CRITICAL REMARKS ON THE TABLE CAPE FOSSIL MOLLUSCA IN THE JOHNSTON COLLECTION, WITH FIGURES.

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(With 4 plates and 21 figures).

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The late R. M. Johnston, Government Statistician, by his will bequeathed his natural history collections to the Royal Society of Tasmania; and the portion containing the recent and fossil mollusca is already at the Museum. The Council of the Society has kindly allowed me, not only to carefully examine these collections, but also granted me permission to have on loan some of the type and other specimens, for the purpose of figuring them. This I have now accomplished, and they will illustrate my paper, which I hope may be of distinct value to those who are, or may be, studying the Table Cape Molluscan fauna.

In these proceedings for 1876 the late J. E. Tenison-Woods described a large number of new species from Table Cape which were supplied to him by R. M. Johnston, by whom they had been collected. None of these species were figured at that time, and a number have remained unfigured until now. In addition to this some were unrepresented by any type or authentic specimen.

There is in the Tasmanian Museum a collection of types of this series, but it is by no means complete, and it has been difficult, and in some cases impossible, for workers to identify the species from the descriptions alone. In this connection the Johnston collection is of distinct value, as it is found to contain a large number of co-types (some are probably types) of Woods' species, carefully labelled. These specimens have enabled me to clear up several uncertainties, which are recorded below.

In these proceedings for 1879 Johnston described an additional number of fossil Mollusca, and most of his types are still in the collection, although a few seem to be missing. None of these are marked as "type," and some have only the generic name attached, but in most cases they can be easily identified as being the types; several were figured by the author in his "Geology of Tasmania," and others by Professor Tate, but some still remain to be dealt with, and I am able to further reduce this number

by several additional figures. I have also taken the opportunity of figuring two of Tenison-Woods' types from the Museum collection. In the following critical remarks, I deal not only with the species figured, but also with some that appear to be synonyms or unrecognisable.

In all cases I give the author's original generic names.

Emarginula transenna, Tenison-Woods.

From a Johnston co-type, which measures 8 mm. high and 12 x 8 mm. in diameter. A noteworthy feature not mentioned by the author is that the slit is situated in a strong rib. (Plate VIII., fig. 1).

Gibbula clarkei, Tenison-Woods.

The type lot in the Johnston collection contains a number of specimens of various sizes; they vary much from each other in the strength of the spiral ornament. I have selected one of the most perfect for figuring, which measures 3 x 5 mm. in diameter, and it may stand as the type. (Plate VIII., fig. 2).

Gibbula æquisulcata, Tenison-Woods.

From a Johnston co-type, measuring 11 mm. wide and 9 mm. high. (Plate VIII., fig. 3.)

Gibbula crassigranosa, Tenison-Woods.

From a Johnston co-type (or possibly type) measuring 11 mm. in diameter and 12 mm. high. From a comparison with the type, and another in the Johnston collection of *Astralium* (*Calcar*) *ornatissimum*, Tenison-Woods, this would seem to be scarcely distinct; in the former the nodules have developed into short spines, but there seems otherwise no appreciable difference. (Plate VIII., fig. 4).

Solarium (*Torinia*) *gibbuloides*, Tenison-Woods.

From one of Johnston's co-types. (Plate VIII., fig. 5).

Delphinula tetragonostoma, Tenison-Woods.

Johnston's two specimens are probably the type, and a co-type. They show the species to be an undoubted *Crossea*, and a beautiful addition to that interesting genus. As neither of these specimens was in a sufficiently perfect state of preservation to make a good figure, I have drawn it from one of my own compared with the above. (Plate IX., fig. 6).

Trochus josephi, Tenison-Woods.

From a Johnston co-type, which measures 6 mm. in diameter and 7 mm. in height, and so is much larger than the author's measurements, and even this may not be adult. It may be a variety of *Thalotia alternata*, Tenison-Woods, of which I have seen no authentic specimen. (Plate IX., fig. 7).

Zizyphinus blaxlandi, Tenison-Woods.

This species remains unidentified. A small specimen so named in the Johnston collection must, I think, be an error, as I cannot in any way fit it to the description.

