

NOTES REGARDING CERTAIN FOSSIL SHELLS
OCCURRING AT TABLE CAPE, SUPPOSED TO
BE IDENTICAL WITH LIVING SPECIES.

By R. M. JOHNSTON, F.L.S., ETC.

[Read April 8, 1884.]

In a paper prepared by me for this Society in the year 1879, I drew attention to the fact that the per-centage of living to extinct species was becoming smaller the more the beds were investigated, and I then ventured to state that on the basis of the per-centage method the fauna indicated the age of the Table Cape beds to be rather eocene than miocene. Recently Prof. Tate has taken up the investigation of the supposed living species, and he informs me that a considerable proportion of them have been compared with original types and have been found to be new species. I need not anticipate him in this matter, however, as he intends to communicate a paper on the subject to this Society. For the present I bring under notice that I have recently compared the living *Pectunculus laticostatus*, of New Zealand, with the fossil shell supposed to be identical with it occurring abundantly in the Table Cape beds, and, as anticipated by me five years ago, I find that the latter form is quite distinct. Splendid specimens of the living species were kindly forwarded to me from New Zealand by Prof. Hutton. I submit a full description of the Table Cape species as follows:—

PECTUNCULUS M'COYI, JOHNSTON.—*Pectunculus laticostatus* of Tenison Woods and Prof. M'Coy.

Shell orbicular, convex, slightly broader than long, somewhat flattened towards beak, subtrigonal when young. Surface with 29 to 31 regular radiating convex ribs separated by somewhat narrower interspaces; ribs broadening and becoming less convex towards the margin; marginal extremities of ribs rarely obsolete in old specimens; whole surface finely shaply, striated concentrically; hinge teeth, generally 10 on each side the three nearest beak smaller and frequently obsolete on one or both sides in old specimens; inside of margin sharply denticulated; ligamental area depressedly triangular with close V shaped striae,—in young specimens, 6—7—in specimens of about $2\frac{1}{2}$ inches long, 8—9, the anterior side of beak having generally one stria more than the posterior side.

Mature specimens $2\frac{1}{2}$ to 3 inches long. This shell, hitherto, has erroneously been referred to *P. laticostatus*, Quoy.

It is very abundant in the Table Cape beds and is identical in every respect with specimens of the same age received from Cape Schanck. A specimen sent by Professor Tate from South Australia is also identical in every respect. The species described approaches more closely in most respects to the existing

P. flabellata, Tenison Woods, of our own coast, than to *P. laticostatus*, Quoy, of New Zealand. The latter differs from *P. M'Coyi* in being much more solid, and in having invariably 10 more ribs; the length also, generally exceeds the breadth and the convexity is greater than *P. M'Coyi* towards margin. With *P. flabellata*, Tenison Woods, it differs in being less solid and in having invariably 7 more ribs; *P. flabellata* having invariably 24. The teeth on the latter are generally 10 as in *P. M'Coyi*, and in this respect and in ligamental area show a closer correspondence with the latter than with *P. laticostatus*. *P. flabellata*, in Tasmania, moreover, is invariably exactly as broad as it is long. It would appear therefore that the characteristic shell of Table Cape is not identical with living species, and that it seems to be an intermediate form between *P. flabellata*, Tenison Woods, and *P. laticostatus*, Quoy, although showing a closer alliance with the former.

From the appearance of the fossil *P. laticostatus*, figured (Pl. xix., Decade ii.) by Professor M'Coy, and from the circumstance that all the Australian fossil forms examined by me are identical with the Table Cape form, it appears to me to be doubtful whether, on closer examination, the bird rock form referred to by Professor M'Coy will prove to be identical with the living *P. laticostatus*, Quoy, in all respects. This however can be easily set at rest.

NOTES OF SPECTROSCOPIC OBSERVATIONS OF COMET "PONS," 27TH JANUARY TO 2ND FEB- RUARY, 1884.

By A. B. BIGGS.

[Read April 8, 1884.]

The spectroscope used was a small direct-vision compound prism by Browning, the telescope being a refractor of 3-inch aperture. After some difficulty in getting the object focussed upon the slit of the spectroscope there flashed out three bright bands. They appeared somewhat pyramidal in form, the base being on the south side of the telescopic image. The relative spaces between them I judged to be about as 2 to 3. I could not distinguish any difference, or even any trace, of colour; they appeared rather to resemble a phosphorescent glow. I had not the means, at the time, of determining their relative positions in the spectrum. On subsequent evenings, however, I took every precaution for determining this point.