

Boiomytilus nov. gen., nový mlž z českého devonu (Pelecypoda)**Boiomytilus nov. gen., New Devonian Pelecypod from Bohemia**

(S 3 obr. v textu a 1 tab.)

(With 3 text figures and 1 plate)

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V dekalciifikované poloze — tzv. „*bílé vrstvě*“ vápenců koněpruských na Zlatém koni (Houbův lom) u Koněprus bylo nalezeno mimo jiné několik výrazně inekvivalvních jedinců mytiloidního mlže s oběma miskami v původní biologické poloze. (coll. R. Růžička). Opakovaným prudkým zahřátím, ochlazením a posléze prudkým úderem na styčnou linii misek podařilo se nám pouze v jediném případě odkryt zámkový aparát, který u klenutější levé misky se skládá ze dvou, u méně klenuté pravé misky z jednoho kardinálního zubu, přičemž laterální zuby v pravém slova smyslu nejsou vyvinuty. Dalším výrazným charakteristickým znakem tohoto jedince je drobná ligamentární jamka umístěná těsně pod vrcholem, jejíž vtisk je hlubší v misce levé než pravé, a stopy po vnějším ligamentu, který, jak se domníváme, se upínal na longitudinální rýhy patrné na obou miskách. Jiným význačným znakem je umístění předního vtisku svalového na zvláštní liště vybíhající pod zámkovou plochou z přední strany vnitřního povrchu misky, velký vtisk zadního svalu ležící těsně při zadním okraji misky a terminální, výrazně prosogyrní vrcholy, přičemž vrchol levé misky slabě přečnívá nad vrchol misky pravé.

Vnější habitus i utvářením zámku připomíná tato forma do jisté míry některé již popsané rody, a to rody *Ambonychia* Hall, 1847, *Cyrtodontopsis* Frech, 1891, *Gosseletia* Barrois, 1882 a *Myalina* de Koninck, 1842, ale od všech těchto rodů se liší některými podstatnými systematickými znaky. Z tohoto důvodu považujeme tuto formu za představitele nového rodu, pro nějž současně navrhuje jméno *Boiomytilus nov. gen.*

Introduction

Several inequivalve specimens of an Early Devonian mytiloid pelecypod with both valves in the original biological position were found in the decalcified layer—so called “*white layer*”—of the Upper Koněprusy Limestones at Mt. Zlatý kůň (Houba's quarry) near Koněprusy (Central Bohemia). Only in one case, by repeated intense warming, cooling and finally by a sharp blow on the line of contact of the valves did we manage to reveal the hinge apparatus. It consists of two cardinal teeth in the left, more convex valve, and of one cardinal tooth in the right, less convex valve. Lateral teeth in proper sense of the term are lacking. Further characteristic features of this specimens are the minute ligamental pit situated close below the umbo (impression of this pit being deeper in the left valve) and the traces of the external ligament which was in our opinion inserted in the longitudinal furrows visible on both valves. Another prominent feature is the situating of the anterior adductor scar on a special listel which runs from beneath the hinge plate on the anterior side of the inner surface of the valve, the large posterior adductor scar lying close

to the posterior valve margin, and the terminal, strongly prosogyrate beaks, the beak of the left valve slightly overtopping that of the right valve.

The above mentioned form suggests by its external habitus as well as by the character of the hinge some already described genera, especially the genus *Ambonychia* Hall, 1847, *Cyrtodontopsis* Frech, 1891, *Gosseletia* Barrois, 1882 and *Myalina* de Koninck, 1842. In order to point out the differences between the mentioned genera and our form the following comparison be given:

Ambonychia Hall, 1847

Cyrtodontopsis Frech, 1891

(according to H. W. Shimer—R. R. Shrock, 1947) (according to F. Frech, 1891)

General shape

Equivalve and very inequilateral; no anterior wing present but extremity somewhat winged; Die beiden Schalen sind gleichmässig gewölbt.

Beaks

Beaks nearly or quite terminal.

