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TWO PIECES OF WORKED BONE FROM THE PLEISTOCENE DEPOSITS AT THE CHELM'S COMBE ROCK SHELTER, CHEDDAR

by
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Chelm's Combe Quarry lies just to the north of the village of Cheddar (*Fig.* 31). This was the site of the Chelm's Combe Rock Shelter which has now been quarried away. Before quarrying operations encroached on the site a complete excavation was carried out by the Somerset Archaeological and Natural History Society in 1925-6. (Balch and Palmer 1926).

Romano-British, Early Iron Age and Neolithic levels were found and below them a Late Pleistocene deposit was excavated to a depth of 16ft. (5.0m.). Some apparent stratigraphical anomalies in the upper layers may be explained by the fact that the excavation was carried out in horizontal foot-spits whereas the site had a double slope, inwards under the rock overhang and also down valley. Jackson (1926) records anomalies in the faunal lists and suggests that these may be due to burrowing animals, but Jackson had not seen the site.

The two pieces to be described are a tally-like engraved bone piece and a bone 'whistle' which were found in the ninth foot-spit (Layer IX) together with a flint flake, (now lost). This layer was towards the top of the Pleistocene deposit and was characterised by the predominance of the remains of reindeer (*R. tarandus*). (The top of the Pleistocene deposit was Layer VI, that is, the sixth foot-spit). Both pieces were described briefly and illustrated in the Excavation Report (Balch and Palmer 1926). The Pleistocene fauna was identified by J. W. Jackson (1926) and he records:

Lepus anglicus Hinton. English Varying Hare.
Ochotona spelaea (Owen). Cave Pika.
Dicrostonyx henseli Hinton. Hensel's Banded Lemming.
Arvicola abbotti Hinton. Abbott's Water Vole.
Microtus arvalis (Pall.) Continental Field Vole.

Equus caballus (L.) Horse.
Cervus elaphus (L.) Red Deer.
Rangifer tarandus (L.) Reindeer.

Mustela erminea (L.) Stoat.
Vulpes vulpes (L.) Common Fox.
Alopex lagopagus (L.) Arctic Fox.

Aves - Jackson lists 22 species with a northern facies and states that the two species *Lagopagus scoticus* (Red Grouse) and *Lagopagus mutus* (Ptarmigan) contributed the bulk of the bird remains.

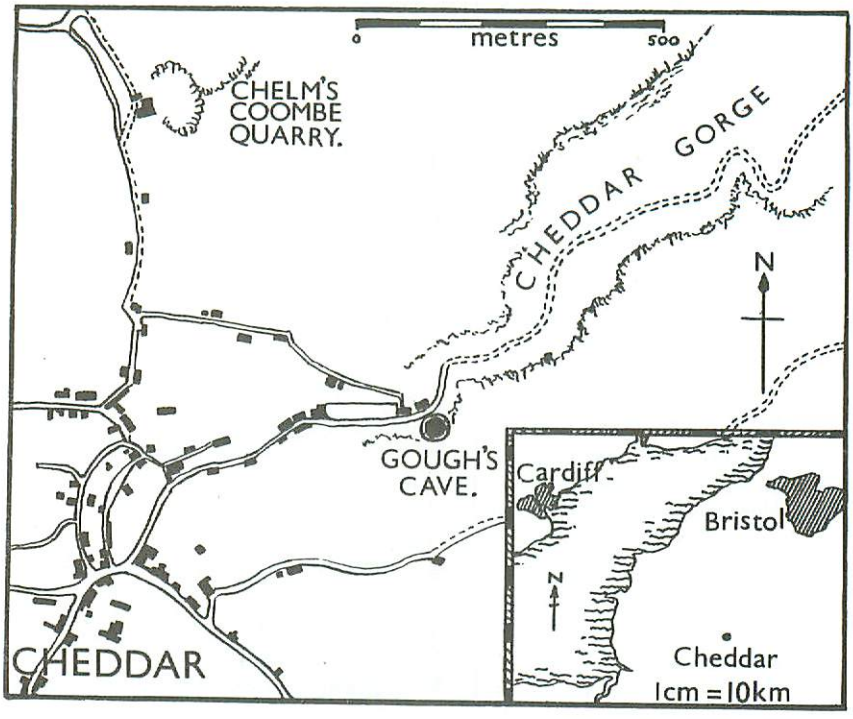

Fig. 31. Based on Ordnance Survey. Crown Copyright reserved.

