

***Diplodonta bogii* spec. nov.: a new species from the Red Sea,  
living along the Mediterranean coast of Israel  
(Bivalvia, Diplodontidae)**

J.J. VAN AARTSEN

National Museum of Natural History, P.O. Box 9517, NL 2300 RA Leiden, The Netherlands

It is shown that the species *Diplodonta bogii* spec. nov. is widely diffused in the Red Sea and was recorded from the Mediterranean coast of Israel under the erroneous name of *Diplodonta subrotunda* Issel, 1869, which is also figured.

Key words: Bivalvia, Diplodontidae, *Diplodonta*, Red Sea, Mediterranean, Israel, systematics, immigrant species.

When Bogi & Galil (1999: 29, figs 1, 2) announced the finding of a new species of the genus *Diplodonta* along the coast of Israel this was identified as *Diplodonta subrotunda* Issel, 1869. This Red Sea species was not well known at the time and therefore the identification was tentative. Later on Van Aartsen (2000: 51, 49 figs 10, 11) demonstrated that this species is identical with the species *Diplodonta* spec. 4 in Oliver (1992: 96 figs 26, 102, pl. 21 fig. 4), which is rather widely diffused in the Red Sea, but which was not easily identified. Therefore this species is mentioned in Zenetos et al. (2003: 260, 261) as *Diplodonta subrotunda* Issel, 1869, sensu Bogi & Galil, 1999. Oliver (1992: 102) suggested that, maybe, these specimens were to be considered the young of *D. subrotunda*. This suggestion is not probable and is thus denied by Zenetos et al. (2003).

Through the kind cooperation of Dr. G. Pavia I was enabled to study the holotype of *D. subrotunda*.

The shell of this species is described by Issel (1869: 253, 254) with a hinge in the right valve as follows: "Dentes cardinales in valvula dextra duo divergentes, laterales bini lamellosi." There is only one fossil valve, although Issel (1869) describes the right valve, but figures (1869: pl. 3 fig. 2) the outside of a left valve according to the legend with plate 3! From the figure one cannot conclude which valve is figured and I consider the legend to be in error. As *Diplodonta* species do not show lateral teeth, it was interesting to study this valve. It turns out that Issel took the nymph, which was not well preserved in this fossil, to be an additional lateral. At the same time he considered the posterior part of the posterior cardinal as a lateral. This last error was made by other authors in the past as well. Nevertheless it is clear that the specimens from the Mediterranean and the Red Sea did not belong to the species *D. subrotunda*, the hinge of which is here figured for comparison as figs 1-2. The conclusion is that the Mediterranean and Red Sea specimens belong to a new species which is here described.

For collections the following abbreviations are used: AD, J.J. van Aartsen, Dieren, The Netherlands; BL, C. Bogi, Livorno, Italy; HD, H. Dekker, Winkel, The Netherlands; MNHN, Muséum National d'Histoire Naturelle, Paris, France; MRSN, Museo Regionale di Scienze Naturali, Torino, Italy; NMW, National Museum and Galleries of Wales, Cardiff, UK; RMNH, National Museum of Natural History, Leiden, The Netherlands; UMC, University Museum Cambridge, UK.

Additional abbreviations: p, paired valves; v, valve.

***Diplodonta bogii* spec. nov. (figs 3, 4)**

*Diplodonta tumida* H. Adams [in part.?]; Lamy, 1916: 189.

*Diplodonta tumida* H. Adams; Moazzo, 1939: 93.

*Diplodonta* spec.; Oliver, 1992: 96, textfig. 26, pl. 21 fig. 4.

*Diplodonta* spec.; Hoenselaar & Dekker, 1998: 205.

*Diplodonta subrotunda* Issel; Bogi & Galil, 1999: 29, figs 1, 2.

*Diplodonta tumida* (H.Adams); Dekker & Orlin, 2000: 11.

*Diplodonta subrotunda* sensu Bogi & Galil; Van Aartsen, 2001: 51, 49 figs 10, 11.