Hinge

Two small oblique cardinal teeth present, lateral teeth absent. Ligament external . . . a small lobelike cavity beneath or just in front of the beaks separated from the main umbonal cavity by a thin partition, mere thickening of the valve margins. 6 Schlosszähne in der rechten Klappe und 5 Schlosszähne in der linken in jeder Klappe 2 parallele Seitenzähne Die Ligamentarea ist 4 cm lang und 4 mm hoch

Muscle scars

Posterior adductor scar large and bilobed; anterior adductor present. Die ziemlich grosse, hintere Muskeleindruck liegt unmittelbar unter dem Schlossrande. Der vordere Muskeleindruck ist etwa halb so gross, schwach eingesenkt und unmittelbar unter dem Vorderende des Schlosses gelegen.

Surface sculpture

Surface marked by fine radiating striae crossed by concentric growth lines and obscure undulations. Die Schale ist mit schwachen concentrischen Anwachslinien bedeckt.

Gosseletia Barrois, 1882

Myalina de K o n., 1842

(according to Ch. Barrois, 1882)

(according to H. W. Shimer-R. R. Shrock, 1947)

General shape

Coquille équivalve, inéquilaterale, gibbeuse Inequilateral, inequivalve (right valve slightly smaller and less convex), obliquely ovate, slightly sinuous in front for passage of byssus.

Beaks

Crochets saillants, non recourbés, tournés du côté antérieur Beaks pointed, terminal.

Hinge

Bords cardinaux formant un angle de 60°. Les dents cardinales au nombre de 3, l'antérieure est le plus souvent bifide. . . . l'aréa du ligament de forme aplatie et portant de nombreuses rainures parallèles. Ces rainures du cartilage se suivent sur 2 côtés de la coquille.

Hinge without teeth; ligament area broad and grooved parallel with hinge line.

Muscle scars

Three small deep muscle scars beneath umbo, posterior scar long and shallow, elongate parallel with posterior margin of shell.

Surface sculpture

Test lisse marqué de stries concentriques et appelant celui de la *Lima gigantea*

Surface smooth with concentric striae.

From what was demonstrated above it is evident that the mentioned genera differ from our form in the following features:

Ambonychia Hall 1847 in having an equivalve shell, and not having an anterior adductor.

Cyrtodontopsis Frech, 1891 in the equivalve shell and in the different hinge apparatus consisting of six teeth in the right valve, five teeth in the left valve, and two parallel lateral teeth in both valves.

Gosseletia Barrois, 1882 has an equivalve shell and a hinge consisting of three cardinal teeth, the anterior one usually being bifid.

Myalina de Koninck, 1842 lacks teeth.

It is therefore evident that our form differs in some prominent systematical characters from each of the mentioned genera and is consequently considered a new genus for which the name *Boiomytilus nov. gen.* is proposed.

Boiomytilus nov. gen.

Genotype: *Boiomytilus newelli nov. spec.*

Derivatio nominis: The name formed by the connection of the generic name *Mytilus* and the Latin name of the country (*Boiohaemum = Bohemia*).

Stratum typicum: Upper Koněprusy Limestones, Pragian (Lower Devonian)

Locus typicus: Central Bohemia

D i a g n o s i s: Outline of mytiloid character, left valve more convex, beaks terminal, prosogyrate, the beak of the left valve overtopping slightly that of the right valve. In the left valve are two small subpyriform teeth, the first of which is larger than the second, in the right valve there is only one tooth. Lateral teeth lacking. Above the cardinal teeth close beneath the nuclear portion of the beak a subcircular ligamental pit is situated, which is deeper in the left valve. Besides this pit a longitudinally grooved ligamental area is present in the form of a narrow lanceolate groove, V-shaped in the cross section. The anterior adductor scar is in both valves minute, subcircular, situated on a special supporting listel projecting from the anterior inner side of the valve and lying below the level of the hinge plate. The posterior adductor scar is large and situated near the posterior margin. The

pallial line is not visible. The surface sculpture consists of irregular growth plates. Remarks and Relations: Being sufficiently discussed in the introduction, we refer to it.

