

Excavations at Cheddar

BY R. F. PARRY

(1) THE CAVES (late Gough's)

SINCE the report in *Proceedings*, lxxiv (1928), 102-121, which covered the work done during the winter months of 1927 and 1928, the excavation has been continued each winter as shown in the plan (Fig. 1).

We may take the stratification there shown as being constant throughout the whole excavation. There was a greater amount of stone which had fallen from the cliff face under the overhanging rock between the iron gates and the engine-house, and we had to remove over a foot of this before coming to our first layer. Otherwise the layers approximate very nearly, and vary only by a few inches from those described in the previous report. The band of charcoal and burnt bones in layer 13 was again very noticeable in places.

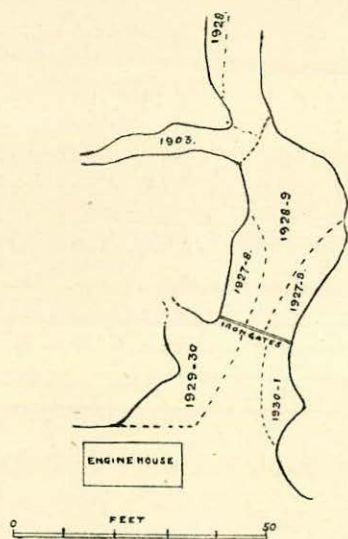


Fig. 1. Entrance to the Caves, showing the parts excavated, in 1903, and from 1927 to 1931.

Beyond the fissure in which 'the Cheddar man' was found in 1903, the bank of cave earth on the left side of the path was excavated for a distance of

30 ft. in 1928, and carried down to the gravel, but without producing any sign of occupation.

The finds (Roman, Romano-British and Early Iron age) from the upper layers are described by Mr. H. St. George Gray, F.S.A., in a separate report. Over 7000 flints have been taken from the excavation, 947 of which show supplementary working. They commence in layer 7, and there are a few from layers 8 and 9, but by far the greater number come from the middle sandy layers 10 to 16. There are a few from the gravel below, but I am strongly under the impression that these had been carried down below their original level by the retreating water after flooding, as they were all found at the sides of the cave, often against the cave walls and usually in sandy patches. No flint was found near the centre of the cave in the gravel.

The long, narrow blade of La Madeleine type was the tool most frequently found, and there were 300 of these. Generally the supplementary work on these is slight, but a few are more heavily worked. The small blade with battered back, the gravette point and allied forms were very numerous, the angular type predominating, and there were a number of shouldered points. We have seventy-five burins, and most types of this tool are represented—one or two with burin at one end and opposed end-scraper are particularly neat tools. There are twenty-four piercers or awls, which however do not as a rule show signs of rotatory bruising. We have fifty-three end-scrapers (*grattoirs*) mostly on long blades. The absence of side-scrapers is very noticeable. There are eight blades the ends of which are worn quite smooth by continual use: it is generally the bulb end that is so smoothed. Similarly blades smoothed at the point have been noticed from Mother Grundy's Parlour. We had a few more pigmies.

Taken altogether the flints are a very homogeneous lot and there seems to be little if any difference between those from the upper layers and those from the lower. The majority of the pigmy forms certainly come from the upper layers, but not entirely so. The types are all in accordance with those described in the previous report, and it does not therefore appear necessary to illustrate them.

A flat pebble of slaty limestone, 4.6 in. long, from layer 14

(Fig. 2, no. 1), with a number of lines engraved transversely across it, and one line running through these parallel to the length of the pebble, is of interest. The lines are cut carefully and very distinctly. It is difficult to suggest the meaning of this work, but one feels that there was some specific object in view. Another limestone pebble is scratched over both faces, evidently by a flint tool, and there appears to be the representation of some animal, but the lines are too confused for one to be sure of this. It has been suggested that these pebbles were smoked and a drawing made with a flint graver which showed clearly through the smoke film, but only scratched the surface of the pebble, and that it may have been used as a model for any more

