough hole drilled in the side, probably by a flint awl. Found in layer 11. Figured in Plate XX, fig. 13.

Similar beads have been found in most of the notable Upper Palaeolithic burials. About sixty specimens were found in Aveline's Hole, Burrington Combe, some of which have been figured.[2]

IV. Objects of Bone

The bone objects were not very numerous, and consisted for the most part of awls, prickers or piercers, and other pointed implements ; two pieces of bone with scorings caused by flint implements ; also a gouge-shaped object of a type common in the lake-villages of Somerset (Plate XX).

These objects are severally described below (in layers) :

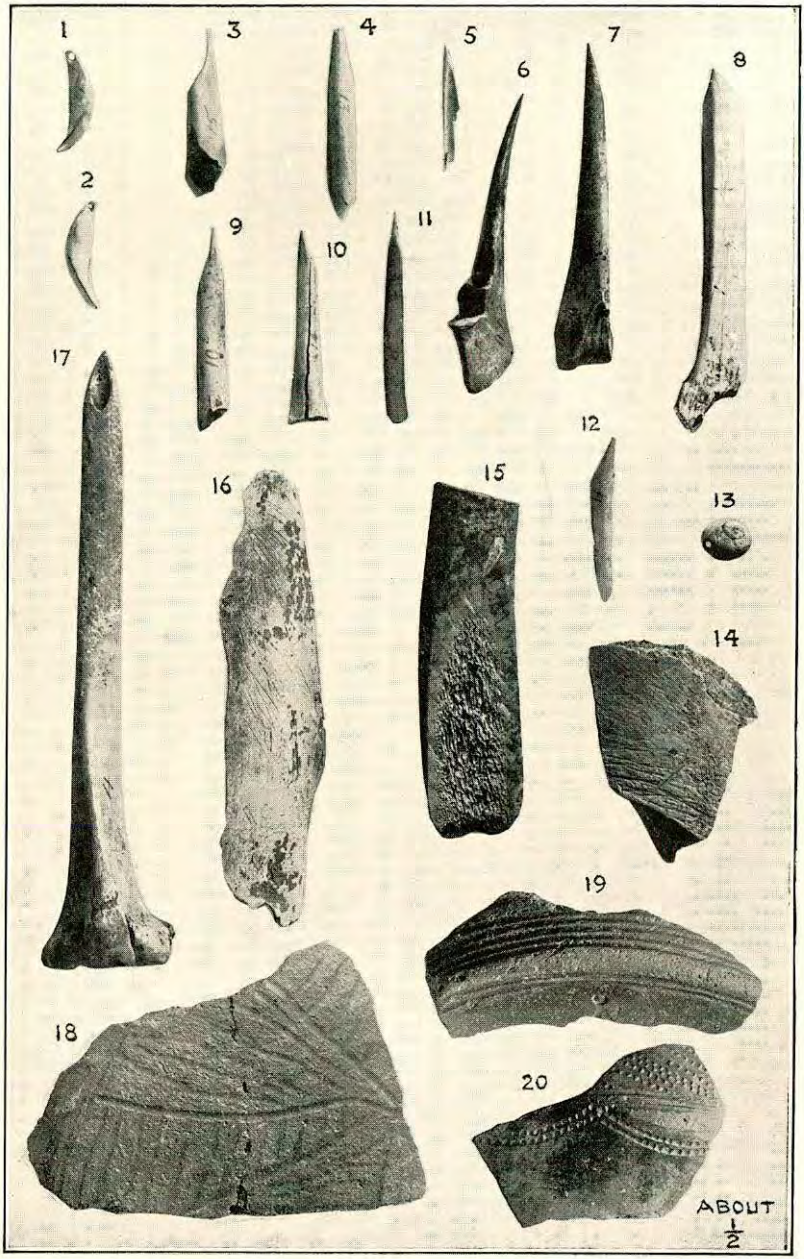
Layer 4. L.—Gouge-shaped object formed from the left tibia of sheep (or goat), length 169 mm. (6⅝ in.). Figured in Plate XX, fig. 17. In this example the greater part of the shaft remains, and it has been tapered off to a fairly sharp point. As in a large number of instances the proximal end which remains was bored longitudinally, forming a tapering socket about 17 mm. in diam. at the mouth, as if intended for the insertion of a shaft or handle which would be secured by a rivet,—in this case penetrating a transverse hole having a diam. of 5 mm. These implements have been variously described, and they may, of course, have been used for various purposes, for instance as arrowheads,[3] lance-heads, gouges, etc. They have been found in considerable quantities in the lake-villages of Glastonbury[4] and Meare, and at Kingsdown Camp, Mells (excavated in 1927–28).