Occurrence: Upper Koněprusy Limestones, Pragian, (Lower Devonian), Central Bohemia

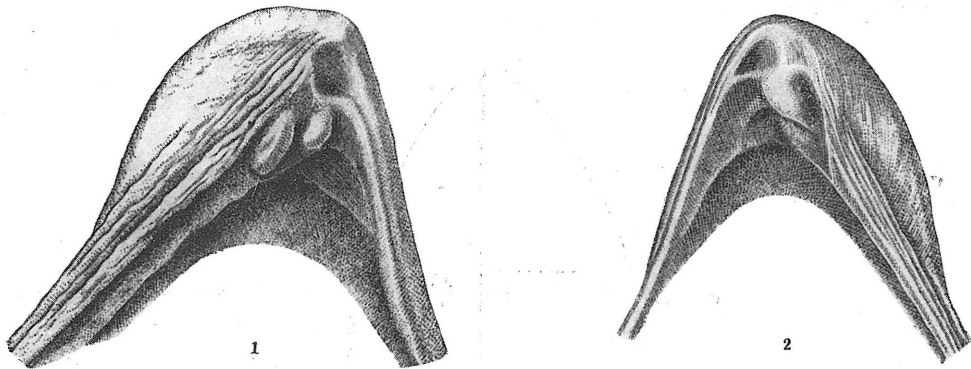


Fig. 1 — *Boiomytilus newelli* nov. spec.—hinge view of the holotype (left valve).

Fig. 2 — *Boiomytilus newelli* nov. spec.—hinge view of the right valve.

Boiomytilus newelli nov. spec.

Holotype: By monotypy, the here designated left valve which is figured on pl. 1 as fig. 1a. The right valve of the same specimen is figured on pl. 1 as fig. 2.

Derivatio nominis: In honour of D. N. Newell, who greatly contributed to the investigation of modern system of paleozoic pelecypods.

Stratum locusque typicus: Upper Koněprusy Limestones, Pragian (Lower Devonian), Mt. Zlatý Kůň near Koněprusy, Central Bohemia.

Material: Right and left valve of the same specimen with the outline partly damaged.

Description: Holotype is an incomplete left valve of mytiloid shape. The hinge plate is narrow, long, subtriangular, arising directly from the dorsal line. It bears two cardinal teeth the first of which is larger than the second. The teeth are slightly convex, subpyriform, moderately elevated above the hinge plate. The posterior margin of the hinge plate is formed by a listel-like elevation, which, however, cannot be identified with a lateral tooth and which probably served for connecting both valves closer together, as it fitted into a narrow groove of the opposite valve. Above the cardinal teeth, close beneath the umbo, a rather deep subcircular pit is situated, the bottom of which slopes down to the anterior margin of the valve. We suppose that it is a ligamental pit. The anterior valve margin is narrow, with a minute furrow for the insertion of the inner margin of the opposite valve. Deep under the hinge line a listel runs from the anterior inner part of the valve, serving as insertion of the small subcircular anterior adductor. The posterior adductor scar is large and contiguous with the dorsal margin of the valve.

Ligamental area bears furrows, some of which run almost from the umbonal portion of the valve. A great part of the free margin is broken off. The valve is considerably thick.

The surface is convex, the maximum convexity line being sigmoidal, the umbonal portion being emphasized by the slope in the anterior part of the valve and by a shallow depression in the posterior part of the valve, which accents the alate character of the posterior part of the valve. Beak is terminal, prosogyrate. Surface sculpture consists of irregular concentric plates and the lower layer of the valve matter shows reticulate sculpture.

