Cainozoic Research, **9**(2), pp. 189-191, December 2012

Validation of holoplanktonic molluscan taxa from the Oligo-Miocene of the Maltese Archipelago, introduced in violation with ICZN regulations

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Received 29 August 2012, accepted 6 September 2012

Five gymnosomatous molluscan taxa were recently introduced applying 'open generic nomenclature' by using the indication 'Genus Clionidarum' instead of a formal genus name and therefore violating ICZN art. 11.9.3 of the Code. Herein those taxa are validated by placing them in the type genus of the family Clionidae, followed by a question mark indicating here that they might as well belong to any other of the known (or as yet unknown) genera in the family Clionidae .

Introduction

In my study of Maltese fossil holoplanktonic molluscs (Janssen, 2012) a number of new species of gymnosomatous larval shells were introduced, more or less resembling the few Recent larval shells known from this group of Gastropoda, but obviously (also considering their ages) representing undescribed species. Recent Gymnosomata are shell-less in the adult stage, and their larval shell is shed at metamorphosis from larva to adult. Such extremely small shells are only known with certainty of two (maybe three) of the many Recent species, but various further, as yet unidentified types have been collected and recorded from Recent bottom samples and older sedimentary rocks (Janssen, 2012, pp. 452-455). Although such tiny specimens cannot be assigned to one of the several Recent genera their belonging to the family Clionidae could be ascertained.

Following the format generally adopted in otolith literature for taxa that cannot be assigned to known genera, a system so far never questioned by editorial boards and/or peer-reviewers of many prestigious periodicals, these five new species were introduced, using 'open generic nomenclature' for the first time for molluscan systematics. As format the combination 'Genus Clionidarum' was applied, explained to mean 'a genus of the Clionidae' (Janssen, 2012, p. 452).

Immediately after publication, however, Professor Philippe Bouchet (in litt.), apparently unaware of the longtime tradition in ichthyology, objected to this 'open generic nomenclature', considering such names to be invalidly introduced. Art. 11.9.3 in the ICZN Code states that: 'A species group-name must be published in unambiguous combination with a generic name ...'. The combination 'Genus Clionidarum' as used in my paper indeed cannot be considered to be an unambiguous genus name.

I herewith validate the new names by combining them with the unambiguous genus name *Clione*, followed by a question mark, indicating here that those species might as well belong to any other known or unknown genus in the Clionidae.

RGM-registration numbers refer to the collections of Naturalis Biodiversity Center, Palaeontology Department (Leiden, The Netherlands).

Systematics

Phylum Mollusca Linnaeus, 1758
Class Gastropoda Cuvier, 1797
Clade Gymnosomata de Blainville, 1824
Superfamily Clionoidea Rafinesque, 1815
Family Clionidae Rafinesque, 1815
Genus *Clione* Pallas, 1774

Type species – Clione borealis Pallas (1774, p. 28, pl. 1, figs 18, 19) by monotypy = *Clione limacina* (Phipps, 1774, p. 195).

Clione? *ignota* sp. nov.

2012 Genus Clionidarum *ignotus* Janssen, p. 455, pl. 20, fig. 7; pl. 27, figs 1-7 (*nom. inval.*).

Type material – Holotype: RGM 516 217 (Janssen, 2012, pl. 20, fig. 7; pl. 27, fig. 6); paratypes: many specimens as listed in Janssen (2012).

Type locality – Xewkija 1a (Gozo, Malta), temporary construction pit for buildings along road Mġarr-Victoria, at UTM 336883. Middle Globigerina Limestone Member, base, main phosphorite level C 1, lower brownish part of exposed double phosphorite level (Oligocene, Chattian).

Diagnosis – Gymnosomatous embryonic shell consisting of a widely elliptical protoconch-1 and a larger and wider protoconch-2 with convex sidelines. Constriction deep and distinct. Apical angle of the basal part of protoconch-2 variable between 45 and almost 60°.
From the co-occurring *Clione*? *imdinaensis* (see below) the present species is easily distinguished by the different shape of protoconch-1 and its larger size.

Description and further details – See Janssen (2012).

***Clione*? *imdinaensis* sp. nov.**

2012 Genus Clionidarum *imdinaensis* Janssen, p. 457, pl. 27, figs 8-17 (*nom. inval*.).

Type material – Holotype: RGM 517 116 (Janssen, 2012, pl. 27, fig. 11); paratypes: many specimens as listed in Janssen (2012).

