

XL.—On a third new Tertiary Species of *Trigonia*. By FREDERICK M'COY, Professor of Natural Science in the University of Melbourne.

[Plate XVIII. B.]

To the Editors of the *Annals and Magazine of Natural History*.

GENTLEMEN,

The genus *Trigonia* has furnished an extraordinary apparent exception to the usual distribution of genera in time, according to which a genus living in the older periods of the world's history, and becoming extinct during a subsequent geological period, is not found to reappear at a still more recent epoch. *Trigonia* abounding in the whole of the Mesozoic periods from the Lias to the Chalk, represented by many species, seemed suddenly to become extinct with the commencement of the Eocene Tertiary period, and, being absent in all known Tertiary formations, seemed to reappear in the present seas of Australia; and as none of the well-searched Tertiary deposits of Europe or America showed any trace of such shells, a well-defined case of exception to the above-mentioned rule seemed established, until some years ago I described two species, distinct from the living ones, found in the Tertiary formations near Melbourne with *Aturia*, *Carcharodon angustidens* and *C. megalodon*, *Otodus Desori*, *Oxyrhina trigonodon*, *Squalodon* (*Phocodon*), and other clearly characteristic Tertiary as distinguished from modern types.

As therefore the announcement of the fact will probably be of interest both to zoologists and geologists, I beg to forward you a figure and description of a third Tertiary species of the genus, which I have lately recognized amongst some specimens sent to me, as Palæontologist of the Victorian Geological Survey, from the eastern portion of the colony, the district of Gippsland, of which hitherto comparatively little was known.

Trigonia Howitti (M'Coy).

Spec. char. Rotundate rhombic; substance of shell thick; tumid towards the beak, anterior side rounded, posterior slope moderately flattened in two planes divided by a very obtuse angle marking the margin; ventral margin moderately convex, posterior edge nearly at right angles to the ventral edge, slightly rounded in respiratory portion, forming an angle of about 150° with hinge-line in anal portion; about four narrow quadrate radiating ridges on each division of the posterior slope, sharply separated by deep flattened spaces equal to about their own width; about fourteen thick, prominent, rounded radiating

ridges from the beak to the ventral margin, separated by slightly narrower deep concave spaces; near the beak (for about half an inch) all the ribs set with strong blunt transverse tubercles, about their own thickness apart (about five in two lines), but on the adults the middle and lower ends of the ribs are marked only with irregular lines of growth, like the intervening hollows, except the seven or eight anterior ones, on which the large blunt tuberculation is continued to the ventral margin (about three in two lines). Length from anterior to posterior end 2 inches 3 lines; proportional width from beak to opposite margin $\frac{9.9}{10.0}$; depth of one valve $\frac{3.4}{10.0}$; hinge-line $\frac{5.5}{10.0}$.

This species is much larger, thicker, and stronger than the living or the other two Tertiary species, and is readily distinguished by the tuberculation (except near the beak) being confined; the anterior ribs having, the middle and posterior ones only slightly wrinkled by, lines of growth. The inner edge is strongly toothed by the projecting ends of the channels between the radiating ribs. Sometimes the two small most posterior ridges bear tubercles.

This species was collected by Mr. Howitt from the beds of sandy marl at Jemmy's Point, near the entrance of the Gippsland lakes, containing *Struthiolaria* and other forms which I have observed in the Pliocene Tertiaries of New Zealand, but not of any other locality in Victoria. I have great pleasure in naming so interesting a fossil after so excellent and zealous a geologist as Mr. Howitt has proved himself in the Gippsland district.

XLI.—*Zoologico-Embryological Investigations*.

By M. USSOW.

[Concluded from p. 221.]

CEPHALOPODA (*conclusion*).

To render clearer all the processes described by me, I think it will be useful to enumerate once more the principal facts of the embryonal development of the above-mentioned Cephalopoda in their normal sequence.

After the greater part of the protoplasm of the primitive ovicell, or the formative vitellus which surrounds as with an envelope the whole mass of the transparent fatty fluid (nutritive vitellus) has been converted, in the manner already described (see the process of segmentation), into a layer of flat



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