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Hydrobia (s.l.) *galatoniana* n. sp. and *Hydrobia* (s.l.) *ionica* n. sp. from the Late Oligocene of the Galatone Fm in southernmost Apulia (Italy).

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Two new oligohaline *Hydrobia* (s.l.) (Caenogastropoda) from the transitional Upper Oligocene Galatone Fm (Apulia, Southern Italy)

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ABSTRACT
Species-poor assemblages rich in specimens of non-marine to brackish molluscs occur in Oligocene stratigraphical successions, widely exposed in the Salento region (southernmost Apulia, Italy). Two new extinct oligohaline gastropods of the family Hydrobiidae (Caenogastropoda), *Hydrobia* (s.l.) *galatoniana* n. sp. and *Hydrobia* (s.l.) *ionica* n. sp., are described from the type-section of a richly fossiliferous transitional succession, the Late Oligocene (Chattian) Galatone Fm, cropping out in the Lecce district. This lithostratigraphical unit records foraminiferal, molluscan and ostracod assemblages indicative of alternating oligohaline to shallow water lagoonal and littoral marine conditions. At some silty levels of the investigated succession, the two new species occur in dense populations forming shell-beds in oligotypical assemblages, accompanied by smooth-shelled ostracods. An oligohaline environment is proposed for these assemblages. This paper represents a contribution to the knowledge of Oligocene hydrobiids from Italy, where their record is extremely scarce and poorly known.

KEY WORDS
Chattian,
Gastropoda,
Hydrobiidae,
oligohaline
palaeoenvironment,
new species.

RÉSUMÉ
Deux nouvelles Hydrobia *(s.l.) (Caenogastropoda) oligohalines de l'Oligocène supérieur de la Formation de transition de Galatone (région des Pouilles, Italie méridionale).*
Des associations oligotypiques de mollusques non-marins à saumâtres se rencontrent dans des successions stratigraphiques d'âge oligocène largement exposés dans la région de Salento (extrême sud de la région des Pouilles, Italie). Deux nouveaux gastéropodes oligohalins de la famille des Hydrobiidae (Caenogastropoda), *Hydrobia* (s.l.) *galatoniana* n. sp. et *Hydrobia* (s.l.) *ionica* n. sp., sont décrits. Ils proviennent d'une succession de transition richement fossilifère d'âge oligocène supérieur (Chattien), qui affleure dans le district de Lecce : la Formation de Galatone. Cette unité lithostratigraphique renferme des associations de foraminifères, de mollusques et d'ostracodes indiquant une alternance de conditions oligohalines, lagunaires et marines littorales peu profondes. Les deux nouvelles espèces sont très communes dans des associations oligotypiques, accompagnées d'ostracodes à carapace lisse, et forment des lits de coquilles à certains niveaux silteux de la succession étudiée. Un environnement oligohalin est reconnu pour cette association. Il convient de souligner que les occurrences d'hydrobiids dans l'Oligocene d'Italie sont extrêmement rares.

MOTS CLÉS
Chattien,
Gastropoda,
Hydrobiidae,
paléoenvironnement
oligohalin,
espèces nouvelles.

