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PALÆONTOLOGIA NOVÆ CAMBRIÆ
MERIDIONALIS—OCCASIONAL DESCRIPTIONS OF
NEW SOUTH WALES FOSSILS—No. 6.¹

By R. ETHERIDGE, JUNR., Curator.

(Plates xl.-xli.)

I.—MOUNT WILSON WELL “MUSSELBAND.”

(Plate xli., figs. 1-3).

At Mount Wilson, on Dunlop Holding, about thirty miles north-west of Dunlop Homestead, Darling River, a well was sunk previous to 1881, to a depth of about five hundred feet, as a means of water supply. In 1903 I visited the locality and found the surrounding spoil heaps in a great measure composed of a blue calcareous mudstone. This matrix is crammed with broken valves and shell fragments of a small bivalve, so plentiful as to almost form a “musselband,” and certainly a good “horizon-indicator” in this portion of our Lower Cretaceous.

When first sunk, water was struck at four hundred and eighty-eight feet in this well in greensand and conglomerate beds.² The strata assigned to the Cretaceous were first met with at a depth of one hundred feet from the surface, consisting of a hard blue clay with shells, pebbles and petrified wood.³ This deposit is no doubt the same as met with in Kapiti Well, No. 2, on Dunlop Holding, about twenty miles west of Mount Wilson, where the “hard blue clay” extended downwards to the three hundred foot level with one slight interruption.⁴

¹ For Nos. 1-5 see Records of the Geological Survey of New South Wales.

² Wilkinson—Ann. R. Dept. Mines N.S. Wales for 1881 (1882), p. 133.

³ Brown—Albert Gold Field—Artesian Water (Report, etc.), *Notes and Proceedings N.S. Wales*, 1881, iii., No. 427-A, p. 725.

⁴ Wilson—Albert Gold Field—Artesian Water (Further Papers) *Notes and Proceedings N.S. Wales*, 1881, No. 448.

The occurrence of fossils in these beds was first reported by Mr. H. Y. L. Brown, the known thickness then being four hundred feet.⁵

The characters of the shell so freely dispersed in this deposit are unfortunately, with two exceptions indefinite. In outline it is transversely oblong, not unlike some compressed *Tellinæ*. The valves were closed and generally compressed, with an apparent absence of anterior and posterior slopes, the anterior ends rounded and the posterior slightly subtruncate. I cannot detect any trace of hinge teeth, and am therefore constrained to regard the shell as edentulous. Both the adductor scars are faint, and appear to be much elongated. The two more definite features, previously referred to, are the rugged exterior, and the papilose nature of the test interior on the sub-umbonal region. The coarse concentric laminæ of the exterior succeed one another with rapidity, but at irregular distances; fragments can at once be recognised by these features.

My inability to refer this shell with certainty to any genus of bivalves occurring in the Queensland Cretaceous System, or in the Australian for the matter of that, is to be regretted because I feel assured that could the "Journal" of the Mount Wilson Well boring be consulted this mollusc would be found to indicate, or mark, an horizon, just as readily and emphatically as does an equally obscure little bivalve I described from southern Queensland as *Pachydomella chutus*,⁶ and for a similar purpose.

As a matter of fact, I can see very little difference, with the limited information at my disposal, between the present bivalve and that just referred to, with the exception of that of outline and size. As *P. chutus* was coined in a great measure as an aid to the field surveyor, so in this instance I suggest the name of *P? piesta*.⁷

⁵ Brown—*Loc. cit.*, p. 725.

⁶ Etheridge—*Rec. Austr. Mus.*, vi., No. 5, 1907, p. 325, pl. lxii., figs. 4-8.

πιεστος—that which is pressed.

II.—AN ADDITIONAL ANNELID JAW FROM THE UPPER SILURIAN OF BOWNING.

(Plate xli., fig. 4).

A particularly interesting Annelid jaw was entrusted to me by Mr. John Mitchell, from the rich fossiliferous beds of Bowning. It is quite distinct from any of those hitherto described from Australian strata, and adds a further genus of Errant Annelids to the Australian list.

In 1879 Dr. G. H. Hinde proposed the genus *Staurocephalites* for "jaws of more or less elongated, compressed, denticulate plates, resembling those of the existing genus *Staurocephalus*, Grube."⁸ Dr. Hinde's likened-name is particularly unfortunate because *Staurocephalus*, Grube, 1853, was antedated as a genus of Trilobites by Barrande at least nine years before, in 1846. However, there the name is, and as *Staurocephalites* must be used.