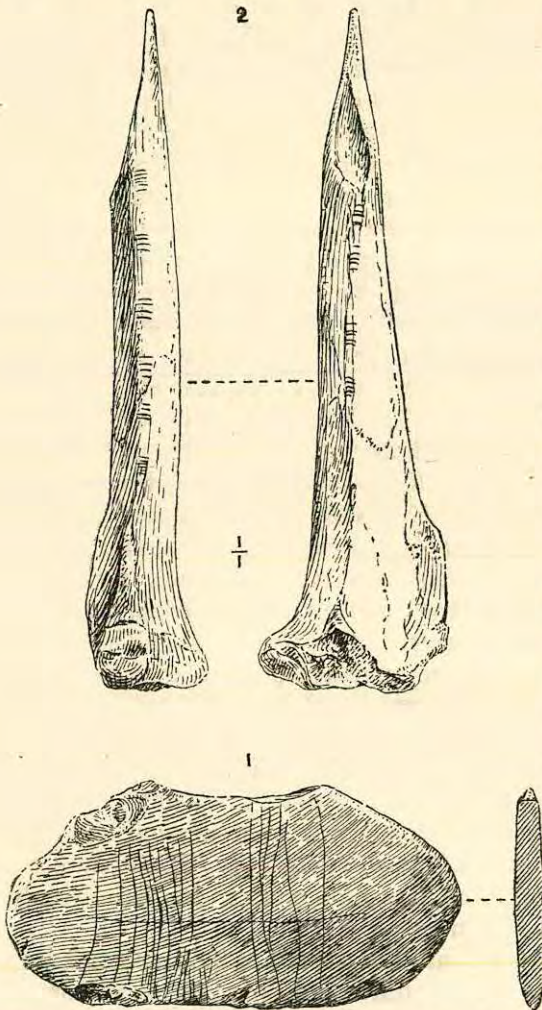


Fig. 2. Engraved stone (drawn half scale) and bone awl, Gough's Cave, Cheddar.

E. Sprankling, del.

the smoke film, but only scratched the surface of the pebble, and that it may have been used as a model for any more

important drawings. The pebble might be used over and over again by renewing the smoke film. This may account for many of these showing one animal superimposed on another, and for the general confusion of the lines so often seen.

Another interesting find was a small splinter, 2 in. long, of the *bâton de commandement* found in 1903.¹ This splinter exactly fits the broken part of the old *bâton* and continues the lines of engraving running spirally round the shaft. It came from layer 13, and must have been at least 8 ft. away from the original portion.

A bone awl or piercer (Fig. 2, no. 2), 3.6 in. long, from layer 10, made from the proximal portion of a tibia of the English Varying Hare (*Lepus variabilis anglicus* Hinton) now extinct, has on the three outstanding angles of the bone a number of lines cut clearly in groups of fours and fives, with a six at the end of one line. I cannot hear of any other specimen of this type bearing similar incisions. The cuts remind one somewhat of the markings on an ordnance scale, although the spacing of the lines is not quite even. It is possibly a tally. We have ten piercers of this type but without the markings. They come from layers 9 to 16 and are of Upper Palæolithic date. These piercers have been found at Kent's Cavern and at Creswell Crags.

The following animal remains have been added to the previous list:—Beaver from layer 10, Cave Pika and *Lemmus lemmus* from layer 11, and *Arvicola abbotti* from layers 11 and 12. Horse was again by far the most abundant.

It has been stated that Cave Bear, Hyæna, Rhinoceros, and Cave Lion had been found in the earlier excavations of the cave, and specimens were certainly in the museum, but I have traced some of these to Sugar Loaf Rock some 200 yards away, and I think only those mentioned above, and in the previous report, which have been identified by Miss D. M. A. Bate, should now be considered as having been found in the cave.

(2) SOLDIER'S HOLE

Some 200 yards from 'The Caves' higher up the Gorge is 'Soldier's Hole', situated about 150 feet above the road on the

¹ *Proc. Som. Arch. Soc.* lxxiv, Plate XIX, and p. 113.

right-hand side, and this we have also been excavating. The entrance is 19 ft. across, but it immediately expands to 28 ft., and it has a depth of 27 ft. There is a small continuation in the N.E. corner which has not yet been examined.

We worked this in the same way (i.e. in 6-inch layers) as far as possible, but as it is divided into four very distinct natural layers we had to conform to these. This made layer 1 6 in. at the back of the cave and 2 ft. 6 in. in front, and again layer 2 was 1 ft. at the back and 2 ft. in front. We are now adopting the natural layers which show very distinctly on the side of the cutting and are as follows:—

Layer 1 (working layer 1). Limey cave earth with a large mixture of humus in front. There were a number of stalagmite bosses under the drips from the roof standing slightly above the floor of the cave, and entering layer 2 to a depth varying from 6 to 12 in. The largest was 2 ft. 6 in. across and 1 ft. 6 in. in depth.

This layer is of a very friable nature and has been much disturbed by rabbits. It has been fully described by Mr. H. E. Balch, F.S.A., in *The Antiquaries Journal*, vol. viii, 204-9. It contained a mixture of Roman, Romano-British, Early Iron, Bronze Age and Neolithic artifacts and pottery.

Layer 2 (working layers 2 and 3), varying from 1 ft. to 2 ft. in thickness, was of red cave earth with many limestone fragments. It showed no signs of occupation and the animal remains were very scarce but *Canis vulpes* and *Lepus anglicus* were present.

