AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Etheridge, R., 1904. Notes on Australian Cretaceous fossils. *Records of the Australian Museum* 5(4): 248–252, plate xxvii–xxviii. [16 June 1904].

doi:10.3853/j.0067-1975.5.1904.1057

ISSN 0067-1975

Published by the Australian Museum, Sydney

NOTES ON AUSTRALIAN CRETACEOUS FOSSILS.

By R. ETHERIDGE, Junr., Curator.

(Plates xxvii. and xxviii.)

OPALIZED TRIGONIA.

In 1901 Mr. G. Gürich figured[1] a portion of an opalized *Trigonia* left valve from the Upper Cretaceous of White Cliffs, near Wilcannia, and suggested its reference to *T. moorei*, Lycett,[2] a species found in the Oolitic rocks of the Greenough District in Western Australia.

The Trustees have lately received the gift of an opalized *Trigonia* from Messrs. M. Keough and A. Eberli. It is also a fragmentary left valve (Pl. xxvii., figs. 1-2), and differs from Mr. Gürich's to some extent. The crucial points displayed in the latter are externally fourteen or more wide flat concentric liræ, separated by very much narrower grooves. On the small portion of the posterior slope preserved are traces of radiating denticulated costæ. Internally we notice the socket of the anterior cardinal tooth, bearing eleven denticles on its anterior side, and eight or nine on the posterior; also the socket of the posterior cardinal tooth distinctly denticulated on its anterior side. The dental support or pillar of the anterior socket is widely lanceolate and flattened, with between it and the anterior margin a deep muscle scar.

The specimen presented by Messrs. Keough and Eberli, although much worn exteriorly, is more perfect than Mr. Gürich's, in that more of the posterior end and slope are preserved but only faint, although definite traces, of similar wide, smooth liræ and narrow grooves are extant; there are no costæ on the posterior slope, and this character alone renders identification with Mr. Gürich's shell doubtful.

The following are the general characters of our opalized *Trigonia*:—The valve is small, more or less deltoid-scaphoid, produced posteriorly, convex, and unprovided with a cincture. The cardinal margin is arched, but the respective limbs are very disproportionate in length, the angle formed by their union being an obtuse one. The posterior slope immediately behind the

---

[1] Gürich—Neues Jahrb. Min., Beil.-Bd. xiv., 1901, p. 485, pl. xix., f. 1 *a* and *b*.

[2] Lycett—Mon. Brit. Foss. Trigoniæ, No. 4, 1878, p. 151, fig.

rounded diagonal ridge is concave, but is thickened immediately below the cardinal margin; neither radiating costæ nor concentric liræ are present. The umbonal region is depressed and obtuse, and the umbo is small and inconspicuous. The anterior cardinal socket is deep and unusually strong for the size of the valve, and although denticles are visible, it is not possible to count them; the posterior socket seems to have been long and narrow, and here again traces of denticles are preserved.

This fragmentary valve appears to represent a more transversely elongated shell than that delineated in Mr. Gürich's figure, and to possess a much more obtusely-angled hinge. If the non-costate condition of the posterior slope be a true feature, as I believe it to be, the two shells cannot be identical; at the same time the dental characters, so far as they can be deciphered, are very similar in both. I cannot venture to identify either shell with any of our known *Trigoniæ*. The least known is *T. lineata*, Moore,[3] but judging from Moore's figure, the limbs of the hinge form a far more acute angle than in either of the opalized specimens. The concentric liræ are described by Moore as fine, and terminating anteriorly in depressed tubercles; in neither of the opalized shells is there any trace of this whatever. If our shell and Mr. Gürich's prove to be distinct it is interesting to find two forms of *Trigonia* in the White Cliffs beds.

TRIGONIA, *sp. ind. (Gürich)*.

Trigonia sp. cf. Moorei (Lycett), Gürich, Neues Jahrb. Min., Beil.-Bd. xiv., p. 485, pl. xix., f. 1 *a* and *b*.

Obs.—I have already expressed the opinion that this is not *T. moorei*, Lycett,[4] and remarked that it might be either *T. lineata*, Moore, or a new form; now I do not think it is the last-named shell.