The little jaws for which Dr. Hinde proposed this name are ribbon-like, and may be best compared to a fret-saw blade.

The two Bowning jaw-plates are linear, long, flattened, narrow, particularly delicate and black in colour, both about six millimetres in length. The slightly longer of the two has about twenty-six teeth, the shorter about twenty-two. These teeth are exceedingly minute, acicular, separate from one another, not inclined, but at right angles to the ribbon itself, and of uniform size; the height varies from 0.21-0.27 mm.

These minute objects are quite distinct from both of Hinde's species, *S. niagarensis*⁹ and *S. serrula*,¹⁰ in that they are (if perfect) uniformly linear, and no evidence of narrowing from before backwards. They are also acicular-toothed instead of triangular as in *S. niagarensis*, or short and rounded like those of *S. serrula*.

It is proposed to term this form *Staurocephalites grammoides*.¹¹

⁸ Hinde—Quart. Jour. Geol. Soc., xxxv., 1879, p. 383.

⁹ Hinde—*Loc. cit.*, xxxv., 1879, p. 383, pl. xx., fig. 1.

¹⁰ Hinde—*Loc. cit.*, xxxvi., 1880, p. 376, pl. xiv., figs. 18-20.

¹¹ γραμμῆ—a line.

III.—PELECYPODA FROM THE PERMO-CARBONIFEROUS OF
BUNDANOON.

Genus Diaphragmella,¹² *gen. nov.*

Gen. Chars.—Shell elongately pteriniform, left valve convex; cardinal margin provided with ligamental furrows, and a few cardinal teeth, but no lateral lamellæ; clavicle oblique, inconspicuous; adductor scar very small, but deep, high in position.

Obs.—A remarkable form with the outward appearance of an oblique *Merismopteria*, but with a small oblique clavicle in front of the anterior adductor scar in the place of a strong one at right angles to the cardinal margin. There is an excavate ligamental area as in *Merismopteria*, but no diverging lateral lamellæ; there are one or two cardinal teeth slightly anterior to the umbos, which do not exist in *Merismopteria*, situated above the highly placed anterior adductor, quite on a par with the structure of *Pterinea*, but again is to be noted the absence of lateral dental lamellæ. On the other hand, there is a resemblance to *Pterinea* in the convexity of the left valve, and were the test preserved, strong radiating costæ.

Diaphragmella merismopteroides, *sp. nov.*

(Plate xl., figs. 1-2).

Sp. Chars.—Shell (cast) elongately and obliquely pteriniform; cardinal margin less than the width of the shell; ventral margin well rounded; anterior end proper very small and lobe-like, the margin strongly insinuate downwards; posterior auriculation flattened. Umbonal region long, narrow, convex and elevated, the umbo apparently slender and acute; cardinal teeth very slightly in advance of the umbo. Anterior adductor scar immediately under the cardinal margin, placed obliquely.

Obs.—This appears to be a remarkable modification of the *Merismopteria* type, and might easily be mistaken for the latter on casual observation.

¹² Diminutive of *διάφραγμα*, a partition.

Genus Modiomorpha, J. Hall and Whitfield, 1869.

(Prelim. Notice Lamellibranc Shells, 1869, p. 72).

Obs.—This is chiefly a Devonian genus, but occurs to a slight extent in the American Carboniferous. Mr. F. Chapman has recognised it amongst Silurian fossils in Victoria,¹³ and if our respective determinations prove correct, the range of the genus in time is much extended.

Modiomorpha mytiliformis, Eth. fil.

(Plate xl., fig 3).

M. mytiliformis, Eth. fil., Geol. Pal. Q'land, 1892, p. 273,¹⁴ pl. 14, fig. 5, pl. 38, figs. 12 and 13 (non pl. 41, fig 4).

Obs.—I believe this to be the *M. mytiliformis* of the Middle Bowen Series of Queensland, and if so, strengthens the separation already made from both the smaller figures of McCoy's *Modiola crassissima* and *M. (Cypricardia) imbricata*, Dana.

All I can differentiate between the specimen and my quoted figures is that the anterior margin in the former is even straighter than in the latter.