Layer 3 (working layers 4 to 9), lying entirely beneath the stalagmite bosses, was 3 ft. in thickness and was composed of red marl containing a large number of broken down calcite crystals, which in the first few inches gave it quite a grey appearance on the side of the cutting. There was a considerable amount of limestone scree distributed throughout the layer. This layer produced thirteen flint tools of the same type as those from 'The Caves' and all of them can be very closely matched in the collection from that place (Plate XII). The leading type was the small blade with battered back and oblique end, allied to the gravette point (Plate XII, figs. 2, 3 and 4). One, 2 in. long, is double-ended (fig. 5), and there was a

lateral burin on a blade with battered back and end (fig. 1). It is noticeable here that every piece of flint found, with one exception, appears to be a definite tool. There were no chips or cores. This is very different from what we found in 'The Caves'.

Layer 4 (working layers 10 to 17) was composed of a dark red marl of a much more clayey nature. It included many limestone fragments generally of small size but with a few larger blocks. It produced seven flint tools. The largest is a leaf-shaped blade of Solutré type 4, 3 in. long by 1.7 in. wide and 0.4 in. in maximum thickness. It is worked over each face by shallow flaking (Plate XII, fig. 6). The sides (edges) are central and trimmed from both faces. It is reminiscent of one found in Gipping Valley by Mr. Reid Moir and illustrated in Miss Garrod's book on *The Upper Palæolithic Age in Britain*. Another (fig. 7), 3.2 in. by 1.8 in. by 0.3 in. in the thickest place, is also worked on both surfaces. It is a much broader flake with a rounded point. The one side is practically flat and Mr. Reginald A. Smith, F.S.A., who has examined it, calls attention to 'the edging from the flat face after the surface flaking was finished,' and remarks that 'this occurs in some Levallois (Northfleet) implements.' A piece of tabular flint (fig. 8) 2.4 in. long by 0.9 in. wide, with parallel sides and rectangular section, is worked to an edge at the butt and shows signs of the scale-like flaking characteristic of the age of Solutré on both faces. A stout point (fig. 9) retains some of the cortex of the flint, and is worked at the point. There are three blades (one of chert) with slight work on the edges (fig. 10). A bone point, oblong in section at the butt end, is 2.5 in. long and is worn quite smooth at the point by long use (fig. 11). There appears to be an eel-like fish or snake engraved upon it, but it is not very definite.

The finds of the age of Solutré are very scarce in England, and the typical laurel-leaf has only been found in the gravel of the eastern counties. The account of their stratification and associated finds is rather indefinite.

Working layers 18 to 21, from a fissure in the floor of the cave, were similar in character to those immediately above, but produced no artifacts.

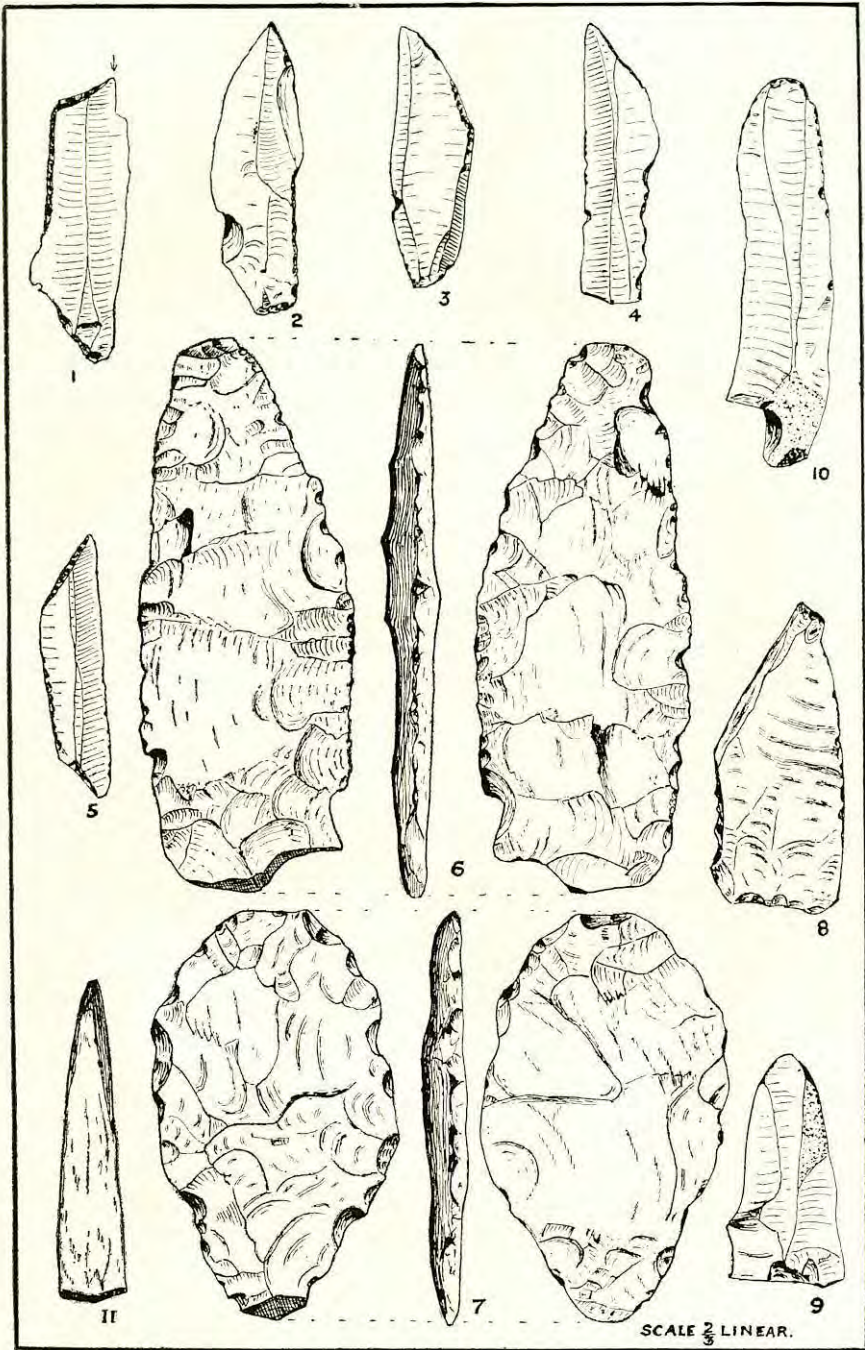
Below is a summary showing the various layers with their contents :—