Although the posterior slope in Mr. Gürich's specimen exhibits granulated costæ near the umbo, as in *T. moorei*, there is not, unfortunately, sufficient of the slope remaining to determine whether the granules become subordinate to the sharp concentric liræ towards the posterior ventral part of the valve as they do in *T. moorei*. On the other hand there is this manifest difference, that whilst the surface of the valve anterior to the diagonal ridge in the White Cliffs form is covered with flat liræ separated by very narrow interspaces, the corresponding portion of the shell in *T. moorei* is traversed by

[3] Moore—Quart. Journ. Geol. Soc., xxvi., 1870, p. 254, pl. xiv., f. 9 and 10.

[4] Moore—Quart. Journ. Geol. Soc., xxvi., 1870, p. 255, pl. xiii., f. 12.

sharp upstanding liræ separated by wide, flat, or slightly concave valleys. Internally the structure of the articulus differs in the two shells in a very marked manner. Selecting a left valve of *T. moorei*, (Pl. xxvii., fig. 4), first compare the height of the respective umbos, low in the Cretaceous form, high in the Oolitic. The thickened arched hinge plate of the latter between the sockets, is far more highly developed than that seen in Mr. Gürich's figure; the upstanding anterior crest of the anterior dental socket of *T. moorei* is most marked when compared with the rounded outline of the former; these points are sufficient in my opinion to clearly separate the two fossils. That the depressed umbo in Gürich's figure is a true feature, and not one due to any physical cause is borne out by the appearance of the same part in the opalized specimen in this Museum (Pl. xxvii., fig. 1).

Cretaceous Patelliform Shells.

Only one shell possessing a patelliform outline has so far been described as such from our Cretaceous beds—*Siphonaria samwelli*, Eth. fil.,[5] of the Upper Cretaceous of Croydon, North Queensland. Whether or no this is correctly referred to the Siphonariidæ, or is a true Scutibranc, time alone can show. One other may exist, the so-called *Discina apicalis*, Moore,[6] from Wollumbilla. I have for some time entertained the suspicion that this fossil would be more appropriately placed in the Patellidæ, possibly under *Acmæa*, Esch. (= *Tectura*, Aud.). Species referred to the latter genus have at least been met with in the Cretaceous rocks of North America, India, and England. Compare Moore's figure with *A. (Tectura?) elevata*, Forbes,[7] of the Arrialoor Group of India; or *A. (Tectura) tenuistriata*, Seeley,[8] from the English Gault. Again, *D. apicalis* is equally like some forms of the supposed Pulmonate *Anisomyon*, Meek and Hayden, but unfortunately we know nothing of the apex in Moore's shell.

Quite recently Mr. H. Y. L. Brown, Government Geologist of South Australia, forwarded to me a few Cretaceous marine shells from a new locality in that State. Amongst these are two very small patelliform shells that are certainly undescribed with us. The smaller of the two appears to be an internal cast, and the larger a more or less exfoliated individual. Both Mr. C. Hedley and myself think we can detect a faint horse-shoe-shaped scar on

---

[5] Etheridge, Junr.—Geol. Pal. Q'land, etc., 1892, p. 573, pl. xlii., f. 9.
[6] Moore—Quart. Journ. Geol. Soc., xxvi., 1870, p. 244, pl. x., f. 13.
[7] Stoliczka—Gastropoda Cret. Rocks S. India (Pal. Ind.), pts. 7-10, 1868, p. 322, pl. xxviii., f. 6.
[8] Seeley—Quart. Journ. Geol. Soc., xxxiii., 1877, p. 194, pl. vii., f. 18.

the surface of the former; if such be the case, it necessarily indicates the genus *Capulus* as the most appropriate resting place, but as there is an element of doubt on this point I think it better to provisionally place these little fossils in *Acmæa*, with the following characters.

ACMÆA (?) MONSWOODENSIS,[9] *sp. nov.*

(Pl. xxvii., figs. 5-7.)

Sp. Char.—Small, depressed, unsymmetrical in outline, irregularly orbicular; apex subcentral, simple, obtuse, not recurved. Sculpture ill-defined, but concentric, apparently without radii of any kind.