The concentrically ribbed anterior adductor scar is visible.

Genus Glyptodesma, J. Hall, 1883.

(Pal. New York, v., pt. i., Plates and Explanations, 1883).

Glyptodesma (?) bundanoonensis, sp. nov.

(Plate xl., figs. 4 and 5).

Sp. Chars.—Shell (left valve cast) large, sub-quadrangular, slightly oblique; cardinal margin straight, the ventral

¹³ Chapman—Proc. R. Soc. Vict., xxi. (N.S.), pt. i., 1908, p. 224.

¹⁴ In describing this species on page 273, I committed an error in the twenty-fourth line by using the word "latter," which should have read "former." The corrected sentence will, therefore, be:—"This shell is very like the smaller figure of McCoy's *Modiola crassissima*, but not the larger one, and may even be the former."

gradually rounded. Anterior end very small and lobe-like, the margin proceeding therefrom practically straight, rounding below into the ventral; anterior slope nearly vertical. Posterior end constituting nine-tenths of the entire valve, divisible into the body and wing; the former in the umbonal region, is high, prominent, narrow above, gradually expanding and becoming flattened downwards; the latter is large, flat transversely, but gently convex in sections from above downwards. Umbo (defective) apparently acuminate, inclined forward and projecting above the dorsal margin. Ligamental area very finely grooved; lower lateral tooth extends from just posterior to the umbo half way to the posterior margin, the superior commences at about half the length of the lower, terminating at the same point. Adductor scar longitudinally oval, situated partly on the posterior wing and partly on the umbonal slope; sculpture unknown.

Obs.—These imperfect casts indicate a form quite new to our Permo-Carboniferous fauna, and for which we have no receptive genus. With one exceptional feature they accord better with the characters of Hall's *Glyptodesma*, although a Devonian genus, than with those of any other known to me.

Like *Glyptodesma*, this Bundanoon fossil is aviculo-pterini-form, with a small auricular anterior end, a finely and continuously grooved ligamental area, two oblique lateral hinge teeth, a well-marked anterior adductor scar, and pallial muscle insertion pits. On the other hand our specimens lack the "irregular transverse plications along the cardinal margin," hence a note of interrogation after the generic name.

Genus Paracyclas, J. Hall, 1843.

(Geol. New York, pt. iv., 4th District, 1843, p. 171).

Obs.—*Paracyclas* has hitherto been regarded as a Devonian genus, but the elegant little shells (Pl. xl., figs. 6 and 7) so entirely conform to the characters of many species of *Paracyclas*, that I am constrained to use it for our Permo-Carboniferous species rather than propose a new name for what, after all, may turn out to be allied to one or other of the chaotic genera of Dana, McCoy or De Koninck.

Paracyclas (?) *obliqua*, *sp. nov.*

(Plate xl., figs. 6 and 7).

Sp. Chars.—Shell broadly elliptical, slightly oblique to the posterior; length considerably exceeding the breadth; valves equally convex, inclined to gibbosity in the centres. Cardinal margins less than the width of the shell, faintly arched; anterior, posterior, and ventral margins rounded; anterior and posterior slopes ill-defined; ligamental grooves (one in each valve) rather faintly marked and shallow. Concentric costæ remarkably regular, and in testiferous examples must have been prominent and strong, with traces of interlineations.

Obs.—The obliquity to the posterior distinguishes this from most of the American species. An Australian ally may be found in De Koninck's *Scaldia* (?) *lamellifera*,¹⁵ but our little shell is certainly not a *Scaldia*.

Genus [*Allorisma*], *King*, 1844 and 1850.

(*Annals Mag. Nat. Hist.*, xiv., 1844, p. 315; *Mon. Permian Foss. England*, 1850, p. 196).

In 1844, Prof. W. King proposed his *Allorisma* without naming a type, as a genus of *Pholadomyidæ*, both valves being furnished with a cartilage fulcrum elongated in the direction of the cardinal line; also described as edentulous, and the pallial line indistinct.

In the second definition published in 1850, the valves were said to articulate "by means (only) of an external cartilage," and the pallial sinus deep or shallow; *Hiatella sulcata*, Fleming, was named as the type species.