Natural Layer.	Working Layers.	Description.	Animal Remains.	Artifacts.
1	1	Friable limey cave earth and leaf mould with stalagmite bosses	Recent	Roman, Romano-British, Bronze and Neolithic.
2	2 & 3	Buff cave earth	Fox and <i>Lepus Anglicus</i>	None
3	4 to 9	Red marl with calcite crystals	late Pleistocene	Flints of La Madeleine type
4	10 to 17	Dark red marl slightly rounded limestones.	earlier Pleistocene	Flints of Solutré type
„	18 to 21	Do. (from fissure in floor).	Do.	None

(3) GENERAL REMARKS.

The patination of the flint from Soldier's Hole is very different from the dead white of those from 'The Caves' and it does not appear to be so deep. It is similar to that seen on the flint implements from Flint Jack's Cave, Cheddar, with its decidedly blue tinge. There is a slight lustre on all which is more pronounced on those from layer 4. This difference in patination of the flints from two caves which appear to cover the same age, and are within 200 yards of each other, may be caused by Soldier's Hole (also Flint Jack's Cave) being high up on the cliff side in a very dry position, whilst 'The Caves', particularly before they were drained some few years ago, were damp and liable to flooding.

The period of occupation of 'The Caves' in Palæolithic times was probably of not very long duration. It is certainly of one culture. The fauna is of very late Pleistocene date, particularly if we leave out of consideration Rhinoceros, Cave Bear, Hyæna and Cave Lion referred to before. With so much more material to work upon, we are now in a better position to arrive at a



FLINT IMPLEMENTS, SOLDIER'S HOLE, CHEDDAR

From Drawings by Mr. R. F. Parry

conclusion as to what age is represented here. The flint work closely resembles that of Aveline's Hole in Burrington Combe, and the black band of Kent's Cavern, Torquay, at which places harpoons of undoubted La Madeleine type were found. The long blades, the end-scrapers on long blades, and the beaked burins all point to the age of La Madeleine, as also the *bâtons de commandement*, and the absence of side-scrapers.

The finding in layer 4 of Soldier's Hole of flint implements of the style of Solutré underneath those of layer 3, which are certainly of the same culture as 'The Caves', and with an older fauna (see Dr. J. Wilfrid Jackson's report), seems to settle the industry as being of the age of La Madeleine, and may also fix the date of Mr. H. E. Balch's find of eleven flint implements in Ebbor Gorge about the age of which some doubt has been expressed.

In conclusion I should like to thank Mr. Reginald A. Smith, F.S.A., for his help and advice at both places, Miss D. M. A. Bate for identifying the animal remains from 'The Caves', Dr. J. Wilfrid Jackson, F.G.S., for his report on the bones from Soldier's Hole, and Mr. H. St. George Gray, F.S.A., for reporting on the pottery, etc., from the earlier layers of the caves. The late Mr. J. A. Davies, B.Sc., had helped me with the identification of some of the flint implements.

ANTIQUITIES OTHER THAN THOSE OF FLINT FOUND IN GOUGH'S CAVE, 1929-30

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

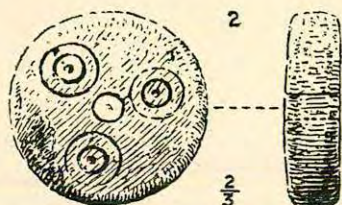
The pottery and other specimens here recorded have been discovered in Mr. Parry's excavations since my report on the antiquities found in 1927-28 and described in *Proceedings*, lxxiv, 111-118.