INTRODUCTION

Oligocene outcrops exposing fossiliferous non-marine-transitional sediments are rare in Italy. Mainly Bellardi & Sacco (1872-1904), Issel (1900), Rovereto (1914) and Lorenz (1968) described them in the Tertiary Piedmont Basin, and Munier-Chalmas (1891) in Veneto (northern Italy). More recently, in the nineties of the past century, several Oligocene transitional successions have been discovered in Apulia (Salento area, southernmost Italy) (Fig. 1). The stratigraphic succession of this region comprises sedimentary cycles arranged in unconformity-bounded formations of shallow-marine, transitional and non-marine environment, ranging from the Upper Cretaceous to the Quaternary (Bosellini *et al.* 1999; Ricchetti *et al.* 1999). As regards the Palaeogene-Neogene transition in this area, the marine Upper Oligocene Porto Badisco Calcarenites and the Early to Middle Miocene Pietra Leccese were considered for long time the only formations encompassing the Late Oligocene-Early Miocene time span (Largaiolli *et al.* 1966; Rossi 1969). Later, Bossio *et al.* (1992, 1998) and Esu *et al.* (1994) recognised and formalized an additional unit, the Galatone Formation, composed of sediments of non-marine to brackish and marine environments, tentatively referred to the Late Oligocene (Chattian) age by regional stratigraphical correlations and palaeontological (foraminifers and molluscs) evidence. Bosellini *et al.* (1999) hypothesized a correlation between the upper part of the Galatone Fm and the Upper Oligocene Porto Badisco Calcarenites. An Early Miocene (Burdigalian) age was generally assumed for the base of the Pietra Leccese Fm in the study area (Bossio *et al.* 1987). Later, Bossio *et al.* (1998, 1999), Margiotta & Ricchetti (2002) and Margiotta & Varola (2004) attributed an upper Oligocene-lowermost Miocene (Aquitanian) age to a unit poorly cropping out near Lecce and informally mapped as "Lecce formation" (Fig. 1[4]). Its stratigraphic position is believed to be intermediate between the Galatone Fm and the Pietra Leccese Fm. The Galatone Fm is exposed at different sites in southern Salento (Bossio *et al.* 1987, 1992; Esu *et al.* 1994; Iannone 1999; Margiotta & Ricchetti 2002; Margiotta & Varola 2004). The type-section of this unit is composed of carbonate-terrigenous deposits separated from the underlying Upper Cretaceous Altamura Limestone (Festa *et al.* 2018) by means of red bauxitic levels. It is noteworthy that bauxitic paleosols occur at the base of the Galatone Fm in several sites (Fig. 1), pointing to an emersion phase in which bauxite was formed (Esu *et al.* 2005). Stratigraphic position, lithology and fossil assemblages, overall in good preservation, are a common feature of the outcrops pertaining to this unit, which records micro- and macro-faunistic low-diversity to monospecific assemblages, indicative of alternating oligohaline to shallow water lagoonal and littoral marine conditions. More recent studies, carried out on the spectacular transitional succession cropping out at an abandoned bauxite quarry, about 1 km south of Otranto (Fig. 1[1]) (Esu *et al.* 2005; Esu & Girotti 2010), supported the Late Oligocene age previously assigned to the Galatone Fm. The occurrence of the benthic foraminifer *Tritaxia szaboi* (Hantken, 1868) at the Otranto bauxite quarry section suggests an Oligocene age for the main part of this succession (Esu *et al.* 2005). Similarly, an Oligocene age was also proposed for the Monte Vergine section of the Galatone Fm (Fig. 1[2]) by the occurrence of the benthic foraminifer *Archiacina* "*orbicularis*" (d'Orbigny, 1852) (senior synonym of *Archiacina armorica* (D'Archiac *in* Tournouër, 1868)) (Esu *et al.* 2005, and references therein). The molluscan species studied in the present paper was recovered from the non-marine to brackish type-section of the Galatone Fm exposed along the SS101 highway (Gallipoli-Lecce), near the intersection of Route Galatone-S. Maria al Bagno (Fig. 1[6]). The abundant occurrence of the benthic foraminifer *Praerhapidionina delicata* Henson, 1950, with stellate aperture, occurring in the Mediterranean realm, confirms the attribution of this succession to the Oligocene (Hottinger 2007).

MATERIAL AND METHODS

Esu *et al.* (1994) described in detail the *c.* 35 m thick succession well exposed along the SS101 highway (Gallipoli-Lecce), at 40°8'27.03"N, 18°03'0.37"E (Fig. 1[6]). Lithology of the Galatone Fm type-section is relatively uniform. Biomicritic-dolomitic, stromatolithic, chemically precipitated, bioclastic and marly limestones, alternating with carbonatic-terrigenous silts and clays, dominate. Macrofauna and microfauna show remarkable variation in distribution and frequence. In general, thin-layered levels with scarce fossiliferous content represent the bulk of the succession. Intercalations of silty and clayey levels with abundant macrofauna rarely occur. Foraminiferal, molluscan and ostracod assemblages are indicative of alternating oligohaline to shallow water lagoonal and littoral marine conditions (Esu *et al.* 1994). The studied molluscan fauna was collected from a soft lime mud layer, *c.* 60 cm thick, in the upper portion of the stratigraphical section (Esu *et al.* 1994: text-fig. 4, sample 26). The layer, extremely rich in an oligotypic molluscan assemblage and smooth-shelled ostracods, rests upon a thin paleosoil level formed of yellowish-greenish clays containing clasts of the underlying layers. Bulk samples of sediment were gently washed in a 5% H_2O_2 solution, wet-sieved with 0.125 mm mesh sieve and dried for palaeontological analyses. Molluscs were handpicked under a stereomicroscope. The molluscan assemblage turned out to be composed of two species of hydrobiids, described here as new, *Hydrobia* (s.l.) *galatoniana* n. sp. and *Hydrobia* (s.l.) *ionica* n. sp. The shells of the two species, collected from the chemically precipitated lime mud sediments of the succession, are generally very well-preserved, while they occur only as moulds or casts in the laminated limestones of the uppermost portion.

