

Myalinidae from the Jurassic of New Zealand.

A New Genus and a New Species.

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Plate 71.

Aucella plicata Zittel. (Plate 71, figs. 7, 8, 9.)

1864. *Aucella plicata* Zittel, *Reise der "Novara,"* Geol. Th., 1 Bd., 2 Abt., p. 32, pl. 8, figs. 4 a, b, c.

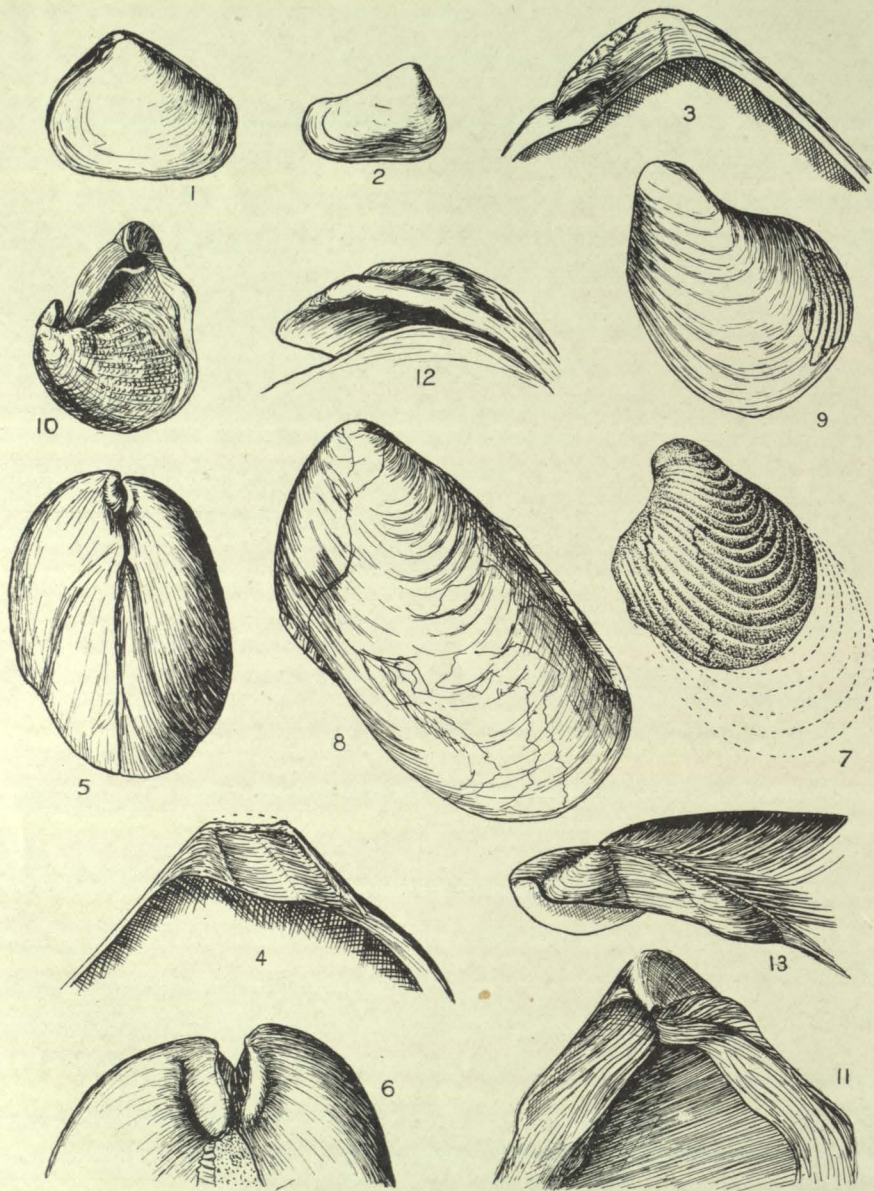
1911. *Aucella plicata* Zittel: Boehm, *Neu. Jarb. f. Min., Geol., u. Pal.*, Bd. 1, p. 11.

