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Contributions to the knowledge of the Pediculariidae (Mollusca, Gastropoda, Cypraeoidea) 2. On the occurrence of the genus *Eotrivia* Schilder, 1924 in the Ukraine Eocene, with the description of a new species

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The genus *Eotrivia* formerly known from West European Eocene deposits is now confirmed for the easternmost Paratethys. A second, still unknown *Eotrivia* besides *Eotrivia faracii* is described from the Eocene of Ukraine as *Eotrivia procera* sp. nov.

KEY WORDS: Cypraeoidea, Eocypraeidae, Pediculariidae, *Eotrivia*, new species, new combinations, fossil, Eocene, Ukraine.

Introduction

Recently some shells from Mandrikovka, Dnepropetrovsk region of Ukraine became available for study. Among those shells several species of families Eocypraeidae Schilder, 1924 and Pediculariidae Adams & Adams, 1854 were found. These species formerly known from the Middle Eocene of Western Europe are unusually common at Mandrikovka. The species of the Eocypraeidae are *Apiocypraea sellei* (de Raincourt, 1874), *Oxycypraea delphinoides* (Cossmann, 1886), *Oxycypraea fourtaui* (Oppenheim, 1906) **comb. nov.**, *Cyproglobina parvulorbis* (de Gregorio), 1880, *Cyproglobina pisularia* (de Gregorio, 1880) and of the Pediculariidae are *Projenneria pregnans* (de Gregorio, 1880) and *Eotrivia faracii* (de Gregorio, 1880). These species, described from the Lutetian and Bartonian of France and Italy, are very rare. Surprisingly, a second, hitherto overlooked *Eotrivia* is also found among the material. In the following this species, new to science, is described as *Eotrivia procera* sp. nov.

A further pediculariid occurring at Mandrikovka might be *Projenneria ludoviciana* (Johnson, 1899) formerly known from the Moodys Branch Formation (Late Eocene) of Louisiana, U.S.A. but this has to be clarified by further examination.

The age of the deposits at Mandrikovka is not yet fully clarified. It is thought to be Priabonian Late Eocene (Amitrov, 2008). However, the occurrence of so many Middle Eocene species at Mandrikovka would suggest an earlier age such as Bartonian or even Lutetian but this has to be clarified by geological studies. In the following the term 'Mandrikovka beds, Eocene' is therefore used.

In Part 1 (Fehse & Vicián, 2008) of this small series of papers on the Pediculariidae the identity of *Projenneria neumayri* (Hilber, 1879) is discussed and *Projenneria albopunctata* Fehse & Vicián, 2008 is described.

Abbreviations – To denote the repositories of material referred to in the text, the following abbreviations are used:

DFB collection Dirk Fehse, Berlin, Germany.
ZSM Zoological State Collection, Munich, Germany.

L length of the shell including spire
W width of the shell
H height of the shell
ct number of columellar denticles
lt number of labral denticles

The shell formula proposed by Schilder (1935, p. 327) is used herein. This formula is derived from measurements taken from all available fully mature and normally formed specimens. It consists of the following elements: [L (W-H) LT:CT]. L: average length in mm, W: average width/ length ratio in %, H: average height/ length ratio in %, LT: normalised number of labral teeth, CT: normalized number of columellar denticles. The normalised number of denticles – in relation to a shell of 25 mm length – is calculated as follows: $T = 7 + [(c-7)*\sqrt{(25/L)}]$ T: normalized

number of denticles, c: number of denticles actually present, L: length.

Systematic palaeontology

Superfamily Cypraeoidea Troschel, 1863
Family Pediculariidae Adams & Adams, 1854
Subfamily Jenneriinae Thiele, 1929
Genus *Eotrivia* Schilder, 1924

Type species – *Trivia bouryi* Cossmann, 1889 by monotypy. Bartonian, France.

Eotrivia procera sp. nov.
Figures 2.1, 2.3-2.5, 3.1, 3.2

Locus typicus – Mandrikovka, Dnepropetrovsk region, Ukraine.

Stratum typicum – Mandrikovka beds, Eocene.

Holotype – Zoological State Collection, Munich, Germany, No. 20070571

Distribution – Known only from the type locality so far.

Material studied – Altogether five specimens from the type locality.