*Diplodonta ravayensis*[sic] Sturany; Zuschin & Oliver, 2003: 110, figs 26.3-5.

*Diplodonta* cf. *subrotunda* Issel; Zenetos et al., 2003: 260, fig.

Not *Phlyctiderma tumida* (H.Adams); Oliver, 1992: 102, pl. 21 fig. 5. A study of the figured specimen shows it to belong to *Mysia (Lajonkairia) elegans* (H. Adams, 1871); there is a syntype (BMNH 1871.3.22.11) which was studied too.

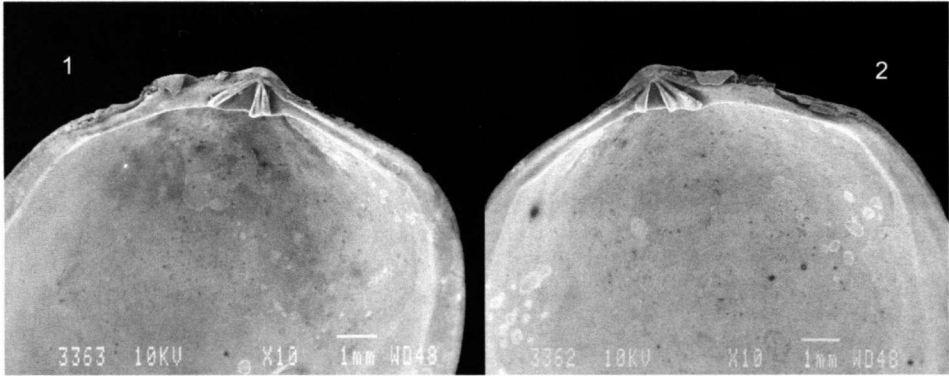
Material (holotype and paratypes). – Egypt: Zeit Bay (NMW 1984.071.00004/1 v [= Oliver, 1992, pl. 21 fig. 4]); Suez (NMW 1955.158.11402/1 v; MNHN/1 p & 13 v); Great Bitter Lake (RMNH 43894-43909, ex Colln Beets [See Beets, 1953], sta.GB.05/7v, GB.08/5v, GB.09/2v, GB.10/7v + (holotype RMNH 99414), GB.14/7v, GB.18/2v, GB.19/4v, GB.24/1p+1v, GB.25/2v, GB.26/2v, GB.28/1p+5v, GB.29/2v, GB.33/3v, GB.35/8v, GB.45/3v, GB.46/1v); Great Bitter Lake, HD 1711 2p, HD 1712 1p+1v leg. C. Beets, 1950. Djibouti (MNHN/7 v). Saudi Arabia: Musselamiwah Bay (NMW 1992.001.00014/2 v). Yemen: Aden (MNHN/10 v). Red Sea: (UMC/7 p). Israel, Mediterranean coast: BL 4p+10v (+ many juveniles), AD 18098A 2p+5v (juv).

Description. – Shell nearly round and rather tumid. The outer surface only shows some growth-lines but no real sculpture can be detected. The hinge consists of two divergent cardinals, the anterior in the left valve and the posterior in the right valve are split into two equal parts. There are no laterals. The ligament is wholly internal and there seems to be no nymph. The largest specimen is 10 × 9 mm. The holotype measures 8 × 7 mm.

Differentiation. – The new species differs from *D. subrotunda* in a number of characters. Most important is the presence of a nymph for the external ligament in *D. subrotunda* whereas in *D. bogii* such a feature is not present and the ligament seems to be wholly internal. Secondly, the new species reaches a maximum dimension of about 10 mm whereas *D. subrotunda* reaches more than double that dimension. Thirdly, it is noted that in *D. subrotunda* the hinge-plate is clearly differentiated from the anterior dorsal margin whereas the hinge-plate lies in the same plane as the shell margin in *D. bogii* (compare figs 1-2 with figs 3-4).

