

Jubilee Contribution
University of Bristol Spelæological Society

Pleistocene Mammal Faunas

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SUMMARY

This paper deals briefly with a series of sites that have been investigated by the society in the course of the first fifty years of its existence. The particular aspect dealt with is the Pleistocene Mammal Faunas found at these sites and their stratigraphic relationships.

Cave sites in the Mendip Hills are amongst the richest areas in Britain for Pleistocene mammals—names such as Hyaena Den and Badger Hole are familiar to all. The former was excavated in the last century and the fauna monographed by Sandford and Boyd Dawkins. The latter was excavated in this century by H. E. Balch but no adequate report has been published. Unhappily, little or no attention was paid to stratigraphy within the caves and hence their usefulness for correlation and climatic interpretation have been almost totally lost.

During the first fifty years of the Society's existence, major excavations have been made at eight sites and mammals from several others have been reported on in the *Proceedings*. Of the eight major sites, two are in the Wye Valley (Merlin's and King Arthur's), two in Cheddar Gorge (Sun Hole and Gough's Cave), three others in the Mendip Hills (Aveline's Hole, Burrington Combe; Picken's Hole, Crook Peak; and Brean Down). The last site is at Almondsbury, north of Bristol. I am omitting reference to the Society's excavations at Kilgreany in Ireland which are dealt with in another report in this volume.

The loss of the Society's Museum during the Second World War was a big blow. Almost all the material collected from Aveline's and King Arthur's Cave was destroyed.

It is convenient to deal first with the three sites that have yielded good Pleistocene faunas, then with those whose fauna is predominantly post-Pleistocene, and finally to make mention of the minor sites.

In 1961 Mr. M. J. Picken discovered a site on the southern edge of Crook Peak, subsequently known as Picken's Hole, which yielded

abundant bone. The site was excavated by the Society*, the President taking the leadership of the dig and Arthur ApSimon being responsible for the archæology. At the end of three seasons the site had yielded good faunas from two levels. Tratman (1964) gave a preliminary account and recently Mr. A. J. Stuart has been making a detailed study of the faunas in the Department of Geology: it is hoped that his report will be available for the next issue of the *Proceedings*. The section has six recognized levels. The capping soil is underlain by a layer with angular weathered limestone fragments and this is succeeded by a fossiliferous cave earth also containing weathered limestone fragments. The second and lower fossil horizon is a red cave earth, sandwiched between limestone breccia layers. The lower fossiliferous layer contains, bear, wolf, fox, reindeer, red deer and two species of vole: Stuart interprets this fauna as indicating boreal forest conditions cooler than the present day, and he correlates it with Brørup interstadial of the Weichselian glaciation. The upper fossiliferous layer contains human remains with hyæna, arctic fox, bear, mammoth, woolly rhinoceros, hare, red deer and ground squirrel: this fauna Stuart interprets as representing rather cold conditions, with dominant open and steppe-tundra and attributes its formation to the Mid-Weichselian interstadial.

The importance of the Picken's Hole fauna lies in the careful stratigraphic controls, and it appears to contain the earliest reliably dated mammalian faunas in the region.

The Society's intensive work at Brean Down was carried out between 1954 and 1960, lead by Prof. Donovan and Mr. ApSimon with numerous helpers from the student body. The full report, published in 1961, incorporated material and notes by Dr. Taylor who had worked there before the war. The field work was extensive and the report the most comprehensive the Society has yet produced on any site. In the succession thirteen beds were recognized by the authors. The top eight beds are postglacial and the lower five are all allotted to the Würm (=Weichselian) Last Glacial. The Pleistocene beds comprise sand, stony silt and breccias: the authors interpret the breccias as forming under frostweathering conditions and these alternate with the silt and sands formed under a colluvial regime: the bone bed is a sand with angular limestone fragments that show little chemical weathering.