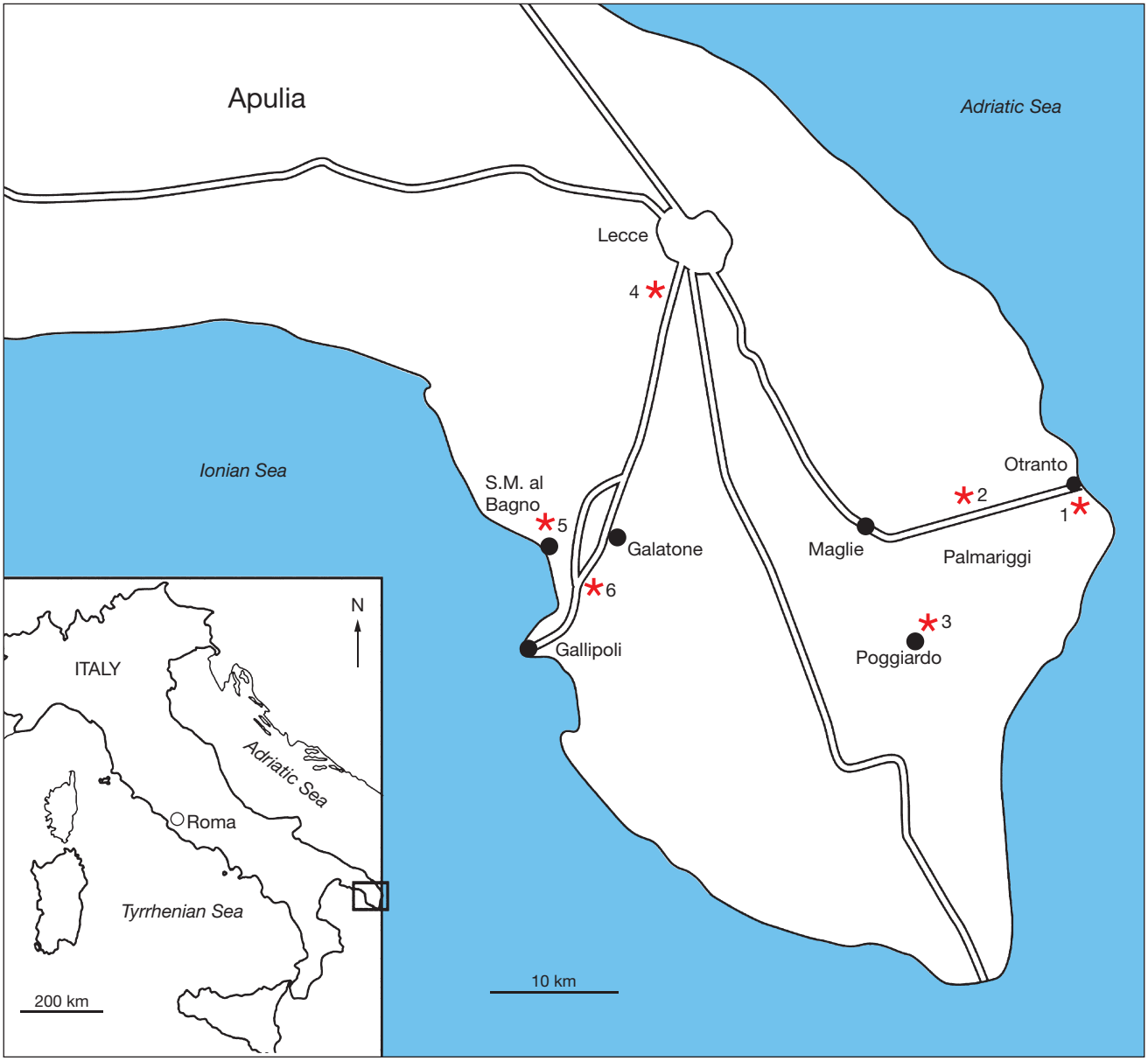

FIG. 1. — Location map of the Upper Oligocene transitional deposits of the Galatone Fm in southernmost Apulia (Italy): **1**, Otranto bauxite quarry; **2**, Monte Vergine; **3**, Serra di Poggiardo; **4**, Surroundings of Lecce (informal Lecce formation); **5**, St. Maria al Bagno; **6**, Galatone; *, bauxite outcrops (from Esu *et al.* 2005).

All the figured material is stored in the Museo Universitario di Scienze della Terra, Sapienza Università di Roma, Italy (collection Esu-Girotti). The systematic framework here follows MolluscaBase (2018a).

