

Hunting in Central Europe at the End of the Last Glacial

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From the very beginning of the research in the field, into paleolithic localities, attention has been paid to osteological finds. Individual species found have been enumerated, sometimes even the number of individuals and/or bones stated. The chief viewpoint was the stratigraphy of the find layer, sometimes even climatic conclusions. There has, however, been mostly no comprehensive analysis from the point of view of hunting animals. And yet the preserved osteological material, allows obtaining much more information. From the animals hunted and their analysis, whether they were animals living in herds or individually, it is possible to deduce the way and technique of hunting. The hunted animals did not only serve as a source of food. Both soft and hard parts of the body were the starting raw material for further use. While in soft parts it is possible to only assume their utilisation analogically with historically known hunter tribes, in hard parts this utilisation can be deduced directly from the material.

The present paper only summarises hitherto information. Its other procession conceived in the above way is a problem of a more broadly oriented paper.

Age: Würm 2/3

Dolní Věstonice (South Moravia)

Culture: Gravettian

The spectrum of hunted animals is very broad. Irrespective of the amount the following animals are found: horse, wolf, foxes, mammoth, reindeer, bear, wolverine, lion, aurochs, bison, lynx, hare.

About half the hunted animals belong to only three species: mammoth, hare, foxes. A quarter belongs to reindeer and wolf. Very frequent is also wolverine. All other species are less represented, sometimes only sporadically.

The chief source of food were mammoths, hares and reindeer. This is evident also from cut traces on their bones. As for wolves, foxes

(polar and common) and wolverines, it is more probable that they served mostly as sources of furs. This would be witnessed by the finds of whole skeletons of wolves or their parts. Of course, it cannot be excluded that at time of food shortage their meat was also consumed.

The way of hunting was evidently not much clear-cut. There was collective hunting with a large number of people (this surely concerns mammoth hunting) as well as hunting by individuals. Pronounced specialisation for some animal is missing—all animals were hunted without exception.

Surprising is a relatively low number of hunted horses, most of their bones belonging to young animals, the youngest are about one year old.

Age: Würm 3 (first half)

Pavlov (south Moravia)

Culture: Pavlovian

The spectrum of hunted animals remains the same as in the preceding age. Only the quantitative representation of the individual animals or their age changes. This change is due to the reduced number of some species. That means that providing meat food, as against the preceding age, becomes more requiring and difficult. The following animals species are hunted: hare, wolf, mammoth, foxes (polar and common), reindeer, horse, bear, wolverine, lion, deer, aurochs, bison, cat, marten, birds.

Most of the hunted animals belong to reindeer, hares and foxes. At the locality Pavlov II it was possible to divide the animals according to the residential objects. The individual residential objects differed in the representation of the hunted species. It cannot be excluded that it is a seasonal matter and in that case it would be possible to associate this or that object to a certain season of the year. At the same time it shows, however, that the length of stay in one/

dwelling/residential object need not have been too long.

Perceptual representation of the chief hunted animals in residential objects II, III, and IV is as follows: foxes 28.3%, hare 19.1%, reindeer 12.4%, wolf 11.2%, birds 8.1%, mammoth 7%, horse 4.5% wolverine 4.5%.

Roughly the same representation is reflected from finds of the whole excavated area irrespective of the residential objects. In 1952 and 1953 the following numbers of individual species (percentage) were found:

	1952	1953
Hare	17.0	19.1
Wolf	16.0	11.2
Foxes	33.0	28.3
Birds	9.0	8.1
Mammoth	9.0	7.0
Reindeer	4.0	12.4
Horse	3.0	4.5
Wolverine	3.0	4.9

At that time, due to the lack of major animals, the hunting concentrates more and more on small animals. Not only small mammals, but also birds are hunted. The greatest part of mammoths hunted are animals up to 9 years old. That means that older individuals are scarce at that time.

A relatively great change in hunted animals signalises not only a different way of hunting from that in the preceding period, but also a different method of hunting. It is sufficient to realise high amounts of hunted birds.

Age: Würm 3 (Late Glacial)

Culture: Magdalenian

Most finds come from that period. At most localities the Magdalenian was found in two lithologically different beds.