Description – Shell large sized, solid, inflated and ovate. Body whorl pyriform, inflated and rounded, about 80% of total height, with both terminals produced and separated from the dorsal elevation by a constriction. Terminal tips posteriorly blunt, anteriorly protruded. Dorsum elevated with highest point at posterior third. Mid-dorsal sulcus obscured. Ventrum convex with outer margin rounded. Aperture fairly narrow, widened towards fossular section, anteriorly straight, posteriorly curved. Labrum narrow, widest at mid-portion, ventrally convex. Inner labral margin rounded, curved, bears 19-24 fine denticles. Outer labral margin roundly callused, shouldered. Denticles continued as folds onto labrum, becoming finer and more close-set onto dorsum and ventrum, terminate onto parietal lip as fine denticles. Parietal lip slightly callused, bears 20-25 denticles, anterior denticles coarser, more prominent. Siphonal and anal canals indented. Columella slightly convex, relatively narrow and tapering steeply inwards. Inner adaxial carinal ridge absent. Fossula less developed, short, indented just above inner fossular margin, not clearly delimited from the rest of the columella. Inner fossular margin callused, slightly protruded, roundly edged. Juvenile shell grid usually visible on columella.

Shell formula – [14 (69-57) 27:27]

Range of variation – Shell inflation varies considerably. Dorsal sulcus sometimes indistinct but mostly obsolete.

Derivatio nominis: From the Latin adjective *procerus*, *-a*, meaning beautiful.

Dimensions –
Holotype: L = 14.0 mm, W = 9.7 mm, D = 8.0 mm, ct 20, lt 19 (ZSM, No. 20070571)
Paratype 1: L = 15.5 mm, W = 10.5 mm, D = 8.7 mm, ct 25, lt 24 (DFB, No. 8525-1)
Paratype 2: L = 14.1 mm, W = 9.6 mm, D = 7.8 mm, ct 20 , lt 22 (DFB, No. 8525-2)
Paratype 3: L = 14.0 mm, W = 10.0 mm, D = 8.5 mm, ct 22, lt 23 (DFB, No. 8525-3)
Paratype 4: L = 12.8 mm, W = 8.7 mm, D = 7.2 mm, ct 23, lt 23 (DFB, No. 8525-4)

Discussion – The following species belong to the genus *Eotrivia* Schilder, 1924

– *Eotrivia baronensis* (Dolin, Dolin & Le Renard, 1980) **comb. nov.**	Lutetian, M. Eocene	Cotentin Basin
– *Eotrivia bouryi* (Cossmann, 1889)	Bartonian, M. Eocene	Paris Basin
– *Eotrivia faracii* (de Gregorio, 1880)	Lutetian, M. Eocene	Italy
– *Eotrivia palumbella* (de Gregorio, 1880)	Lutetian, M. Eocene	Italy
– *Eotrivia pedicularis* (Deshayes *in* Deshayes & Milne Edwards, 1844)	Lutetian, M. Eocene	Paris Basin
– *Eotrivia recluzi* (Cossmann, 1897) **comb. nov.** (=*Cypraea* (*Luponia*) *æquipartita* Cossmann, 1902)	Lutetian, M. Eocene	Contentin Basin

Schilder & Schilder (1971, p. 71) assigned *Trivia recluzi* Cossmann, 1897 to the genus *Cypropterina* de Gregorio, 1880 – type species: *Cypropterina ceciliae* de Gregorio, 1880. Their decision is inexplicable because there is no resemblance between *C. ceciliae* and *T. recluzi*. The first possesses a completely smooth and laterally flattened shell with only the central dorsum elevated. In contrast *T. recluzi* has a rounded, inflated and ribbed shell similar to *E. bouryi*. Therefore, *T. recluzi* is here assigned to *Eotrivia*. It is noteworthy that all previously known species of *Eotrivia* were restricted to the Middle Eocene of northern France and northern Italy. Therefore, the existence of at least two *Eotrivia* species in the Ukraine Mandrikovka beds is unexpected.