Margarita kekwickii, Tenison-Woods.

From a Johnston specimen, without any label, but I think there can be no doubt that it represents this species. It measures 7 mm. in diameter and 6 mm. in height. It is a member of the genus *Minolia*. (Plate IX., fig. 8).

Adeorbis lævis, Johnston.

From the type, which shows it to be a *Cirsonella*, very closely related to *C. weldii*, Tenison-Woods, from which it principally differs by a larger umbilicus. (Plate IX., fig. 9).

Euchelus woodsii, Johnston.

From the type, which is considerably broken. (Plate IX., fig. 10).

Liotia roblini, Johnston.

There are two specimens in the author's collection, from "Muddy Creek." It has been well figured by Harris in his Cat. Aust. Tert. Moll. Plate VIII., figs. 4 a, b, and c. I have no doubt whatever that this is a synonym of *Liotia lamellosa*, Tenison-Woods.

Liotia annulata, Tenison-Woods.

Two fossil specimens of this recent species are in the Johnston collection, from Table Cape.

Astralium (*Calcar*) *flindersi*, Tenison-Woods.

From a specimen in my collection, which I believe to be this species. This is not represented amongst the Tenison-Woods types, nor in the Johnston collection. (Plate X., fig. 11).

Pleurotoma pullulascens, Tenison-Woods.

From a specimen in my collection, compared with Johnston's co-type. (Plate X., fig. 12).

Pleurotoma sandleroides, Tenison-Woods.

From a specimen in my collection, compared with the type, and co-types. (Plate X., fig. 13).

Daphnella columbelloides, Tenison-Woods.

From a specimen in my collection, compared with Johnston's co-types, and also with the type, and co-types of *Thala marginata*, Tenison-Woods, which I consider synonymous. None of these specimens are perfect, most of them much the reverse; usually the columella plates are absent by erosion, or only slightly in evidence. The axial ribbing varies much in different individuals; it may be present only on the first two adult whorls, or may extend onto the body-whorl. (Plate X., fig. 14).

Daphnella gracililirata, Tenison-Woods.

From one of Johnston's co-types, and compared with the broken type. (Plate X., fig. 15).

Columbella cainozoica, Tenison-Woods.

From the type, which is a small broken specimen, and probably in a juvenile state. (Plate XI., fig. 16).

Columbella oxleyi, Tenison-Woods.

From the type. Although I have not the material to entirely bridge the gap, I feel satisfied that this is the adult stage of the last species. (Plate XI., fig. 17).

Rissoa dubia, Johnston.

No specimen of this was present. As the name is preoccupied and there is no authentic specimen, and the author's figure in "Geology of Tasmania" shows a shell that could hardly belong to the *Rissoidæ*, the species had better be abandoned.

Rissoina tateana, Tenison-Woods.

I have figured a specimen in the Johnston collection, which is probably the type, as the figure in Geo. Tas. is very poor. This belongs to the genus *Haurakia* near *H. descrepans*, Tate and May (*Rissoa*). (Plate XI., fig. 18).

Rissoina varicifera, Tenison-Woods.

From one of Johnston's lot, so named, and probably co-types. This agrees fairly with the description, except for the complete absence of varices on any of the specimens. The author remarks, "the varices are not always visible," but I doubt if this species would ever have true varices. It is a member of the genus *Estea* and not far from *E. tasmanica*, Tenison-Woods (*Eulima*). (Plate XI., fig. 19).

Rissoina johnstoni, Tenison-Woods.

From a co-type. This common species appears to be unfigured. It has long been recognised that the author's generic location was at fault, and that the species is a form of *Bittium*. (Plate XI., fig. 20).

Pyramidella polita, Johnston.

From the type. The specimen is only labelled "Pyramidella," but I think there can be no doubt as to its identity. It comes near *Syrnola infrasulcata*, Tate, but is smaller, narrower, and lacks the basal sulci. (Plate XI., fig. 21).

Pyramidella sulcata, Johnston.

Specimens labelled "Pyramidella," which agree well with the description, show it to be only the juvenile state of his *Ringicula lactea*, which has precedence.

Pyramidella roberti, Tenison-Woods.

