

Atlantobellerophon, a New Gasteropod from the Rhaetic of New Zealand.

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PLATE 25.

UNDER the name *Atlantobellerophon Zealandicus* I propose to record the occurrence of a unique Bellerophon-like presumably Heteropod mollusc from the Upper Trias or Rhaetic of New Zealand.

The specimen is an indifferently preserved cast in a matrix of coarse greenish almost conglomeratic greywacke or Felspathic sandstone. The rock contains in addition several specimens of the Spirigerid Brachiopod *Clavigera* (or *Hectoria*).

Atlantobellerophon Zealandicus gen. et sp. nov. Fig. 1.

Description.—Shell of large size, has apparently been coiled in a flat plane but the early whorl is now rather twisted and distorted by movements in the rock. Whether the apex or protoconch was at all unsymmetrically placed cannot now be seen. The shell seems to have been everywhere very thin but no trace of it remains owing to its having been completely dissolved away, though the test of one of the Brachiopoda in the same mass is still partially preserved. No trace of early whorls nor of the young shell is visible; the first part of the body chamber is bent in a semicircular curve, the sides are flattened or gently rounded, the dorsum is well rounded.

The inner surface slopes gently down to the umbilical depression which appears to have been small and fairly deep but is now filled up with matrix. Towards the aperture the shell tends to uncoil and straighten out and to detach itself from the earlier whorl and rapidly widens out forming a flaring aperture.

The dorsal surface carries a slightly raised scar with a shallow groove on either side representing a slit that has been filled up as the shell grew, measuring 5 or 6 mm. in width. This slit band gradually becomes higher and more prominent as it passes towards the aperture, near which it seems to have become a slightly raised crest or ridge rather like that of *Atlanta*.

At the aperture the rim of the left-side of the shell, the only side preserved, has the appearance of a broad and wide flap of curved outline bent slightly outwards towards the umbilical side and very deeply cut down on the dorsum where a deep triangular gradually narrowing slit occurs till it meets the filled in slit band or ridge. No trace of surface decoration can be seen so the shell may have been smooth as well as very thin. There are irregularities on the surface which may in places represent growth-lines but most of them are due to accidents of fossilization in the coarse matrix. The



Photograph of specimen of *Atlantobellerophon Zealandicus* gen. et sp. nov. About two-thirds natural size. Dorso-lateral view.

From the Rhaetic of Eighty-eight Valley, Nelson, New Zealand. At X is a specimen of *Clavigera (Hectoria) bisulcata*.



right side of the specimen is damaged and obscured and the early part seems to have been crushed in.

Dimensions.—Length 117 mm., width 78 mm., thickness of early whorl 36 mm., width of aperture about 84 mm.

Horizon and Locality.—Locality 197 of the early New Zealand Geological Survey collections. Spiriferina beds, Eighty-eight Valley, Waimea County, Nelson, South Island, New Zealand. "Lias or Rhaetic," collected many years ago by Mr. A. McKay.

The Brachiopods in the matrix of the specimen appear to be *Clavigera* (*Hectoria*) *bisulcata** Hector sp. MS. I ventured to re-name the genus *Clavigera* and call it *Hectoria* a few years ago but it seems to me better now to retain the old name *Clavigera* as later