As in the previous excavations no pottery was found below Layer 9, and I have on this occasion received none which came from a higher layer than no. 5.

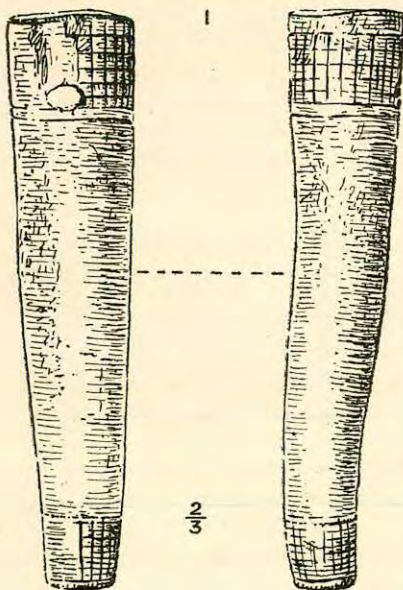
The other specimens consist of a 'cheek-piece' of a horse's bridle-bit found in layer 7 (Fig. 3, no. 1), and two spindlewhorls from layer 8—one of stone, the other of antler, finely orna-

mented (Fig. 3, no. 2), all of them typical of the Prehistoric Iron Age.

The 'cheek-piece', well worn and smooth, length 115 mm.



(4½ in.), is formed from an unusually straight tine of red-deer antler, sawn off square at both the larger and smaller ends. It is of Type A (*Glastonbury Lake Village*, p. 441), having the single rounded perforation near the large end through the shorter diameter of the tine. The bands of square-shaped lattice ornament at either end extend only half-way round and in corresponding positions. The band at the smaller end is much worn in the middle.



A rather smaller and more worn specimen, of Type E, with one perforation penetrating the long diameter of the tine, was found near the surface of the floor of this cavern some years ago, and is preserved in the museum at the caves. It is figured in *Glastonbury Lake Village*, p. 446.

About forty-five similar objects were found in the Glastonbury village, and a large number have been collected at the Meare Lake

Village. They are discussed in *Glastonbury Lake Village*, pp. 440-454.

The larger spindlewhorl is of a fine-grained grey stone (? lias),

Fig. 3. Objects of red-deer antler,
Gough's Cave, Cheddar.
E. Sprankling, del.

almost truly circular, average diameter 53·5 mm. It is flat and of oblong cross-section, maximum thickness 9 mm. The central hole is slightly countersunk on either surface, minimum diameter 6 mm.

The other spindlewhorl (Fig. 3, no. 2) was made from the base of an antler of red-deer, smooth and well worn, maximum diameter 38·5 mm. ; of almost oblong cross-section, maximum thickness 12 mm. The surfaces are slightly convex. The central hole is clean cut, diameter 5 mm. on one side and 6 mm. on the other. The whorl is an interesting specimen, for it is ornamented on either surface with a group of three concentric circles, triangularly placed. All the six ornaments consist of two circles enclosing a dot (the outer circle 10 mm. in diameter).

The Pottery.

On the previous occasion (*Proc.* lxxiv, 116–118) pottery of the Roman period and the later part of the Prehistoric Iron Age from nine layers had to be examined. In the later excavations no pottery was found in the four upper layers. In layer 5, however, the only fragments are those exhibiting typical Lake-village ornament, whereas in layer 8 all the fragments found (five) are of Romano-British type, with nothing earlier. It should also be pointed out that parts of the straight-sided flanged bowls or ‘cooking-pots’, so common in the third and fourth centuries A.D., have been found as deep as Layers 6 and 8 (*see below*).

There can be no doubt, therefore, that at some time there must have been considerable disturbance of the upper layers of the material which has now been excavated.

The fragments of a bead-rim (apparently parts of one vessel), from layer 7, have been examined (at my request) by Messrs. G. C. Dunning and C. F. C. Hawkes. It is impossible to decide the date of this type¹ within the century, *circ.* 50 B.C.—50 A.D. Its being handmade cannot be used as an argument for early date. On grounds of general probability and the association with Romano-British pottery (some not very early), this bead-rim vessel appears to fall well into the first century A.D.

¹ The type has been figured in many places, including vessels found at Rotherley, *Excavations in Cranborne Chase*, ii, Plate CVIII, figs. 2, 3.

*Layer 5 (2).*¹—These fragments are interesting because they bear typical Lake-village ornament. The smaller piece is ornamented with a common chevron design shaded with cross-hatching.² It is smooth and of a light brown colour on the surface, black inside.

