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THE MLADEČ FINDS AND THEIR EVOLUTIONARY IMPORTANCE

ABSTRACT. — In 1960–1963 the author reexcavated the Mladeč caves situated in Middle Moravia and famous through the numerous human remains found there. It was found that these finds belong to the first Upper Palaeolithic interstadial and are one of the earliest *Homo sapiens sapiens* finds with certain archaic features and with strong sexual dimorphism. The male skull No. 5 is the lowest known Upper Palaeolithic skull of *Homo sapiens sapiens*. The morphological features of some of the male skulls demonstrate well the Neanderthaloid heritage. This and the fact that they are contemporary with latest *Homo sapiens neanderthalensis* finds stress their importance.

KEY WORDS: Hominid evolution — *Homo sapiens sapiens* origin — Mladeč — Sexual dimorphism — Neanderthaloid heritage.

The Mladeč caves are situated near the town of Litovel, in central Moravia (Czechoslovakia). They are in the woody Třesín Hill, along which flows the Morava River. The hill is bordered by the alluvial plain of the Morava River on the one side and by the valley of the subterranean brook named Hradečná, joining the Morava River more to the south, on the other. When approaching from the south, from the flatlands, the Třesín Hill is well visible from afar, it has the shape of an outstanding flat knoll. Thanks to its extraordinary position it was settled throughout the prehistoric ages. During field work and earthmoving operations rich finds have been discovered here.

The area was densely settled in the Upper Palaeolithic Age. The hill is formed by limestone cliffs with numerous caves. In various periods of the Pleistocene the rocks were covered by loess — most impressive being the mighty drifts of the late Pleistocene loesses. A thorough study of the sediments in the main Mladeč Caves and in the corri-

dors connecting them with the surface has revealed that all but the largest chimney had been closed as early as the last two interglacial Periods.

Only the low manhole-like entrance together with the largest chimney remained open even during the first mild oscillation of the last Glacial. It was through this chimney the Upper Palaeolithic finds, (both the anthropological and palaeontological ones), got into the cave. They belong to the first mild oscillation of the last glacial period, and they had been concentrated in a chimney closed by this layer and below the chimney, in the cave, within the reach of the fan of the same layer.

In the cave we find mainly sediments of the penultimate interglacial, in the chimney sediments of the last interglacial and of the first interstadial of the last glacial period. The fan of the sediment of this interstadial covers in the cave room the layers of the penultimate interglacial and contains important anthropological and palaeontological finds. The sections near the entry demonstrate that after the

middlewurm interstadial the access to the cave was nearly closed. Only a low free slot remained open. No younger sediments than interstadial (Hengelo) were found in the cave.

The anthropological and archaeological finds do not come from normal burials. They are single bones and objects dumped into the cave through the large chimney together with animal bones. This chimney was during the first interstadial of the last glacial age closed for good.

early phase of the Upper Palaeolithic period we meet with similar situation in the Zlatý Kůň (The Golden Horse) Cave in the Czech Karst (Vlček, 1952). It represents a special find of burial rite as documented by the accompanying archaeological finds, namely by the remains of a necklace.

The archaeological finds discovered in the layer containing human bones in the main Mladeč Cave, as well as in the cave in the quarry, comprise flat bone points, typical of the early Aurignacian.

