Arch. Moll. | 119 (1988) | (4/6) | 227–233 | Frankfurt am Main, 26. 1. 1990

Jaminia (Jaminia) malatestae n. sp. from the Italian Pleistocene

(Pulmonata: Enidae).[1])

By

DANIELA ESU.

With 1 figure.

Abstract: A new species, *Jaminia (Jaminia) malatestae,* discovered in Middle and Late Pleistocene deposits of Central Italy is described. Its morphological affinities with European and Near Eastern members of *Jaminia (Jaminia)* and *Imparietula* are examined. The ecological characters and the type of the faunistic associations in which *J. (J.) malatestae* occurs, suggest a good adaptability of this species to a cold and arid climate.

Introduction.

The paleontological and stratigraphical researches on Quaternary continental series of Italian peninsula carried on by several Italian researchers and by the author of this paper, during the last years, have led to get a better knowledge of Italian Pleistocene malacological assemblages.

One of the most recent investigated areas, Central Italy, yielded several Pleistocene land and fresh-water molluscan successions. Recently a paleoecological and stratigraphical analysis of the molluscan assemblages of the sedimentary successions of Latium has been reported in CONATO et al. (1980).

During the field researches for the above mentioned work an oligotypical land molluscan fauna was discovered in the clayey layers of the lowermost part of the Middle Pleistocene "Ponte Galeria" Formation near Rome. In this assemblage numerous specimens of a sinistral land gastropod species belonging to the genus *Jaminia* RISSO are present. In a first time (in CONATO et al. 1980) this species has been referred by one of the authors (D. E.) to an Eastern European (Hungarian) species, *"Chondrula (Jaminia) reversalis"* BIELZ, owing to its close resemblance to this one (cfr. ROSSMAESSLER 1859, CLESSIN 1887).

[1]) This work has been supported by a M. P. I. grant 60%.

Address of the author: Dr. DANIELA ESU, Dipartimento di Scienze della Terra, Università "La Sapienza", Piazzale A. Moro 5, I-00100 Roma, Italy.

Further researches led to new findings of the same sinistral form in other continental Pleistocene deposits of Central Italy and Northern part of Southern Italy. The whole material collected until now has allowed to verify the non-identity of this Italian species of *Jaminia* with the BIELZ's species; moreover the last one is synonymous with *Mastus venerabilis* (PFEIFFER), an Eastern European Quaternary and living species (KROLOPP 1984). A direct comparison between the two species has been made in the Magyar Allami Földtani Intézet of Budapest.

The analysis of the whole Italian material and the comparison with the other fossil and living similar species of Europe and Near East led to define this form as a new endemic species, absent from the living Italian molluscan fauna, belonging to the genus *Jaminia*.

Stylommatophora.

Enidae: Jaminiinae.

Jaminia RISSO 1826.

Jaminia (Jaminia) malatestae n. sp.

Fig. 1.

1980 *Chondrula (Jaminia) reversalis*, — CONATO et al.: 143 [non BIELZ].
1985 *Chondrula reversalis*, — ESU, GIROTTI & KOTSAKIS: in press [non BIELZ].

Diagnosis: Shell cylindro-conical, sinistral, with 7-7½ rather flat-sided whorls; sutures weak, faintly slanting. Mouth oval with one blunt parietal tooth. Peristome strongly thickened, with one thin and very small angular callus across the parietal region. Shell rather thick, surface with weak irregular growth-lines. First whorl and a half smooth. Apex large and flat. Shell narrowly umbilicated.

Holotype dimensions: H = 11·5 mm; D = 4·5 mm. Mouth H = 3·8 mm; Mouth D = 3 mm.

Description: The shell is cylindro-conical of moderate size (commonly 10-11·5 × 4-4·5, occasionally 5 mm) and of constant shape. Its surface presents weak, irregular, growth-lines well visible at the SEM. The shell is rather thick, it continues with the same thickness into the mouth-edge. The peristome is neither expanded nor reflected; it has a characteristic sinuous outer profile. The mouth is furnished always with only one blunt parietal tooth more or less developed; sometimes a weak lengthened swelling is present along the columellar side. The mouth-edge is continuous, it bears a little callus across the outer parietal area, which is always present in the specimens with preserved parietal peristome.

