

# Vertebrate Paleontology

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Vertebrate paleontology, evolution, Quaternary research, cave bears, Arvicolids

In collaboration with: Univ. Doz. Dr. Christa Frank (Quaternary mollusca), Dr. Karl Rauscher (Paleoherpetology), Dr. Florian Fladerer (fossil lagomorphs, Quaternary paleontology), Mag. Doris Nagel (fossil arvicolids and felids, Quaternary paleontology), Mag. Günther K. Kunst (archeozoology, Quaternary large mammals), em. Full Professor Erich Thenius (general paleontology, fossil mammals etc.)



### Research

#### *Evolution and chronology of Plio-Pleistocene mammals*

According to the geological situation of Vienna the main activities in Vertebrate paleontology are concerning the mammals of the Late Cenozoic. Actually, priority is given to the research of the evolution of fossil voles (arvicolids), shrews (soricids) and cave-bears (*Ursus spelaeus*). During the period mentioned above, these three groups have undergone an extremely fast evolution and for this rea-

son, gave rise to important indicators of biochronology.

By means of radiocarbon-dating and uranium-series-dating (in collaboration with the "Institut für Radiumforschung und Kernphysik" and the "Institut für Analytische Chemie", both at University of Vienna) we are trying to realize also the speed and mode of evolution.

#### *Paleoclimatology of terrestrial Plio-Pleistocene*

Our aim is the most precise reconstruction of the varying climatic conditions during the Plio-Pleistocene period by a detailed description of recent associations of terrestrial snails and of significant vertebrate categories (lizards, snakes and bats). We find the suitable fossils in the loess regions of Eastern Austria, in the fissure fillings of the "Hainburger Berge" and in the high-alpine bear-caves.

#### *Faunal history of Late Cenozoic in Central Europe*

By the revision of former materials and with actual excavation and gathering of fossils, all the important localities and faunas will be revised from a chronological, taxonomical and ecological point of view. The first aim of these activities is to finish a survey of the localities. In cooperation with international projects we want to contribute to the reconstructions of the faunal development in the European Plio-Pleistocene.

#### *Paleontology of paleolithic sites*

In cooperation with prehistoric and anthropological research departments, we are supervising excava-

tions and findings which emphasize the paleolithic man. On the one hand, the sites of interest are the stations of Late Paleolithic hunters in Lower Austria (e.g. Willendorf, Stillfried, Alberndorf), on the other hand, the cave localities of the middle and Late Paleolithic period (Vindija/ Croatia, Gamssulzenhöhle/Upper Austria).

The paleozoological activities are not only leading to the taxonomic and ontogenetic determinations of the game animals, but also provide important clues to an understanding of the former ecological and climatological conditions.

### Archeozoology

We try to answer the same question concerning later periods (Neolithic to early Middle Age). Priorities are given to the investigation of the domestic animals, which are abundant in areas of settlement.

### Excavation program

High alpine bear-caves: Conturines-Höhle (S-Tyrol, Italy), Sulzfluh-caves (Rätikon, Switzerland), Brettstein-bear cave (Styria). The appearance of cave-bears in regions which are today only sparsely overgrown or free of vegetation is of particular importance concerning the questions of Pleistocene climatic conditions and of evolution. Other bear-caves: Schwabenreith-cave and Herdengel-cave near Lunz am See (Lower Austria).

*Loess deposits:* Willendorf/Wachau, Stillfried/March

### Teaching

General paleontology, Evolution and time, Paleontological laboratories, Systematic paleontology: Vertebrates, Osteological and odontological laboratories, Microvertebrate paleontology, Quaternary biostratigraphy, Speleological excursions, Instructional excavations.

### International Cooperations

EUROMAM; Institute for quaternary geology and paleontology of the Croatian Academy of Sciences, Zagreb; Denkmalmamt der Autonomen Provinz Bozen-Südtirol, Italy; Bündner Naturmuseum, Chur Switzerland.

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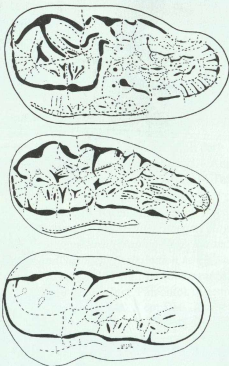


Fig. 3 evolutionary stages of 2nd maxillary molar of cave bears: Middle Pleistocene of Hunas (Franconia), Early Würmian of Herdengelhöhle (Lower Austria) and Late Würmian of Liegloch (Styria)