The other fragment is a rim-piece of a terracotta-coloured bowl, burnished black on the external surface, rim everted, with rather steep lip; ornamented with a band (average width $\frac{3}{4}$ in.) of cross-hatching between double horizontal incisions somewhat blundered. This is a common ornament both at the Lake Villages and Ham Hill.

Layer 6 (18).—In addition to the eighteen fragments, which include ten rim-pieces and one piece of base, a handmade vessel (now restored) was found, consisting of dark brownish-grey ware, tooled horizontally; height $3\frac{3}{4}$ in., average diameter at the rim $4\frac{7}{8}$ in. This pot is of Type xii, Glastonbury Lake Village, but is a little more squat in proportion to the height.³

Most of the fragments from this layer are of R.B. type, but one or two of them are apparently a little earlier. The rim-pieces include a piece of the 'basin-shaped' type of Pitt-Rivers, straight-sided and flanged, ornamented with a faintly burnished zigzag ornament, again referred to under 'layer 8'.

Layer 7 (14).—These fourteen fragments are in addition to several pieces of a bead-rim vessel described on p. 55. They include two straight rim-pieces, a fragment of hard, thin, grey Roman pottery, and a small piece of R.B. ware ornamented with lattice pattern.

Layer 8 (5).—Romano-British pottery, including three pieces of straight rim (one rounded and two flattened on top), and a large fragment of a black bowl of the 'cooking-pot' type, straight-sided and flanged, which cannot, we think, be of earlier date than the end of the second century A.D. This class of ware has recently been found in excavations at Din Lligwy and figured in *Archæologia Cambrensis*.⁴ It is common at Ham Hill (S. Somerset), and occurred in the excavations at Westland, Yeovil.⁵ This type of ware, found in the R.B. Villages of Woodcuts and Rotherley was classified and illustrated by Pitt-Rivers,⁶ and called by him the 'basin-shaped' type.

It should be noted that a similar rim-piece was found in these excavations in layer 6 (see above); and another in 1928-29 also in

¹ The figure in brackets indicates the number of fragments of pottery found in the layer.

² See *Glastonbury Lake Village*, ii, Plate LXX, fig. v, from Ham Hill, and other plates following.

³ *Glastonbury Lake Village*, ii, Plate LXXXV; also P135, Plate LXXXII.

⁴ Vol. lxxxv, pt. 2 (1930), p. 377, fig. 2, and p. 389, fig. 8.

⁵ *Proc. Som. Arch. Soc.* lxxiv, Plate G, fig. 18, and p. 142.

⁶ *Excavations in Cranborne Chase*, ii, Plate CXVI.

layer 6,¹ which seems to point to some disturbance in certain of the upper layers (before commented upon here, and elsewhere).²

Layer 9 (3).—Coarse, gritty, handmade pottery, two pieces thick, one thin, of a primitive type. This ware may be of the La Tène II period (*circ.* 250–50 B.C.).³

REPORT ON A MANDIBLE FROM 'THE CAVES', CHEDDAR

BY N. C. COOPER, M.R.C.S.

A human mandible was found during the excavations at Gough's Cave in 1928–29 in layer 14.

It is massive in appearance and is complete save for the greater part of the right ascending ramus. The right second molar is the only tooth *in situ*, the rest having fallen out after death. There is no sign of the third molar although the tooth present is well worn and the age of the individual about thirty years.

Running down the anterior border of the coronoid process of the left side is a strong buttress, and although the ramus itself is thin it is wide and gives a large area for the insertion of the masticating muscles.

The notch in front of the condyle is somewhat shallow but the condyle itself is normal in size. The coronoid process is absent.

The horizontal ramus is deep and the lower and alveolar borders run nearly parallel to each other. The chin is well marked but not prominent.

Measurements (some estimated) :—

- (i) Horizontal ramus : (a) Depth at mental foramen 3·4 cm.
(b) " " middle of second molar 3·3 cm.
- (ii) Ascending ramus : (a) Depth from incisura to angle 5·1 cm.
(b) Width at level of alveolus 4·2 cm.
- (iii) Other measurements : (a) Width between second molars 4·9 cm.
(b) " " ends of alveolar arch (lingual border) 5 cm.
(c) Depth from lingual border of symphysis at alveolar margin to centre of (a) 3·5 cm.

¹ *Proc. Som. Arch. Soc.*, lxxiv, 117.

² *Op. cit.*, 118.

³ See C. F. C. Hawkes's notes on pottery from Cissbury, especially under 'La Tène I', *Antiq. Journ.* xi, 29.

The mandible as a whole very much resembles the Cro-Magnon type, but also is like many modern jaws of massive build. It was associated with artifacts of the Aurignac-Magdalenian horizon.

THE VERTEBRATE AND MOLLUSCAN FAUNA OF SOLDIER'S HOLE

BY J. WILFRID JACKSON, D.SC., F.G.S.