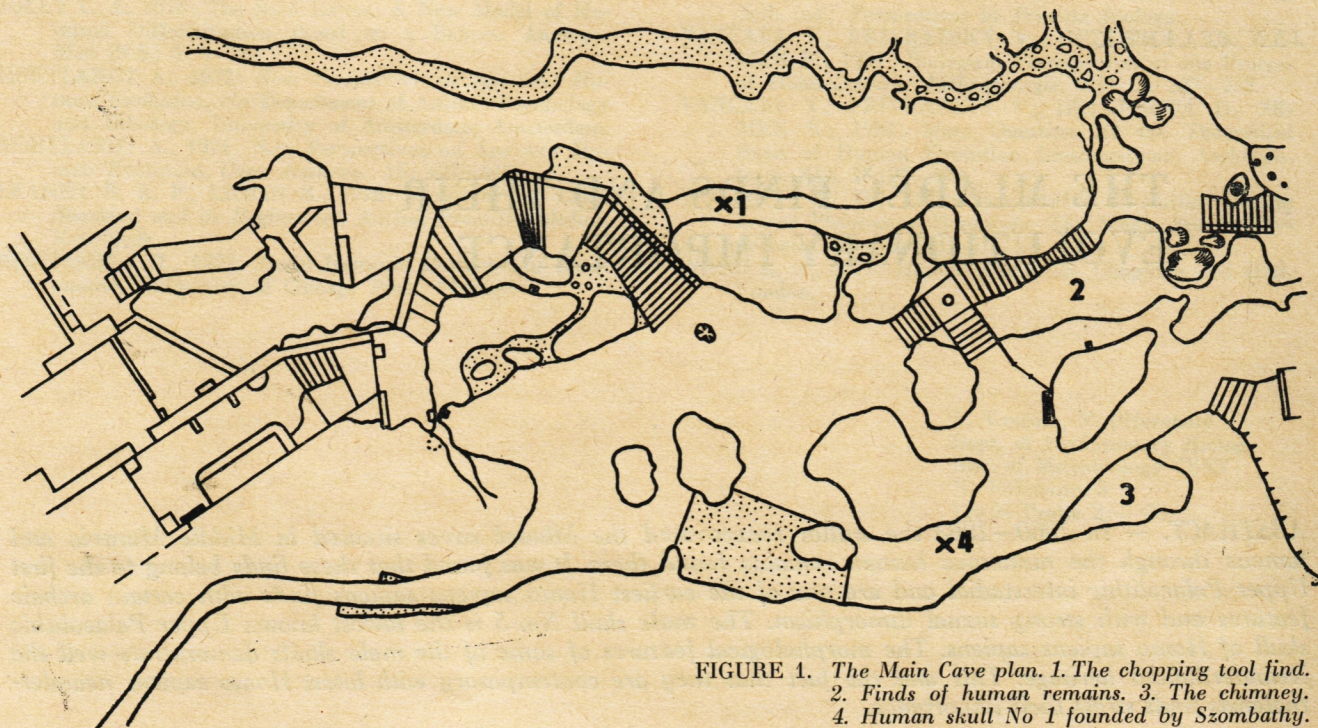


FIGURE 1. The Main Cave plan. 1. The chopping tool find. 2. Finds of human remains. 3. The chimney. 4. Human skull No 1 founded by Szombathy.

The Upper Palaeolithic finds must be distinguished from the earlier finds of the Middle Palaeolithic layers, containing remains of interglacial fauna represented by *Ursus deningeri* and by rich microfauna, especially snakes. Stratigraphically the difference is not distinct. The older layers with snake skeletons and with *Ursus deningeri* are reddish but more sandy with black manganese horizons. Here a single archaeological find of a chopping tool was found.

The younger interstadial layers with anthropological finds (W 1/2, middlewurm Hengelo) are reddish but not sandy and without manganese horizons.

The other Mladeč site yielding anthropological and archaeological finds was discovered in the year 1904, during quarrying work in the rock wall in front of the main caves. The situation found here was completely analogous with the situation described above. The cavity was filled with rocks and debris evidently from the caved in ceiling and contained human remains (isolated bones), archaeological finds, as well as individual animal bones, mostly remnants of food of Upper Palaeolithic hunters.

