

## GEOLOGIE UND PALÄONTOLOGIE

**Two additions to the Kohfidisch (Burgenland) fauna  
of Eastern Austria**By FRIEDRICH BACHMAYER† & ROBERT W. WILSON<sup>1)</sup>

(With 1 plate)

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## Abstract

As a result of sorting through the last of the Kohfidisch collection, two additions to the micromammalian fauna were obtained. An upper jaw of *Plesiodimylus chantrei* is new to the fauna although not to other localities of late Vallesian and early Turolian age in western and central Europe. An upper molar of *Graphiurops* (?) was also recovered. Previously no upper teeth of this rare genus were known from Kohfidisch. It permits comparison with related material from Eichkogel bei Mödling, without bringing these glirids into close relationship.

## Zusammenfassung

Bei der Durchsicht der letzten Proben der Kohfidisch-Grabungen konnten zwei Ergänzungen zur bisher bekannten Kleinsäugerfauna erzielt werden. Ein Oberkiefer von *Plesiodimylus chantrei* ist neu für die Fauna, obwohl diese Art von anderen Lokalitäten des späten Vallesien und frühen Turolien in West- und Mitteleuropa bekannt ist. Ein oberer Molar von *Graphiurops* (?) wurde ebenso entdeckt. Bisher war kein Oberkieferzahn dieser seltenen Gattung aus Kohfidisch bekannt. Nun ist der Vergleich mit dem Material des Eichkogels bei Mödling möglich, ohne aber diese Gliridae in engere Verwandtschaft zueinander zu bringen.

## Introduction

Excavation at the Kohfidisch cave and fissure system (Burgenland, Austria) of late Miocene age, began in 1955 and was terminated in 1984. A tremendous number of specimens of small mammals (insectivores, bats, lagomorphs, and rodents) were obtained in this time, mostly jaws and isolated teeth. The geologic aspects of the locality were discussed by BACHMAYER & ZAPFE (1969, 1972). The small mammal fauna was described by BACHMAYER & WILSON in a series of papers (1970, 1978, 1980, 1983, 1985). Papers by BACHMAYER and MLYNARSKI (1977, 1983), and BACHMAYER & SZYNDLAR (1985, 1987) dealt with the reptile fauna.

The number of mammalian taxonomic units added to the fauna decreased markedly in successive publications by BACHMAYER & WILSON. For example, the

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1980 publication added only *Leptodontomys* (one tooth), *Paragilirulus* (probably about four specimens), and *Graphiurops* (rare and known before, but not named). It was hence a surprise to us when in an almost final search of accumulated specimens, an upper jaw of *Plesiodimylus* and an upper tooth of *Graphiurops* (?) were found. *Plesiodimylus chantrei* has a wide distribution in space and time, being known from France, Spain, Germany, and Switzerland, as well as the Vienna Basin. This species has been identified from middle and late Miocene strata. Consequently its description will be brief. It should be mentioned, however, that the later occurrences of this species seem almost entirely known from isolated teeth. The last known occurrence is at Dorn-Dürkheim in southwest Germany (Mn 11 in the MEIN scheme of biostratigraphy). The upper tooth of *Graphiurops* (?) is the first upper tooth of this genus to be found at Kohfidisch.

#### Order Insectivora

Family Dimylidae SCHLOSSER, 1888

*Plesiodimylus chantrei* GAILLARD, 1899

Material: Right maxillary with P<sup>4</sup>-M<sup>2</sup>, Pl. 1, Fig. 1.

Locality: Kohfidisch cave and fissure deposits of the Burgenland, Austria. Fundstelle V of this locality.

Age: Earliest Turolian or Pontian (MEIN Zone 11).

Description:

P<sup>4</sup>: Triangular in shape; no parastyle; paracone massive with ridge extending down its posterior slope; protocone much smaller than paracone, and somewhat posterior to it in position.

M<sup>1</sup>: Longer than broad (see measurements); parastyle small; paracone compressed; no mesostyle; metacone larger than paracone and present as a relatively distinct cusp; metastyle long and bladeliike; hypocone and protocone weakly united by a ridge; extending from this ridge a small cusp (called by ENGESSER, 1980, "inner cusp"); hypocone larger than protocone and more internal in position.