The Jurassic rocks of New Zealand contain several species of *Aucella*, one of which, *A. plicata*, was described by Zittel from specimens collected at Waikato South Head by Hochstetter. Many years later Suter collected fossils for G. Boehm from the shores of Kawhia Harbour. Among these were specimens of a small *Aucella* with well-marked radial ribs from Kowhai Point and "Captain King." Boehm classed these under *A. plicata*, stating that the original of Zittel's figure also showed definite radials. Still, he was by no means certain that the Kawhia shells were conspecific with the Waikato ones, for he says (1911, p. 13), "Es bleibe dahingestellt, ob diese Vereinigung aufrecht zu erhalten ist und ob sich spaeter nicht mehrere verschiedene Spezies ergeben werden. Warum eilt denn derartige so sehr?" His principal object was to prove that a true *Aucella* did occur in New Zealand, for Pompeckj had expressed doubt on the matter; consequently he was not greatly concerned with the finer specific divisions of his material.

Trechmann (1923, p. 265), who collected at Kawhia and had material sent to him from Waikato, stated definitely that his specimens from the former place (Kowhai Point) were specifically different from those of the latter. With considerable hesitation he accepted Boehm's Kawhia specimens as the true *A. plicata*, and placed the Waikato ones under *A. spitiensis* Holdhaus and *A. spitiensis* var. *extensa* Holdhaus. A comparison of Zittel's figures with specimens from Kawhia Harbour or with Boehm's and Trechmann's excellent figures does not bear out this conclusion.

The arrangement of the concentric ornamentation on Zittel's figure 4a shows that a great portion of the posterior and ventral regions of the shell is missing. The original outlines must have been somewhat like that indicated in Plate 71, fig. 7. In size and shape this is well matched by specimens collected by Dr. J. Henderson from conglomerates at Waiharakeke Bridge, Kawhia Survey District, and Mangati Valley, Whaingaroa Survey District (Plate 71, figs. 8, 9). The original of fig. 8 has a narrow beak, but it is strongly incurved like the others, and so is concealed when the shell is in a position to show its maximum length.

Of several hundred specimens in Geological Survey collection 267, Waikato South Head, none resembles the short, thick Kawhia shell, nor did



FIGS. 1, 2.—*Pseudaucella marshalli* (Trechmann), $\times 1$.
 FIGS. 3, 4.—Right and left hinges of *P. marshalli*. $\times 4$. Original of fig. 4 has hardly any ear, but the groove can be seen.
 FIG. 5.—Front view of fig. 1. $\times 2$.
 FIG. 6.—Front view of another specimen. $\times 4$.
 FIG. 7.—*Aucella plicata* Zittel; after Zittel; dotted lines added.
 FIGS. 8, 9.—*Aucella plicata* Zittel; Mangati Valley; internal casts with fragments of shell adhering. $\times 1$.
 FIG. 10.—*Aucella boehmi* n. sp; holotype. $\times 1$.
 FIG. 11.—*Aucella boehmi*. Left valve of holotype seen from below. $\times 3$.
 FIG. 12.—*Aucella boehmi*. Hinge of right valve seen from front, showing concave ear with ligamental area above. $\times 4$.
 FIG. 13.—*Aucella boehmi*. Same seen from above. $\times 4$.



Marshall or Bartrum find such a form there. All are close to the type figured by Trechmann (1923, pl. 14, figs. 5, 6, 7), who, moreover, mentions (1923, *cit.*, p. 268) "two left valves and a right valve of a form indistinguishable from *A. blandfordiana* Holdhaus." This is significant in view of Holdhaus's statement (1913, p. 405) that he had seen the types of *A. plicata* and considered the species "very closely allied to *A. pallasii* and *A. blandfordiana*."

The matrix of the Waikato South Head fossils is an argillite, and the left valves are more or less distorted owing to shrinkage of the beds on the expulsion of contained water. Their original shape must have been very like that of the Mangati shells (Plate 71, figs. 8, 9), which, being in a conglomerate, were not deformed. The shells compared by Trechmann with *A. blandfordiana* are therefore probably typical *A. plicata*, and the narrower forms varieties. Whether these are identical with any of the Spiti species is difficult to say; but they should be listed as *A. plicata* or varieties of it, for, of course, that specific name has priority.