Johnston's specimen, probably the type, shows this to be a *Turritella*. The shell is small, and smooth, and probably in a juvenile state. I advise that it be abandoned as too uncertain.

Pileopsis navicelloides, Johnston.

The type is crushed to powder. I consider the species unrecognisable, and advise its abandonment.

Cucullea minuta, Johnston.

Type crushed; probably a young shell. I advise its abandonment also.

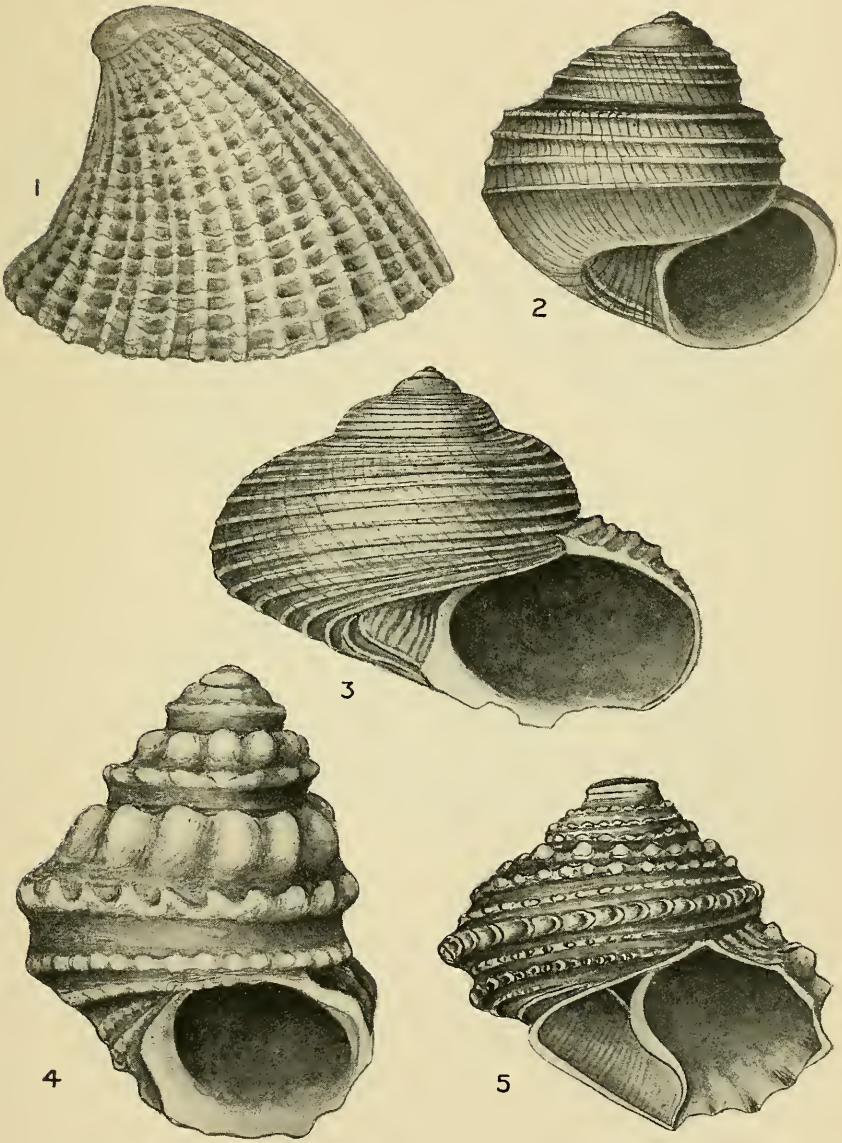


Figure 1—*Emarginula transenna*, Tenison-Woods
,, 2—*Gibbula clarkei*, Tenison-Woods
,, 3—*Gibbula æquisulcata*, Tenison-Woods
,, 4—*Gibbula crassigranosa*, Tenison-Woods
,, 5—*Solarium (Torinia) gibbuloides*, Tenison-Woods