This situation of human bones found in the sediments of a cave chimney is not isolated. In the

In addition to the situation of the finds and to their stratigraphic position the type of the points indicates that the two finds — from the main cave and from the quarry cave — are closely related, both chronologically and culturally. Besides the bone points scattered parts of a necklace (drilled animal teeth), bone awls and few atypical stone flakes have been found. The first records on the caves and finds of bones in them come from the year 1829. In 1881 and 1882 J. Szombathy was digging in the main cave and he writes in his records that he made his excavations in undisturbed layers, and that he found at a depth of 20–30 cm, not too deep below

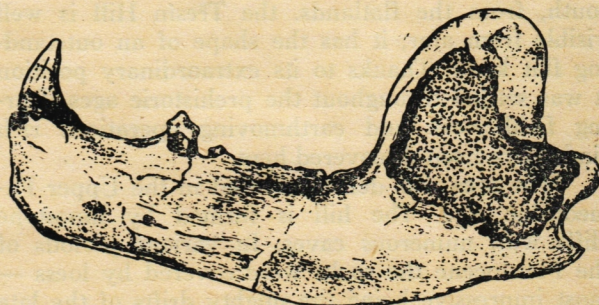


FIGURE 2. *Ursus deningeri* hemimandible found in the penultimate interglacial layer.

the surface of the cave floor, the Mladeč 1 human skull (without lower jaw and without teeth), together with Upper Pleistocene fauna (Szombathy, 1925).

Besides the above-mentioned skull Szombathy discovered in the main cave also the remains of a second skull (Mladeč 2), parts of a child's skull (Mladeč 3), an upper jaw, two halves of a further upper jaw, three separate teeth (one canine tooth, the crown of a premolar, an upper third molar), two cervical vertebrae, fragments of ribs a child's clavicle, a fragment of a child's pelvis, two fragments of right humerus, five fragments of forearm bones, parts of left and right femurs, distal epiphysis of a right tibia, a right talus, three metatarsal bones of a left foot and a phalanx of a left hand.

In the same area of the main cave, archaeologists of the Litovel Museum found the following bones during their research: a fragment of a human skull (Mladeč 4), part of a frontal bone, part of a squama occipitalis, three larger fragments of thin parietal bones, four pieces of parietal bones, four pieces of various occipital bones, three halves of upper jaws, two of them belonging to the same individual, an incomplete lower jaw, the right half of another lower jaw, one canine tooth, two premolars, one molar, an incomplete lumbar vertebra, a clavicle, two fragments of humeri, six femoral fragments, five fragments of various tibiae, three fragments of fibulae and incomplete falanges.

In the quarry cave discovered in 1904, J. Knies, a teacher and amateur palaeontologist, has found a calva (Mladeč 5), a further calva (Mladeč 6), two fragments of upper jaws, an incomplete lower jaw, the right half of a lower jaw, a clavicle, fragments of a shoulder blade and pelvis, parts of two humeri and an ulna a large part of a left femur, a right tibia, a fragment of a fibula, fragments of metacarpal bones and phalanges of a hand and fragments of ribs.

It is worth mentioning that in Szombathy's finds the female skull has relatively strong muscular relief, not very high cranial vault and an outstanding (bathrocephalic) squama occipitalis. Otherwise its morphology fits very well in with the other Upper Palaeolithic finds from Europe. Almost from the same place as the skull comes also a robust diaphysis of a well curved right femur. The robusticity of the skull and its absolute dimensions misled Szombathy and resulted in incorrect sexing of the skull.

Conspicuously curved is also the diaphysis of the left femur discovered in the cave of the quarry and salvaged by J. Knies. The other femoral remains though they are also robust, do not have such curved diaphyses. The upper jaw discovered by Szombathy also exhibits strikingly archaic features and dimensions. It has a rather shallow upper palate with a weak torus palatinus in it. The dental arch has parallel lateral rows of molars, and thus it nears the shape of the letter U. Striking are also the large dimensions of the teeth, especially of the canine teeth and of the jaw nearing the upper limit of the range of variation in *Homo sapiens sapiens*.