Without entering into a mass of historical detail, it is sufficient to point out that King's definitions are diametrically opposed to one another. An author cannot be allowed to play fast and loose, even with genera of his own proposing, without endless confusion arising, and such confusion has arisen, for no two authors use the name *Allorisma* in the same sense, one employs it in the sense of 1844, another in that of 1850.

McCoy claimed¹⁶ that, as originally defined *Allorisma* was, in part at least, the equivalent of his *Sanguinolites*; probably so, but those species included in the second definition of the

¹⁵ De Koninck—*Foss. Pal. Nouv. Galles du Sud*, pt. 3, 1877, pl. xv., fig. 7.

¹⁶ McCoy—*Brit. Pal. Foss.*, fas. ii., 1852, p. 276.

former are certainly not. Indeed *Sanguinolites* of 1844¹⁷ appears to have included a heterogenous assortment of forms, and is in some respects a synonym of *Edmondia*, De Koninck, 1842.

From 1844 to the present time, there has been a constant juggling with the name *Allorisma*, or *Allerisma*, as some spell it, and it is time it made way for a new name properly defined. One of the latest American writers, Mr. G. H. Girty uses¹⁸ the genus as of 1844, and even the careful and astute Waagen employed¹⁹ the name in an ill-defined sense, doubtful whether his species conformed to one or the other definition, although he does not say so in so many words. Even Mr. J. G. Goodchild's amended description²⁰ does not in every way suffice. This appears to be based on King's definition of 1850, and might have been used had Mr. Goodchild proposed a *nomen nudum* and named a type species.

[*Allorisma*] *passaloides*,²¹ *sp. nov.*

(Plate xl., fig. 8).

Sp. Chars.—Shell (cast) transversely oblong, very inequilateral; valves sub-compressed; cardinal margins long posteriorly, slightly arched; ventral margins straight medianally; anterior ends small but projecting, their margins sharply rounded, in all probability a shallow lunule present; posterior extended, end inclined to be nasute; diagonal ridge rounded and inconspicuous; posterior slope flattened. Exterior with concentric costæ, which were particularly strong on the anterior end and anterior-ventral portions of the valves.

Obs.—The ligament must have been wholly external, as there is no trace of any mechanism along the cardinal margins for its attachment. One other described shell, *Sanguinolites tenesoni*, De Koninck, is possibly congeneric with [*Allorisma*] *passaloides*; in the former the anterior end is much larger and the cardinal margin quite straight.

¹⁷ McCoy—Synop. Carb. Lime Foss. Ireland, 1844, p. 47.

¹⁸ Girty—Carboniferous Formation and Faunas of Colorado (*U.S. Geol. Survey Prof. Papers, No. 16, Series C, 1903*), p. 437.

¹⁹ Waagen—Salt Range Foss. (*Pal. Ind.*), i., pt. iii., 1881, p. 192.

²⁰ Goodchild—*Proc. R. Phys. Soc. Edinb.*, xi., pt. 2, 1893, p. 245.

²¹ πᾶσαλος—a peg.

EXPLANATION OF PLATE XL:

Diaphragmella merismopteroïdes, *Eth. fil.*

Fig. 1. Cast of left valve displaying impression of the oblique clavicle, anterior adductor, and external radii.—x 2 diam.

Fig. 2. Umbonal region and imperfect cardinal margin, with impression of the clavicle and teeth—x $2\frac{1}{2}$ diam.

Modiomorpha mytiliformis, *Eth. fil.*

Fig. 3. Internal cast of incomplete left valve.—x $1\frac{1}{4}$ diam.

Glyptodesma (?) *bundanoonensis*, *Eth. fil.*

Fig. 4. Internal cast of incomplete left valve, showing the insignificant anterior end, high prominent umbonal region, expanded posterior end, and ligamental furrows, etc.

Fig. 5. A similar specimen, with traces of the large adductor scar.