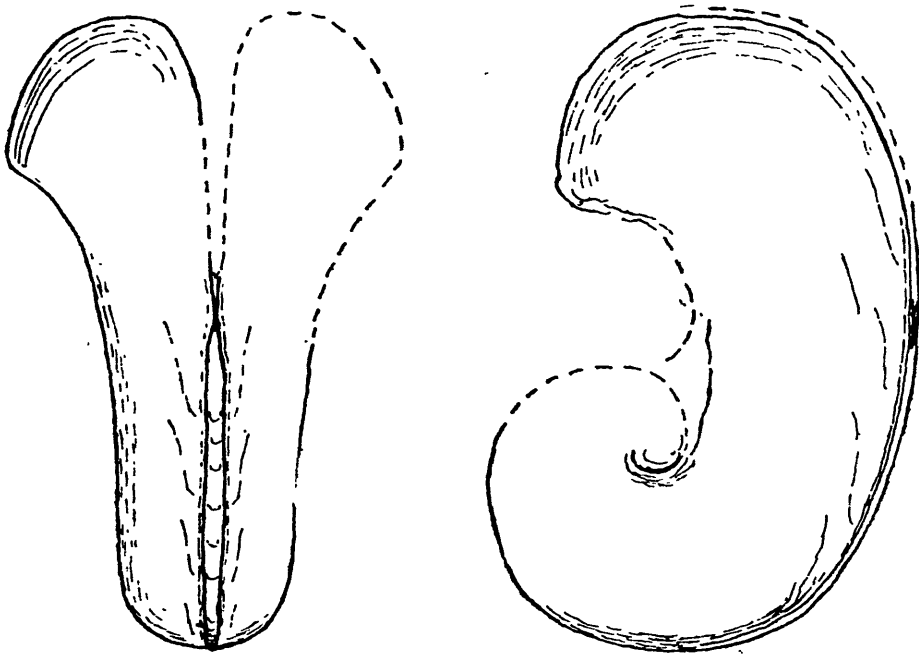


FIG. 1.—*Atlantobellerophon Zealandicus* gen et sp. nov.
Rhaetic, Eighty-eight Valley, Nelson, New Zealand.
Attempted restoration, dorsal and lateral view $\times \frac{1}{2}$.

writers have done. McKay notes this locality as Lias or Rhaetic but to me the matrix resembles more that of the Trias than the Lias. The *Clavigera* in it is more like the Rhaetic *C. bisulcata*, very common in the higher beds at Nugget Point, than the smaller and more slender *C. cuneiformis* Trechm. which occurs in the Jurassic. It is questionable whether *C. bisulcata* occurs in the Carnic or Noric.

*Trechmann. Trias of New Zealand. *G.J.G.S.* vol. 73, pt. 3, 1918, p. 235, Pl. 25, Figs. 1a and b; O. Wilckens: Contrib. to Pal. of N.Z. Trias. *N.Z. Geol. Survey, Pal. Bulletin*, No. 12, 1927, p. 31, Pl. 6, Figs. 6, 7 and 8a and b.

The so-called Rhaetic of New Zealand appertains rather to the Trias than to the Jurassic series of beds.

Affinities.—Whether the extinct Bellerophontidae are in any way related to the living genus *Atlanta* is a matter that may never be settled. *Atlanta*, though a very small shell, is wound in a flat spiral with the protoconch projecting obliquely on the left side; the last whorl has a high and sharp median keel which becomes a deep slit towards the mouth. The present New Zealand fossil has a very thin shell, a deep slit like that of *Atlanta* and a slit band which seems to have turned into a sharp keel towards the aperture rather like the keel of *Atlanta*. As it seems to be a new genus perhaps the name *Atlantobellerophon* though cumbersome may not be inappropriate.

DISCUSSION OF ALLIED FOSSIL FORMS.

Tremanotus maideni Etheridge.* Fig. 2.

A curious and unique somewhat analogous shell is recorded from the Hawksbury sandstone of Australia. It is another of the very rare, presumably pelagic molluscs of the Mesozoic. It is quite different, however, from the New Zealand Rhaetic form. Sir T. W. E. David, F.R.S., referring to the *Tremanotus* says "this Silurian genus on a Triassic horizon may represent either a remarkable survival, or it is possible that the fossil may be an erratic in this formation." The following is a description of the species copied from the original report:—

Shell discoidal, strongly trumpet-shaped, thin, whorls five or more, visible on both sides, elliptical in section, the last one sub-angular at the sides, but the inner whorls with the flanks much more rounded; apertural expansion much prolonged upwards, but not greatly expanded laterally; the anterior and outer lip reflected backwards, and the slit if present not visible from the imperfection of preservation; inner lip apparently not much reflected, siphonal openings numerous, close together, oval and situated on rather raised, oblong prominences which give to the periphery a rather broken keeled appearance; surface of shell ornamented with spiral fluctuating lines parallel to the dorsal keel, which on the expanded outer lip becomes coarser and more plait-like. Length 4 inches, breadth 2 inches. This unique shell is quite distinct from either of the Gotland species, but is nearer to *T. alpheus* Hall or *T. angusta* Hall as figured by Billings, agreeing with the former especially in the broad plait-like ribbing on the back of the outer lip and the apparent absence of much lateral expansion of the same.

