



European Neogene Mammal Chronology

Edited by

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Pierre Mein

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PREFACE

During the last 20 years great progress has been achieved in our understanding of both earth history and vertebrate evolution. The result is that climatic/tectonic events in earth history can now be placed in a more precise and global time frame, that permit their evaluation as abiotic causal factors which might trigger extinction and dispersal events in vertebrate history. Great strides have also been made in genetics and cell biology, providing new insight into phylogenetic relationships among many vertebrates. These new data, along with data on chronologic resolution of earth history, provide tests of previous interpretations regarding ancestral-descendant relationships based solely on the fossil record.

It is fitting and proper that a volume on European Neogene mammal chronology is produced at this time, to ensure that new interpretations of vertebrate evolution and chronology are based on the most accurate and current data. Vertebrate paleontologists believe that the fossil record is the only secure data for measuring the actual course and tempo of vertebrate evolution. Knowledge of the fossil record must keep pace with advances in other areas of science so that inferences on vertebrate evolution are accurate and meaningful.

The rich record of fossil mammals in Europe has contributed substantially to studies of vertebrate evolution. Notable early contributions to Cenozoic geochronology and vertebrate evolution were made by Cuvier, Geoffroy St.-Hilaire, Darwin, Huxley, Agassiz and others. Many of the concepts that we now use in Cenozoic geochronology and vertebrate evolution were developed in Europe during the last century.

European mammal chronology has grown from both broad synthetic studies (e.g., Zittel, Thenius, Kretzoi and Kurten) plus centrally focused studies (e.g., Crusafont, Thaler, Tobien and Azzaroli). The latter of these foundation builders are included among the contributors to this volume. We co-editors dedicate this volume to those vertebrate paleontologists who have helped to create the foundation of European Cenozoic mammal chronology that we have inherited.

An international workshop was held at Schloss Reisenburg in Germany on May 16-20, 1988, to stimulate further knowledge of European fossil mammals. This meeting, sponsored by NATO as an Advanced Research Workshop, had the title "European Neogene Mammal Chronology." It was attended by 47 researchers (listed at the end of the volume) from 15 nations, including 13 European nations. Presentations were given in English, even though English is the native tongue for only about 12 percent of the participants. The topics addressed at the meeting were varied, including principles of stratigraphy, presentation of new fossil discoveries, syntheses of climatic and biogeographic data, update of systematics for selected groups of European mammals, and chronology of mammal faunas outside of Europe. Discussions were friendly and lively; conflicting perspectives were addressed and discussed openly.

Contributions to this volume reflect the diversity of topics and viewpoints presented at the Workshop. Seven chapters (e.g., 1, 6, 7, 18, 31, 35 and 37) were initiated after the Workshop and most of the manuscripts were revised to some degree