Type material: Holotypus: M. P. U. R. – 7 – 0841; Ponte Galeria (Rome); Paratypi: M. P. U. R. – 7 – 0842-0843; SMF 307782/1.

Locus typicus: Ponte Galeria (Rome, Latium, Central Italy).

Stratum typicum: "Blue-gray *Helicella* bearing clays", basal layer of "Ponte Galeria" Formation (in CONATO et al. 1980); Lowermost Middle Pleistocene.

Derivatio nominis: The species is dedicated to Prof. ALBERTO MALATESTA, Quaternary geologist and paleontologist, who discovered the "*Helicella* clays" (in CONATO et al. 1980).

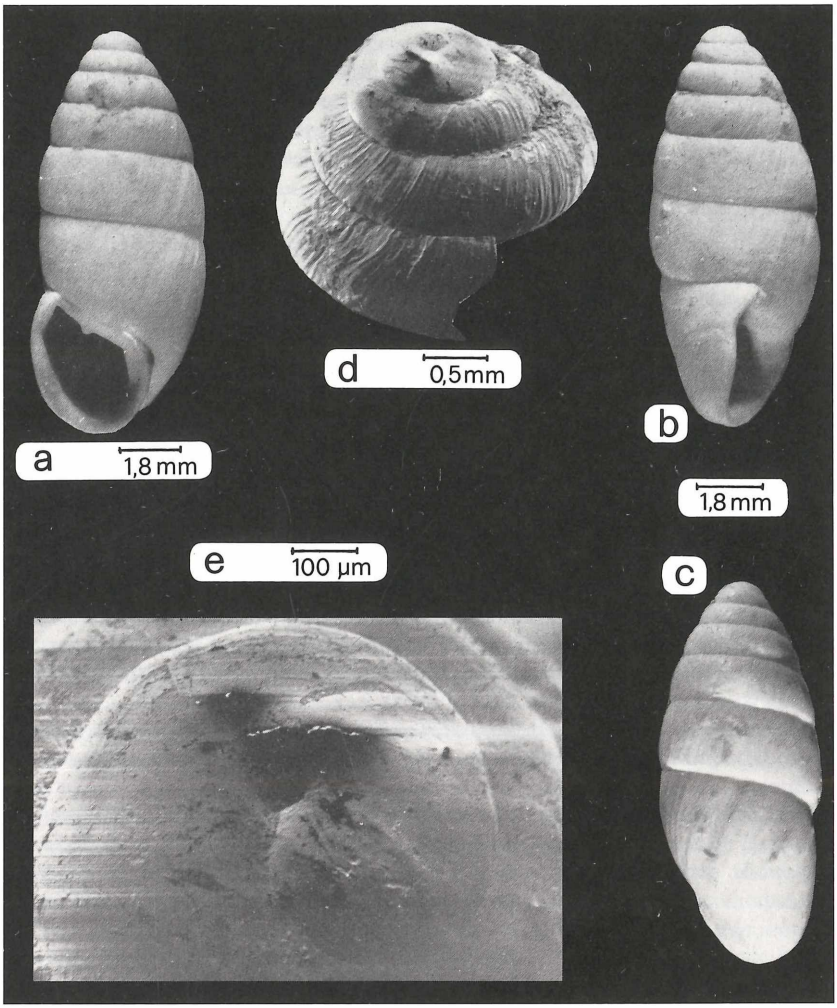

Fig. 1. *Jaminia (Jaminia) malatestae* n. sp.; "Ponte Galeria" Formation (Rome), Lower Middle Pleistocene. a-c) Holotype, M. P. U. R. – 7 – 0841; d-e) Paratype, view of apex and first whorls at SEM, M. P. U. R. – 7 – 0842.

Stratigraphical and geographical range: From Lower Middle Pleistocene to Late Pleistocene ("Würm"); Central Italy and Northernmost part of Southern Italy (Marche, Latium, Campania).