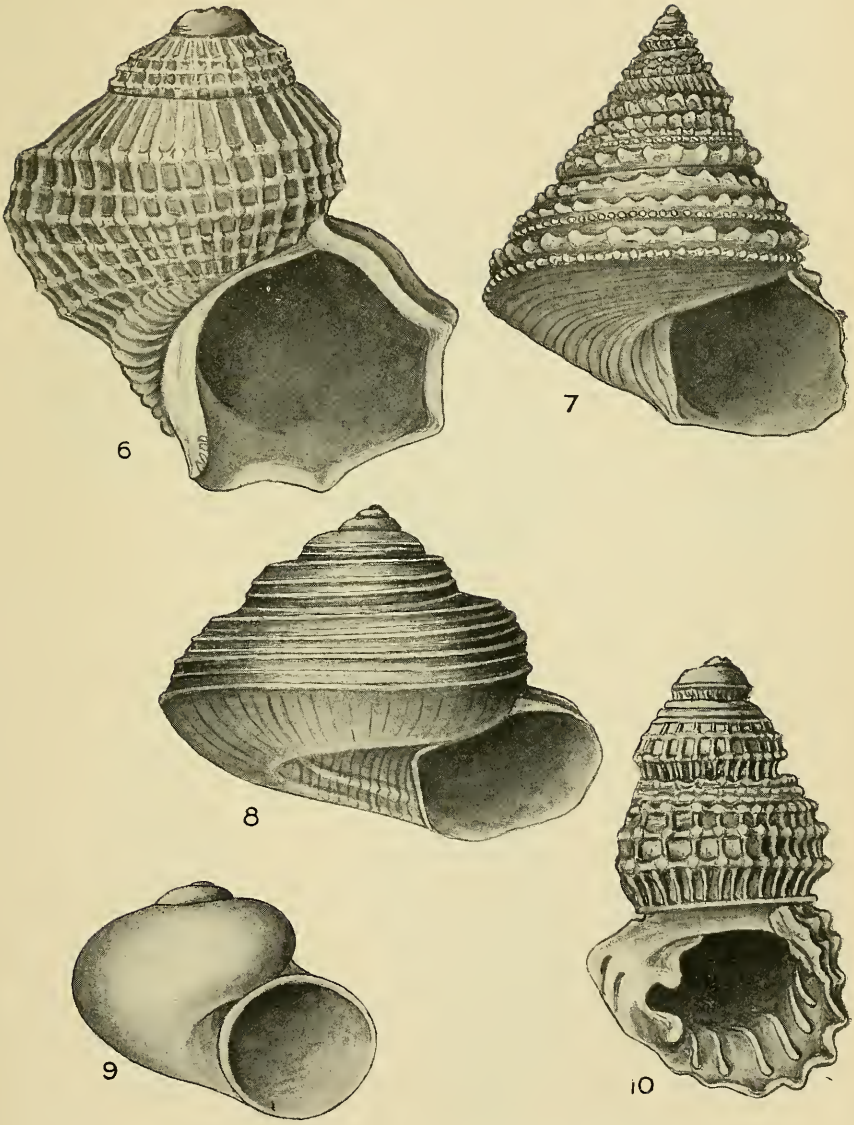
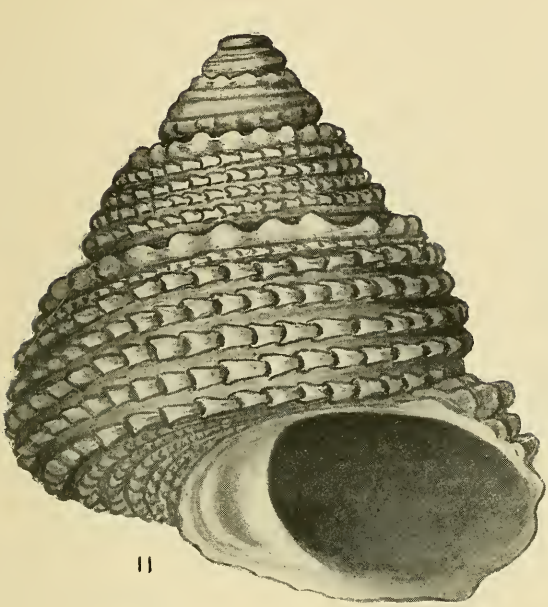