Of special interest is the Mladeč 5 calva discovered in the cave of the quarry, since it has a number of Neanderthaloid features. The exceptionally archaic features of this specimen include up to 1 cm thick bones, a protruding occiput, an unusually low cranial vault and large cranial breadth. It is the lowest-known European Upper Palaeolithic skull. In spite of these facts the skull has a cranial capacity of over 1600 ccm. From the occipital view it has a nearly rounded shape reminding of the skulls of the classical west European Neanderthals. The maximal breadth of the brain case is situated very low. The left temporal bone is slightly distorted. Similarly as the whole brain-case the front of the skull is low but well vaulted, with robust supraorbital arches which, in spite of their robustness are of clearly sapiens type (i.e. at the centre, in the glabella region are separated by a depression and laterally they are limited by a flat trigonum supraorbitale).

In the bathrocephalic occipital squama it is worth mentioning the strong muscular relief on planum nuchale and the angle between occipital and nuchal planes. The mastoids are large, on the parietal bones there are high temporal lines, clear sagittal cresting and parietal bosses. The second male calva too (Mladeč 6), found at the same place, has similar robust cranial bones. It is higher than the Mladeč 5 skull, though its occipital part is also protruding. The archaic morphological features are not so numerous as in the Mladeč 5 skull. The front is higher, the supraorbital region not so robust, the temporal lines are weaker and not so high, with small mastoids. We might perhaps remind you that the fragments of the mandibles found here belonged also to a robust type of *Homo sapiens sapiens*, to males.

WHAT CAN THE FINDS AS A WHOLE TELL US?

First of all the comparison of skulls 1, 5 and 6 shows great sexual dimorphism. The question remains whether clear sexual dimorphism prevailed in the whole population, but the situation in the Pavlovian site of Dolní Věstonice, when comparing the female skulls Dolní Věstonice III or II with the Pavlov male skull, reveals a similar degree of sexual dimorphism. It seems that marked sexual dimorphism was nothing exceptional in Upper Palaeolithic populations, at least not in these parts of Europe (Vlček, 1962, Jelínek, 1969).

A further conclusion is that these early representatives of *Homo sapiens sapiens* population show a great variability of morphological features. In various individuals the archaic characters developed with various intensity.

Here we can also compare the well-known find of the common Upper Palaeolithic grave from Předmostí, where especially the male skulls III and IX are examples of robust individuals with archaic features. Skull III is quoted again and again in the anthropological literature as an example of a find