THE ENGRAVED BONE PIECE

This is a flattish splinter of bone, 100mm in length, average width 13mm and average thickness 6mm. It is not rolled, shows only the slightest trace of weathering and bears obvious traces of the red earth in which it was found. A break across its long axis has been repaired.

One face of the piece is the original cortical surface of the bone and this bears a row of man-made marks along its whole length. The upper edge has another row of similar marks engraved on a ridge on the natural bone surface (plate 12 and fig.32). These marks extend only from 'H' to 'I'. From 'G' to 'H' there are no marks. At point H there appear to have been some marks but damage to the bone at this point has rendered them indistinct, this area is indicated by 'hatching' in fig. 32. The reverse, (not illustrated), is the medullary surface of the bone and bears no markings. The lower border is formed by a fractured edge.

All the fractured surfaces were examined under a steroscopic microscope for signs of cutting or grinding but none were found.

The engraved marks are oval to sub-rectangular pits. Their average size is 2mm x 1.5mm x 1mm deep and most of them have a red accretion at their bases. There are no striations which would indicate whether a rotary or a linear motion was used in their manufacture, but some of them have short shallow grooves leading into them which gives them a tadpole-shaped outline. Where these grooves occur they tend to be at right angles to the long axis of the piece. In plate 12 this is particularly clear at point 'A' of fig. 32. Other marks where these grooves occur are indicated in the same figure.

The two marks at 'B' are close together and there is a gap in the wall of bone between them. Microscopic examination showed marks which suggest that the wall of bone was deliberately cut away to form a 'double mark'.

At point 'C' there is a group of three marks, two small marks with a larger one between them and another apparently purposeful grouping occurs at point 'D' where two small marks, one above the other, lie alongside a larger one.

Reference to plate 12 will show that the marks on the upper border correspond exactly with the row of marks below them on the face of the piece.

The marks at 'E' and 'F' are indistinct due to the condition of the bone at this end. The rather curious shape of this end does not appear to be due to intentional shaping with a tool.

The cortical surface of the bone bears fine cut marks, and examination under the microscope using a low-angle source of incident light revealed many other minor marks; there was no evidence, however that any of these were intentionally man-made in antiquity as part of the 'design'.

DISCUSSION

The Chelm's Combe bone piece bears obvious similarities to many engraved bone pieces from the Upper Palaeolithic cave sites of France. Any study of such a piece must be done in the light of the intensive investigations carried out on these pieces by Marshack, (1970, 1971, 1972), who asserts that in many cases the marks were made sequentially and that they are of notational significance.

Evidence must therefore be sought for:

(a) The marks having been made sequentially.
(b) The series having a notational significance.

Experimental work and microscopic examination have convinced me that there is no reason to support that, on the Chelm's Combe piece, the marks were made sequentially or with different tools. The variations between the marks on this piece are within the range of variation of a series of experimentally produced marks made on the same occasion using the same tool (see below).

On the other hand, the arrangement of the marks along the upper border and the 'groups' along the face of the piece strongly suggest a notational content in the series.

A lunar calendar notation has been proposed for many similar bone pieces, (Marshack, 1971, 1972), and the Chelm's Combe piece has features

which at first sight might favour such an explanation. Careful study of the sequence has failed to produce a convincing lunar notational explanation. The author feels that the sequence is too short for useful speculation on the nature of the notation represented here and offers no explanation.

The majority of artefacts of this type from French sites are carefully shaped and finished. The marks along their edges show that the 'tablets' were shaped and prepared before the engraving began. This does not seem to be the case with the Chelm's Combe piece, and, if one assumes that it is wholly or largely complete, it is atypical.

EXPERIMENTAL WORK

Examination of the specimen has given no conclusive evidence of the method of manufacture of the marks. The aims of the experimental work were therefore:

(1) To find a technique by which one could reproduce experimentally the marks on the Chelm's Combe piece.