Obs.—The larger of the two specimens appears to be exfoliated, little therefore can be said about the sculpture, beyond the fact that there are no radii. The marginal outline is unsymmetrically orbicular, but neither definitely sinuous nor crumpled as in some *Platyceri;* it presents the same form of irregularity as seen in *Capulus neocomiensis*, Seeley, sp.[10]

The larger specimen is seven millimetres in its longest diameter, and the smaller five millimetres.

The chief point of interest lies in the fact that it indicates the existence in our Cretaceous Series of an additional genus, and possibly family.

Loc.—Country around Mount Woods, north-west of Coward Springs, Lake Eyre Basin, South Australia, associated with *Pseudavicula anomala*, Moore, sp.

ISOCRINUS AUSTRALIS, *Moore, sp.*, var.

ALBASCOPULARIS, *var nov.*

(Pl. xxviii.)

Isocrinus australis, Eth. fil., Mem. Geol. Surv. N.S. Wales, Pal., No. 11, 1902, p. 10, pl. iv., f. 7-10 (exclude synonomy).

Obs.—Two examples of an opalized Crinoid were presented to the Trustees by Messrs. Keough and Eberli after the publication of the above work. Neither of them is perfect, although both surpass the fragmentary specimens in the Geological Survey Collection. It is very difficult to distinguish the various plates

[9] In allusion to the locality.
[10] Seeley—Quart. Journ. Geol. Soc., xxxiii., 1877, p. 203, pl. vii., f. 1.

and pieces from the almost identical colour of the fossils and the matrix, and from the obstinate manner in which the kaolinised clay adheres to the various parts, notwithstanding the apparent success in mechanical development. The adhesion of matrix particles renders the sutures of the different plates and pieces obscure in places, and I found that any further attempt at cleaning would cause the collapse of such otherwise beautiful examples of the conversion of a Crinoid into precious opal.

The acquisition of these specimens, taken in conjunction with the partial cups and arms already figured indicates that the White Cliffs Crinoid is uniformly smaller than the Queensland *Isocrinus*. After careful examination I have failed to detect any difference in the structure of the dorsal cup proper from that of the species in chief ; the number of rays is the same—five, and the arrangement and form of the various pieces appears to be identical. The only departure from the structure of the typical Crinoid I am able to detect is in the number of the component ossicles of the arms. Thus, in *I. australis* there are thirteen primibrachs (I Br),[11] the thirteenth being primaxil (I ax) ; in the present form, on the other hand, there are ten, the tenth being primaxil. In the former there are fifteen secundibrachs (II Br), the fifteenth being secundaxil (II ax), here the number is thirteen, the thirteenth being secundaxil. It was not possible to count the tertiobrachs in the Sweet specimen, although sufficient were seen to indicate that these ossicles were numerous ; in the opalized Crinoid these pieces are very numerous, certainly more than thirty, without any indication of an axil.

In consideration of our still imperfect knowledge of this Crinoid, and with the view of emphasising the difference in the number of arm plates between the Queensland *Isocrinus* and that from White Cliffs, I purpose distinguishing the latter by the varietal name of *albascopularis*.

---

[11] I wish to correct a typographical error in my previous notice of this opalized Crinoid. In the Monograph referred to (p. 10) the primibrachs are expressed by the symbol $\bar{\text{I}}$ Br, and the primaxils by $\bar{\text{I}}$ ax ; the symbols should simply be I Br and I ax respectively.

EXPLANATION OF PLATE XXVII.

IGONIA, *sp. ind.*

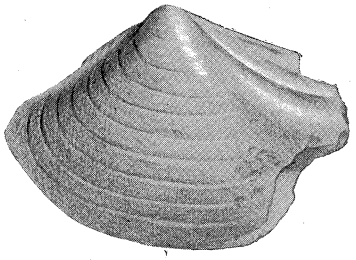
Fig. 1. Exterior of an imperfect opalized left valve.
„ 2. Interior of the same valve.

TRIGONIA MOOREI, *Lycett.*

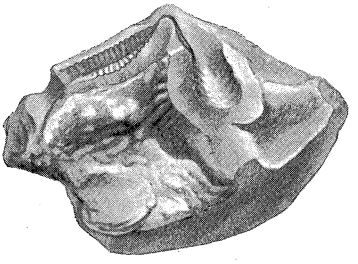
Fig. 3. Exterior of a nearly perfect left valve.
„ 4. Partial interior of the same valve.