ABBREVIATIONS

Institutions

MPUR7	Museo Universitario di Scienze della Terra dell'Università Sapienza, Roma (collection Esu-Girotti);
SMF	Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt a. M.

Gastropods

H	height;
W	width.

SYSTEMATIC PALAEONTOLOGY

Class GASTROPODA Cuvier, 1795
Subclass CAENOGASTROPODA Cox, 1960
Order LITTORINIMORPHA
Golikov & Starobogatov, 1975
Superfamily TRUNCATELLOIDEA Gray, 1840
Family HYDROBIIDAE Stimpson, 1865
Subfamily HYDROBIINAE Stimpson, 1865

Genus *Hydrobia* Hartmann, 1821

TYPE SPECIES. — *Cyclostoma acutum* Draparnaud, 1805 by subsequent designation of Gray (1847).

Fig. 2. — **A, B**, *Hydrobia* (s.l.) *galatoniana* n. sp., Galatone (Lecce, Apulia), Late Oligocene, paratype MPUR7-4198: **A**, apical view of the shell; **B**, detail of the protoconch; **C**, **D**, *Hydrobia* (s.l.) *ionica* n. sp., Galatone (Lecce, Apulia), Late Oligocene, paratype MPUR7-4199: **C**, apical view of the shell; **D**, detail of the protoconch. SEM image. Scale bars: A, C, 500 µm; B, D, 200 µm.

Hydrobia (s.l.) *galatoniana* n. sp.
(Figs 2A, B; 3A-C)

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Hydrobia sp. – Esu *et al.* 1994: 189, pl. 2, fig. 4b.

Type material. — Holotype: MPUR7-3897 (Fig. 3A), H = 4.9 mm, W = 2.3 mm. — Paratypes: MPUR7-3898/2, 4198/1, 4211/90, 4200/40.

Derivation of name. — Named after the type locality.

Type horizon. — Limy mudstone layers of Galatone Fm at Galatone (Esu *et al.* 1994; Bossio *et al.* 1998).

Type locality. — Galatone (Lecce, Apulia, Italy) (40°8'27.03"N, 18°03'0.37"E).

Type age. — Chattian (Late Oligocene).

Diagnosis. — Small-sized shell, elongately conical, with up to 6 ¼ whorls, moderately convex to slightly flattened in the middle, often providing a faint angulation in the lower part of the whorl. Aperture ovate to quadrangular ovate, adapically rounded to barely angulate. Umbilicate.

Description

Shell small-sized, solid, elongately conical, more or less turreted, with up to 6 ¼ regularly increasing whorls, moderately convex to slightly flattened in the middle, often providing a faint angulation in the abapical part and a step-like margin adapically, in proximity of the suture. Suture incised, deep. Last whorl high just under two thirds of shell height. Protoconch of *c.* 480 µm maximum diameter, smooth, consisting of one and a quarter slightly convex whorl (Fig. 2B).