(2) To examine by stereomicroscopy a series of marks produced experimentally in order to determine the range of variation.

Two techniques were tested:

(a) A flint point held between the finger and the thumb in a key-grip and used with a rotary motion.

(b) A flint burin with a blade width of 1mm used with a gouging movement.

(The flint point and burin were made by the author).

The materials on which the two techniques were tested were:

Fresh uncooked bone.

Fresh bone lightly roasted over an open fire.

Weathered bone—this was bone which had been exposed on a garden flower bed for about two years and was grease-free and had diminished organic content.

Marks produced using the flint point bore a superficial resemblance to the marks on the Chelm's Combe piece, especially if the degree of rotation was limited, since this produced marks which were oval rather than round. These marks did not, however compare well with those on the specimen when examined under the microscope.

The marks, produced by short-stroke gouging with the flint burin, closely resembled those on the specimen. Several of these exhibited the 'tail-like' grooves mentioned above. These were formed in the early stage of engraving a mark, as one cut through the periosteal layer. After cutting through the outer layer the burin begins to bite into the harder bone and the length of the cut is limited more easily. The 'tail-like' grooves were not formed on weathered bone. The tadpole-shaped marks could therefore be dismissed as notational differentiation since they were a natural occasional product of the engraving technique. It also follows that the engraving was done on either uncooked or lightly cooked bone.

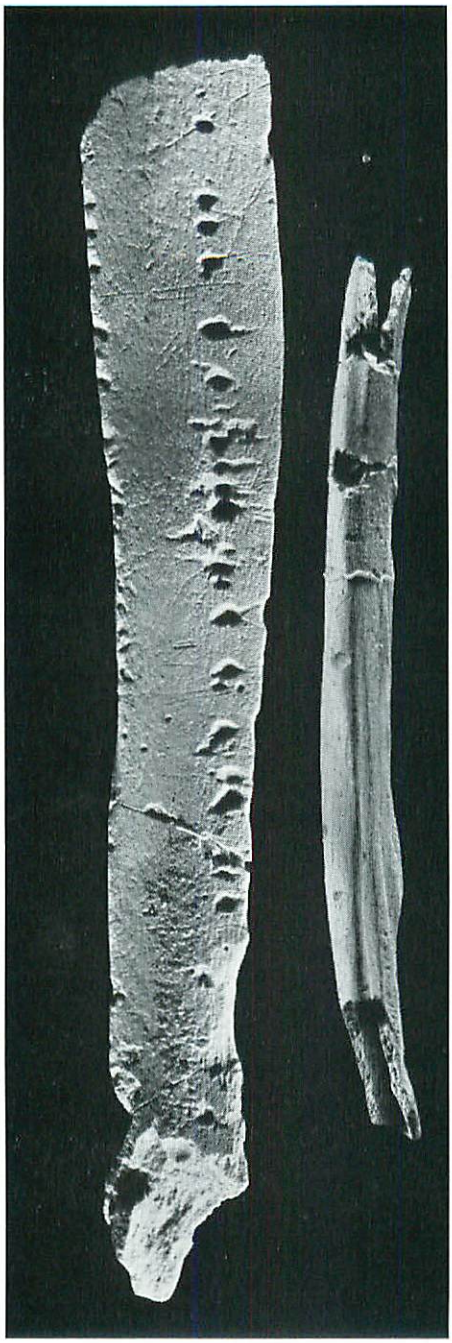

Plate 12a Outer cortical surface of engraved bone piece from Chelm's Combe, Cheddar.

Plate 12b The Bird Bone Whistle from Chelm's Combe, Cheddar. Photographs: Robin Godwin.

