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Othenio Abel

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# How "Neanderthal" Man Hunted Cave Bears

BY  
OTHENIO ABEL

UNIVERSITÉ  
PARIS  
BIBLIOTHÈQUE  
MUSEUM  
PARIS

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Don J. PIVETEAU

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SORBONNE  
LABORATOIRE DE PALÉONTOLOGIE

Paléontologie des Vertébrés  
BIBLIOTHÈQUE  
Université Paris VI

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Fig. 1. Wound in the skull of a cave bear (*Ursus spelaeus*) from the Drachenhöhle.—The wound, made by a sharp stone weapon, never fully healed but ulcerated until the time of death. The basilar length of this skull is 45 cm. (17.7 inches). In the fireplaces of Neanderthal man, 1060 feet from the entrance of the cave, we found another skull with a fresh wound in the region of the muzzle. In all probability a blow on the muzzle would cause immediate death, while a blow on the forehead or above the eyes would not necessarily be mortal, and the animal might be able to escape. Even to this day the Slovaks of the Carpathian Mountains kill brown bears by a powerful blow on the muzzle.

## How Neanderthal Man Hunted Cave Bears

IN THE DRAGON'S CAVE NEAR MIXNITZ, AUSTRIA

BY OTHENIO ABEL

AMONG the numerous fossil-bearing caves in Austria the Drachenhöhle or "Dragon's Cave" in Rötelsstein Mountain on the Mur River in Styria, is today among those best known.<sup>1</sup> This cave is more than 1800 feet long. The entrance is 3110 feet and the farther end 3280 feet above sea level. It is divided into three sections by two great heaps of stones fallen from the roof, which walled in enormous masses of fossilized bats' guano—or, as I named it, "chir-

<sup>1</sup>The excavations in the Drachenhöhle were made in 1920-23 to secure the fossilized bats' guano or "chiropterite" for agricultural purposes, for after the war Austria had neither natural nor artificial fertilizer. These excavations, under the superintendence of Dr. Josef Schädler, yielded about 2360 tons of chiropterite, containing, on an average, 13 per cent P<sub>2</sub>O<sub>5</sub>. I was placed in charge of the scientific investigations. In addition to numerous preliminary reports, chiefly published in the *Anzeiger* of the Academy of Sciences, Vienna (23 papers), the scientific staff employed in the Drachenhöhle excavations has prepared a monograph in three volumes which is already in press and will appear shortly. The illustrations accompanying this article are taken from the monograph.

opterite." A third heap of great blocks in the innermost section of the cave is older than the other two stonefalls. As Dr. Josef Schädler and I have shown, it occurred in Pliocene times, while the others fell during the Great Ice Age.

The first heap of stones formed an obstruction behind which there accumulated a great mass of bats' guano containing many hundred thousand fossil bones, chiefly of cave bear (*Ursus spelaeus*). In the basal layers we found bones of *Ursus deningeri*, a form ancestral to the later true cave bears. In the middle layers remains of the true cave bear (*Ursus spelaeus*) were very abundant and showed widely differing variations affecting nearly all parts of the skeleton, but especially the skull and dentition. It was in these layers

that the cave bears of Mixnitz reached their maximum of size and variability, while in the higher layers of the chiropterite the cave bear was represented chiefly by degenerate pigmy forms, the latest evolutionary stage of the Mixnitz cave bear before extinction. We collected, therefore, in the Drachenhöhle near Mixnitz data for the phylogeny of the cave bear that were unusually complete and very instructive.

But man's first visit to the cave is recorded from a much earlier time, that is, during the Great Ice Age, and especially in its last interglacial period, the time when the cave bear flourished. At this time, and in this region of the Alps, Neanderthal man hunted the cave bear even into the farthest recesses of this cave. In the spring of 1921, while we were excavating just in front of the second stone barrier 1060 feet from the