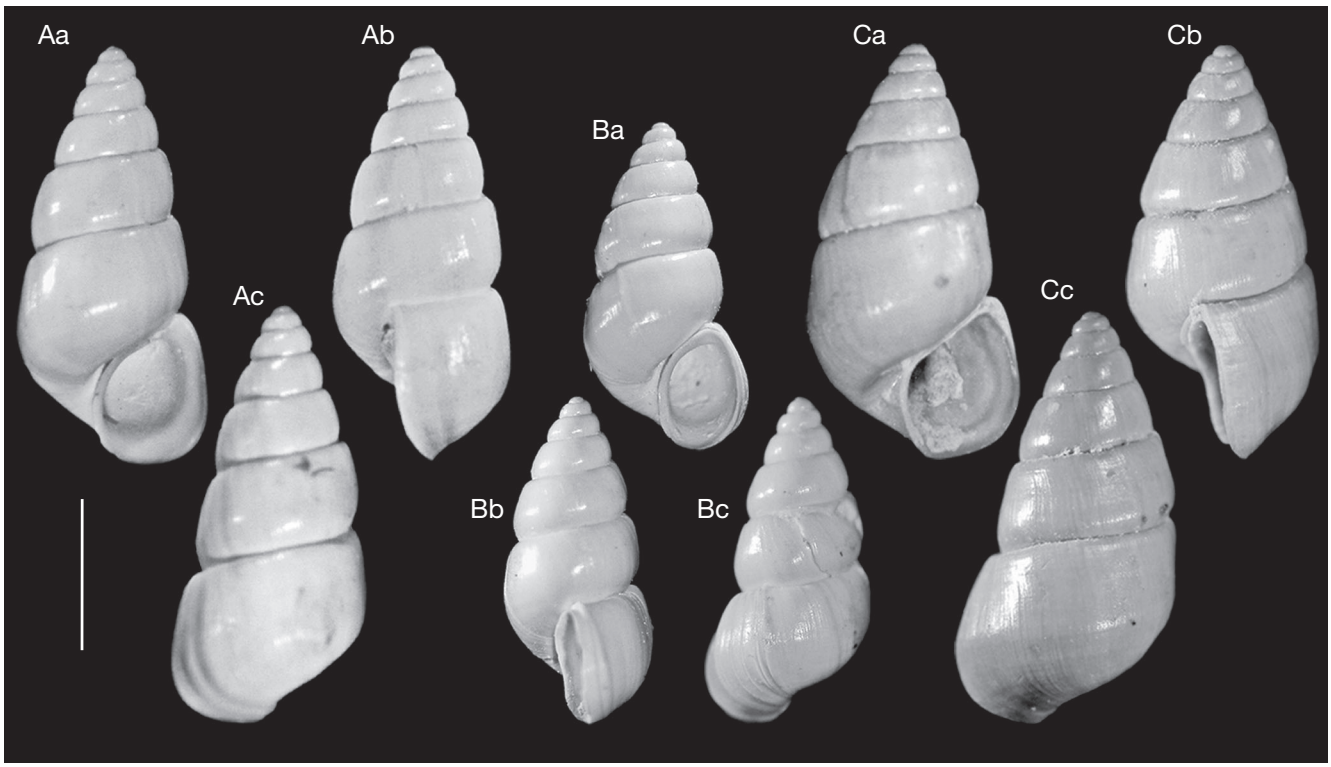

FIG. 3. — **A**-**C**, *Hydrobia* (s.l.) *galatoniana* n. sp., Galatone (Lecce, Apulia), Late Oligocene: **Aa**-**Ac**, holotype MPUR7-3897; **Ba**-**Bc**, paratype MPUR7-3898/2a; **Ca**-**Cb**, paratype MPUR7-3898/2b. Scale bar: 2 mm.

Teleoconch glossy, with thin, prosocline to nearly orthocline and rather regularly spaced growth lines gradually appearing after the protoconch. Aperture ovate to quadrangular-ovate, adapically rounded to barely angulate, sometimes slightly thickened inside along the outer lip; peristome simple, continuous, columellar lip smoothly concave, adherent partially to the last whorl, outer lip slightly arched in lateral profile. Sometimes transverse, more or less raised wrinkles, irregularly spaced, occur on the last whorl just before the aperture (Figs 2A; 3Ac, Bc). Umbilicus open, narrow, and deep. Range dimensions: H = 4.1-5 mm, W = 2.1-2.4 mm, H/W = 1.95-2.08.

REMARKS

The shell shape of *Hydrobia* (s.l.) *galatoniana* n. sp. shows a certain degree of variability, varying from more (Fig. 3B) to less turreted (Fig. 3C), with moderately convex to slightly flattened whorls, and ovate (Fig. 3Ba) to quadrangular-ovate aperture (Fig. 3Aa, Ca). Comparisons of the study material with several members of Hydrobiidae from the literature, and those stored in the rich malacological collection at the Senckenberg Museum of Frankfurt a. M., showed similarity mainly to two species: *Hydrobia dubuissonii* (Bouillet, 1834) and *Hydrobia andreaei* O. Boettger *in* Degrange-Touzin, 1892. Bouillet (1834: captions to pl. 18, fig. 14) gave a good description of *H. dubuissonii* from the Oligocene of the type locality (Aurillac, France), whilst the accompanying picture is unclear. Lozouet & Maestrati (2012: fig. 183.1-8) supplied good illustrations of French specimens of this species from the Oligocene (Stampian) of the Paris Basin. *Hydrobia dubuissonii* from Oligocene deposits of France (Aurillac and Paris Basin), and Middle Oligocene (Rupelian) of Vieux-Jone, Belgium, stored at the Senckenberg Museum (SMF 12.1594c, ex coll. O. Semper), differs from *H.* (s.l.) *galatoniana* n. sp. in having a conical-pyramidal shape, a more acute spire with more prominent apex, whorls not stepped, narrower, more ovate and adapically more angled aperture, and a narrower umbilicus (cf. Esu & Girotti 2010: pl. 3, fig. 8; Lozouet & Maestrati 2012). Maximum dimensions (H = 4 mm, W = 2 mm) given by Bouillet (1834) for *H. dubuissonii* from the type-locality are on average smaller than those measured for the Galatone specimens (H = 4.1-5 mm, W = 2.1-2.4 mm). *Hydrobia andreaei* from Early Miocene localities of France, Cabanac (Pouquet), Aquitanian (SMF 245531/1-245532/1, coll. O. Boettger, ex Degrange-Touzin), Saucats (near Bordeaux), Aquitanian (SMF 245533/9, coll. O. Boettger), Lariey (Saucats), Aquitanian (SMF 245550/2, coll. O. Boettger), and Oligocene (Chattian, Cyrenenmergel) of ?Kolbsheim, Elsaß (SMF 245534/24, coll. O. Boettger, ex A. Andreae) (cf. Degrange-Touzin 1892: 181), differs from *H.* (s.l.) *galatoniana* n. sp. in having a more cylindrical and elongate shell with more acute apical angle, a shallower suture, the last whorl slightly descending towards the aperture, restricted and provided with a faint ring-like varix close to the outer lip, a narrower and semiovate aperture, columellar margin slightly thickened and more oblique, outer margin well