M<sup>2</sup>: M<sup>2</sup> pattern rotated so that what is external in a normal molar is now largely posterior; parastyle almost unidentifiable; paracone crescentic; metacone-metastyle long and bladeliike; protocone only internal cusp and is large.

Measurements:

P <sup>4</sup> , L: 1.87	M <sup>1</sup> , L: 3.23	M <sup>2</sup> , L: 1.91
W: 1.56	W: 2.50	W: 2.72

#### Order Rodentia

Family Gliridae THOMAS, 1897

? *Graphiurops austriacus* BACHMAYER & WILSON, 1980

Material: A supposed right M<sup>1</sup> or M<sup>2</sup>, Pl. 1, Fig. 2 A + B.

Locality: Kohfidisch (Burgenland) Austria. From fine-sieved material.

### Description:

Orientation of this single tooth is difficult, but it seems to be an upper molar. This is based on the presence of a well-developed root (fig. 2b) beneath a principal cusp (paracone?), and a pattern, if it is *Graphiurops*, different from that of  $M_1$  or  $M_2$ . A slight slant to the lophs, and the character of the terminal crests suggest which is anterior and which posterior. If this is a correct interpretation, it is a right first or second upper molar.

The crown pattern for a glirid is simple but strongly developed. It consists of two U-shaped structures, the open ends facing externally. The anterior structure consists of anteroloph and protoloph, the posterior of metaloph and posteroloph. No accessory structures seem present. The gold coating before photography makes fig. 2a a little deceptive in giving a break in the metaloph which is not really there.

In the original description of *Graphiurops*, when the upper dentition was unknown, it was thought that Gliride gen. et sp. indet. from Eichkogel bei Mödling was closely related. The upper molar from Kohfidisch seems to distance this relationship. It also does not improve the supposed relationship to the Recent *Graphiurus* of Africa.

### Measurements:

$M^1/M^2$  L: 1.13

W: 1.04

### Remarks

Associated with *Plesiodymys* at Fundstelle V were: *Anourosorex*, *Plecotus*, *Prolagus*, *Protozapus*, and *Kowalskia*. The Kohfidisch specimen is near the end of its temporal range, but Dorn-Dürkheim in Germany, and probably Eichkogel in the Vienna Basin are younger. Many of the known occurrences are isolated teeth so that the present specimen is better preserved than most of the later ones. The species has no special stratigraphic value (as yet neither does *Graphiurops*) and suggests in its overall distribution that it lacks ecologic and geographic value as well. *Graphiurops* is known only from the type locality.

Because the excavation at Kohfidisch has been terminated, and additional detailed study of the micromammalia is not contemplated by us, perhaps a resumé statement concerning Kohfidisch is in order even though largely a repeat of past publications (see especially, BACHMAYER & WILSON 1985).

The Kohfidisch fauna lived under conditions warmer than at present, and perhaps similar to that prevailing along the northern border of the Mediterranean. The area around Kohfidisch was relatively dry and bushy rather than tree-covered except near the bodies of water which were adjacent (*Desmana*, *Chalicomys* present among other indicators). It is possible that most of the insectivore fauna lived in moist situations adjacent to these water bodies as ENGESSER has suggested for insectivores generally (1980).

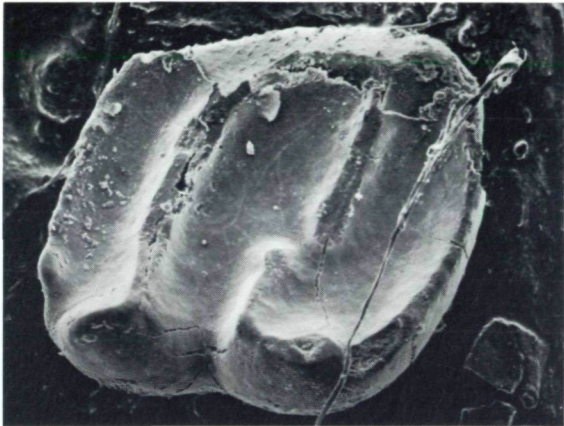
The exact position in time of the Kohfidisch fauna based on faunal similarities places the fauna as approximately the same age as that of Eichkogel, but probably slightly older (Zone H? of the PAPP arrangement for the Vienna Basin).