The "Bone Bed" (Bed 11) is not the only bed to yield bone, but it has the richest fauna—several hundred bones were excavated. Domestic mammals and wild boar are recorded from the post-Pleistocene beds. Beds 11, 12 and 13 yield Pleistocene mammals. The list from the Bone Bed

* West of the excavated areas are more deposits, which have been left for future excavators.

includes two species of *Dicrostonyx*, hare, arctic fox, wolf, mammoth, horse, giant deer, reindeer and aurochs. The mammoth is known only from a rib bone and the giant deer from an antler fragment. No trace of hyaena or rhinoceros were found. The composition is typically cold late glacial and assigned to the Allerød interstadial of Late Weichselian times. Two finds in Bed 11 appear to have been worked by man, the giant deer antler and a horse innominate. No implements, however, were found in the bed.

The two beds beneath the bone bed also yield mammals. Bed 12 has reindeer, aurochs, and vole; Bed 13 has reindeer, arctic fox, aurochs and vole. The authors assign these beds to the period between the Allerød and Mid Weichselian.

Workers in the last century did much damage to the sites in the Wye Valley—King Arthur's and Merlin's Caves. The Society's interest in these dates from the work of Prof. T. F. Hewer (1925 and 1926), who, while a medical student, carried out a series of digs. Dr. Taylor continued the work (1928) and M. A. C. Hinton (1925) reported on the mammal fossils. In King Arthur's Cave Taylor recognized seven layers, the lower four being Pleistocene. The basal beds (1 and 2) contain a fauna of woolly rhinoceros, mammoth, horse, aurochs, giant deer and hyaena, with in addition *Lepus anglicus* in Bed 2 only. In the lower hearth (Bed 3) which Taylor attributed to the Aurignacian were found giant deer, bear, and *Lepus anglicus*. The overlying yellow rubble contains a similar fauna, but additionally with many rodents including lemming.

At Merlin's cave the deposits had been greatly disturbed by early workers. The Pleistocene beds below the stalagmite on the left side of the cave were relatively undisturbed and contained abundant rodents: Hinton reported on 1212 mandibles and many skulls. The rodent fauna according to Hinton comprises pika, beaver, three lemmings, five species of *Microtus* and two other voles, *Evotomys* and *Arvicola*. The fauna is very similar to that from the Yellow Rubble of King Arthur's Cave (Bed 4). A major part of this collection is still available for study.

Aveline's Hole, Burrington Combe and the two Cheddar sites of Sun Hole and Gough's Cave can be grouped together. None extends as far back into the Late Pleistocene as King Arthur's, Brean or Pickens. All three lack the large mammals (rhinoceros, mammoth and hyaena) which had disappeared by Cresswellian times; all three possess pika and lemming—indicative of conditions cooler than the present day regime.

Aveline's Hole was the first site to be worked by the Society, and also the site at which most labour has been expended. In 1919, 38 tons were removed, in the next season 28 tons and in the third season 35 tons (the latter including 22 tons of spoil from the previous digs!) and 51 tons in the fourth season. The findings were reported by J. A. Davies (1921, 1923,

1924, 1925) with specialist reports on the Mollusca by Kennard (1924), on the birds by Newton (1923) and on the mammals by Hinton (1924). Though further work was done very little additional information was gained and no report has been issued.

A total of 116 species of animals were recorded; of these 49 were birds, all living species although some are no longer resident in Britain. The cave was discovered as long ago as 1794 and was raided periodically throughout the last century. Immediately prior to the Society's excavations, digs were carried out by the Bristol Spelæological Research Society. No defined stratigraphy was recorded; Davies reported that all the remains were of the same age and were obtained from the stalagmite and 3 ft. of earth below. Probably about 50 human skeletons were removed from the cave prior to the Society's work and on cultural criteria these were attributed to Magdalanian of Late Palæolithic age. Thirty mammalian species (exclusive of man) were recorded. The list includes domestic animals (such as dog and sheep), two bats, badger, fox and field mouse. There are also cold forms such as pika, lemmings and reindeer. *Bos longifrons*, boar, lynx, bear and wolf also occur: there are no records of mammoth, rhinoceros or hyaena. Clearly at least two faunas if not three are represented here; probably a late Pleistocene or early Postglacial cold fauna, an intermediate without domestic species, and possibly a later with domestic species.

Sun Hole, Cheddar Gorge, has yielded a Late Pleistocene fauna very similar to, though not as extensive as, Aveline's. Tratman (1955) reported an excavation in the Pleistocene levels and in the same volume Jackson recorded the vertebrate fauna. This included 17 species of mammals: Pika, lemmings, voles, horse, reindeer, wolf and bear are notable—all recorded from Aveline's. The birds recorded by Bramwell (1957) include grouse, magpie, ptarmigan, raven, thrush and finch.