ACMÆA (?) MONSWOODENSIS, *Eth. fil.*

Fig. 5. The larger of two examples of this species seen from above.—× 3.
„ 6. The smaller specimen seen from above.—× 3.
„ 7. Side view of fig. 6.—× 3.

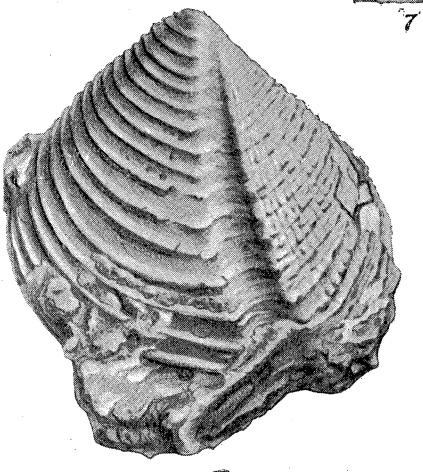


1

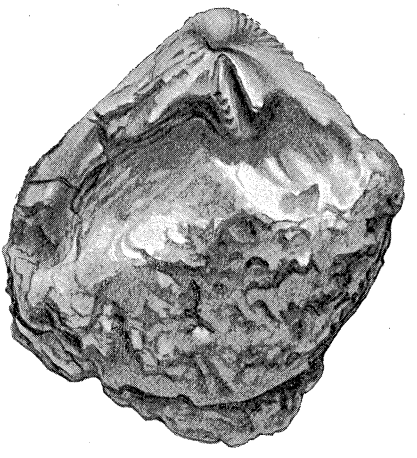


2

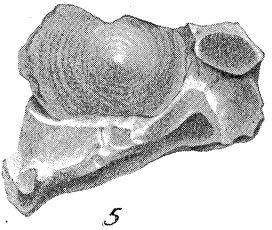
7



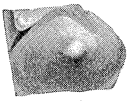
3



4



5



6

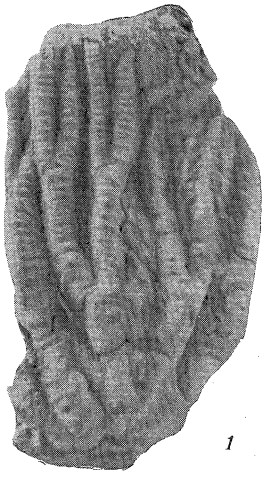
F. R. Leggatt. del., Aust. Mus.

Electric Photo-Engr. Co., Ltd., Sydney.

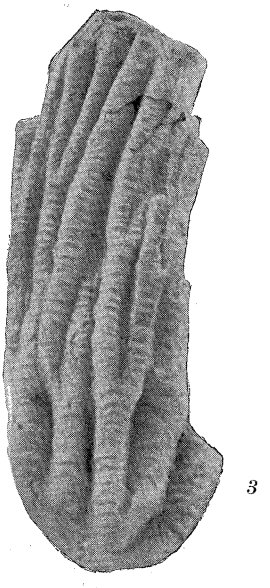
EXPLANATION OF PLATE XXVIII

ISOCRINUS AUSTRALIS, *Moore*, VAR. ALBASCOPULARIS, *Eth. fil.*

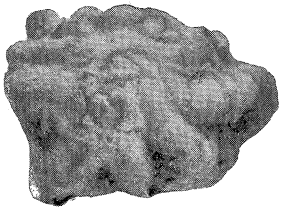
Fig. 1. Side view of the most complete specimen.
,, 2. Dorsal view of Fig. 1.
,, 3. and 4. Different views of a second and less complete example.



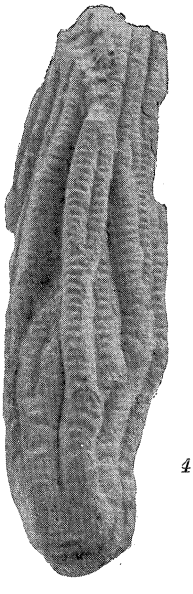
1



3



2



4

H. BARNES, Junr., photo.
Aus. Mus.

Electric Photo-Engr. Co., Ltd.
Sydney.