The present species is undoubtedly cited in the literature under the name *Diplodonta tumida* (H. Adams, 1871). However, Adams (1871: 791, 792, pl. 48 fig.16) described *Mysia tumida* as “*M. testa oblique rotundata, tenui, inequilaterali, striolis confertis radiantibus et concentricis obsolete decussata; umbonibus antemedianis, tumidis, prominentibus; regione postica paulum latiore; margine ventrali oblique arcuato. Long. 12, alt. 11, lat. 8 mill.*” Neither the sculpture (radial as well as concentric), the dimensions nor the prominent umbones can be applied to *D. bogii* spec.nov.

Therefore Adams's name cannot be accepted for this species, notwithstanding the fact that specimens of *D. bogii* of 6 to 7 mm are present in the M'Andrew collection in Cambridge, from where the species *Mysia tumida* was described.



Figs 1-2. *Diplodonta subrotunda* Issel, 1869. Specimen from Egypt, Great Bitter Lake, RMNH (ex colln C. Beets), height 12 mm. 1. Left valve hinge. 2. Right valve hinge. Note remains of ligament fastened to nymph.



Figs 3-4. *Diplodonta bogii* spec. nov. Holotype from Egypt, Great Bitter Lake, RMNH (ex colln C. Beets), height 7 mm. 3. Left valve inside. 4. Right valve inside. Note absence of nymph.

#### ACKNOWLEDGEMENTS

The help of Dr G. Pavia (MRSN), Mrs V. Héros and Dr Ph. Bouchet (MNHN), Mrs A.H. Wood and Dr P.G. Oliver (NMW) as well as Dr R. Preece (UMC) is gratefully acknowledged. The photographs were kindly made by J. Goud (RMNH).

## REFERENCES

- AARTSEN, J. J. van, 2000. European marine Mollusca: Notes on less well-known species. XVI. *Diplodonta eddystonia* (Marshall, 1895), with notes on the other European *Diplodonta* species. — *La Conchiglia* 32 (297): 46-51, 60-61.
- ADAMS, H., 1871. Descriptions of twenty-six new species of shells collected by Robert M'Andrew, Esq., in the Red Sea. — *Proceedings of the Zoological Society of London* (1870): 788-793.
- BEETS, C., 1953. Notes on the dredging in the Great Bitter Lake of the Suez Canal. — *Zoologische Mededelingen, Leiden* 32: 97-106
- BOGI, C., & B.S.GALIL, 1999. New findings along the Israeli coast. — *La Conchiglia* 31 (292): 29-32.
- DEKKER, H., & Z. ORLIN, 2000. Check-list of Red Sea Mollusca. — *Spirula* 47 (supplement): 1-46.
- HOENSELAAR, H. J., & H. DEKKER, 1998. Molluscs of the Great Bitter Lake, Suez Canal, Egypt, collected by C. Beets in 1950. — *Basteria* 62: 197-214.
- ISSEL, A., 1869. *Malacologia del Mar Rosso, ricerche zoologiche e paleontologiche*. Biblioteca Malacologica.: i-xi, 1-387. Pisa.
- LAMY, E., 1916. Les lucines et les diplodontes de la Mer Rouge (d'après les matériaux recueillis par M. le Dr Jousseume). — *Bulletin du Muséum d'Histoire naturelle, Paris* 22 (4): 183-190.
- MOAZZO, P. G., 1939. Mollusques testacés marins du Canal de Suez. — *Mémoires de l'Institut d'Égypte* 38: 1-287.
- OLIVER, P. G., 1992. Bivalved seashells of the Red Sea: 1-330. Wiesbaden-Cardiff.
- ZENETOS, A., S. GOFAS, G. RUSSO & J. TEMPLADO, 2003. CIESM atlas of exotic species in the Mediterranean. Vol. 3. Molluscs: 1-376. Monaco.
- ZUSCHIN, M., & P. G. OLIVER, 2003. Bivalves and bivalve habitats in the northern Red Sea. The Northern Bay of Safaga (Red Sea, Egypt): An actuopalaontological approach. VI. Bivalvia. *Naturhistorisches Museum Wien*: 1-304. Wien.