Material: The discovered material is almost well preserved. The studied species is present often in oligotypic assemblages in which it is always represented by low percentages. It comes from some Italian Pleistocene localities:

1) Locus typicus: Ponte Galeria (W of Rome), in "blue-gray *Helicella* bearing clays of Ponte Galeria Formation"; Lowermost Middle Pleistocene. *Jaminia malatestae* is here associated with few land species, *Helicella ericetorum* (MÜLLER), *Trichia hispida* (LINNAEUS), *Abida secale* (DRAPARNAUD), *Pupilla muscorum* (MÜLLER), *Vallonia pulchella* (MÜLLER). It is an oligotypical association of cold and dry climate and of a steppe environment. This is the oldest finding of the new species. M. P. U. R. – 7 – 0841/1 – 0842/1 – 0843. Mean dimensions of *J. malatestae* local population: H = 11·5 mm; D = 4·5 mm. Mouth H = 3·8 mm; Mouth D = 3 mm.

2) S. Cosimato estate, W of Rome, in the "Aurelian" Formation of Upper Middle Pleistocene age. Only one broken specimen (the last whorl with mouth) was found (probably reworked). The malacological association is of temperate-warm climate (material in study). Dimensions of mouth: H = 3·3 mm; D = 3 mm. M. P. U. R. – 7 – 0844/1.

3) Cave dello Sperone (Rome), Late Pleistocene ("Maspinian","Riss-Würm"). Only one broken specimen (the last whorl with mouth) of a big specimen. Dimensions of mouth: H = 4·5 mm; D = 4 mm. M. P. U. R. – 7 – 0845/1.

4) Calore river valley (Campania), near the mineral source 'A Uolla (Telese, Benevento), Northernmost Southern Italy. The material was collected by Prof. A. MALATESTA on the left side of Calore river, in continental "loess" layers interbedded to fluvial tufitic and detrital deposits related to a "Würmian" phase (MALATESTA 1959). At present the deposit is no more outcropping. The specimens of *Jaminia* are associated with an oligotypical land malacofauna of arid environment with *Pupilla muscorum, Vallonia pulchella* and two species of Helicidae (in study). Dimensions: H = 10 mm; D = 4 mm. Mouth H = 3·5 mm; Mouth D = 3 mm. M. P. U. R. – 7 – 0846.

5) Gola della Rossa, near Fabriano (Marche), in a residual alluvional deposit of a cave at about 700 m a. s. l. The age of the deposit is referred to Late Pleistocene ("Würm I") on the ground of micromammal remains (in study by Dr. T. KOTSAKIS, C. N. R., Rome). *J. malatestae* is here associated with few land mollusc species of Helicidae, Clausiliidae, Chondrinidae. A preliminary analysis of both terrestrial gastropods and micromammal remains indicates an arid and cold environment. Dimensions of specimens: H = 11·5 mm; D = 5 mm. Mouth H = 4 mm; Mouth D = 3 mm. M. P. U. R. – 7 – 0847.

Observations.

The new species shows many morphological affinities with the members of the genera *Jaminia* RISSO 1826 and *Imparietula* LINDHOLM 1925, of the subfamily Jaminiinae (Fam. Enidae). *Imparietula* was instituted by its author (LINDHOLM 1925) as a "subsectio" of the genus *Jaminia,* for dextral shells, with a very short diagnosis: "Mündung ohne Parietallamelle" Later on it was separated from *Jaminia* as valid genus owing to its anatomical characters by FORCART (1940) and recognized also by many other authors (ZILCH 1959, SHILEYKO 1984, etc.). According to FORCART (1940), *Imparietula* includes dextral and sinistral forms and presents a great variability in mouth-complex of teeth. It occurs living in Caucasia, Asia Minor and Near East with numerous species while one of them reaches Balcan Peninsula until Dalmatia. This genus is known fossil in some Pleistocene and Holocene deposits: Apscheronian (= Lower Pleistocene after STEININGER & RÖGL 1984) of