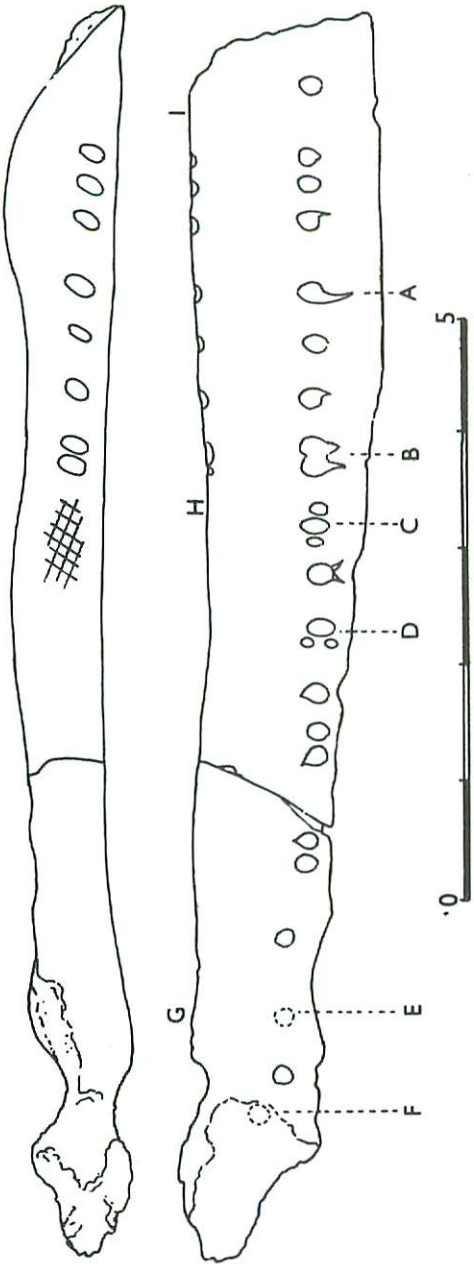

Fig. 32. Diagrams of marks on Engraved Bone Piece.

Above: the upper edge. Below: face view as in plate 12.

THE WHISTLE

This is a section of the shaft of a small hollow long bone of a bird. Both the epiphyses are missing and the ends are rough fractures with no evidence of cutting, indicating that the piece is probably incomplete. It has been broken in two further places but these have now been repaired by glueing. The surface is slightly weathered and shows traces of red earth. It was found in Layer IX (above, p.115).

Its length is 75mm and its average external diameter is 5mm, its cross-section is 'D'-shaped and the internal measurements are 3mm x 2mm and 3mm x 1.5mm at the two ends.

There are three man-made holes near the wider end. Two of these holes are on the same side of the bone with centres 12mm apart (plate 12). The third hole is midway between these two but is on the opposite side of the bone. The holes are all of approximately the same size with an average diameter of 2.5mm.

The edges of the holes were examined under the microscope but the slight weathering of the surface had obliterated any tool-marks which may have been present. The circular outline of the holes and their tapered cross-section is consistent with their having been bored with a pointed implement.

Two more marks on the bone may represent holes which were started but not completed.

The author has been able to trace only one reference to a whistle from a British Palaeolithic site. This is a perforated hare's femur from the '6th foot level' of the cave earth at Kent's Cavern. A rather flattering drawing of this object appears in the British Museum's 'A Guide to the Antiquities of the Stone Age', 1902, (page 62). It is, however, a most unlikely whistle since the holes are not convincingly man-made and the lower end is closed by an almost complete epiphysis. Garrod (1926) had cast doubts on the nature of the holes and Megaw (1960) had doubts on its possible use as a whistle. In any case Campbell's reconstruction of the stratigraphy of the deposits at Kent's Cavern has placed the whistle firmly in a Middle Palaeolothic context (Campbell, 1971). It may therefore be dismissed from a consideration of Upper Palaeolithic whistles on all counts.

Bird-bone whistles from continental Upper Palaeolithic sites however are not uncommon, indeed the site of Grotte d'Isturitz, (Basses Pyrenees) has produced fragments of eight whistles from the Aurignacian levels, (de Saint-Perier, 1952). The Chelm's Combe whistle resembles these except in its smaller dimensions. With this in mind it is worth noting a 'whistle' from a 'late Magdelenian' site at Moldova, Ukraine (Megaw 1968). This had six holes but the 'extreme narrowness of the bore and the small size of the holes' caused Megaw to doubt its feasibility as a musical instrument.

A piece of a small long bone with bored holes does not necessarily make a whistle and only when there is a carefully cut blow-hole or a fipple can one be certain of its original use as a whistle.