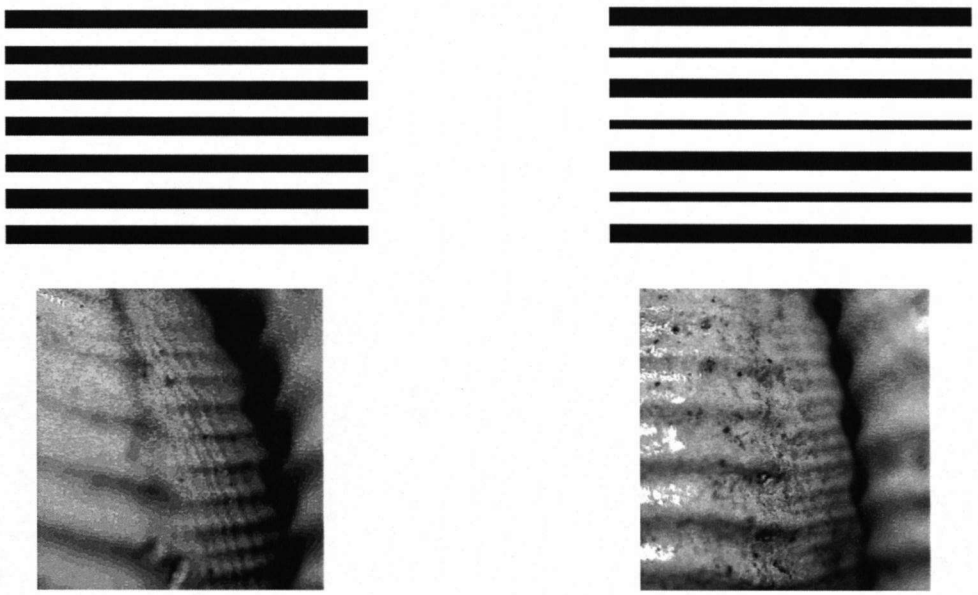

Figure 1. Appearance of the juvenile shell grid examined on columella: left side *Eotrivia procera* nov. sp.; right side *Eotrivia faracii* (de Gregorio, 1880).

It is far from the original geographical range of the genus, which is now extended considerably. But the age of the Mandrikovka beds is most probably Middle to Late Eocene – either Lutetian or Bartonian.

Eotrivia procera nov. sp. differs from its congener *E. faracii* especially by the different juvenile shell grid (Figure 1). However, both are also distinguishable by their adult shell morphology: The dorsal ribs are coarser, the outer labral shoulder more prominent and keeled and the inner fossular margin projects less in *E. faracii*. It was hoped to show de Gregorio's types of *Eotrivia* but, unfortunately, they could not be located in any Italian Museum.

The new species differs from *E. pedicularis* by the different shell morphology and especially the much finer shell ribbing. Similarly, *E. bouryi* has much coarser ribs and a distinct dorsal sulcus. *Eotrivia baronensis* has again coarser, more distant ribs and a sharply keeled outer labral margin. *Eotrivia recluzi* has a completely differently shaped anal canal and deeply incised dorsal sulcus. *Eotrivia procera* nov. sp. differs from *E. palumbella* immediately by the much narrower labrum and the position of the aperture.

Figure 2. ***Eotrivia*** from the Eocene Mandrikovka beds, Mandrikovka, Dnepropetrovsk region, Ukraine.

1. *Eotrivia procera* nov. sp. **Holotype**, ZSM, No. 20070571.
2. *Eotrivia faracii* (de Gregorio, 1880). DFB, No. 7677-1. L = 10.7 mm.
3. *Eotrivia procera* nov. sp. **Holotype**, ZSM, No. 20070571. Enlarged view on the shell grid on dorsum.
4. *Eotrivia procera* nov. sp. **Paratype 4**, DFB, No. 8525-4.
5. *Eotrivia procera* nov. sp. **Paratype 3**, DFB, No. 8525-3.