Ciscaucasia (STEKLOV 1966), Lower Pleistocene of Turkey (SCHÜTT 1984), Holocene of Bulgaria (PETRBOK 1939). Among the numerous species belonging to the genus *Imparietula,* only one shows some similarities to the new Italian form, *I. seductilis* (ROSSMAESSLER) living in Asia Minor and in Balcan Peninsula (until Dalmatia) and subfossil in Bulgaria (FORCART 1940, PETRBOK 1939). Particularly a subspecies, *I. seductilis incerta* (RETOWSKI), shows a close resemblance to our material. This subspecies, widely spread in Turkey (FORCART 1940), has an extremely variable mouth-arrangement that ranges from one to four teeth (in GERMAIN 1936: 291 as "*Chondrula (Jaminia) quadridens* var. *loewi* PHILIPPI"; FORCART 1940). On the contrary the Italian specimens of the new species, collected in different localities, have a constant number of teeth: everyone presents one parietal tooth and the angular callus. Moreover the differences with this Anatolian form consist also in the proportions of dimensions (H and D) of the shell; the Italian specimens are characterized by a major breadth (D) and their outer mouth-edge is always less jutting out from the lateral profile.

The genus *Jaminia* is subdivided into some subgenera (ZILCH 1959) among which only the nominal subgenus *Jaminia (Jaminia)* presents remarkable similarities with our material; the other subgenera are morphologically very distant. *Jaminia (Jaminia)* occurs living in West, Central and South Europe, in Caucasia, Asia Minor and Near East with numerous species (HESSE 1933, FORCART 1940, HAAS 1955, ZILCH 1959); it is known as fossil in Europe with one species (ZILCH 1959). Among the species belonging to *J. (Jaminia),* our form shows close affinities with *J. (J.) quadridens* (MÜLLER), a West, Central and South European living species, signaled fossil in Middle and Late Pleistocene deposits of the same area (Germany: LOŽEK 1964; France: PUISSÉGUR 1976, GRANIER 1976, DUBAR 1984; Italy: personal unpublished data). Our material differs from this species by some clear characters. *J. quadridens* is generally of smaller size; its shell is less thick; its mouth-set of teeth is characterized by four teeth (rarely local populations may present some specimens with a variable reduction of teeth associated to normal individuals, e. g. in the *J. quadridens* of Monti Reatini – Central Italy – collected by Prof. F. GIUSTI of Siena) and its mouth-edge is moderately reflected that never happens in *malatestae.* We can exclude that the different morphological characters that we have observed between the two forms are of subspecific order, owing to the finding of *malatestae* in association with *quadridens* in one of the mentioned localities (Gola della Rossa, Marche). On the other hand we can exclude also that it deals of anomalous or juvenile specimens, as observed in the population of *quadridens* of Monti Reatini, because we find always the same morphology in mouth-arrangement in the other populations in which *quadridens* is not present.

The separation of the genera *Jaminia* and *Imparietula* is made on the base of anatomical characters; in fact the two genera display a very similar aspect of the shell. That makes difficult at a first analysis to ascribe our material to one or to the other genus. Anyway the general proportions of the shell and the morphology and the position of the mouth suggest an attribution to the genus *Jaminia* rather than to *Imparietula.* Inside the genus *Jaminia* the attribution of our material to the nominal subgenus is undoubted.

Stratigraphically *J. malatestae* ranges from Lower Middle Pleistocene to Late Pleistocene of Central Italy. On the ground of the findings of *malatestae* we can remark that during cold and arid climatic phases the species was more frequent (i. e.

Ponte Galeria, Lowermost Middle Pleistocene; Calore river valley, "Würm"; Gola della Rossa, "Würm I"), while in warm-temperate periods ("Aurelian" Formation, Upper Middle Pleistocene; Cave dello Sperone, "Maspinian", "Riss-Würm") it was very rare. From these observations and on the ground of the characters of the assemblages in which we find *J. malatestae* we can deduce that this species was well adapted to cold and arid climate.

Acknowledgments: Thanks are due to Dr. E. KROLOPP of Magyar Állami Földtani Intézet of Budapest for his kindness to put at my disposal the malacological collections of the Hungarian Geological Survey; to Prof. F. GIUSTI and to Dr. G. MANGANELLI of Dipartimento di Biologia Evolutiva of the University of Siena for the exchange of opinions about the new species; to Dr. A. ZILCH and to Dr. R. JANSSEN of Senckenberg Museum of Frankfurt a. M. for the research in the Senckenberg Museum collections and the opinions on the new species; to Dr. S. GALDENZI for having collected the material of Gola della Rossa (Marche).

