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Order SCORPIONIDÆ.

Family PANDINIDÆ.

Subfamily PANDININI.

Genus *Hormurus*, Thorell.*Hormurus karschii*, L. Koch.

Hab. British New Guinea.

Hormurus caudicula, L. Koch.

Loc. St. Joseph's River (British New Guinea).

Order OPILIONIDÆ.

Suborder OPILIONES PLAGIOSTETHI.

Genus *Gagrella*, Stol.*Gagrella hasselti*, Thor.

Hab. Fly River (British New Guinea).

A REVIEW OF THE SYSTEMATIC POSITION OF *ZEMIRA*,
ADAMS.

By CHARLES HEDLEY, Conchologist.

THE literary history of *Zemira australis* has chiefly consisted of a tossing from genus to genus without reason or explanation. The type species was originally described and figured by G. B. Sowerby, Junr.,* as *Eburna australis* from New South Wales. He adds that Dr. Gray considered it to be the *Cancellaria spirata* of Lamarck. This view was upheld by Kiener† who reviewing *Eburna*, states that *E. australis* should remain among the *Cancellaria*, where Lamarck had placed it. Deshayes‡ followed by accusing Sowerby of publishing two names, figures and descriptions for one shell, the first time by drawing it as a *Cancellaria* with three twists on the columella, the second time as an *Eburna* with none. Lamarck and his followers had however been deceived by a

* Sowerby—The Conchological Illustrations, 1841, Pt. xx., *Eburna*, fig. 5.

† Kiener—Coquilles vivantes, n.d. *Eburna*, p. 2.

‡ Deshayes—Lamarck's Nat. Hist. Anim. s. vert. (2nd ed.) x., 1844, p. 231.

remarkable, though superficial, mimicry, and Sowerby rightly retorted; "It is impossible that M. Deshayes can have seen the two shells, which are generically and specifically quite distinct."* Reeve supported Sowerby's classification by including *E. australis* in his monograph of *Eburna*,† and added his testimony to the separate existence of the two shells which had confused the Parisian writers. His description but not his figure was copied by Kuster.‡

After thus successfully establishing his species, Sowerby re-described and refigured it as *Pseudoliva australis*.§ The Brothers Adams instituted for *E. australis* a new subgenus *Zemira* which they ranked under *Eburna*.|| This view is accepted by Tryon¶ but not by Fischer,** who prefers to subordinate *Zemira* to the genus *Macron*. Kobelt, one of the few writers who have contributed more than a copy or a guess to our stock of information, has added to a full account of the shell, a description of the operculum, and concludes that the data presented confirms the classification of Adams.†† Tate has promoted *Zemira* from sub-generic to full generic rank, when describing a second and fossil species.‡‡ The latest classificatory notice is that by Harris§§ who agrees with Tate in considering *Zemira* an independent genus allied to *Eburna*.

No particular argument seems to have been advanced by anyone to show why *Eburna* should be considered the nearest to *Zemira*. The deep canaliculation at the suture, the spotted colour and the general contour certainly present analogies. But except for the plications of the columella, as close a general resemblance is shown by *Cancellaria*. From *Eburna*, *Zemira* differs by its spiral sculpture and especially by the spiral furrow on the fore part of the shell which ends as a projecting point on the aperture.

The dissatisfaction, rather felt than uttered, of authors about the assigned position of the species, is shown by Sowerby's reference of it to *Pseudoliva* and Fisher's to *Macron*.

It has seemed to me that *Zemira* more nearly approximates to the Struthiolariidæ than to the Buccinidæ. The two recent genera (*Struthiolaria* and *Tylospira*) of the former are both ornamented by spiral sculpture; and in some fossil forms, as

* Sowerby—Thesaurus Conch. iii., 1866, p. 74.

† Reeve—Conch. Icon., v., 1849, *Eburna*, pl. i., sp. 4.

‡ Kuster—Conch. Cab. (2), iii., 1858, p. 84.

§ Sowerby, *op. cit.*, ccxvi., figs. 13, 14.

|| H. and A. Adams—Gen. Rec. Moll. i., 1853, p. 110.

¶ Tryon—Man. Conch. ii., 1881, pp. 101, 213; Struc. and Syst. Conch., ii., 1883, p. 152.

** Fischer—Manuel Conch., 1884, p. 162.

†† Lobbecke and Kobelt—Jahr. deut. Malak. Gesell., 1880, p. 335.

‡‡ Tate—Trans. Roy. Soc. S.A., x., 1888, p. 163.

§§ Harris—Cat. Tert. Moll. Brit. Mus., i., 1897, p. 167.

T. coronata, Tate,* there is a broad and deep channel at the suture. All the members of the Struthiolariidæ have, in the position of the anterior furrow of *Zemira*, some conspicuous mark, either a ridge, a line of tubercles, a depression, or an angle. All have a projection answering to the point on the lip of *Zemira*, which is more or less developed, and attains a maximum in the case of *Struthiolaria calcar*, Hutton.† The feature which I would chiefly emphasise as pointing to the Struthiolariidæ is the broadened and incurved anterior termination of the columella. The southern habitat of *Zemira* agrees better with the distribution of the Struthiolariidæ than with a group so typically northern as Buccinidæ. On the other hand I must admit that though the operculum of *Zemira*, as figured by Kobelt,‡ does not well agree with that of *Eburna*, figured by Adams,§ yet it does not answer to those of *Struthiolaria* figured by Gray,|| or Smith.¶

Whatever may be the ultimate destination of *Zemira*, there can be no question but that Tate's genus *Eburnopsis*** must accompany it there. According to figures, *Pseudoliva zebrina*, A. Adams,†† bears a marked resemblance to these forms; but having no personal acquaintance with the species, I forbear to comment further on it.

These notes on the shell characters were put together several years ago. I had hoped that an examination of the animal might prove or disprove the opinion now expressed, but, unfortunately, I have been unable to procure *Zemira australis* in the flesh. From the distribution of dead shells, I conclude that the species lives in depths of a few fathoms on sandy ground. So far as known to me, the range of the species is from Sydney northwards to the Queensland border.

Most authors who have dealt with *Zemira* have coupled it with *Eburna*, a reference as unnatural as that of Lamarck, who called it *Cancellaria*. Fisher's opinion that it is related to *Macron* is more plausible. It is here suggested that to include it in the Struthiolariidæ would harmonise better with the geographical distribution and the shell characters. Information obtainable from the unknown animal may, however, place it in a group of equal value not yet differentiated.

* Tate—Trans. Roy. Soc. S.A., xi., 1889, p. 171.

† Hutton—Trans. N.Z. Inst., xviii., 1886, p. 335.

‡ Kobelt—*Op. cit.*, pl. viii., fig. 8.

§ Adams—*Op. cit.*, pl. xi., figs. 5a, 5b.

|| Gray—Guide Moll. Brit. Mus., i., 1857, p. 76, fig. 45.

¶ Smith—Phil. Trans., clxviii., pl. ix., fig. 3a.

** Tate—*Op. cit.*, p. 117.

†† Sowerby—*Op. cit.*, iii., p. 74, pl. ccxvi., figs. 13, 14.