The species from Kawhia Harbour therefore requires a name, so *Aucella boehmi* n. sp. is proposed for it.

Aucella boehmi n. sp. (Plate 71, figs. 10–13.)

1911. *Aucella plicata* Zittel: Boehm, *Neu. Jahrb. f. Min., Geol., u. Pal.*, Bd. 1, p. 13, pl. 2, figs. 1, 2 a-c, 3 a, b; 4 (not of Zittel).

1923. *Aucella plicata* Zittel: Trechmann, *Q.J.G.S.*, vol. 79, p. 266, pl. 17, figs. 4–8 (not of Zittel).

Shell small, inequivalve, thick, obliquely ovate; inflation variable. Left valve moderately to greatly inflated; beak narrow, strongly incurved and twisted, anterior end short, straightened, descending; ventral margin straight and oblique in front, then curving regularly to meet posterior margin, which is convex below, straightened and oblique above; dorsal margin short and straight or lightly convex, meeting posterior margin in blunt angle. Right valve flattened with long, strong anterior ear partly supporting ligamental area and with deep concavity facing left valve forming byssal notch in outer upper margin of ear. Sculpture of narrow concentric bands slightly raised along outer margin, and bearing fine radial ribs. Hinge edentulous. Ligamental area fairly broad, extending from the beak posteriorly, slightly concave in left valve but with no central pit or depression; in right valve area is well marked, bounded on posterior side by narrow ridge, raised in a rounded ridge on anterior ear; centre of area traversed by well-defined though shallow triangular ligament-pit.

Holotype (a complete individual) in collection of New Zealand Geological Survey.

Maximum height (left valve), 25 mm.; maximum breadth, 18 mm.; inflation, 11 mm.

Locality.—1193, point west of Waikiekie Stream, Kawhia Harbour.

A shell figured by Broili (1924, pl. 2, fig. 10) as ?*Pseudomonotis* sp. from the Oxford of Vogelkop, north-west New Guinea, has a strong resemblance to flat variations of *A. boehmi*. The radials, however, are more spaced on the New Guinea shell.

PSEUDAUCELLA n. gen.

Shell rather small, triangular, equivalve, inflated, bent quickly inwards near margins. Beaks anterior. Escutcheon long, broad, concave. Lunule

shallow, without definite boundary. Ventral margin generally concave. Each valve has a narrow anterior ear separated from lunule by a groove; ear of left valve of variable size, formed by thickening of margin; ear of right valve somewhat larger, groove deeper, and with small notch byssal in margin. Surface smooth except for some prominent concentric growth-stages towards margin. Hinge edentulous. Ligamental area of moderate size, obliquely triangular to trapezoid, with a broad often ill-defined central pit. Muscular impressions not visible in any of the specimens. Valve-margins thin, smooth.

Type: *Aucella marshalli* Trechmann. (Plate 71, figs. 1-6.)

Trechmann (1923, p. 269) recognized the unusual characters of this shell, and thought it probably represented a new genus, perhaps related to his *Hokonua*. Additional material collected from Kawhia by Henderson and Grange throws further light on these peculiarities, and confirms Trechmann's opinion that a new generic division is required. The anterior ear of the right valve is but little stronger than that of the left, and so is not nearly so specialized as that of *Hokonua* or *Aucella*. The size of the left ear is, however, more variable than that of the right; occasionally it is scarcely developed.

There is little or no difference in the inflation of the valves, apparent inequalities of one or the other being due to accidents of pressure during fossilization. The shape is extremely variable, and, as there is generally considerable deformation due to rock-changes, the original outline is difficult to make out. Most of the specimens have beaks about the anterior fourth, a strongly concave escutcheon, and a concave ventral margin; some, however, have almost median beaks, a shallow escutcheon, and straight ventral margin. From its occurrence uniformly low in the Jurassic strata this shell is most useful as a zone-determiner.

Localities.—1191, 1195, 10 chains south along coast from Ururoa Point, Te Maika Peninsula, Kawhia Harbour; Awakino Valley (Henderson and Ongley, 1923, p. 20); north of Sandy Bay, Nugget Point (Trechmann, 1923, p. 269).

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