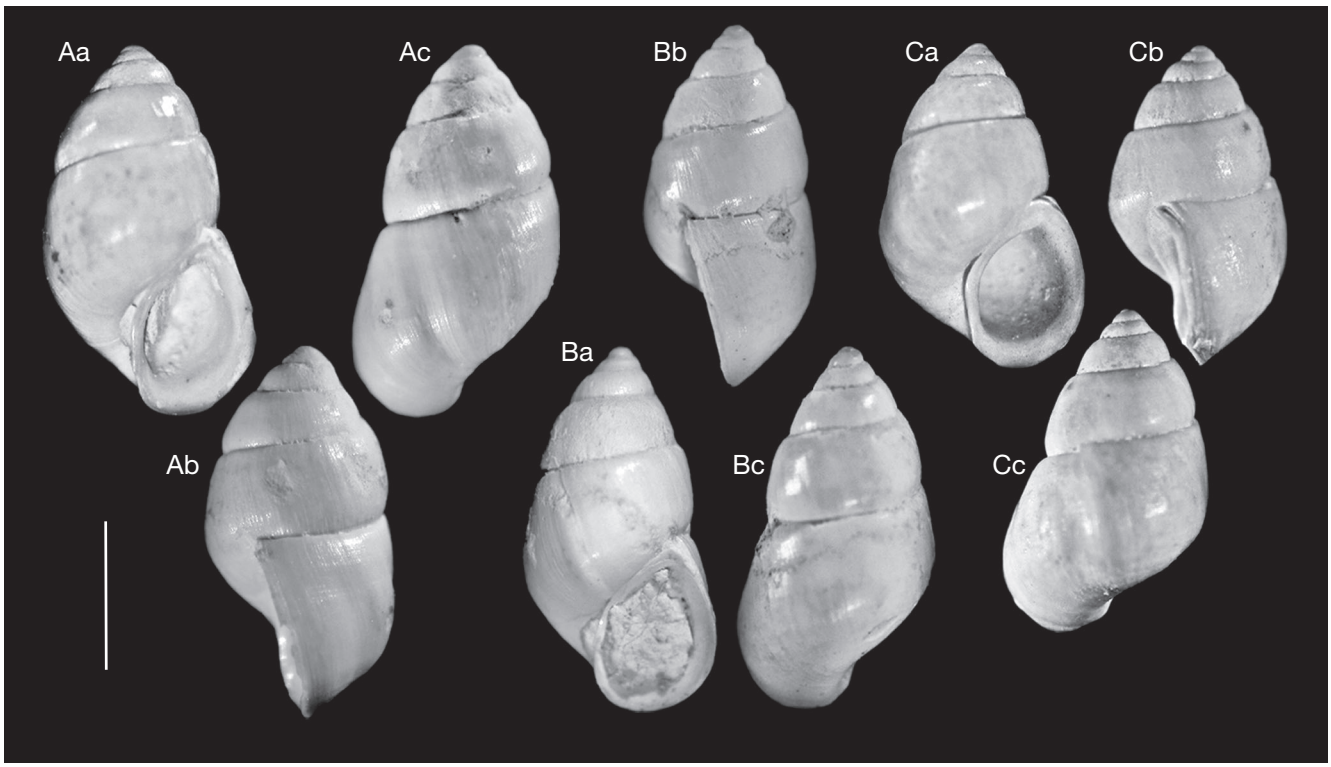

FIG. 4. — **A**-**C**, *Hydrobia* (s.l.) *ionica* n. sp., Galatone (Lecce, Apulia), Late Oligocene: **Aa**-**Ac**, holotype MPUR7-3899; **Ba**-**Bc**, paratype MPUR7-4197/2a; **Ca**-**Cc**, paratype MPUR7-4197/2b. Scale bar: 2 mm.

