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Mimomys savini and *Arvicola cantiana* in the Upper Valdarno (Italy)

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SUMMARY

The presence of *Mimomys savini* in the locality "Le Strette presso il Tasso" (Upper Valdarno) involves a correlation of the Tasso Faunal Unit with part of the Biharian.

In the Pratomagno fans of the Upper Valdarno, finds of *Arvicola cantiana* at "Poggitazzi" prove the presence of sediments that can be assigned to the middle-late part of the Middle Pleistocene.

RIASSUNTO

La presenza di *Mimomys savini* nella località "Le Strette presso il Tasso" (Valdarno Superiore) implica una correlazione dell'Unità faunistica del Tasso con parte del Bihariano.

Il ritrovamento di *Arvicola cantiana* a "Poggitazzi" prova che nei conoidi del Pratomagno vi sono depositi attribuibili ad una parte medio-alta del Pleistocene Medio.

Paleontologic-systematic descriptions

The arvicolid fossils of the Upper Valdarno are only represented by:

— a fragment of a left mandibular branch with M_1 and incisor, a left M_2 probably belonging to the same mandible. The fossils came out from a place near the village of Castelfranco di Sopra (the exact location is unfortunately unknown), and are the type material of *Mimomys pliocaenicus*. They belong to the collections of the Paleontological Museum of the University of Florence with the catalogue number IGF 957;

— a first and second left lower molars, a first left upper molar and a fragment of a first left lower molar, collected near Poggitazzi and described by BOSCO (1899) as *Arvicola pliocenicus*. The material is in the Paleontological Museum of Florence, labelled IGF 958;

— a left M_1 found in the locality "Le Strette presso il Tasso", preserved in the Paleontological Museum of the Accademia Valdarnese of Montevarchi (Arezzo) with the catalogue number 49 and named *Arvicola pliocenicus;*

— the first and second right upper molars, a right M^3 and a left M_1 collected in the locality "Inferno" (Terranuova Bracciolini). They are preserved in the Natural History Museum of Basel with the numbers VA 2019, 278, and were described by KORMOS (1931) as *Mimomys intermedius (= M. savini)*.

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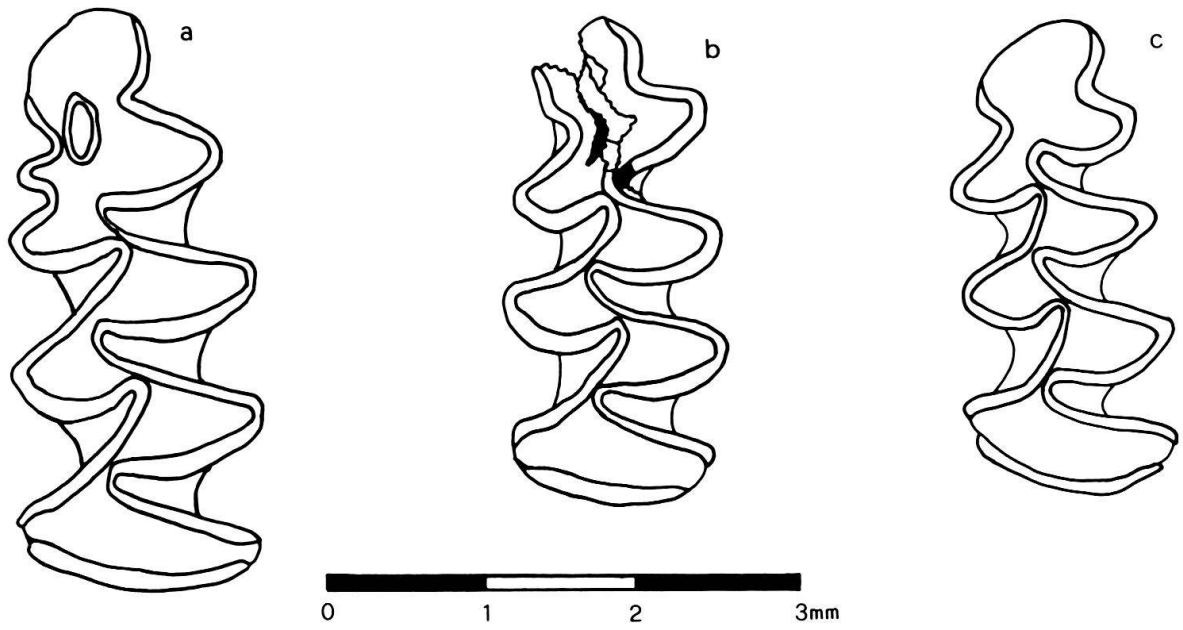

Fig. 1. Left M_1 of: a) *Mimomys pliocaenicus*, holotype, IGF 957; b) *Mimomys savini*, Montevarchi Pal. Mus. n° 49; c) *Arvicola cantiana*, IGF 958.