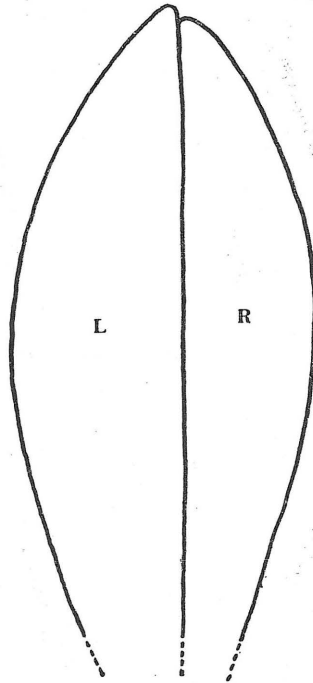


Fig. 3 — *Boiomytilus newelli* nov. spec.—both valves in the biological position: L — left valve, R — right valve.

The opposite valve is evidently less convex, the hinge consists of only one cardinal tooth and two pits for the teeth of the left valve. The impression of the ligamental pit is shallower here than in the holotype. The beak is smaller in this valve and is partly overtopped by the beak of the left valve. In the remaining features this valve corresponds to the holotype.

When placing both valves into the natural biological position the ligamental area appears in the form of a narrow, lanceolate groove, V-shaped in the cross section, the angle of the V being about 60 degrees.

Remarks and Relations: The described specimen suggests to a certain degree some species of *Gosseletia*, viz. *Gosseletia devonica* Barrois, 1882 and *G. schizodon* Frech, 1891. The difference between the described form and the mentioned species will be most evident from the following comparison of the original diagnoses:

General shape

Espèce de grand taille et de forme triangulaire.

Hinge

Les dent cardinales s'éloignent du crochet à mesure que l'aréa s'étend davantage. La charnière est remarquable par le développement de l'aréa ligamentaire le nombre des rainures parallèles du cartilage varie dans des proportions étonnantes.

Un autre observation curieuse s'est que les rainures du cartilage creusées sur l'aréa si bien délimitée du bord postérieur, peuvent parfaitement se suivre sur le bord antérieur de la coquille.

. . . . vier Schlosszähne, von denen der vordere divergiert, während die übrigen parallel angeordnet sind. Der am weitesten nach hinten liegende Zahn besteht aus einer einfachen niedrigeren Liste. Von den übrigen Zähnen spalten sich auf der Unterseite kleine Nebenzähnen ab, und zwar beobachtet man an dem ersten Zahn zwei, an dem zweiten und dritten je einen Nebenzahn. Seitenzähne sind nicht sichtbar.

Muscle scars

Der tief eingesenkte vordere Muskeleindruck ist halb so gross wie bei dieser Art (*Gosseletia alta*).

Surface sculpture

Test lisse, orné de stries concentriques d'accroissement, rappelant celles des grandes *Limes* et des *Inocerames*. Les parties du test parfaitement conservées montrent en outre de petites stries rayonnantes, superficielles, sur le côté postérieur.

Die Oberfläche ist mit concentrischen Anwachsstreifen bedeckt

Furthermore, *Boiomytilus newelli* nov. spec. suggests on first sight several specimens designated by J. B a r r a n d e (1881) with the cumulative name *Mytilus*. A more detailed study of the external habitus of these forms, however, will show that they are not conspecific with our new species.

Conclusion

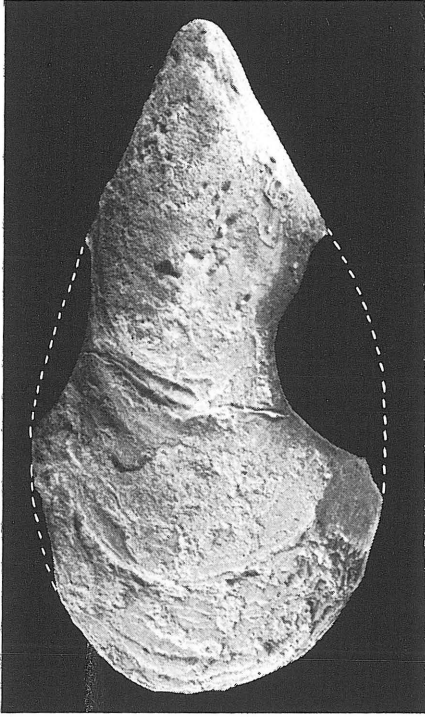
We have already stated in our study (H a j k r—R ů ž i č k a—P r a n t l, 1961) that we did not succeed, on the basis of the outlines of all forms included by J. B a r r a n d e (1881) in the cumulative name *Mytilus*, in ascertaining the biometrical criteria which would enable an objective determination of individual species. Therefore, we cannot exclude the possibility of many of these specimens as well as similar forms reported from other localities belonging to our new genus.