At that time changes in the hunted animals go on. At the same time there is a substantial change. Whereas in earlier cultures all animals living in the surroundings were hunted, at that time there appears a certain differentiation. Besides areas where all animals living in the surroundings were hunted, regions can be found which people definitely specialise in hunting a certain species. That means that people in the Magdalenian were relatively much differentiated as for their social and cultural

levels. It is a phenomenon appearing for the first time at that very time.

Cave Pekarna (southern part of the Moravian Karst)

Magdalenian was found in two beds, the fauna of the two horizons should not differ essentially. In both beds the most frequent finds are those of reindeer and hare, in the older bed more horses were present. The perceptual representation of the individuals species of the two beds is as follows: hare 36.8%, reindeer 28.2%, horse 19.0%, birds 8.5%, foxes 4.9%. Other species are isolated: aurochs or bison, wolverine, deer. In the older bed also lamellas from a mammoth tusk were found.

Traces of human activity are evident not only on bones of big animals, but also on bones of hare. The hip bones and humeri were broken roughly in the middle, whereas ulnar bones, radii and tibiae are whole preserved. This witnesses cutting the front and rear extremities.

Cave Hadi (southern part of the Moravian Karst)

Also there the Magdalenian was found in two beds. In the loess-clay there were horse, reindeer, fox, wolf, in the brown overlying bed horse and reindeer, aurochs or bison. Irrespective of the bed most frequently represented were horses and reindeer.

Cave Ochozská (southern part of the Moravian Karst)

All Magdalenian localities in the Moravian Karst are found in caves. Only this one was situated in front of a vertical high limestone wall. The most frequent was the horse, all other animals were isolated: hare, deer, reindeer and perhaps chamois.

Cave Adlerova (southern part of the Moravian Karst)

The Magdalenian in two beds. The animals found: hare, wolf, fox, horse, reindeer. The most frequent animal was the reindeer, far behind it is the hare. All other species in negligible amounts.

Cave Zitného (central part of the Moravian Karst)

In the only Magdalenian horizon bones of the following hunted species were found: reindeer, horse, hare, deer, foxes. The most frequent was the reindeer, about 50%. Mostly they were young individuals. The second frequently represented animals was the horse,

27.7%, mostly young individuals. Other species in negligible amounts.

Cave Nova Dratenicka (central part of the Moravian Karst)

The most frequent hunted animal was the reindeer. Other species were represented only sporadically.

Cave Kolibky (northern part of the Moravian Karst)

In the Magdalenian bed there were bones of the reindeer, horse, fox, hare, bear and also mammoth. But its origin from an older bed cannot be excluded.

Cave Veruncina (northern part of the Moravian Karst)

In the Magdalenian cultural bed mostly the reindeer and the horse were found.

Cave Balcarova skala (northern part of the Moravian Karst)

A number of fireplaces are described in or near which bones of hunted animals were found.

Fireplace 1: mammoth's vertebra, lamellae from a mammoth tusk, reindeer, bear, fox, hare.

From reindeer a large amount of broken bones were found.

Fireplace 2: many broken/crushed reindeer bones, particularly parts of the skull, horns, free teeth. Further animals: bear, hare, beaver.

Fireplace 3: fox, hare, reindeer, bear, hyena, beaver, birds.

Fireplace 4: same as F3, besides the scapula of a rhinoceros.

Fireplace 5 and 6: same as F3.

Bird bones belonged mainly to ptarmigans. The richest Magdalenian locality as for hunting birds—about 12,000 bird bones were found there. Although horse bones did not occur in the fireplaces, outside them they were relatively frequent, always broken.

The greatest amount of bones, taking into consideration the whole Magdalenian bed, belonged to the reindeer, foxes, hare and birds. The hunting was thus concentrated prevailingly to small animals, strongly specialised in birds.

Cave Kulna (northern part of the Moravian Karst)

The Magdalenian there was found, in two lithologically different beds. In the older bed 6 birds, hare foxes, bear, reindeer, rhinoceros and mammoth were found. In the overlying

bed 5 birds, hare, beaver, badger, bear, lion, horse, deer, elk, reindeer, aurochs. The then people hunted all animals occurring in the neighbourhood.