arched, a not deep umbilicus, and on average smaller size (H = 3.75-4.5, W = 1.62-1.75) (cf. Boettger in Degrange-Touzin 1892: pl. 5, figs 1-1c; Lozouet *et al.* 2001: fig. 9). *Hydrobia* (s.l.) *galatoniana* n. sp. is distinct from the coeval *Hydrobia dubuissonii hydruntina* Esu & Girotti, 2010, from the Upper Oligocene marls of the bauxite quarry at Otranto (Apulia) (Esu & Girotti 2010: pl. 3, figs 1-7), in having a more cylindrical shell, more convex whorls, wider quadrangular-ovate aperture, and on average larger size (holotype of *H. dubuissonii hydruntina*: H = 3.8 mm, W = 2 mm; mean size: H = 4 mm, W = 2 mm). Quaggiotto & De Angeli (2016: fig. 3.1-3) illustrated some not well-preserved remains of *Hydrobia* cf. *dubuissonii* from the Lower Oligocene of Valle del Ponte (Vicenza, northeastern Italy). These specimens are clearly different from *H.* (s.l.) *galatoniana* n. sp. for their larger size (H = 7 mm), and more elongate and turreted shell shape.

Hydrobia (s.l.) ***ionica*** n. sp.
(Figs 2C, D; 4A-C)

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Pseudamnicola (*Staja*) sp. – Esu *et al.* 1994: 189, pl. 2, fig. 4a.

TYPE MATERIAL. — Holotype: MPUR7-3899 (Fig. 4A), H = 4.5 mm, W = 2.5 mm. — Paratypes: MPUR7-4197/2, 4199/1, 3900/40.

DERIVATION OF NAME. — Named after the Ionian Sea, whose shoreline is near the type locality.

TYPE HORIZON. — Limy mudstone layers of Galatone Fm at Galatone (Esu *et al.* 1994; Bossio *et al.* 1998).

TYPE LOCALITY. — Galatone (Lecce, Apulia, Italy) (40°8'27.03"N, 18°03'0.37"E).

TYPE AGE. — Chattian (Late Oligocene).

DIAGNOSIS. — Small-sized shell, ovately conical, with up to 5 slightly convex whorls, the last large and elongate. Aperture pear-shaped, relatively high and elongate, adapically barely angulate, somewhat flared and slightly thickened inside. Umbilicus slit-like.

DESCRIPTION

Shell small, solid, thick-walled, ovately conical, with up to 5 slightly convex whorls, the last large, elongate, exceeding two-thirds of shell height. Early whorls slowly increasing, the last faster and somewhat descending (Figs 2C; 4Ab, Ba). Suture shallow, oblique between the penultimate and ultimate whorl. Protoconch of *c.* 410 µm maximum diameter, smooth, consisting of one slightly convex whorl. Boundary to teleoconch distinct by the formation of closely spaced growth lines (Fig. 2D). Teleoconch glossy, with very delicate and thin prosocline growth lines. An axial swelling occurs sometimes in the last whorl towards the aperture. Aperture pear-shaped, high, elongate, adapically barely angulate and abapically rounded, somewhat flared and slightly thickened inside; peristome continuous, columellar lip almost completely adherent to the last whorl, outer lip straight in lateral profile. Umbilicus slit-like. Range dimensions: H = 4-4.5 mm, W = 2.5-2.7 mm, H/W = 1.48-1.8.

Remarks

Provisionally, Esu *et al.* (1994) assigned this stout form to the subgenus *Pseudamnicola* (*Staja*) Brusina, 1897, currently considered a separate genus of the family Hydrobiidae (Harzhauser *et al.* 2015; MolluscaBase 2018b). Examination of further material allowed distinguishing this species from *Staja*, which is a Miocene Eastern European taxon rich in several species (cf. MolluscaBase 2018b), characterised by a very small size (dimensional range: H = 1.6-2.5 mm, W = 1-1.2 mm) and a mainly conical shell with regularly growing whorls (cf. Brusina 1897; Jekelius 1944). The assignment of *ionica* n. sp. to the same genus as *galatoniana* n. sp. is likely supported by similar conchological characters between the two species, such as hydrobioid shell shape with slightly convex whorls, last whorl higher, ovate-elongate and barely flared aperture, and smooth protoconch. *Hydrobia* (s.l.) *ionica* n. sp. differs from *H.* (s.l.) *galatoniana* n. sp. in having a more globose shell, a wider apical angle, a smaller protoconch, the last whorl proportionally wider and higher, the aperture more elongate, and a smaller H/W (max) ratio (1.8 vs 2.08). It differs from the coeval *H. dubuissonii hydruntina* from the Upper Oligocene marls of Otranto bauxite quarry (Esu & Girotti 2010) in being conical-ovate in shape, in having a less acute spire, a proportionally higher last whorl and wider and more elongate aperture. *Hydrobia dubuissonii* from Oligocene deposits of France and Belgium (see above) differs from *H.* (s.l.) *ionica* n. sp. in having a conical-pyramidal shape, a more acute spire and a smaller and more ovate aperture.