[1] *Journ. Ryl. Anthrop. Inst.*, xliii, Pl. XXII, 11*a–c*.

[2] *Proc. Som. Arch. Soc.*, lxviii, Pl. VII, fig. 2, and p. 23 ; *Proc. Spelaeol. Soc.*, Univ. of Bristol, i, fig. 10, no. 2, p. 69; *The Upper Palaeolithic Age in Britain*, by D. A. E. Garrod, p. 88.

[3] *Early Iron Age Guide*, British Museum, 1925, p. 113.

[4] Bulleid and Gray, *Glastonbury Lake Village*, ii, 419–421. In this work I have classified them into types.



Objects of Bone, etc., and fragments of Pottery,
Gough's Cave, Cheddar, 1927-28

From Photographs by Mr. H. St. George Gray, F.S.A.

Layer 6.—Piece of sawn antler (?), length $3\frac{13}{16}$ in., sawn transversely at the end, and cut obliquely lengthwise extending almost from end to end. It may have served as a kind of ' chisel ' for something soft. Although weathered, it appears to have been sawn by a fine saw. (Plate XX, fig. 15.)

Layer 7.—Part of one face of a rib-bone, length $5\frac{1}{2}$ in., max. width $\frac{3}{4}$ in., sharpening at one end, where through much wear it is considerably smoothened. It cannot be definitely dated, and may, owing to its position, be as late as the earlier part of the Prehistoric Iron Age.

Layer 10.—Piece of bone, thick and rather flat, apparently containing a good deal of its animal matter ; marked on one face by the scorings of a flint implement. (Plate XX, fig. 14.)

Layer 10.—Awl, well finished, with a perfect point, formed from the proximal portion of tibia, probably that of a Hare (? *Lepus* sp.)[1] ; length 90 mm. (Plate XX, fig. 7.)

Layer 11. L.—Awl or pricker, with very sharp point, formed from the ulna[1] of goat (?)[2] ; length 84 mm. (Plate XX, fig. 6.)

Layer 14.—Long splinter from the shaft of a long-bone of a large animal, scored faintly on the surface with oblique and in places almost parallel lines. (Plate XX, fig. 16.)

Layer 14. L.—Sharpened tool (not well finished, but apparently much used), made from part of ulna (proximal portion) of Swan (*Cygnus, ? olor*),[1] length $3\frac{13}{16}$ in. (Plate XX, fig. 8.)

Layers 8–16.—(One, viz. layer 10, from the left-hand side). With one exception these are all splinters of bone, varying in length from 36 to 56 mm. The other is apparently part of a small bird bone, sharpened to a point which is now broken at the tip ; it came from layer 14 and is 52 mm. in length. One of the specimens from layer 13 has the top broken ; also that found in layer 15. The remaining four retain their sharp points and were found in layers 8, 10, 11 and 13 respectively, only that from layer 10 being found on the left side of the explored site. (Plate XX, figs. 3–5, 9–12.)

V. Miscellaneous

The bronze ring found in layer 9, and the spindlewhorl found in layer 6, both appear to be of the Prehistoric Iron Age. The following are the details :

Spiral ring of bronze of two turns, tapered at the ends, made from a strand of wire of bi-convex section, about 3 by 2 mm.

