

Gigantic *Valletia* (Bivalvia, Rudistae) from the Lower Berriasian of Southwestern Crimea

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Abstract—A gigantic shell of a rudist of the genus *Valletia* is described for the first time from the Lower Berriasian of Southwest Crimea. The lithology and geological age of the host rock are discussed.

Keywords: bivalves, rudists, new species, Lower Cretaceous, Lower Berriasian, Southwestern Crimea

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INTRODUCTION

While studying the Berriasian (Lower Cretaceous) deposits in the vicinity of the village of Peredovoe (formerly Urkusta) on the northern side of the Baydar Depression in 1978, I found an upper valve of *Valletia*, many times the size of similar valves belonging to previously described species of this genus from the Upper Jurassic and Lower Cretaceous of the Mediterranean Paleozoogeographic Region.

The valve was found loose in a level of platy bioclastic and oncolitic limestone beds 1 m thick, at the top of a member of alternating limestone and siltstone with lenses of sandstone, representing the basal part of the Urkusta type section. The rocks in this member, with a total thickness of 4 m, overlie the Upper Tithonian limestones over a considerable unconformity and *Trypanites* ichnofossils (hard ground surface). This member is assigned to the Early Berriasian, based on its fossil assemblage and stratigraphic position. The deposits of this member contain the bivalves *Arcomytillus couloni* (Marcou), *Neitheia simplex* Mordvilko, *Gryphaea weberae* (Yanin); gastropods *Phaneroptyxis broili* (Pchelintzev), *Fibula borissjaki* (Pchelintzev), common in the Lower and Middle Berriasian of most sections in the Southwestern and Central Crimea. The member where the large valve was found is in section 40 m, below sandstones with the index ammonite species *Dalmaniceras tauricum* Bogdanova et Arkadiev, indicating a Middle Berriasian age for the host beds. Thus, the member with the rudist is assigned to the Lower Berriasian—equivalent to the *Berriasella jacobi* Zone.

In this paper, I use the taxonomy of rudists proposed by Yanin (1989, 1995).

Explanations of some elements of the morphology of the upper valve of the new species:

—in the description: dental line—line connection teeth d2 and d4, dental angle — angle between the dental line and anterior valve margin;

(1) on the plate: d2—anterior tooth, d4—posterior tooth, 3'—tooth socket d3 of the right valve, Lg—ligament groove, Lm—limb (a limb on the inner surface of the valve along the aperture lower margin), AMS—anterior muscle scar, PMS—posterior muscle scar;

(2) in the “Dimensions” section: H—valve height, HU—height of the umbonal region, UV—upper valve, AH and AL—aperture height and length.

CLASS BIVALVIA

Order Hippuritida Newell, 1965

Suborder Hippuritina Newell, 1965

Superfamily Monopleuroidea Munier-Chalmas, 1873

Family Gyropleuridae Paquier, 1905

Genus *Valletia* Munier-Chalmas, 1873

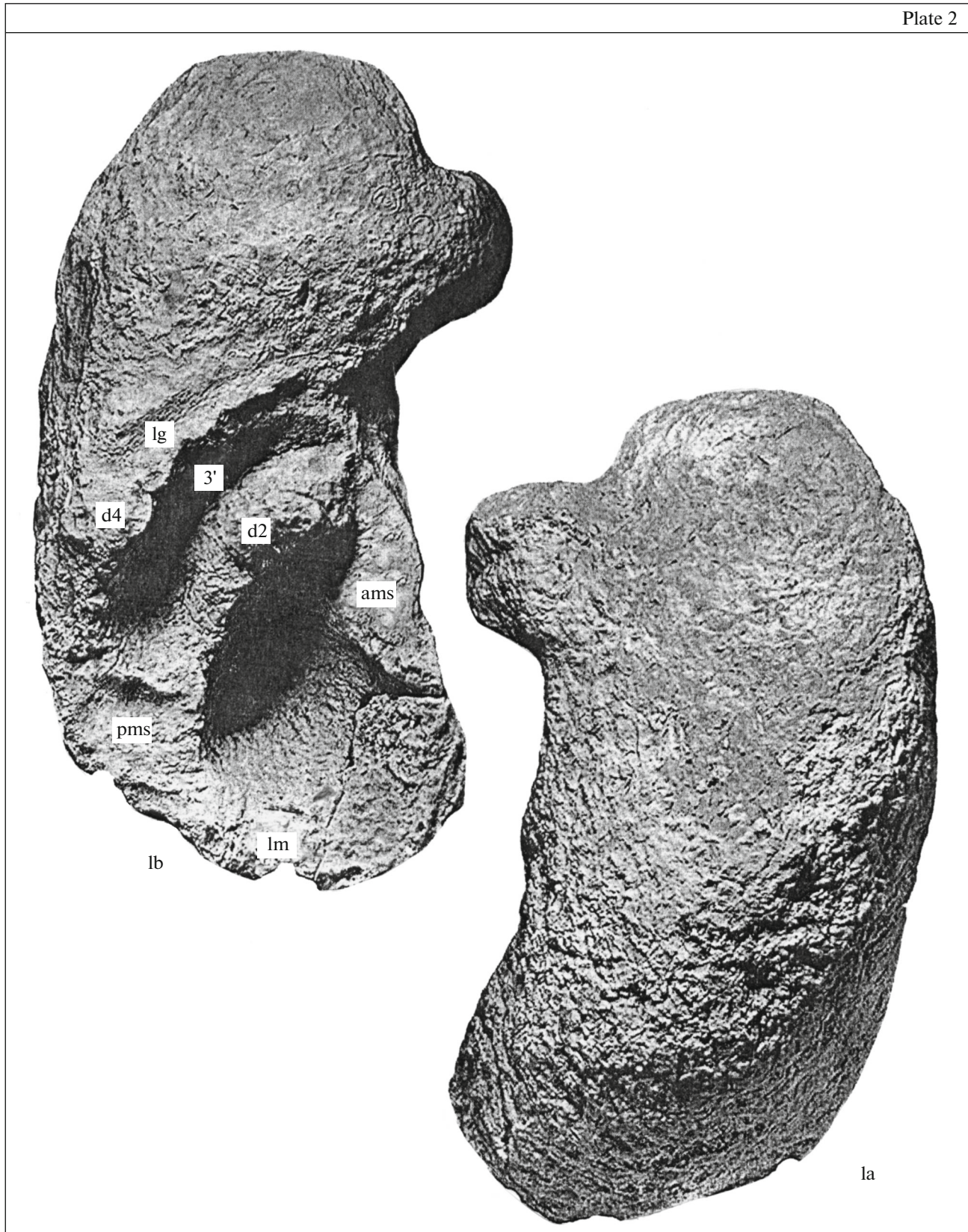
Valletia gigantea sp. nov.