DISCUSSION AND CONCLUSION

The two new species of hydrobiids described here are abundant at some levels of the investigated succession. The sampled assemblage was collected at the upper part of the succession from a soft mud lime layer overlying a paleosoil, which in turn rests upon a travertine crust, interpreted as indicative of a sharp change in environmental control in respect to the previously dominating marine influence (Esu *et al.* 1994), recording a change towards a low salinity environment. The occurrence of Potamididae and brackish-marine bivalves in a layer just above the sampled lime mud testifies a new short fluctuation towards higher salinity conditions. The protoconch of the two new hydrobiids, indicative of a direct development without a free larval stage (Bandel 2001; Kowalke & Reichenbacher 2005), points to low salinity conditions. The absence of any potamidid and/or brackish-marine bivalve in the lime mud layer, however occurring at various levels of this succession (Esu *et al.* 1994), confirms the inferred environment for the sampled interval. The generic assignment of the two new species, *H. galatoniana* n. sp. and *H. ionica* n. sp., is debatable. The hydrobioid shell shape with more or less turreted conical shell, slightly convex or moderately flattened whorls, slightly open umbilicus and the oligohaline habitat of the two new species make it possible to compare the Apulian specimens with members of the genus *Hydrobia*. Generally, members of *Hydrobia* inhabit waters of low to moderate salinities in lagoonal context (Arconada & Ramos 2003). Nevertheless, following the phylogenetic data based on molecular clock approach on Hydrobiidae by Wilke *et al.* (2007), the Hydrobiinae turn out to be not older than 17.5 Ma (Early Miocene), and the genus *Hydrobia* (testing the type species *Hydrobia acuta*) dates back only into the Late Miocene. Kadolsky (2008) ascribed species of *Hydrobia*-habitus from freshwater Late Oligocene deposits of Germany to the genus *Heleobia* Stimpson, 1865 of the family Cochliopidae Tryon, 1866, on the base of the similarity of conchological characters (mainly protoconch and also teleoconch) with European living representatives of this genus, and the inferred freshwater habitat of the German assemblages. Kadolsky (2008) attributed also the French species *Hydrobia girondica* O. Boettger in Degrange-Touzin, 1892, from the Early Miocene (Aquitanian) of Canéjan (Gironde), to *Heleobia* by teleoconch characters; unfortunately, the protoconch microsculpture of topotypical material is unknown. This genus originating from America was recently recognized in Plio-Pleistocene deposits and living in Europe and the Middle East in fresh and brackish water (Kadolsky 2008 and references therein). This author suggests that fossils of *Hydrobia*-habitus recorded in freshwater deposits, accompanied by freshwater mollusc taxa, should be referred to the genus *Heleobia*, extending the distribution of this genus to the Oligocene. The microsculpture of the protoconch of the German Oligocene species assigned by the author to the genus *Heleobia*, *Heleobia* (*Eupaludestrina*) *rhoenana* Kadolsky, 2008, is characterized by "a network of short wrinkles forming shallow isometric pits", recognized also in the living *Heleobia stagnorum* (Gmelin, 1791) (Kadolsky 2008: 121, pl. 3, figs 1-6, 11-13). This character does not occur in the protoconch of the two new Apulian Oligocene species *H. galatoniana* n. sp. and *H. ionica* n. sp., which is smooth. Therefore, despite the similar environment (freshwater-oligohaline) of the German and Apulian Oligocene hydrobiids, and taking into account the molecular data on Hydrobiinae by Wilke *et al.* (2007), we prefer to assign the two new species tentatively to *Hydrobia* (s.l.).

The present paper extends the knowledge of Oligocene "*Hydrobia*-habitus" species from Italy, the record of which is extremely scarce, so far. Apart from the preliminary quotations by Esu *et al.* (1994, 2005), only Esu & Girotti (2010) and Quaggiotto & De Angeli (2016) described and illustrated remains of alleged *Hydrobia* from Oligocene deposits of Italy.

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