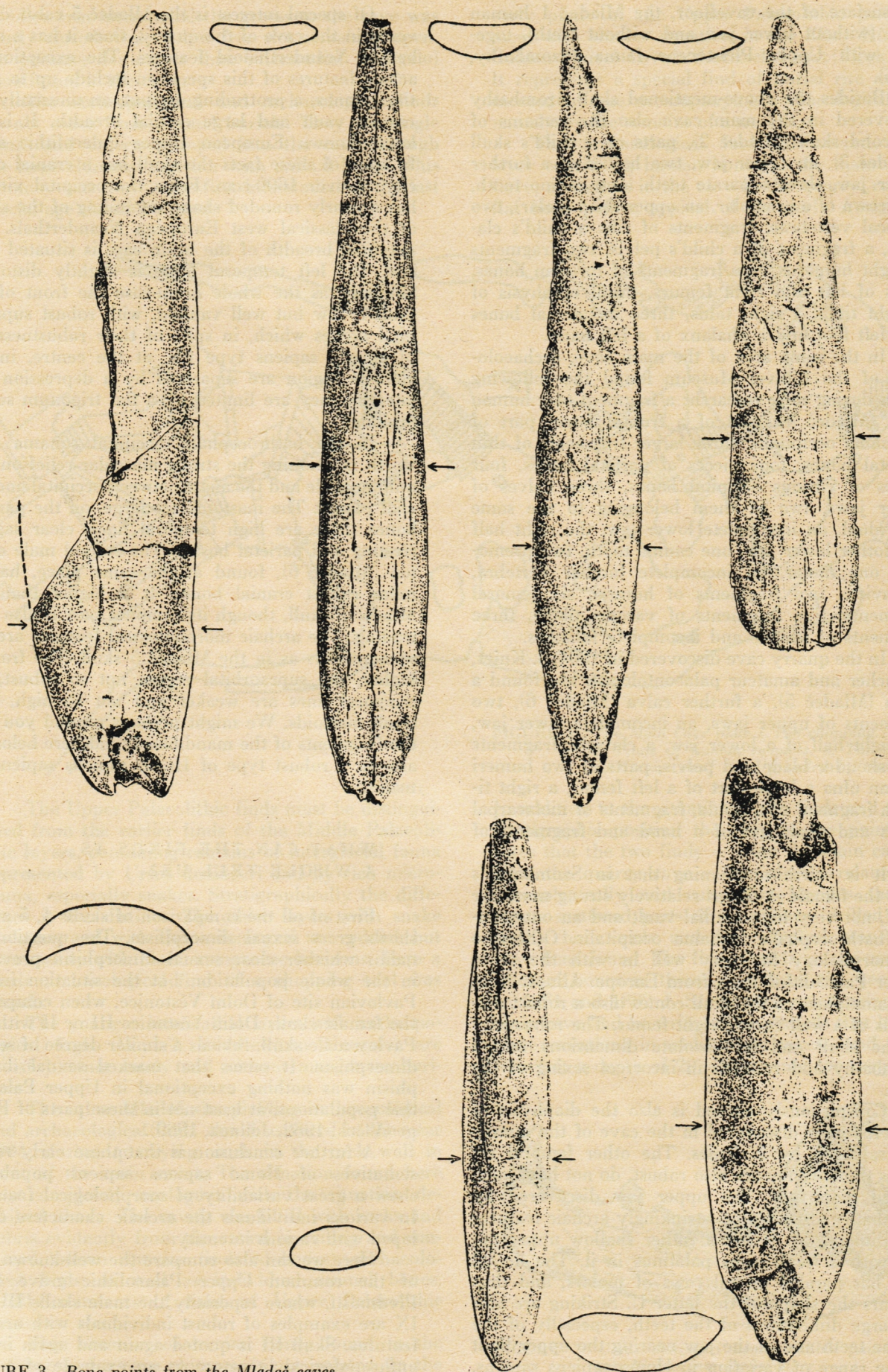
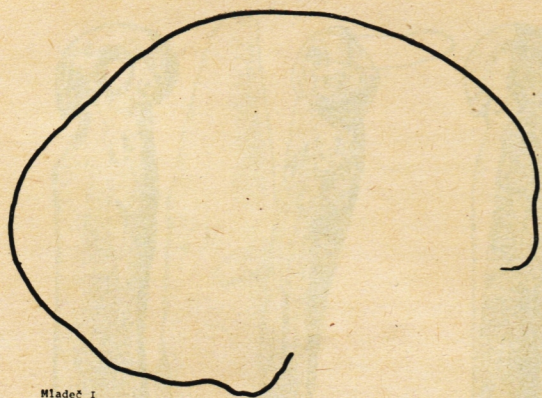


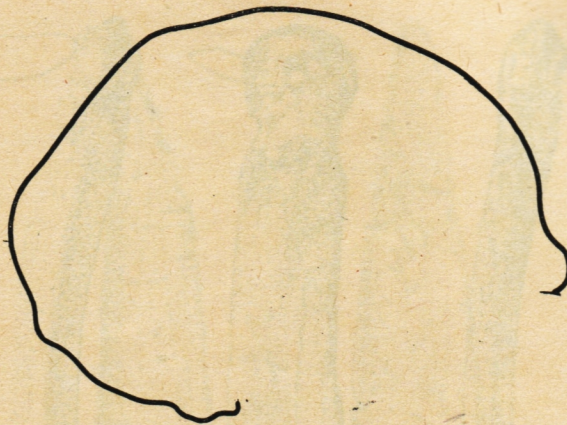
FIGURE 3. Bone points from the Mladeč caves.