When considered in relation to similar material from continental sites it does seem likely that the Chelm's Combe find is a whistle fragment.

Ethnographic parallels suggest that the Upper Palaeolithic whistles

may have been used for ritualistic purposes or as decoy whistles. Megaw (1960) seems to favour a shamanistic use and produces some circumstantial evidence to support this. Certainly the low intensity of sound imposed upon the Chelm's Combe whistle by its narrow bore might have limited or even prohibited its use as decoy whistle in the open air. But it must not be overlooked that whistle notes inaudible to most men are certainly audible to animals.

The situation is best summed up by Megaw (1960). "All we can safely say musicologically is that from Upper Palaeolithic times we have ample evidence that man was concerning himself with the artificial production of sounds in a series".

CONCLUSIONS

Clay in the original report of the excavation (Balch and Palmer 1926) says of the marks on the engraved bone piece ". . . their regularity and alignment suggest that they are the work of man, but the probability is that they are the result of gnawing". With this in mind and also the reference in the faunal list to a piece of reindeer antler tine "trimmed at the base" from Layer VIII (Jackson 1926) the author planned to examine all the material from the Pleistocene deposit. Attempts to trace this material have been unsuccessful. Dr. Jackson, (*via* Dr. Eager of Manchester Museum), has stated that all the faunal remains were deposited in the Wells Museum, where they cannot be found.

Both the pieces described are unusual finds at British Late Upper Palaeolithic sites but both appear to be related to material from Upper Palaeolithic sites in France and Central Europe.

The published section (Balch and Palmer 1926) shows no stratigraphy and indicates only the vertical distribution of the artefacts in relation to the horizontal foot-spits. The authors do not describe the nature of the deposit nor do they mention any levels of soil formation within it. They found no floors or hearths in the Pleistocene levels, and this with the absence of flint artefacts, (except for the single flint flake from layer IX mentioned above), makes it likely that the site was visited casually by man rather than used as a living site for long periods.

Dating must rest at the moment on a comparative dating of the fauna. This may be compared to the fauna found at Aveline's Hole, Burrington, and on this basis the two artefacts would be attributable to the Late Upper Palaeolithic. One must remember, however, that the report on Aveline's Hole is now fifty years old (Davies 1925). Any new conclusions which may be reached after re-examination of the material from this site must necessarily reflect on the dating of the Chelm's Combe engraved bone piece and the whistle.

ACKNOWLEDGEMENTS

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REFERENCES

BALCH, H. E. and PALMER, REV. PREB. 1926 Excavations at Chelm's Combe, Cheddar. *Proc. Som. Arch. and Nat. Hist. Soc.* **72**, 97-123.

CAMPBELL, J. B. and SIMPSON, C. G. 1971 A New Analysis of Kent's Cavern. *University of Oregon Anthropological Papers.* 3.

CLAY, R. C. C. 1926 See Balch and Palmer pp. 113-115.

DAVIES, J. A. 1925 Fourth Report on Aveline's Hole. *Proc. Univ. Bristol Spelaeol. Soc.* **2** (2), 104-114.

GARROD, D. A. E. 1926 *The Upper Palaeolithic Age in Britain.* Oxford Univ. Press.

JACKSON, J. W. 1926 See Balch and Palmer.

MARSHACK, A. 1970 Notations dans les Gravures du Paleolithique Superieur. *Publication No. 8. Institut de Préhistoire de l'Université de Bordeaux.*

MARSHACK, A. 1971 Upper Palaeolithic Engraved Pieces in the British Museum. *Prehistoric and Roman Studies. British Museum.*

MARSHACK, A. 1972 *The Roots of Civilisation.* Weidenfeld and Nicholson. London.

MEGAW, J. V. S. 1960 Penny Whistles in Prehistory. *Antiquity* **34** (133), 6-13.

MEGAW, J. V. S. 1968 Problems and Non-problems in Palaeo-organolgy. *Studies in Ancient Europe.* Leicester Univ. Press.

DE SAINT-PERIER R. and S. 1952 La Grotte d'Isturitz III. *Archives de l'Institut de Paleontologie Humaine,* **25**. 59. (*testi* Megaw 1968).