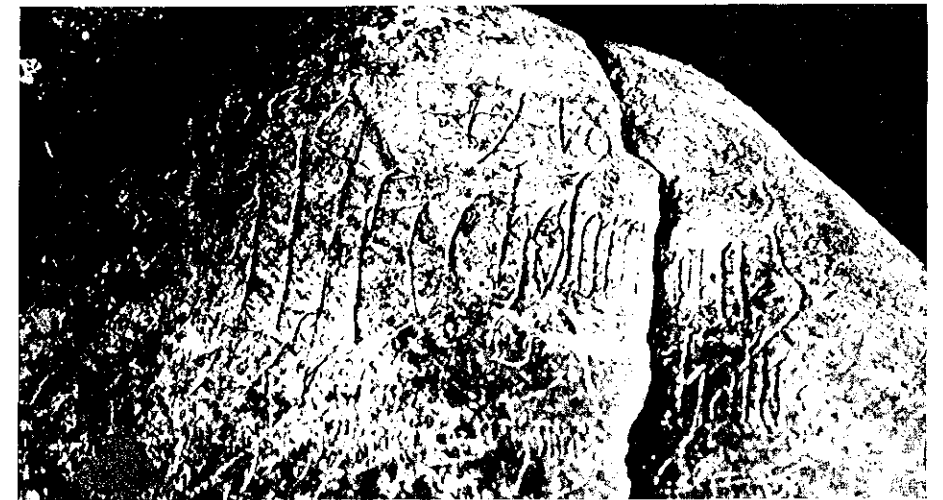


Fig. 2. Inscription on a rock in the Drachenhöhle, dated 1418.—At the top is the date in old characters; below, at the left, a heraldic sign; at the right, "Cholomanus"; third line, "halbe." In mediæval times the Drachenhöhle was already well known, and was visited by priests and nobles of the country. It was long believed to be a haunt of giants and dragons, as well as of the fabulous unicorn. Even as late as the first half of the nineteenth century the abundant remains of cave bears—supposed to be those of unicorns—were still being dug out and used for medicinal purposes.

From early mediæval times, and even as late as the end of the eighteenth century, the Drachenhöhle was reputed to be a haunt of giants and dragons. Inscriptions on rocks and on the walls of the cave—the earliest date being 1386—tell of repeated excursions to this "wonder of nature." In olden times visitors marvelled at the numerous fascinating skulls and leg-bones of the giant cave bears, believing them to be the remains of giants or dragons, and thus the name "Drachenhöhle" or "Dragon's Cave" originated.

entrance, we uncovered two fireplaces of Neanderthal man, one above the other. Both were paved with flat limestone slabs and strewn with a great number of broken and burned bones of cave bear, together with pieces of charcoal, and a number of flakes and very primitive artifacts of Mousterian type, which were nearly all made of quartzite brought from the gravels at the bottom of the Mur valley to the cave, 1640 feet above the level of the river.

These fireplaces were situated at the opening of a narrow passage—the



Fig. 3. An excavation party in the Drachenhöhle.—From left to right, sitting: Dr. Wilhelm Marinelli, Prof. Othenio Abel, and Dr. Kurt Ehrenberg. Standing: Dr. Franz Spillmann and Dr. Otto Antonius. By January, 1921, the "Abelgang" had been completely excavated. The material removed contained thirty skulls, numerous lower jaws, and other bones of cave bears, and also the remains of wolves, lions, and smaller mammals.

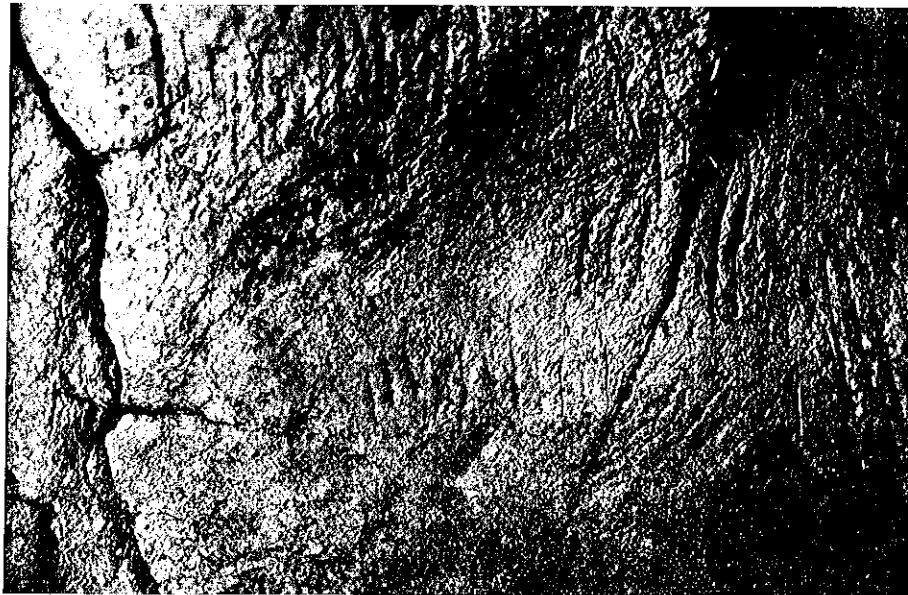


Fig. 4. Scratches made by cave bears on the walls of the Drachenhöhle.—The walls of the Drachenhöhle which are a Paleozoic limestone, have been much decomposed by bats' guano, and their surface has been transformed into a soft phosphoric mineral. On this soft surface, in a narrow passage between the wall and a great stone block we found hundreds of claw marks made by cave bears. As Freiherr von Bachofen points out, Neanderthal men must have hunted the cave bears here chiefly by means of the *battue*, and doubtless attacked them suddenly in this narrow defile. The bears, in trying to escape, made these numerous marks on the wall.

usual route of the cave bears which hibernated in the warmest (e. g., the innermost) part of the cave. After the chiropterite had been removed, Freiherr A. von Bachofen-Echt followed this path of the cave bears for a distance of about 820 feet from the fireplaces to the end of the cave, and found that the only possible exit for the bears had been through this narrow defile. Here the Neanderthal hunters had stationed themselves, and tried to kill the escaping animals by striking at them with long-handled clubs at the end of which sharp stones were fastened. This accounts for the numerous wounds on the skulls of the cave bears in the Drachenhöhle, later healed if the animals escaped, and always situated on the left side of the skull or lower jaw, that is, just on the side exposed to the hunters' attack when the bears ran along the narrow passage.