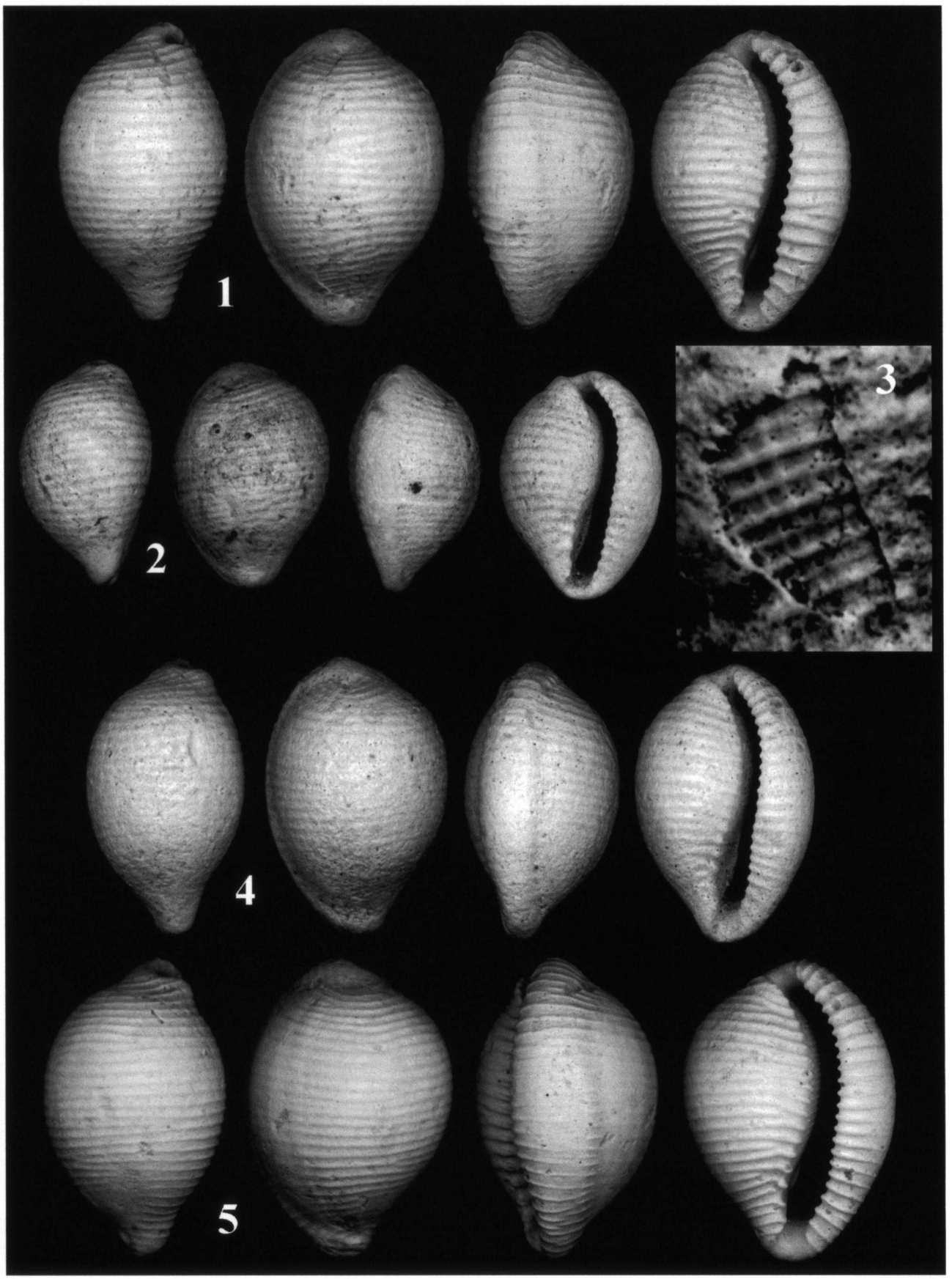

Figure 2 (explanation on foregoing page).

