

An Iconography of *Haliotis volhynica* Eichwald, 1829, and description of a new species of *Haliotis* from the middle Miocene of Ukraine

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ABSTRACT Thirty-seven *Haliotis* specimens from fossil deposits of the middle Miocene of Ukraine are illustrated in high resolution digital photography. A species new to science from these fossil deposits is described herein as *Haliotis stalennuyi*.

KEY WORDS Gastropoda, Haliotidae, fossil *Haliotis*, new species.

INTRODUCTION

Fossil abalone are poorly known compared to their recent counterparts (Geiger & Owen, 2012). Most of the known 36 fossil abalone species have been described from fragments or single specimens (Geiger & Groves, 1999; Geiger, 2000; Geiger & Owen, 2012). This paper follows the work published in 2015 by M. Forli *et al.*, however in a greatly expanded scope as large numbers of additional specimens of *H. volhynica* have been discovered and are illustrated with high resolution digital photography. Further, three additional specimens of a species previously referred to by Forli *et al.* as “*Haliotis* sp.” have recently been collected and examined. As only two specimens were known to exist in 2015, Forli, *et al.* concluded that it was “indeterminate at the specific level because of the scarcity of material known to date.” Given that additional specimens of this undescribed *Haliotis* have been located, it has become clear that the previously illustrated specimens are not anomalies and that this undescribed *Haliotis* is a species new to science. The purpose of this paper is to give this fossil species a name honoring the person who found these specimens,

and to compare the new species to a large number of the approximately forty *H. volhynica* that have been simultaneously collected in the Maksymivka quarry, near Ternopil, Ukraine.

Abbreviation of collections: BOC: Buzz Owen Collection, Gualala, CA, USA; MFC: Maurizio Forli Collection, Prato, Italy; BS: Bellardi and Sacco Collection, University of Turin, Italy; ASC: Alexander Stalennuy Collection, Ternopil, Ukraine.

Shells examined: *H. stalennuyi* n. sp., Maksymivka quarry, near Ternopil, Ukraine, five specimens (including two from photo images); *H. volhynica*, Maksymivka quarry, near Ternopil, Ukraine, fifty seven; *H. tuberculata tauroplanata* Sacco, 1897, one specimen (from photograph in Forli, *et al.* 2015).

Systematics:

Class Gastropoda

Subclass Vetigastropoda

Superfamily Haliotoidea

Family Haliotidae

Genus *Haliotis* Linnaeus, 1758

Type species. *Haliotis asinina* Linnaeus, 1758
(subsequent designation Montfort, 1810)

Haliotis stalennuyi Owen & Berschauer,
new species
(Figure 3, images 1-2, 4-5, 7-8, 11-12, & 14-15)

Previously figured in:

Forli, M., A. Stalennuy & B. Dell'Angelo (2015) as *Haliotis* sp. – Figures 15-18.

Krach (1981): *Haliotis tuberculata tauroplanata* [non-Sacco, 1897] – p. 40, pl. 11, Figures 4-7.

Description: Shell small to medium (approximately 45-50 mm in length), oblong, somewhat flattened and barely arched, with 4 to 5 open holes. Anterior margin generally quite straight. Spire quite flat to slightly tilted, located 15-20% from posterior (spire) end of shell. Dorsal surface smooth, with spiral ribs almost entirely absent with the exception of early juvenile stages where ribs of slender width with small tubercles are present. In later stages of growth there may be a few occasional weak wobbly threads on the otherwise smooth surface. Peripheral area between holes and columella slightly rounded having 3-4 smooth ribs and without groove or channel present.

Type material: Holotype: NMNZ M.321138 (Figure 3, image 1), 50 mm. Paratype: BOC 0953 (Figure 3, images 3, & 5-6), 46 mm, from type locality.

Additional specimens: Figure 3, images 8-9, BOC; Figure 3, images 11-12, ASC; Figure 3, images 2, 14-15, MFC. All from type locality.

Type locality: Maksymivka quarry, near Ternopil, Ukraine: 49°36'13.49"N, 25°54'32.70"E.

Etymology: The species honors Alexander Stalennuy, Ukraine, who collected all specimens figured in this paper (with the exception of Figure 3, image 3). Without his efforts, this paper, and the 2015 publication (of

which he was second author), would not have been possible.

Distribution and habitat: All specimens illustrated in this document were recovered from the Maksymivka quarry, near Ternopil, Ukraine, with the exception of the specimen of *H. tuberculata tauroplanata* Sacco, 1897 (Figure 3, image 4), from the Torino hills of Piedmont, Italy.

Differential diagnosis: *Haliotis volhynica* (Figure 1, images 1-17; Figure 2, images 1-15; Figure 3, images 7, 10, 13 & 16) has a prominent and elevated spire located 30-35% from the posterior (spire end) of shell. It is more circular in shape and presents a strong lumpy surface often with deep folded ridges which may be broken up with moderate to strong spiral ribs. It has an often very pronounced channel or groove in the peripheral area between the columella and row of holes. All specimens are in the BOC unless otherwise specified.

Haliotis tuberculata tauroplanata Sacco, 1897, (Figure 3, image 4) from the early Miocene, is similar in shape and spire position, but lacks the small slender cords and tubercles in early stages and has strong flattened cords extending over the entire surface of the shell. It also has a more rounded anterior margin.

Remarks: The name *H. tuberculata tauroplanata* was not available for use by Krach in 1928, as that name had previously been used by Sacco in 1897 to describe a different *Haliotis* from Poland. Subsequently the Krach specimen was synonymized with the new species by Forli *et al.* (2015), but was not figured in that article. As we have not examined an image of the Krach *Haliotis* specimen ourselves, we can only be certain that the three specimens recently collected (by A. Stalennuy in 2016) from the Maksymivka quarry in Ukraine are similar to

the two examples figured and described in the Forli *et al.* 2015 article. Thus our description and validation of *H. stalennuyi* as a new species is based entirely on the five specimens illustrated on Figure 3.

ACKNOWLEDGEMENTS

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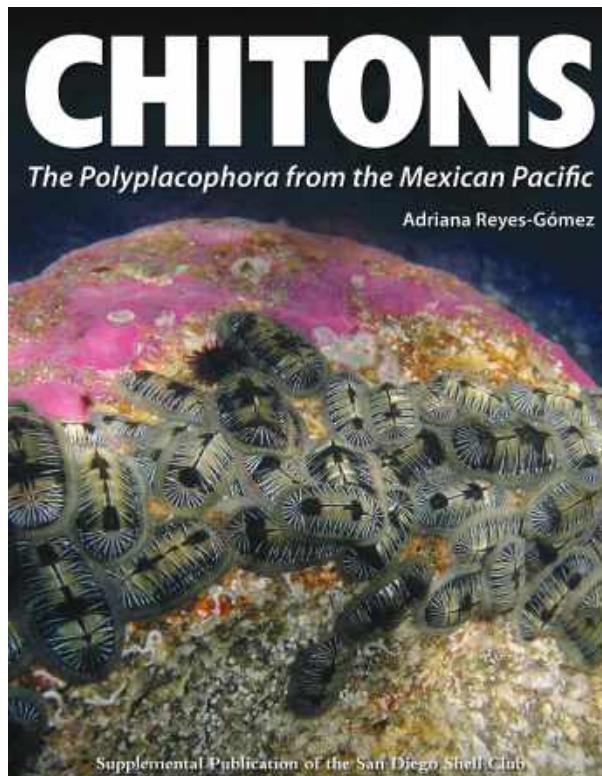
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