Figure 6—*Delphinula tetragonostoma*, Tenison-Woods
,, 7—*Trochus josephi*, Tenison-Woods
,, 8—*Margarita kekwicki*, Tenison-Woods
,, 9—*Adeorbis lævis*, Johnston
,, 10—*Euchellus woodsii*, Johnston



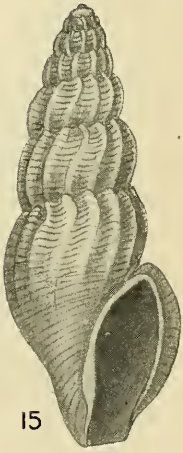


Figure 11—*Astralium (Calcar) flindersi*, Tenison-Woods
,, 12—*Pleurotoma pullulascens*, Tenison-Woods
,, 13—*Pleurotoma sandleroides*, Tenison-Woods
,, 14 - *Daphnella columbelloides*, Tenison-Woods
,, 15—*Daphnella gracilivirata*, Tenison-Woods

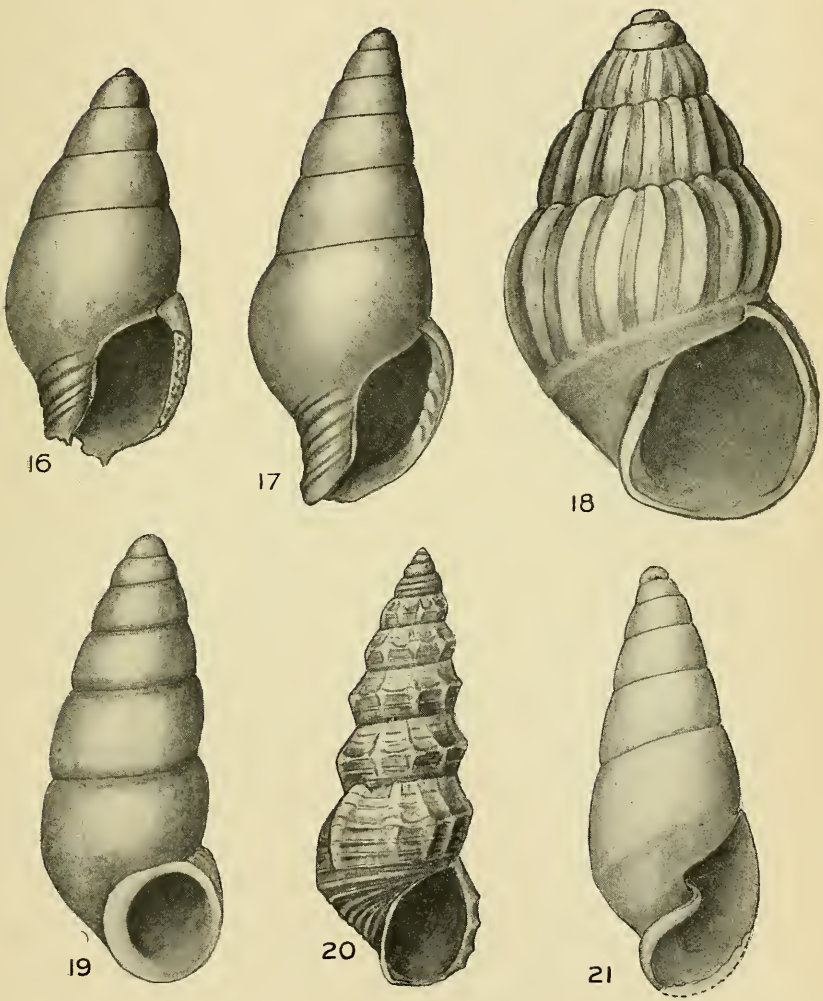


Figure 16—*Columbella cainozoica*, Tenison-Woods
,, 17—*Columbella oxleyi*, Tenison-Woods
,, 18—*Rissoina tateana*, Tenison-Woods
,, 19—*Rissoina varicifera*, Tenison-Woods
,, 20—*Rissoina johnstoni*, Tenison-Woods
,, 21—*Pyramidella polita*, Johnston