References.

CLESSIN, S. (1887-1890): Die Mollusken-Fauna Oesterreich-Ungarns und der Schweiz. — 858 p. Nürnberg.

CONATO, V., ESU, D., MALATESTA, A. & ZARLENGA, F. (1980): New data on the Pleistocene of Rome. — Quaternaria, **23**: 131-176.

DUBAR, M. (1984): Les malacofaunes terrestres quaternaires de la region de Nice (Alpes-Maritimes, France); contribution biostratigraphique à l'étude du dernier interglaciaire dans le Midi de la France. — Rev. Paléobiol., **3**: 223-233.

ESU, D., GIROTTI, O. & KOTSAKIS, T. (1985): Oligotipia nei vertebrati e nei molluschi continentali fossili. — Atti 3° Simp. Paleoecol. Comun. Bentoniche, Taormina (in press).

FORCART, L. (1940): Monographie der türkischen Enidae (Moll., Pulm.). — Verh. naturf. Ges. Basel, **51**: 106-263.

GERMAIN, L. (1936): Mollusques terrestres et fluviatiles d'Asie Mineure. — 492 p. Paris.

GRANIER, J. (1976): Les mollusques terrestres du Sud-Est. In LUMLEY H. DE (Ed.): La Préhistoire Française, **1**: 447-453.

HAAS, G. (1955): Palestinian species and races of *Jaminia* RISSO (Mollusca; Gastropoda). — Fieldiana, (Zool.) **37**: 415-443.

HESSE, P. (1933): Zur Anatomie und Systematik der Familie Enidae. — Arch. Naturgeschichte, (N. F.) **2** (2): 145-224.

KROLOPP, E. (1984): Die Characterzüge der ungarischen pleistozänen Molluskenfauna. — Soosiana, **12**: 7-10 [in Hungarian, German and English abstracts].

LINDHOLM, W. A. (1925): Beitrag zur Systematik und Nomenklatur der Familie Enidae (Buliminidae). — Arch. Moll., **57**: 23-41.

LOŽEK, V. (1964): Quartärmollusken der Tschechoslowakei. — 374 p. Praha.

MALATESTA, A. (1959): Note di geologia e morfologia sulla Valle Caudina e sulla Valle del F. Calore. — Boll. Serv. geol. ital., **80** (1958): 255-260.

PETRBOK, J. (1939): Notules de malacologie pléistocène chronologique relatives à la Bulgarie. — J. de Conch., **83**: 48-60.

PUISSÉGUR, J. (1976): Mollusques continentaux quaternaires de Bourgogne. — Mém. Géol. Univ. Dijon, **3**: 1-241.

ROSSMAESSLER, E. A. (1835-1859): Iconographie der Land- und Süsswassermollusken. Dresden und Leipzig.

SCHÜTT, H. (1985): Känozoische Landschnecken der Türkei. — Arch. Moll., **115** (1984): 179-223.

SHILEYKO A. A. (1984): Molluscs. Terrestrial molluscs of the suborder Pupillina of the fauna of the USSR (Gastropoda, Pulmonata, Geophila). — Fauna SSSR, (N. S.), **130**: 1-399 [in Russian].

STEININGER, F. F. & RÖGL, F. (1984): Paleogeography and palinspastic reconstruction of the Neogene of the Mediterranean and Paratethys. In DIXON, J. E. & ROBERTSON, A. H. F. (Eds.): The Geological Evolution of the Eastern Mediterranean: 659-668. Oxford.

STEKLOV, A. A. (1966): Terrestrial Neogene mollusks of Ciscaucasia and their stratigraphic importance. — Trudy geol. Inst. Akad. Nauk SSSR, **163**: 1-262 [in Russian].

ZILCH, A. (1959-60): Gastropoda Euthyneura. Handbuch der Paläozoologie, **6**: I-XII, 1-835.