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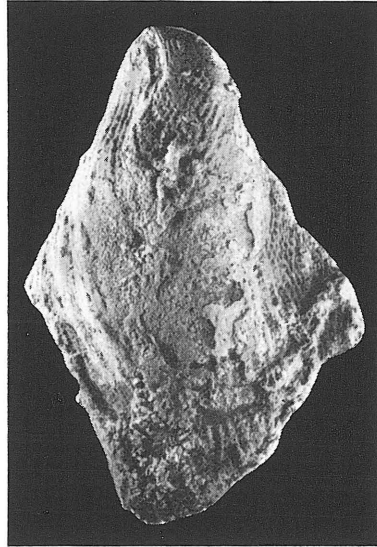
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Explanations of Plate I.

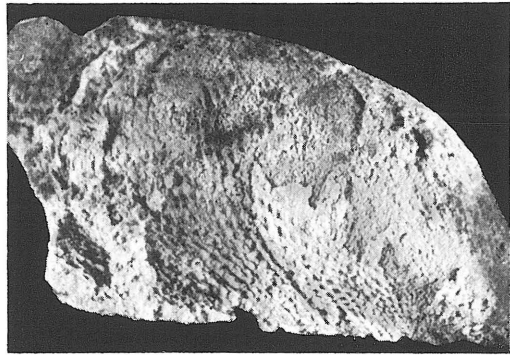
- Fig. 1a: *Boiomytilus newelli* nov. spec. Hinge view of the holotype (left valve). *a* = anterior adductor scar, *p* = posterior adductor scar (owing to the damaged valve only partly visible). $\times 1,5$
- Fig. 1b: *Boiomytilus newelli* nov. spec. View of the surface. $\times 1,5$
- Fig. 1c: *Boiomytilus newelli* nov. spec. Enlarged view of the surface sculpture of the posterior part of the valve.
- Fig. 2a: *Boiomytilus newelli* nov. spec. Hinge view of the right valve. *a* — anterior adductor scar. $\times 1,5$
- Fig. 2b: *Boiomytilus newelli* nov. spec. View of the surface.



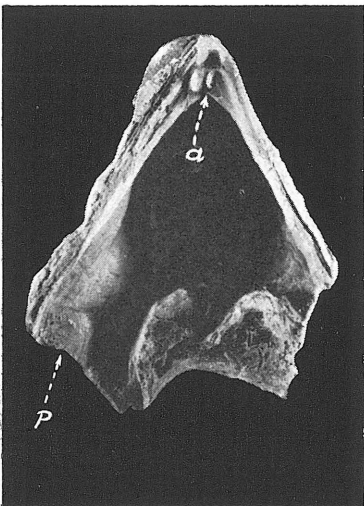
2b



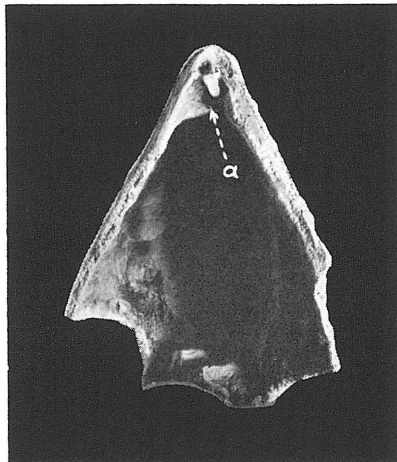
1b



1c



1a



2a