Type locality – Mdina (Malta); outcrop on road to Żebbuġ at UTM 467714. Main phosphorite level C 2, base of Upper Globigerina Limestone Member (Miocene, Langhian).

Diagnosis – Gymnosomatous embryonic shell consisting of an ovoid protoconch-1 and an early teleoconch separated by a deep constriction. Apical angle of early teleoconch *c*. 50-55°.
The peculiar shape of the embryonic globe distinguishes this species readily from other species in this group. *Clione*? *imdinaensis* is clearly smaller than *C.*? *ignota* and the largest diameter of protoconch-1 is situated higher, closely below the constriction.

Description and further details – See Janssen (2012).

***Clione*? *phosphorita* sp. nov.**

2012 Genus Clionidarum *phosphoritus* Janssen, p. 459, pl. 20, fig. 8; pl. 27, figs 18-23 (*nom. inval*.).

Type material – Holotype: RGM 285 521a (Janssen, 2012, pl. 27, fig. 19); paratypes: several specimens as listed in Janssen (2012).

Type locality – Xewkija 1a (Gozo, Malta), temporary construction pit for buildings along road Mġarr-Victoria, at UTM 336883. Middle Globigerina Limestone Member, base, main phosphorite level C 1, lower brownish part of exposed double phosphorite level (Oligocene, Chattian).

Diagnosis – Gymnosomatous embryonic shell with protoconchs-1 and -2 clearly separated by constrictions. Protoconch-1 ovoid, higher than wide, somewhat acuminated but with a rounded tip. Early teleoconch rarely preserved, with an apical angle of 50°. This species resembles the co-occurring *Clione*? *ignota*, but can immediately be recognised by its acuminated protoconch-1.

Description and further details – See Janssen (2012).

***Clione*? *tripartita* sp. nov.**

2012 Genus Clionidarum *tripartitus* Janssen, p. 460, pl. 27, fig. 24 (*nom. inval*.).

Type material – Holotype: RGM 517 122 (Janssen, 2012, pl. 27, fig. 24); paratypes: several specimens as listed in Janssen (2012).

Type locality – Mdina (Malta), outcrop on road to Żebbuġ at UTM 467714. Upper Globigerina Limestone Member, base, main phosphorite level C 2 (Miocene, Langhian).

Diagnosis – Gymnosomatous embryonic shell consisting of an ovoid protoconch-1 with a very slightly acuminated tip, a distinctly developed, collar-like protoconch-2 and a short early teleoconch slightly wider than the protoconch. The present species resembles the Holocene-Recent *Clione*? Type 1 (= 'Genus Clionidarum Type 1'; Janssen, 2012, p. 453, pl. 26, figs 1-12) from bottom sediment in the Atlantic, the Mediterranean and the Red Sea, differing by slightly larger dimensions and a more regular elliptical shape of protoconch-1 with maximum width at midheight.

Description and further details – See Janssen (2012).

***Clione*? *tumidula* sp. nov.**

2012 Genus Clionidarum *tumidulus* Janssen, p. 461, fig. 42d; pl. 27, figs 26-31 (*nom. inval*.).

Type material – Holotype: RGM 516 218 (Janssen, 2012, pl. 27, fig. 27); paratypes: several specimens from Malta and Italy, as listed in Janssen (2012).

Type locality – San Nicola Varano (Italy, Gargano, Foggia province); Lago di Varano Formation (Miocene, Langhian?).

Diagnosis – Gymnosomatous embryonic shell with a heart-shaped protoconch-1, followed after a clear constriction by a conical early teleoconch with straight sidelines and an apical angle of 25°. This species resembles the Recent *Clione limacina* (Phipps, 1774) (compare Janssen, 2012, pl. 26, fig. 20) in which a protoconch-2 is weakly developed and in which the early teleoconch is markedly wider.

Description and further details – See Janssen (2012).

Acknowledgements

For participating in the discussion on 'open generic nomenclature' I thank Ruud Bank (Hoogezand, The Netherlands), Philippe Bouchet (Muséum National d'Histoire Naturelle, Paris, France), Ronald Janssen (Senckenberg Museum, Frankfurt am Main, Germany), Dirk Nolf (Institut Royal des Sciences Naturelles, Brussels, Belgium), Gary Rosenberg (Academy of Natural Sciences, Philadelphia, USA), Werner Schwarzhans (Hamburg, Germany), Jan van Tol (Naturalis Biodiversity Center, Leiden, The Netherlands) and, especially, Steven Tracey (ICZN secretariat, London, UK). Ronald Janssen and Steve Tracey also reviewed the present small paper.

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