FIGURE 4. Bone points and awls from the Mladeč caves.
Some of the awls are drilled.



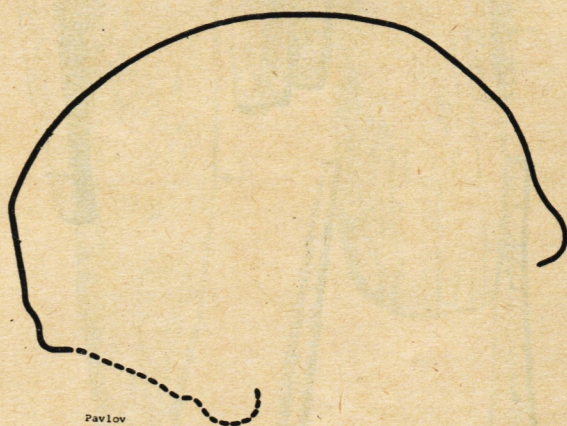
Mladeč I



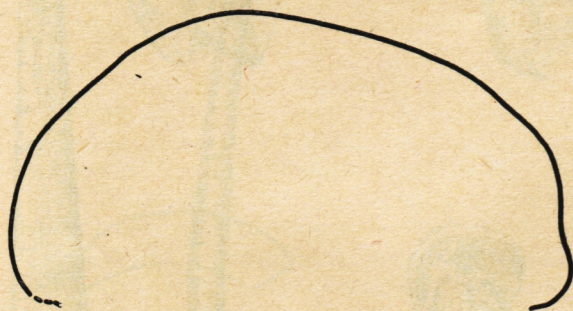
Předmostí III



Mladeč II



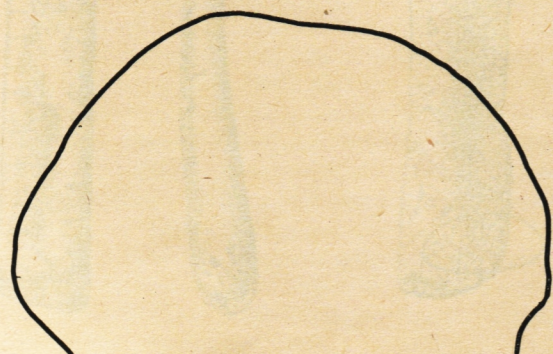
Pavlov



Mladeč V

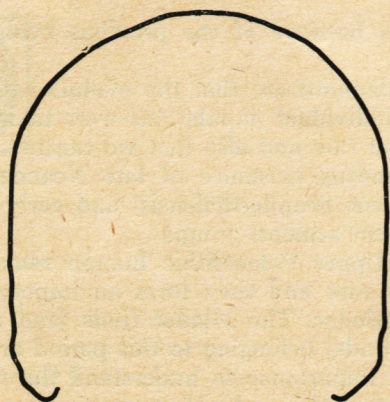


La Chapelle aux Saints

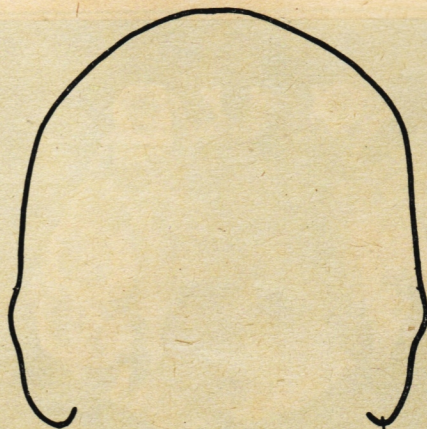


Mladeč VI

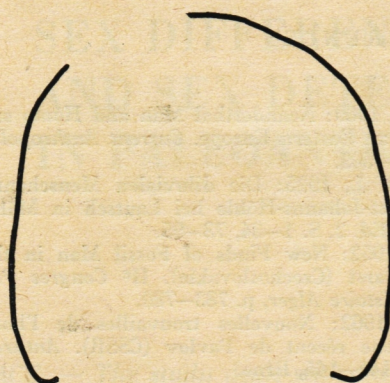
FIGURE 5. *Sagittal section of Mladeč I, II, V, VI, Předmostí III, Pavlov and La Chapelle aux Saints.*