Gough's Cave, also in Cheddar Gorge, was an early interest of the Society, and our current knowledge owes much to Donovan's careful review (1955). From the Creswellian Cave earths he recorded 22 mammalian species. The list, like Aveline's, appears to contain a mixture of biotopes. There are cold forms—pika, lemming, arctic fox and reindeer; woodland forms—red deer, giant deer, boar and bear; and recent or domestic forms—badger, fox, varying hare, goat and sheep. The cold fauna is probably contemporaneous with that of Aveline's and of Sun Hole.

The bone fissure at Almondsbury, north of Bristol, was excavated by Dr. Taylor in the 1950's, but as yet no report on this work has been published. An early record by Davy and Jackson (1933) reported bison, mammoth, woolly rhinoceros and hyaena from the locality. Dr. Taylor's

material is now in the Society's Museum and the fauna represented includes steppe rhinoceros, cave lion, fallow deer, hyaena, hare and aurochs. Horse does not occur.

Three minor sites are worth mentioning. From the Clevedon Gravels Palmer and Hinton (1929) recorded wolf, horse, bear and fox. The fox they thought was arctic fox and the horse a thick limbed variety that the authors regarded as earlier than the Aveline's horse. Donovan (1951) reported on the find of a woolly rhinoceros tooth from Rhino Rift Cave on the west side of Long Wood, Charterhouse: further work yielded two hyaena bones but nothing else. From another limestone fissure at Whatley, Donovan (1954) recorded mammoth, hare and glutton. This is the first record of mammoth in Eastern Mendip and glutton is rare in the Somerset Pleistocene records. Both these latter sites are attributable to the Late Pleistocene (Weichselian).

The most recent excavations by the Society have been at Wookey Hole, Hyaena Den, where it is hoped that removal of the old spoil heaps may reveal the stratigraphic succession, though it is doubtful if much of the phenomenally rich fauna has been left by the Victorian collectors.

Correlation of the sites is not easy at present, since only Brean Down and King Arthur's have a good stratigraphic control, and Pickens is not yet published. The hyaena layer of Pickens is probably contemporary with Beds 1 and 2 of King Arthur's Cave. The Brean Bone Bed may be the equivalent of Bed 3 in King Arthur's Cave. On mammalian evidence, Gough's, Aveline's and Sun Hole are not distinguishable, though Tratman considers on cultural grounds that Gough's is oldest and Aveline's youngest. Merlin's seems roughly of similar age to Aveline's and to Bed 4 of King Arthur's. Without more stratigraphic control, and a re-examination of the rodent fauna, more precise correlation is not possible.

The extent of the Society's work in Pleistocene palaeontology is remarkable considering how few specialists have been around to help and advise members. Though Professor Reynolds held the chair of Geology in Bristol for almost 30 years, and published a monograph on British Pleistocene mammals, one looks in vain for mention of his name in the *Proceedings*. The two mammalian palaeontologists who figure in the first 25 years are Martin Hinton and Wilfrid Jackson. M. A. C. Hinton was Keeper of Zoology at the British Museum (Natural History) and especially interested in Pleistocene faunas. He did much work himself in the Thames Valley, and was a frequent visitor to the Bristol District. Many of the rodents found by the Society's members were sent to him for identification. He was in his time the best authority on rodent taxonomy—a field fraught with difficulties, though his reluctance to commit himself on paper resulted in much fewer and shorter reports than the material

often merited. Current work on rodent taxonomy however is much at variance with the opinions of pre-war specialists: it seems that in Hinton's time insufficient attention was paid to the range of variation within species and hence numerous spurious species appear in the literature. J. W. Jackson was Curator of the Manchester Museum and his willingness to identify the bone finds gave considerable encouragement to the amateurs. Medical and dental students (and staff) were for long prominent in the Society, and so the human remains were thoroughly reported on by such people as Fawcett, Hewer, Taylor and Tratman. In the past decade or two, Donovan and Tratman have been the key figures in prosecuting field work in bony deposits while Savage has lent a hand in identifications.

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