[1] Bone identified by Miss D. M. A. Bate, British Museum (Nat. Hist.).

[2] A more precise identification of this bone is difficult owing to all the articular surfaces being abraded.—*D.M.A.B.*

In one part it has been badly bent. There is no ornament. From its internal diameter, namely 26·5 mm., it is doubtful whether it was a finger-ring, but it may have been the property of a fat person. It might possibly have been a toe-ring. One or two rings of this class and of large size were found in the Glastonbury Lake Village.[1]

Although the Cheddar specimen was found in layer 9, it cannot be dated before the Prehistoric Iron Age. It has been recorded that this specimen was found directly under a large stone fallen from the roof and might have been carried down below its proper level.

Spindlewhorl of stone in process of manufacture, having an incipient hole in centre clearly indicated on both the flat surfaces. The sides have a slightly convex section. Max. diam. 42·5 mm. ; max. thickness 15·5 mm.

VI. The Pottery

On the whole the shards of pottery discovered in this excavation are not of special interest (but there are a few exceptions). The fragments come from layers 1 to 9, and they do not apparently include any fragment that is earlier than the Prehistoric Iron Age. In layers 1 to 7 pottery of Roman date is identified, which suggests some mixing of the fragments—possibly owing to former disturbance of the upper layers of the excavated material. But there is a decided difference in the pottery found in layers 7 and 8, for in the latter ornamented pieces (Plate XX, figs. 19, 20) comparable with designs from the Somerset Lake Villages and from Wookey Hole are found. The large fragment ornamented with burnished lines from layer 9 appears to be of the early Iron Age, but it is a difficult piece to place definitely until some comparisons can be made (Plate XX, fig. 18).

Layer 1.—A little Romano-British pottery.

Layer 2 (1[2]).—Fragment of coarse pottery with smooth faces ; Romano-British.

[1] *Glastonbury Lake Village*, i, Plate XLI, E40 and E169.

[2] The figure in brackets indicates the number of fragments of pottery found in the layer.

Layer 3 (2).—A similar fragment to above ; and a fragment of thin wheel-turned black pottery, very smooth on the outer face, and ornamented with one horizontal incised line, Roman.

Layer 4 (3).—Fragment of brown Romano-British pottery, and part of the thin flat base of a pot of the same period. Also a piece of lathe-turned thin grey pottery, Roman.

Layer 5 (4).—Small piece of rim, part of a handle, and two other plain fragments of vessels of Romano-British type.

Layer 6 (10).—A piece of lathe-turned thin grey pottery, Roman, of the same character as the similar piece found in layer 4. Rim-piece of the ' basin-shaped ' type of Pitt-Rivers, ornamented with faintly burnished zigzag design. Four other rim-pieces of no special interest, and four other fragments of black and brown pottery—all apparently British of the early Roman period.

Layer 7 (14).—Pottery of similar general type and quality to the bulk of the fragments found in layer 6. It is interesting to note at this depth a piece of rim of an *olla*, or cooking-pot, of thin grey pottery, of Roman type. Among the other four rim-pieces is one having a straight rim ; the vessel was one of large circumference, and the fragment measures 25·5 mm. in maximum thickness. There are two pieces of base, but nothing else worthy of comment.

Layer 8 (6).—These fragments, of which three are ornamented, are clearly of the Prehistoric Iron Age.

The two plain smooth fragments have food and soot still adhering to the ware.

One small piece,—from just below the rim,—is ornamented with two horizontal grooves, and is noticeable in having some small grains of a glittering material on the outer surface.

One of the fragments of base is hollowed below, and is suggestive of being a piece of an omphaloid base of the type frequently found in the excavations at Hengistbury and rarely also in the lake villages.

The other piece of bottom is also interesting, as traces of ornament (including a dot-and-circle) remain on the base, the whole surrounded by two grooves following the margin. It is also richly grooved (six grooves still traceable), horizontally, at the foot of the side of the vessel. (Plate XX, fig. 19.)