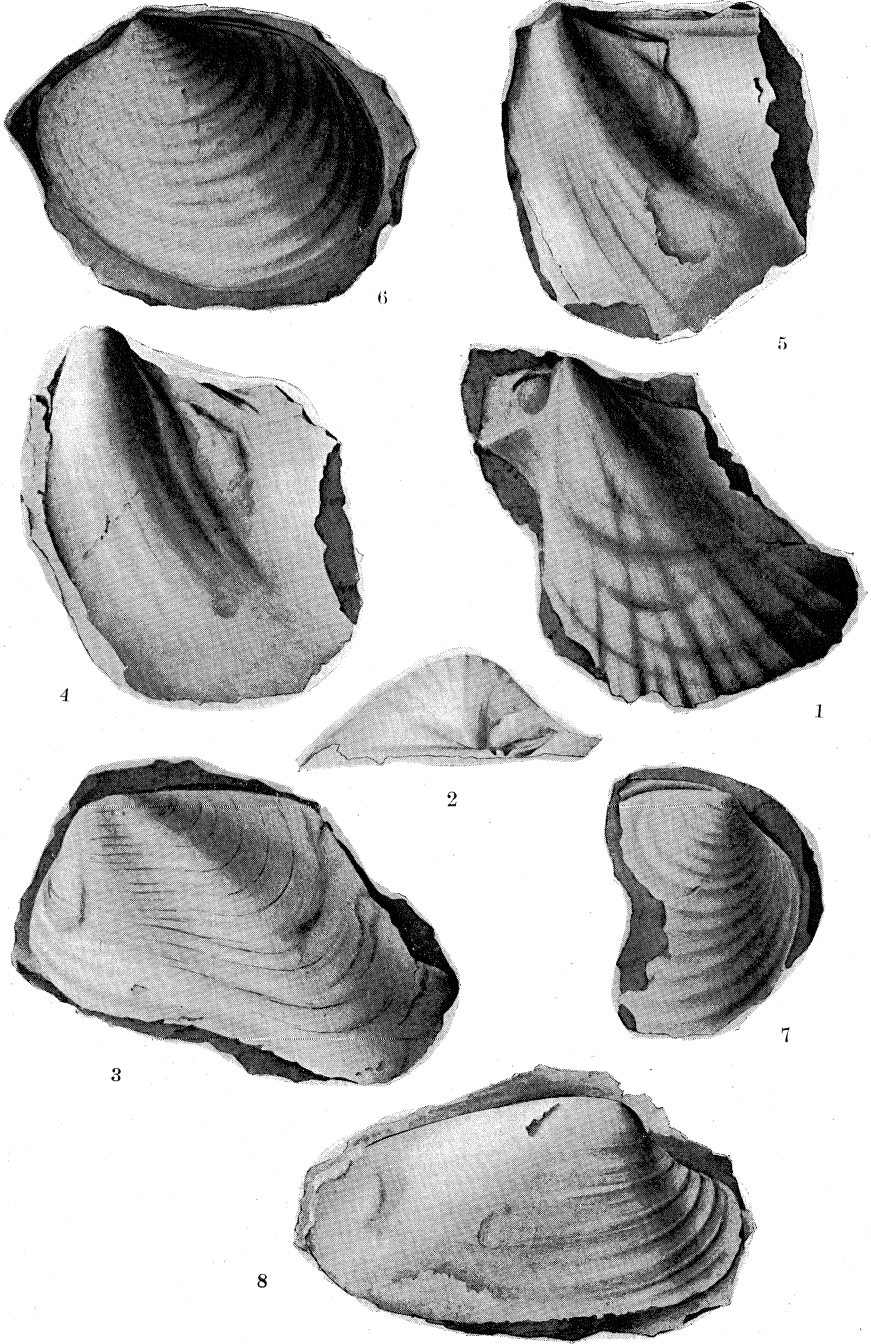
Paracyclas (?) *obliqua*, *Eth. fil.*

Fig. 6. Internal cast of a left valve, displaying the groove left along the posterior cardinal margin for the support of the internal ligament.—x 2 diam.

Fig. 7. A similar right valve.—x 2 diam.

[*Allorisma*] *passaloides*, *Eth. fil.*

Fig. 8. Internal cast of a right valve, faintly displaying position of the posterior adductor, and the external concentric laminæ.—x $\frac{1}{3}$ diam.



PHYLLIS CLARK, del. } Austr. Mus.
C. CLUTTON, photo. }

EXPLANATION OF PLATE XLI.

Pachydomella (?) *piesta*, *Eth. fil.*

Fig. 1. Portion of the fossiliferous shell, or "musselband."

Figs. 2 and 3. Imperfect examples extracted from the general mass as seen in Fig. 1.

Staurocephalites grammoides, *Eth. fil.*

Fig. 4. Two jaw plates, both about six millimetres in length.