(Manchester Museum)

I am indebted to Mr. R. F. Parry for the opportunity of studying the various vertebrate and molluscan remains found during the excavations at Soldier's Hole, Cheddar. I had previously (August 1928) examined and named a small collection from the same cave for Mr. H. E. Balch. The assemblage embraces some interesting species of Late Pleistocene date.

REVIEW OF THE SPECIES

AMPHIBIA

Rana temporaria (L.). (Common Frog). A single bone from layer 9 belongs to this species. The bones of the frog and toad have been found in several British caves.

AVES

Among the numerous bird bones the following species have been identified :—

Species.	Layers.
<i>Lagopus scoticus</i> (Lath.). (Red Grouse).	3, 4, 5.
<i>Lagopus mutus</i> (Mont.). (Ptarmigan).	5, 6, 7 ; also 12 (one bone)
<i>Corvus monedula</i> (L.). (Jackdaw).	4.
<i>Chloris chloris</i> (L.). (Greenfinch).	6.
<i>Turdus viscivorus</i> (L.). (Missel Thrush).	6.
<i>Falco tinnunculus</i> (L.). (Kestrel).	3.

The Red Grouse and Ptarmigan have been recorded from Aveline's Hole and Chelm's Combe, and the latter from Gough's Cavern also.

MAMMALIA

INSECTIVORA

Neomys fodiens (Schr.). (Water Shrew). A lower jaw with teeth from layer 11 belongs to this animal. Remains of the water shrew

appear to be of rare occurrence in cave-deposits. The species has been previously recorded from Ightham Fissures, Kent; Dog Holes, Warton Crag, Lancs.; and a cave in the Wye Valley, Forest of Dean.

RODENTIA

- Lepus anglicus* Hinton. (English Varying Hare). Represented by various remains from layers 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 15, and 21 (odd bone). It has been recorded from many caves including Gough's Cavern, Chelm's Combe, and Aveline's Hole.
- Ochotona spelæa* (Owen). (Cave Pika). A lower jaw minus the teeth from layer 5 belongs to the pika. The remains of this animal have been found in many caves in the West of England. They are recorded from Merlin's Cave and others in the Wye Valley, Forest of Dean; Aveline's Hole, Rowberrow Cave, Chelm's Combe Cave, Bridged Pot Cave, and Bleadon Cave, in the Mendips; Brixham Cave and Kent's Hole, Devon, also Chudleigh; and from the famous Ightham Fissures, Kent. No remains have been obtained so far from the North of England, Scotland or Ireland. It appears to have been a late comer to England and did not long survive.
- Dicrostonyx henseli* Hinton. (Hensel's Banded Lemming). Lower jaws of this species occur in material from layers 6, 7, 8, 9, 10, and 12. From layer 7 there is also a skull. Among the local caves this species has been recorded from Aveline's Hole and Chelm's Combe.
- Dicrostonyx guillemi* Sanford. (Williams' Banded Lemming). Two lower jaws from each of the layers 6, 7, 10, 12, and 15 agree with this form. In addition there are two fragmentary skulls from layer 12. It has been recorded from Aveline's Hole and Hutton Cave among others.
- Arvicola abbotti* Hinton. (Abbott's Vole). There are lower jaws of this species from layers 4, 7, 8, 9, and 11; also a skull from the latter. It has been met with in Aveline's Hole and Chelm's Combe.
- Microtus arvalis* (Pall.). (Continental Field Vole). From layer 6 there is a skull with dentition agreeing closely with this vole, which has been previously recorded from the same caves as the above species.
- Microtus anglicus* Hinton. A lower jaw from layer 6, and two from layer 12 appear to belong here. This species has been met with in Aveline's Hole and Chelm's Combe.
- Microtus* sp. Lower jaws from layers 4, 6, 7, 8, and 10 suggest the presence of some form of *Microtus agrestis*.

PROBOSCIDEA

Elephas primigenius Blum. (Mammoth). From layer 14 there is a small fragment of ivory from a tusk ; and from layer 12, a long plate of bone. The latter is doubtfully referred to *Elephas*. The mammoth has been recorded from Hutton Cave, Bleadon Cave, and Wookey Hole, among others.

UNGULATA

Equus caballus (L.). (Horse). The following belong to this animal : layer 15, splint-bone and astragalus ; layer 16, splint-bone ; layer 17, astragalus and hoof-core ; layer 20, middle part of right femur. The horse is recorded from Gough's Cavern, Chelm's Combe, and Aveline's Hole.

Rangifer tarandus (L.). (Reindeer). Remains of this animal are very numerous and consist of split bones, fragments of antler, teeth and fragmentary jaws. They are from every layer from 7 to 21, being more numerous from 16 to 20. There is some variation in size and build among the bones. The reindeer is recorded from the same caves as the last animal.