There remains to be described the piece of black pottery with burnished surface, ornamented on the slight carination by two parallel horizontal grooves, above which there are oblique parallel lines made with a roulette or notched tool and below double lines of festoons similarly treated, and comparable with a design found on a pottery vessel in Wookey Hole.[1] This style of ornament has occasionally been found in the lake villages.[2] (Plate XX, fig. 20.)

[1] H. E. Balch, *Wookey Hole*, Plate XVI, fig. 23.

[2] Bulleid and Gray, *Glastonbury Lake Village*, Plate LXXXI, P215.

Layer 9 (1).—Large piece of brown ware, smooth on the external surface, ornamented with rough triangles of wide burnished lines, and filled with similar lines arranged in different directions. (Plate XX, fig. 18.) A similar type of burnishing has been found on pottery associated with ware of typical lake-village *facies* and decoration in the excavations at Ham Hill, South Somerset.

Report on Human Remains from Gough's Cave, Cheddar

by sir arthur keith, f.r.s., and dr. n. c. cooper

It has been our privilege to be present at some of the excavations at the entrance to Gough's Cave during the latter part of 1927 and earlier part of 1928, and to identify the human remains found there.

These were found in the red cave earth constituting layers 6 and 7 and 10–13 inclusive, and it is a feature of note that they were scattered about in these layers at various distances from the datum line at the cave mouth in a manner which did not suggest inhumation, or if so, considerable disturbance afterwards. In fact the adult skull fragments were found 7 ft. from each other. This was not the case with the skeleton described by Parsons and Seligman.

The limb-bones, which with one exception belong to the lower extremities, were very fragmentary (the longest piece being a matter of about 6 in.) and split similarily to the bones of animals which were used for the purpose of food. In no case is there any sign of crushing of the fragments as by a fall of roof.

Sir Arthur Keith mentions in his report that some of the skulls show fractures which were probably made when the bone was still fresh.

It is impossible, owing to this fragmentation, to obtain any measurements which would indicate the stature of the individuals.

The two skulls (layers 10 and 11 and 12 and 13) when pieced together, were broken to such an extent that a good deal of reconstruction was necessary, and we were very fortunate in securing the help of Sir Arthur Keith in this, and are indebted to him for an account of the skull fragments.

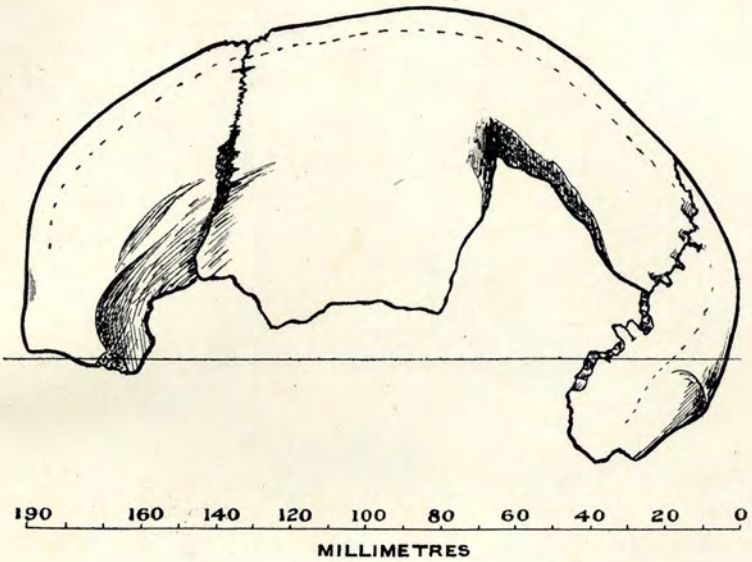


Fig. 1. Profile of Skull (No. 1)