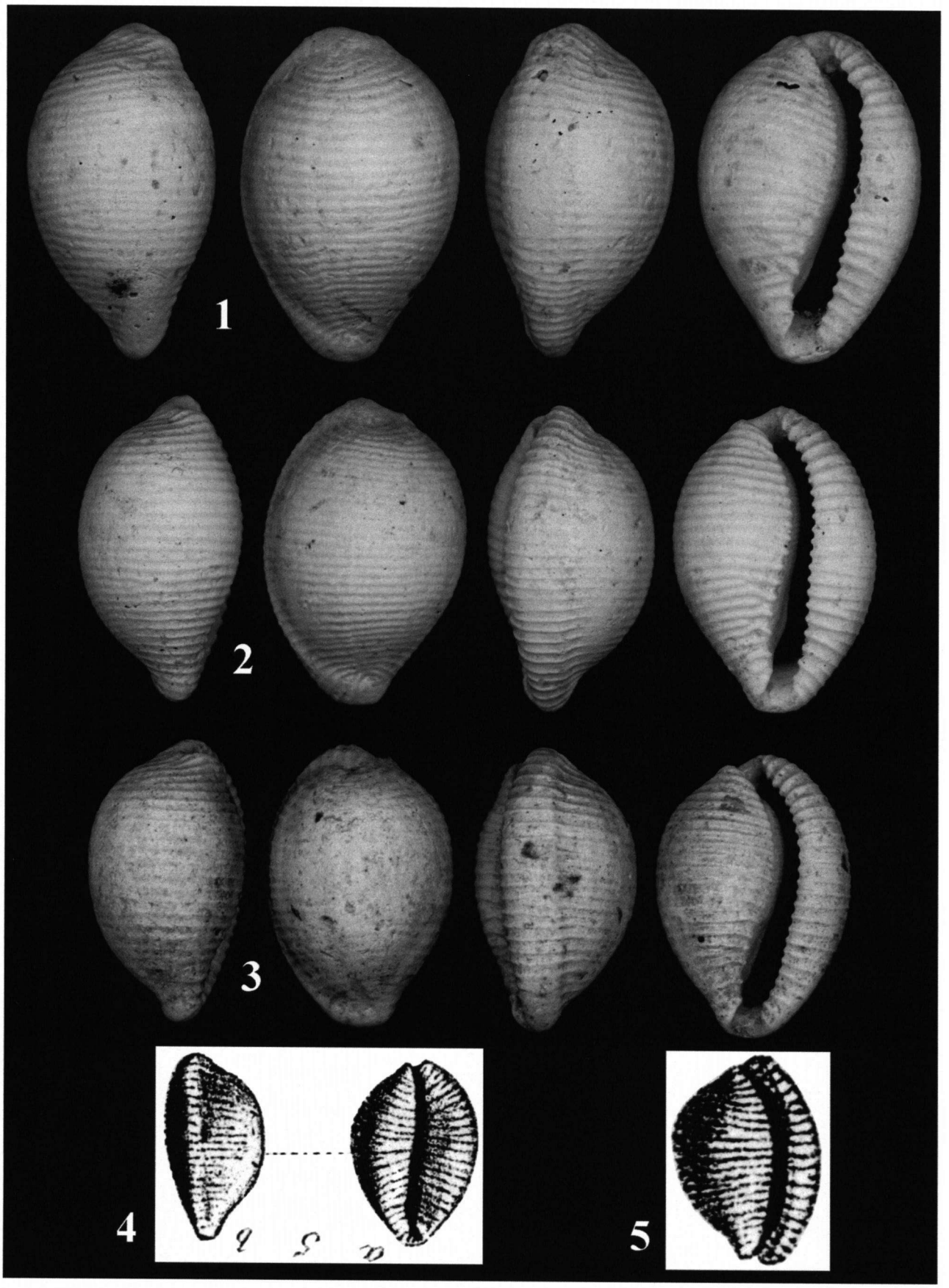

Figure 3 (explanation on next page).

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Figure 3.

1. *Eotrivia procera* nov. sp. **Paratype 1**, Mandrikovka, Dnepropetrovsk region, Ukraine. Mandrikovka beds, Eocene. DFB, No. 8525-1.
2. *Eotrivia procera* nov. sp. **Paratype 2**, Mandrikovka, Dnepropetrovsk region, Ukraine. Mandrikovka beds, Eocene. DFB, No. 8525-2.
3. *Eotrivia faracii* (de Gregorio, 1880). Mandrikovka, Dnepropetrovsk region, Ukraine. Mandrikovka beds, Eocene. DFB, No. 7677-2. L = 13.1 mm.
4. *Eotrivia palumbella* (de Gregorio, 1880). **Holotype**, San Giovanni Ilarione, Italy. Lutetian. After de Gregorio (1880: pl. 6, fig. 5a, b). L = 13 mm.
5. *Eotrivia faracii* (de Gregorio, 1880). **Holotype**, San Giovanni Ilarione, Italy. Lutetian. After de Gregorio (1880: pl. 6, fig. 7). L = 10 mm.