In January, 1921, we excavated a little side recess of the cave near the fireplaces, which was filled with a number of skulls and other skeletal remains, chiefly of cave bears. In a space not exceeding two or three cubic meters in extent we recovered thirty skulls, some of them with lower jaws *in situ*, together with many isolated lower jaws and numerous other bones.

It was a remarkable fact that these bones showed a rather peculiar arrangement. We found that almost all the bones at the bottom were small—chiefly metapodials and vertebrae; at a



Fig. 5. Accumulation of cave-bear skulls in the "Abelgang," a side recess in the Drachenhöhle.—Although the "chiropterite" contained an enormous number of bones and teeth of the cave bear, it was only in this recess that we found the skulls lying side by side. This photograph was made shortly after we began excavating, and shows eighteen skulls *in situ*.

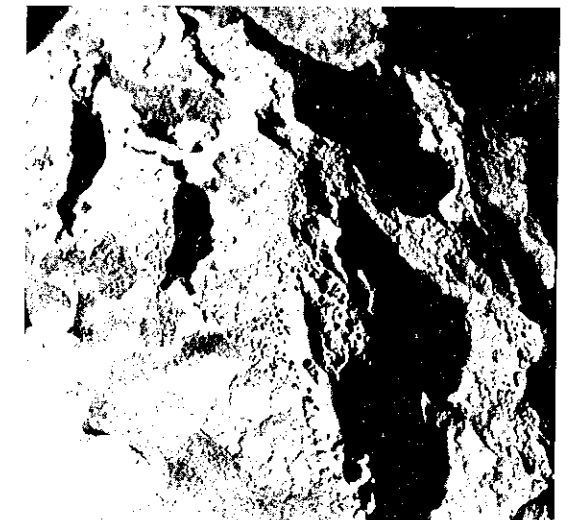


Fig. 6. Rock polished by the fur of the cave bears.—The animals found their way in total darkness, chiefly by the sense of smell, along the walls of the cave and between the great blocks of stone fallen from the roof. In the course of time the edges and corners of these blocks and of the walls were worn smooth by the fur of the cave bears, as they rubbed against the rock.

higher level arm-bones and leg-bones predominated; then came a great series of pelvic bones; and the uppermost layer was composed chiefly of skulls and jaws. Some of the bones were badly rolled, or weathered, or



Fig. 7. Arrangement of the skull and ulna of a cave bear, believed to be the work of Neanderthal man.—In March, 1923, Dr. Josef Sebadler found the skull and ulna of a cave bear firmly fixed in the deep marginal fissure between the wall and the floor of the Drachenhöhle. All the circumstances make it most improbable that this could have happened as the result of a fall, or of the action of running water, or of any other operation of the forces of nature.

gnawed by wolves; others were broken before fossilization, and one skull showed a healed wound on the left frontal, made by the sharp stone weapon of some Neanderthal hunter.

The question was whether the peculiar arrangement of the bones at this site was artificial (e. g., made by Neanderthal man), or whether it was caused by the action of running water, separating the bones according to their weight, and accumulating them in this pocket or recess, without any human intervention.

The first explanation would be in accord with the observations of Emil Bächler in the "Drachenloch ob Vättis

im Taminatale," Switzerland, and also with the similar observations of K. Hoermann in the cave of Petershöhle near Velden, Franconia, Germany. In the Drachenloch near Vättis, 8020 feet above sea level, Neanderthal man buried skulls of cave bear with the adjoining vertebrae in stone chests and covered these with stone slabs. In Petershöhle the skulls and other bones of cave bears were not so regularly arranged as in the Drachenloch, but were irregularly piled in a little recess of the cave.

It is noteworthy that the primitive bear-hunting peoples of northeast Asia—Giljaks and Ainus—observe a peculiar religious veneration towards the skulls of the bears killed by them. It is not impossible that the accumulations of skulls and other skeletal parts of the cave bear in so small an area (eighteen skulls in a space of two square meters) in the Drachenhöhle near Mixnitz may be explained in the same way as the very similar accumulations in the Drachenloch and in Petershöhle.

Dr. Kurt Ehrenberg, who studied this matter together with other features bearing upon the whole problem of fossilization in the Drachenhöhle, is inclined to adopt my earlier viewpoint of 1921, namely, that the whole arrangement of the fossil remains in the recess is due only to the action of running water. On the other hand, he suggests that a curious combination of a bear skull with an ulna may be an instance of the deliberate arrangement of skeletal parts of cave bears by Neanderthal man, similar to the combination of skull and femur in the Drachenloch observed and described by Doctor Bächler in 1921.