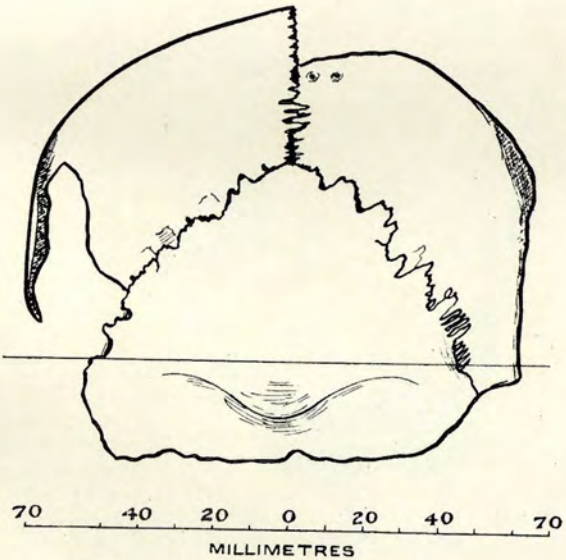


Fig. 2. Occipital View of Skull (No. 1)

GOUGH'S CAVE, CHEDDAR

From Drawings by Mr. E. Smith (½ natural size)

These represent five individuals, only one over 30 years of age. Of the others one is 20–25, one 12–14, one 12 and the other 3 years of age.

The following is Sir Arthur Keith's report on the two more complete skulls (Plates XXI and XXII).

Description of No. 1. *Young man's skull* (Plate XXI).

'The maximum length of the specimen is 190 mm. but to this 2 mm. must be added for the missing part of the glabella. The maximum width has to be estimated from the left half which measures 72 mm.; the maximum width was therefore approximately 144 mm. The width is 75% of the length—the skull thus falling into the upper limit of long heads. The temporal bone being missing, we cannot estimate directly the basi-bregmatic or auricular height of this skull, but the height of the vault above the level of a line passing through the fronto-malar junction and asterion (Keith's base line) can be measured (Fig. 1). The bregma lies 88 mm. above this plane, the highest point of the vault 95 mm. These measurements indicate a low vault, one which rose about 110 mm. above the Frankfort plane, with a basi-bregmatic height of 126–128 mm. From these measurements we see that this skull was of fair capacity—about 1,420 cc., 60 cc., below the mean brain space for modern men.

'The total width of the forehead has to be estimated by doubling the left half. In this way we obtain 100 mm. for its minimal width —a wide fore-head. The width between the outer ends of the supra-orbital processes I estimate to have been 107 mm. The upper margin of the orbit was nearly horizontal and the supraciliary and supra-orbital eminences while well marked, were not stronger than is often the case in living Englishmen.

'The frontal, parietal and occipital bones vary in thickness from 4 to 7 mm.—the mean being between 5 and 6 mm. The thickness of the occipital bone, taken so as to include the torcular eminence and external occipital protuberance combined, measures 17 mm. The external protuberance is on the same plane as the highest point of the lateral sinus, when the skull is placed in the Frankfort plane.

Sagittal arc of the skull. The part of the frontal bone preserved measures 115 mm.; I estimate that 12 mm. is missing from the glabellar region, the total median length having been about 127 mm. The parietal bone—from bregma to lambda, measures 125 mm. The part of the occipital arc preserved measures 94 mm., there being about 25 mm. missing from its lower nuchal part. The part above the inion measures 70 mm. The total sagittal arc of the intact skull must have measured about 370 mm.

'In its dimensions and character this skull is very similar to the specimen already described by Professors Parsons and Seligman.

It is not necessary to give further descriptive details as the two accompanying drawings by Mr. E. Smith reproduce very exactly its characters as seen in profile and from behind.'

Skull No. 2. That of a child, about three years of age, probably female (Plate XXII).