The examination of the "Le Strette presso il Tasso" and "Poggitazzi" specimens called forth a new taxonomic statement with significant biostratigraphical implication on the relation between the Villafranchian and Biharian mammal ages.

The specimen of the locality "Le Strette". – The first left lower molar, preserved in the Museum of Montevarchi, undoubtedly belongs to the species *Mimomys savini* (Fig. 1b). The tooth is very hypsodont but rooted as testified by the closing of the re-entrant angles towards the base; the enamel free areas are very developed; the *Mimomys* ridge and the enamel islet are absent; the anterior cap (AC2) is of arvicolid type and the third buccal and fourth lingual re-entrant angles are rather deep; the differentiation of the enamel thickness is typical for *Mimomys*. The general morphology corresponds to the *intermedius* morphotype.

The tooth measures (total length $\sim$ mm 3.18, antero conid complex-ACC-length ~ 1.19, posterior loop breadth $= 1.34$, largest breadth $= 1.49$) fall within the size variation of the specimens found in the Montagnola Senese (Siena) (Fondi 1972), in the Soave Brecce (Verona) (Pasa 1947) and in the bone breccia of Slivia (Carso di Trieste) (Ambrosetti et al. 1979). Our specimen is very similar to the M_1 fragment collected in the locality "Inferno" and described by Kormos (1931).

As the M_1 came out from "Le Strette presso il Tasso", it is reasonable to include *M. savini* in the association that characterizes the Late Villafranchian Tasso Unit. This conclusion is also attested by the finding of *M. savini* in sediments of the "Inferno" area, where typical Tasso Unit mammals were collected. The fossils of the "Casa Frata" deposit (Borselli et al. 1980; De Giuli & Masini, in press) belong to the same local fauna.

The presence of *M. savini* suggests that the Unit characterized by the Tasso Villafranchian Fauna be post-Villanian and so correlatable with part of the Biharian.

This new evidence corroborates what De Giuli & Torre (in press) observed in the Apricena surroundings (Foggia), where *Allophaiomys pliocaenicus*, an early Biharian

species, is associated with a very late Villafranchian fauna. Moreover, the specimen of "Le Strette" allows to place the lower limit of the Biharian in a moment of the Late Villafranchian under the "Casa Frata"–"Inferno" and "Tasso" Local Faunas. The presence of Villanian micro-mammals in the sediments outcropping in the Upper Valdarno, is proved by the find of *Mimomys pliocaenicus* (Fig. 1a) in the zone of Castelfranco di Sopra.

The specimens of "Poggitazzi". – The finds came out from a clay bed according to what Bosco (1899) reported, and, thus, it is very likely that the finding place was in the upper portion of the hill, where the fan sediments are more muddy.

All the teeth have to be ascribed to *Arvicola cantiana.* They are rootless; the first lower molar has the anterior cap (AC2) of arvicolid type without salient or re-entrant angles, the cap is broadly confluent with the fifth triangle (T5), whereas its confluence with the T4 is not so broad, as the third lingual re-entrant angle (LRA3) is pro-verging. The enamel thickness is undifferentiated.

The M_1 measures are: total length = mm 3.08; length ACC = 1.17; posterior loop breadth = 1.40; largest breadth = 1.43. Basing on the size the specimens are to be grouped among the smallest forms of the species, and, according to this feature, it is possible to hypothesize a correspondence of this *Arvicola* with those of the Tarkö Unit of the Middle Pleistocene of Hungary (JÁNOSSY 1976), which is equivalent to the Mauer Unit of FEJFAR & HEINRICH (1979). Also in the locality "La Pineta" (Isernia, Italy) the paleolitic fossiliferous deposit, that underlies tufs dated K/Ar at 0.73 my, supplied some specimens of *Arvicola* (SALA 1983) whose sizes fall within the limits of variability of the water voles of Tarkö Unit. The smallest specimen of the Isernia *Arvicola* has the same size of our fossil. From the deposit of the "Riparo di Visogliano" (Trieste) – beds 12 and 13 – BARTOLOMEI & TOZZI (1979) report the presence of *Arvicola cantiana* of small sizes (M_1 = 3.1–3.5). If the size makes the Poggitazzi specimens similar to the earliest *Arvicola,* the undifferentiated thickness of the enamel makes them similar to the latter *A. cantiana,* as the majority of the earliest ones has enamel thickness like *Mimomys.* Thus, the thickness feature makes the Poggitazzi fossils referable to a Middle Pleistocene level higher than the Tarkö-Mauer Unit.

Unfortunately, at present the contradiction cannot be solved, since our sample is composed of specimens derived from no more than two or three individuals, and, thus, it is not possible to establish if they represent an extreme variation as far as the size or the enamel thickness are concerned. The only possible conclusion is to generically assign the "Poggitazzi" *Arvicola* to the middle-upper portion of the Middle Pleistocene.

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