Cave Sipka (north Moravia)

From the Magdalenian cultural bed, without giving the numbers, the following species are described: reindeer, bison, elk, foxes, birds, bear. Bear bones were found duly split.

Cave Pruchodice (north Moravia)

Magdalenian cultural bed: reindeer, hare, horse, aurochs, lynx, birds.

Ölknitz (Thuringia)

Only one Magdalenian bed from Dryas II. The representation of the individual hunted species:

	Percentage	Number of bones	Minimum number of individuals
Horse	61.35	2,930	127
Hare	14	201	29
Reindeer	13.04	118	27
Foxes	5.79	39	12
Bovids	0.16	2	—
Birds	0.96	2	—
Bear	0.96	2	—

Cat, mammoth, rhinoceros, pig, ibex—always one bone.

Long bones of horses and their metapodia were piled up uncovered at certain places of the area. Not a single bone was whole, in each of them splitting occurred several times. The way of splitting was always the same. The accumulation of fragments of metapodia and long bones at certain places discloses certain organisation and possibly also the division of labour. It is probable that they were places where tools were made. The hunted animals did not serve, like at other Magdalenian localities, only as food, but also as a source of raw material.

Horses live in herds, their hunting must be assumed in the collective way. At the locality also bones of a domesticated wolf were found. Probably they cannot yet be denoted as dog. Similar finds were also made in other Magdalenian localities in that region. This is a difference in comparison with Moravian localities where this phenomenon was not noticed at any locality.

Cave Kniegrotte (Thuringia)

A Magdalenian locality from Dryas II. Hunted animals consisted of the following species (in brackets perceptual representation): reindeer (27.1), horse (21.3), fox (16.1), hare (11.6), birds (12.6), saiga (3.2), bear (1.3), deer (0.6), mammoth (0.6). Again there occurs the domesticated form of wolf.

Cave Teufelsbrücke (Thuringia)

Osteological finds were found in several beds which show instructively changes in hunted animals. At the beginning the hunting is not specialised in a particular species, later the chief hunted animals are the reindeer and the hare. The reindeer later retreat, there remains a large amount of hunted hares and the number of hunted horses increases. Towards the end also the number of hares drops, the reindeer disappear altogether and the number of hunted horses increases enormously. It is possible to speak of a conspicuous specialisation in their hunting. At the same time a small form of domesticated wolf appears.

Species found in the main cultural bed (in brackets number of bones): horse (242), hare (214), reindeer (86), birds (54), foxes (49), bear (7), mammoth (7), saiga (5), red deer (1).

Age: Transition from the Pleistocene to the Holocene**Smolin (South Moravia)**

Culture: final Paleolithic-Mesolithic (8315 ± 55 B.P.)

The dominating hunted animal is the horse, numerous are bovids, beavers and elks. In isolated cases fox, deer and pig.

Cave Kuln (northern part of the Moravian Karst)**Culture: Epimagdalenian**

The Epimagdalenian occurs in two beds. In bed 4, the following hunted animals were found:

birds, hare, beaver, fox, bear, horse, pig, deer, red deer, elk, reindeer, aurochs. In the overlying bed 3, there occurred: birds, wolf, bear, pig, deer, red deer, elk, aurochs, horse.

It can be stated that also after the Magdalenian hunting in Moravia continued in the same conception, i.e. hunting all animals living in the neighbourhood. This was probably due to the fact that no conspicuous predominance occurred in a species, which was the case in Germany.

The present paper shows that from the end of the Last Glacial and the beginning of the Holocene there are sufficient finds in Central Europe which, if processed in a comprehensive way, would allow a detailed view of the methods of hunting and their technique, the way of utilising bones. The assumption is however, also a critical analysis of stone tools in connection with a detailed analysis of the bone raw material.

Studying not only the pattern of hunted animals, but also the way of further utilisation, at *the* period we can state a high degree of economic utilisation of the hunted animals, almost such as to render no waste from the hunted animal. The hunters' society reached such economic level that its further increase without passing to another economic system was not longer possible. It was bound to experience relatively soon a certain economic crisis which was then solved by the discovery of agriculture and domestication of animals.

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