'Glabello-occipital length 157 mm.; maximum length (upper fronto-occipital) 165 mm. Fig. 3 shows this specimen in profile; the forehead is—as usually the case in young children—prominent on its upper part, retracting as it descends to the nasal root. Hence the longest diameter is not the glabello-occipital, but as seen from the above measurements, the fronto-occipital. The greatest width (see Fig. 4) is also high up in the parietal region, as is the way in young children; in them the basal parts of the skull increase after the years of infancy. The greatest width (estimated from left half) was 118 mm.; the width represents 71·5% of length—a long-headed child. The skull is relatively high, as children skulls should be, the highest point of the vault being 107 mm. above the Frankfort plane; the bregma lies 99 mm. above this plane. The highest point of the vault is 94 mm. above the subcerebral or Keith's plane—almost as much as in the adult skull No. 1. The maximal width of the frontal bone is 103 mm, its minimal width 89—a wide forehead for a child. The frontal and parietal bones have a mean thickness of 3 mm. The condition of the bones is similar in mineralization to No. 1 skull; in both the texture is remarkably fresh: this is because the conditions of preservation in the cave earth have been so perfect. The mastoid process is small—its point lying 19 mm. below the Frankfort plane but scarcely covering the digastric fossa. There is no perforation to be seen in the centre of the tympanic plate, in modern children of this age there should be one; this plate measures 17 mm., from apex, behind the Eustachian opening, to the middle of its meatal margin.'

Of the other skull fragments, all were found in layer 7.

Part of a right parietal (1*a*) which probably represents part of the missing bone of skull No. 1 on account of the similarity of their convolutionary patterns. This seems to have been broken and detached at or soon after death.

Part of a right parietal agreeing in most of its features with skull No. 2.

Left temporal, probably a girl's, about 12 years of age.

Part of the r. frontal of a child of 12 years and almost certainly part of the same skull as the temporal.

Fragment of upper jaw with first molar showing, the dentine exposed throughout. The tooth is 11·6 mm. long and 11 mm. wide. It indicates an age of about 35 years or more.

Right half of sphenoid of a young person, deeply stained. The

basi-spheno-occipital suture and sinuses indicate an age of approximately 12–14 years.

Left half of upper jaw of a girl 12–14 years old, partly stained similarly to the sphenoid and probably part of the same skull. The last molar tooth is still deep in the alveolus and the first molar is 9·5 mm. long and 10·2 mm. wide. The palate is well formed but small, being 55 mm. wide, 48 mm. long and 14 mm. deep.

There is nothing outstanding to note in the fragmentary skeletal bones, but one tibial fragment shows a well marked crest and suggests a degree of platycnemia.

The following table shows the fragments and the layers in which they were found :

DESCRIPTION	MARK	REMARKS	LAYER
L. Femur (prox. end)		.. ..	7
L. Femur (head)		.. ..	7
R. Femur ..		.. ..	6
Leg fragments ..		.. ..	6 & 7
6 Metatarsal and Metacarpals ..		.. ..	6 & 7
Ilium (R.) ..		Young person ..	6
Ilium (L.) ..		,, ,, ..	7
Sacrum ..		.. ..	6
Clavicle (L.) ..		Young person ..	6
Skull ..	No. 1	Male, 20–25 years	12 & 13
Skull ..	No. 2	Female, 3 years	10 & 11
Part r. parietal ..	1*a*	? part of Skull No. 1	7
Part r. parietal ..	2*a*	? ,, ,, ,, No. 2	7
L. temporal ..	3	probably same skull,	7
R. frontal ..	4	girl 12 years	7
Upper jaw ..	5	35 years about ..	7
R. sphenoid ..	6	12–14 years ; girl ;	7
L. upper jaw ..	7	probably same skull	

The remains are representative of a long-headed type allied to, but not so capacious nor so massive as the Cromagnon people. They are late palaeolithic in horizon, but differ in head-form from most of the occupants of Aveline's Hole, which were brachycephalic.

Sir Arthur Keith does not look upon ' this difference in head-form as indicating a real racial difference, but it is just the date which is likely to prove the most difficult of the problems which have to be settled '.