Cervus elaphus (L.). (Red Deer). Layers 10, 13, 14, and 16 yielded scanty remains of red deer, mostly in the form of teeth. A lower molar from layer 14, and one from layer 16 suggest a large form. It has been met with in the same caves as the above.

Cervus giganteus (Blum.). (Giant Irish Deer). Some loose teeth from layers 12, 13, and 15 agree with this deer, which was found also in Gough's Cavern, and the caves of Bleadon, Hutton, and Wookey Hole.

Bison priscus (Boj.). (Bison). Scanty remains of what appear to be bison occur in material from layers 8 to 10, and 12 to 20. This animal has been recorded from Wookey Hole, and the caves of Banwell, Hutton, Bleadon, Uphill and Sandford Hill.

CARNIVORA

Felis spelæa Gold. (Cave Lion). From layer 16 is a fragment of the left ramus of the lower jaw with canine and two premolars showing slight wear, and from layer 17 is a left lower carnassial tooth. The remains of lion have been found at the Bleadon Cave, Hutton Cave, and at Wookey Hole.

Hyæna spelæa Gold. (Cave Hyæna). The remains of this animal are not common. From layer 10 is a fragment of left maxilla with two premolars, also a loose upper premolar ; layer 11, a lower canine and a lower premolar ; layer 12, a right ramus of the lower jaw with three premolars and a molar in place, also two lower canines ; and from layer 15, an atlas vertebra. It has been

previously recorded from the caves of Bleadon, Hutton, Sandford Hill and Wookey Hole.

Canis lupus (L.). (Wolf). Scanty remains of wolf are present from layers 10, 13, 14, 16, 17, 18, and 20. The most important specimen is a left ramus of the lower jaw with six teeth and alveolus for M3: the crowns are well worn and the whole tooth-row measures 95 mm. Remains of wolf have been found in Gough's Cavern, Aveline's Hole, Wookey Hole, and the caves of Bleadon, Hutton, and Sandford Hill.

Vulpes vulpes L. (Common Fox). Fragmentary remains of fox are present from layers 3, 10 to 14, 17, and 18. They all appear to belong to the common fox. This animal has been recorded from Gough's Cavern, Aveline's Hole, and Chelm's Combe; also from Wookey Hole, and the caves of Bleadon, Hutton, and Sandford Hill.

Ursus cf. arctos (L.). (Bear). Bear remains occur in material from layers 9 to 16, and 18. They consist mainly of loose teeth and fragments of skull, but are too few and imperfect for specific identification. They suggest a bear of the *Ursus arctos* type as from the Torbryan Cave, Devon. The remains of bear were found in Gough's Cavern, and *Ursus arctos* is recorded from Aveline's Hole, Wookey Hole, and the Bleadon and Sandford Hill caves.

NON-MARINE MOLLUSCA

Scanty remains of Mollusca were found in the upper layers, as follows:—

Helix nemoralis (L.). Layer 2, two shells; layer 3, three shells: all unbanded.

Helix hortensis (Müll.). Layer 2, three shells: unbanded.

Helicella itala (L.). Layer 5, one shell.

REMARKS

In the above List of Species some reference has been made to records of similar remains found in other caves in the region of the Mendip Hills.

It now remains to be seen whether anything can be ascertained as to the particular period, or periods, when the various animals and birds were living in the Mendip region.

The whole fauna is undoubtedly Late Pleistocene in date, and compares favourably with that found in other British caves and those of the Continent.

The faunal succession suggests close comparison with that of the well-known cave at Sirgenstein, in Württemberg, where the fauna has been correlated with definite human cultural stages. In the upper levels of Soldier's Hole certain of the animals are seen to disappear and are replaced by a number of small rodents, including the banded lemming and the pika, together with ptarmigan, etc., thus suggesting a correlation with the Upper Rodent level of Magdalenian age at Sirgenstein. As in the latter cave, the solitary example of pika at Soldier's Hole seems to indicate Early Magdalenian.

In the case of Sirgenstein, the cave-lion is characteristic of the Early and Late Aurignacian cultures, and this animal, together with the hyæna, is absent from the Solutrean and Magdalenian levels. At Soldier's Hole, the cave-lion was found at the base of what is regarded as the Solutrean level.

Other comparisons might be made, such as with Schweizersbild, in Switzerland, where the Pleistocene succession was, (a) Upper Breccia or Upper Rodent level; (b) Yellow layer with a prolific Late Magdalenian culture; and (c) Lower Rodent layer. The pika was found at all three levels; but the banded lemming only occurred in the Lower Rodent layer which from its position is Early Magdalenian (not Mousterian as has been stated by some writers). The cave-lion was not found at Schweizersbild. The upper layers of Soldier's Hole appear to be contemporary with the Lower Rodent bed of the latter cave, while the Upper Rodent bed of Schweizersbild may be represented in the West of England by the upper deposits of Aveline's Hole, etc.