A second possible allocation is based on geologic grounds. PAPP concluded that his zones could be extended into the area south of the Vienna Basin (BACHMAYER & ZAPFE 1969). In the Kohfidisch area the land was believed to be submerged except for Zone A and Zone F. During the Kohfidisch accumulation the cave and fissure system was, of course, above local water levels. Zone A is much too early for Kohfidisch which leaves it correlated with Zone F of the Vienna Basin. In this alternative, environmental factors are of paramount importance. The Götzensdorf fauna (BACHMAYER & WILSON 1984) of the Vienna Basin is certainly from Zone F, and is quite different from Kohfidisch in its rodents, and in general seems to be a middle Miocene fauna carried forward in time along stream borders where much of the middle Miocene habitat would be preserved. Geologists seem certain that the Götzensdorf micromammalia can not be as old as the fauna suggests (MEIN Zone 9 or 10). We have discussed this dilemma, so far as the MEIN zones are concerned, in another place, as indicated above.

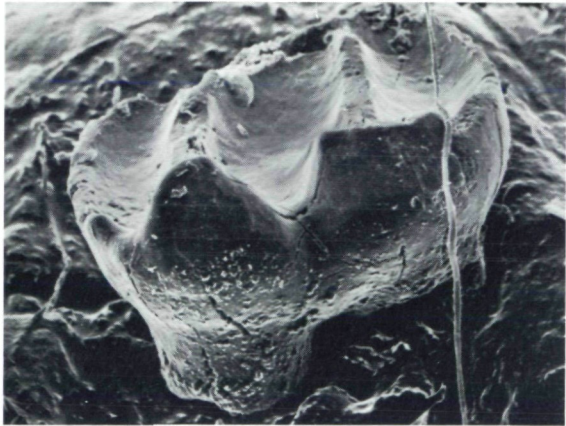
A case for the second alternative may be made. The Muridae are important guide fossils, and involved are *Progonomys* and the more advanced *Parapodemus*. At Eichkogel (Zone H), *Parapodemus* is present in large numbers, and *Progonomys* is known only by one doubtful tooth. At Kohfidisch both *Progonomys* and *Parapodemus* are present with a ratio of three to one in favor of *Progonomys*. In the preceding MEIN Zone 10, only *Progonomys* is present. Thus there is a progression from *Progonomys* only to *Progonomys* and *Parapodemus* to *Parapodemus* only. This would suggest that Kohfidisch is lower stratigraphically than Eichkogel, and could really be the equivalent of Zone F of the Vienna Basin. The chief faunal reasons for regarding Götzensdorf as older than Kohfidisch are: (1) the cricetids have not reached the evolutionary stage of *Kowalskia*; (2) no murids are present. The last is negative evidence and dormice are also absent in the fauna in spite of their long residence in Europe. Also DAXNER-HÖCK (1972) identified *Kowalskia* in the obviously older Vösendorf fauna although we are dubious about this identification. The environment could hence play a decisive role in negating the MEIN zones at this level. We have been informed by H. ZAPFE (oral communication) that in his experience survival under suitable conditions of much of the older fauna is not at all unusual.

In sum, it is possible to view the Götzensdorf and Kohfidisch faunas as temporal equivalents, and the Götzensdorf fauna as later in time than the faunal list would suggest. At least for Götzensdorf the second possibility is a more satisfactory position to our geologic colleagues than to place it in the Vallesian (Pannonian s. s.). The MEIN zones should be used with discretion, if not to be quite as rejected as by DAAMS & FREUDENTHAL (1981).

2A



2B



1





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## Explanation of Figures

Fig. 1. *Plesiodimylus chantrei* GAILLARD, 1899. Rt. maxillary with P<sup>1</sup>–M<sup>2</sup>, occlusal view, 17×. – Kohfidisch. – NHM Wien, Nr. 1989/72.

Fig. 2. ? *Graphiurops austriacus* BACHMAYER & WILSON, 1980. Rt. M<sup>1</sup>/M<sup>2</sup>. – Kohfidisch. – NHM Wien, Nr. 1989/73.

(a) occlusal view, 60×.

(b) oblique external view, 60×.