Plate 2, figs. 1a, 1b

Etymology. From the Latin *gigās*, *gigantem* (gigantic).

Holotype. PIN, no. 5671, upper valve (pl. 2, figs. 1a, 1b); Southwestern Crimea, northern side of the Baydar Depression, vicinity of the village of Peredovoe, Urkusta Hill; Lower Berriasian, equivalents of the *Berriasella jacobi* Zone.

Description. The upper (left) valve is very large (H = 200 mm), massive, suboval in outline, obliquely extended in the anterior-lower direction; smooth; with a large umbonal region occupying about a half of the total valve height, with an umbonal termination, weakly turned anteriorly and laterally, pressed to the valve surface; irregularly convex: the anterior



Explanation of Plate 2

Fig. 1. *Valletia gigantea* sp. nov.; holotype PIN, no. 5671/1, upper valve, $\times 0.75$: (1a) lateral view from the anterior external side, (1b) view from the inner, apertural side; Southwestern Crimea, northern side of the Baydar Depression, vicinity of the village of Peredovoe, southern slope of the Urkusta Hill; Lower Cretaceous, Lower Berriasian, equivalents of the *Berriasella jacobi* Zone (coll. B.T. Yanin).

side of the valve is weakly flattened, the lateral and posterior sides are strongly convex, the line of greatest convexity runs along its middle as a rounded carina.

The aperture is strongly oblique in the antero-lower direction, with straight anterior and rounded lower margins; the aperture height is 110 mm, length 100 mm; a band 20 to 30 mm wide extends along the lower margin of the aperture. The hinge is sinistrodont: d2 conical, elongated-oval in outline (tooth length 30, width at the base 20, height 15 mm); d4 is smaller than d2; with a rounded base 15 mm; the tooth shape, apparently, conical (its apex is not preserved); a depression between the tooth and the aperture margin is absent; tooth socket 3' is weakly curved, 60 mm long, 20 mm wide, 18 mm deep; its anterior end separates d2 from the aperture upper margin. The angle of the dental line is 100°.

The AMS is a shallow, elongated-oval (25 mm long, 15 mm wide); connected with the base of d2 and is bordered by myophore ridges; the PMS is rounded, separated from 3' by a transverse ridge; its size is 20 × 25 mm. The Lg and Lm are wide.

Dimensions in mm and ratios:

Specimen no.	H	HU	HU/H	AH	AL	AL/AH
PIN no. 5671/1 (UV)	200	110	0.55	110	100	0.9

C o m p a r i s o n. This species is distinguished by the large (gigantic) size of the upper valve from all small- and medium-sized shells of species of the genus *Valletia* known from the Cretaceous deposits of the Subregion of the Mediterranean Paleozoogeographic Region. For instance, it differs from *Valletia tombecki* Munier-Chalmas (1873) (Upper Valanginian of France), which has the most similar shell shape, in the more massive umbonal region of the upper valve, and characters of the position of d2 relative to the upper margin of the aperture: it is separated from this margin by the anterior termination of the tooth socket 3', and

by a long, wide groove in *Valletia tombecki*, and the conical shape of d4 (in *V. tombecki* it is lamellar).

The new species is readily distinguished from medium-sized and small shells of *V. urkustensis* Pchelinzhev (1950, Upper Tithonian–Lower Berriasian of Crimea) and *V. antiqua* Favre in Joukowsky et Favre (1913, Lower Tithonian of France, Upper Tithonian–Lower Berriasian of Crimea). It differs from the former by the very high upper valve, a wide, massive umbonal region (its height is almost half of the valve height, whereas in *V. urkustensis* the umbo is very small, weakly projecting, subprosogyre, with an acuminate termination (rarely preserved in specimens)), in the position of the dental line (the dental angle is 100°; in *V. urkustensis* the dental line is almost parallel to the valve anterior margin)). It differs from *V. antiqua* in the absence of ribs and the absence of an acute median keel.

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