Locality.—The new Government Docks, Biloela, Sydney; Hawksbury Sandstone, at a depth of 25 feet from the surface. The fossil is surrounded by a matrix of Limonite, such as arises from decay of organic matter.

**Mem. Geol. Surv. New South Wales, Palaeont. No. 1, 1888, pp. 15-18; Ann. Rep. Dep. Mines New South Wales for 1886 (1887) pp. 174-6, Figs. 1-3; Sir T. W. E. David, F.R.S., Brit. Assoc. Handb. Australia, 1914, p. 276.*

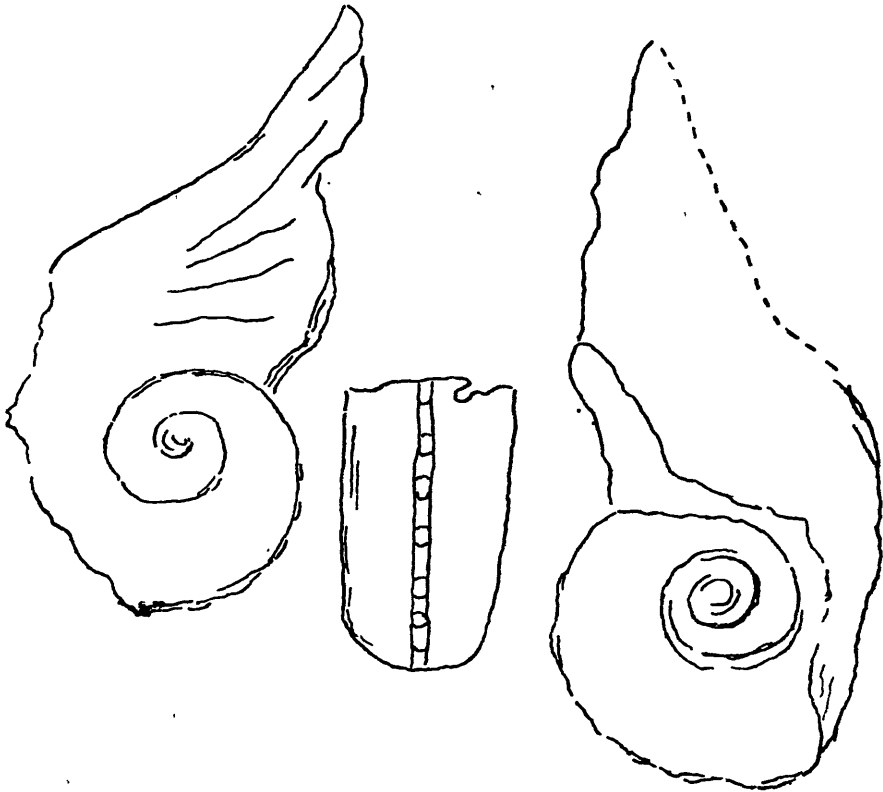


FIG. 2.—*Tremanotus maideni* Etheridge, Hawkesbury Sandstone, Sydney, Australia. A sketch of the original figure.

Bellerophon peregrinus* Laube

This is a small species more resembling the Palaeozoic *Bellerophons* and comes from the Lower Trias, lower than the well-known St. Cassian Fauna. It is said to be globose, with a dilated aperture a wide and large fissure and a closed narrow umbilicus.

***Bellerophon dilatatus* † Sowerby.**

This large species comes from the Lower Ludlow formation, Upper Silurian; the shell is discoid, smooth, with widely umbilicated sides, the aperture is suddenly dilated and is represented as complete or orbicular in outline.

***Bucania cornuarietis* J. de C. Sowerby.**

Bucania was established by Professor J. Hall, of Albany, to include several species of shells of a peculiar form usually referred to *Bellerophon* but differing from them in having all the volutions visible and gradually increasing in size. *Bellerophon cornuarietis* of the Carboniferous Limestone of England will fall into this group.

**Fauna der Schichten von St. Cassin*. 1865, p. 64, Pl. 28, Figs. 11-12.

†*Murchison Silurian System*, 1839, p. 627, Pl. 12, Fig. 23.