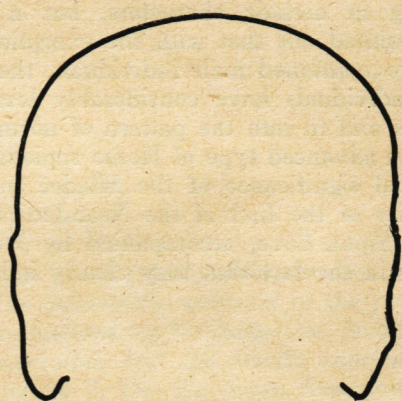
Mladeč I



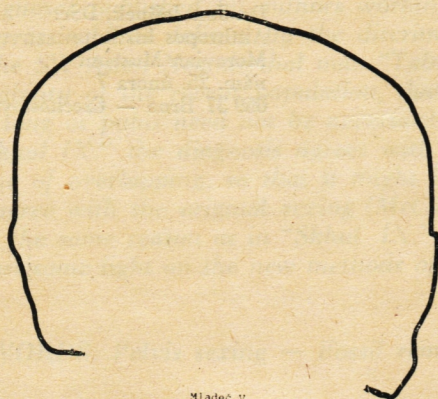
Předmostí III



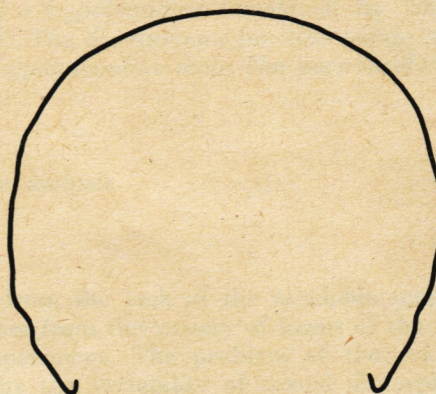
Mladeč II



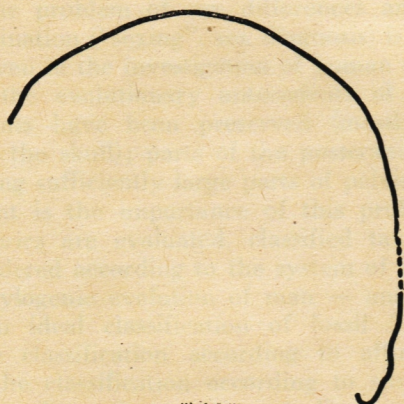
Pavlov



Mladeč V



La Chappelle aux Saints



Mladeč VI

FIGURE 6. *Transversal sections of Mladeč I, II, V, VI, Předmostí III, Pavlov and La Chappelle aux Saints.*



FIGURE 7. *Mladeč archaic upper jaw.*

abounding in archaic characters, but it is very seldom pointed out that with the exception of the two above-mentioned male individuals, the remaining 18 individuals have considerably less archaic characters and fit into the pattern of normal variation in the advanced type of *Homo sapiens sapiens*. The special significance of the Mladeč finds, contemporaries of the find of the Neanderthaloid jaw from the Šipka Cave, accompanied by Mousterian tools, lies in the fact that they clearly indicate the

Neanderthal heritage of the previous evolutionary stages.

They demonstrate that the evolutionary changes of the individual populations were taking place at a different rate and also that we can not exclude the simultaneous existence of late Neanderthalian (*Homo sapiens neanderthalensis*) and early sapiens (*Homo sapiens sapiens*) groups.

Early Upper Palaeolithic human remains are so far very rare and they form an important gap in our knowledge. The Mladeč finds (and also the Zlatý Kůň finds) belonging to this period are therefore of key importance to understand the mode of development of the early *Homo sapiens sapiens*.

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