

- (3.) *Physa cumingi*, H. Ad., inhabits Australia.
 (4.) *Physa wilsoni*, Tryon, inhabits Australia; perhaps *pyramidata*, Sow.
 (5.) *Physa novaezeelandiae*, Clessin = *P. lessoni*, E. A. Smith, Australia.

ART. XVII.—*Some New Species of New Zealand Marine Shells, together with Remarks on some Non-marine Species, and some Additions to the "Index Faunæ."*

By REV. W. H. WEBSTER, B.A.

[Read before the Auckland Institute, 27th February, 1905.]

Plates IX and X.

NEW SPECIES OF NEW ZEALAND MARINE SHELLS.

Turbo (*Lunella*) *radina* (= *delicate*), n. sp. Fig. 1, *a*, *b*.

Shell flat-topped, whorls $3\frac{1}{2}$, of which the slightly depressed, white, smooth protoconch claims $1\frac{1}{2}$, the next half-whorl, which is slightly rounded, is pale-green, the last is pale-brown. In the neanic stage the sharply angled periphery shows small white projections increasing in size until each assumes the form of a blunt hollow spine, having a dark-grey patch in front of it. The upper surface of the body-whorl slopes sinuously to the keeled periphery, below which are two similar but less developed keels; a single but obscure keel surrounds the deep umbilicus. The entire shell is irregularly but closely radiately striate, the striæ on the upper surface sloping backward. Suture well marked, aperture not continuous, circular, interior iridescent with a white margin inside the aperture. Columella vertical, curved, white, margin reflexed, outer lip thin. Height, $1\frac{1}{2}$ mm.; breadth, $2\frac{1}{2}$ mm. The operculum is characteristic.

Hab. Takapuna.

Type in my collection.

The colour and size of this shell agree with that of half a dozen specimens in my collection, also with a living specimen found at Whangarei by Mr. C. Cooper.

Astraliium pyramidale, n. sp. Fig. 2, *a*.

Shell a pyramid with straight sides, brown above, marbled with green on the base; protoconch obscured by coralline growth, whorls 4, flat in outline but heavily ribbed, the body-whorl having twelve ribs which slope forwards from the suture towards the periphery and are crossed almost at right angles by numerous

squamose growth-lines; each rib ends with a flat hollow tooth projecting beyond the periphery; suture only marked by the serrated periphery, as in *A. heliotropium*. A rounded thread runs round the entire shell about one-third above the periphery. The squamose base is slightly rounded, and has six rounded threads between the outside edge and the columella; the second from the outside is very prominent, the fifth is somewhat so, and both persist into the aperture beneath the nacre. Columella white, vertical, the inside rounded and coated with a layer of dull nacre; there is a very slight umbilical depression. Animal and operculum unknown. Height, 10 mm.; breadth, 13 mm.

Hab. Takapuna.

Type in my collection.

N.B.—This shell does not resemble the young of any of our *Astralbum*.

Rissoia vulgaris (= common), n. sp. Fig. 3.

Shell pale-horny, imperforate, of $4\frac{1}{2}$ well-rounded deeply sutured whorls, the sutures channelled, protoconch small, shining. The entire shell is longitudinally, finely, diagonally striate. Aperture ovate anteriorly, lip thin, columella vertical, slightly reflexed and continued on the body-whorl by a slight callous line. Height, 2 mm.; breadth, $1\frac{1}{4}$ mm. Animal and operculum unknown.

Hab. Waipipi.

Type in my collection.

Rissoia micans (= shining), n. sp. Fig. 4.

Shell minute, imperforate, dark rich golden-brown, highly polished; whorls 4, rounded, divided by deep sutures, no sculpture. Columella vertical, arched, dark-brown, slightly reflexed; aperture circular, not continuous, lip simple, very slightly expanded, and semitransparent milk-white in colour. Height, $1\frac{1}{4}$ mm.; breadth, 1 mm. Animal and operculum unknown.

Hab. Takapuna.

Type in my collection.

Rissoia zosterophila, n. sp. Fig. 5, a, b.

Shell thin, imperforate, with brightly contrasting colours, the upper half of each whorl milk-white, the lower half dark red-brown; the base is horny, thus leaving the red-brown colour as a sub-peripheral band on the body-whorl; this band forks lengthwise about half a turn from the aperture, on reaching the inner edge of which it stops abruptly in most full-grown specimens. Whorls $6\frac{1}{2}$, scarcely rounded, the smooth elevated protoconch taking up two of these. Periphery bluntly angled, a similar pro-

jection being noticed in the outline near the columella. Aperture angled behind, rounded in front, continuous, thin-edged, the edge slightly expanded. Columella nearly vertical, interior transparent. Operculum quite colourless and presenting a malleated appearance on the internal surface. Since deciding upon describing these shells I have had no opportunity of obtaining the animal alive. Height, $2\frac{1}{4}$ mm.; breadth, 1 mm.

Hab. Devonport.

This shell is labelled *R. annulata* in the Auckland Museum, but is not that species as named by Professor Hutton.

*Rissoia carnos*a (= flesh-coloured), n. sp. Fig. 6.

Shell thin, imperforate, flesh-brown, with a cream-coloured band above the periphery, some specimens being a darker brown without the band, others having the last whorl entirely cream-coloured. Whorls $5\frac{1}{2}$ (of which two form the smooth dome-shaped dark protoconch), slightly rounded, the body-whorl more so, and having about twenty straight longitudinal ribs crossed by about twenty-five spiral liræ, which diminish in strength as they ascend to the apex, while the ribs are stronger on the upper whorls and in some specimens die away on the body-whorl. The shell is so thin that the sculpture is plainly visible when looked at through the aperture. Suture well marked; aperture auriform, not thickened anywhere, not continuous. Animal and operculum unknown. Height, $2\frac{1}{2}$ mm.; breadth, $\frac{3}{4}$ mm.

Hab. Takapuna.

Type in my collection.

Rissoia candidissima (= very white), n. sp. Fig. 7.

Shell thin, imperforate, semitransparent-white when fresh. Whorls $4\frac{1}{2}$, of which two form the smooth elevated protoconch, very round, with about twelve distant longitudinal ribs on the body-whorl crossed by twelve spiral liræ. Suture deep, aperture rounded but not continuous, slightly thickened. Animal and operculum unknown. Height, 2 mm.; breadth, 1 mm.

Hab. Takapuna.

Type in my collection.

Rissoina (*Eatoniella*) *limbata*, Hutt. Fig. 8, a.

I give a drawing of the radula $\times 600$ and of the operculum of this species, which was originally described by Professor Hutton as a *Cingula* (the animal being unknown), and then found its way into *Phasianella* (see P. Mal. Soc., iii., p. 8). I also examined the dentition and operculum of transparent-pink and pellucid-white specimens, finding them the same as the type.

Rissoina (Eatoniella) olivacea, Hutt. Fig. 9, a.

I examined the radulae of many typical dark-green and also brown specimens of this shell, further also of the purple-black shells with white sutural band called *R. annulata*, Hutt. I find radula and operculum identical in all. I consider therefore that *R. annulata* intergrades with *R. olivacea*. With Professor Hutton's concurrence I propose for *R. annulata* varietal rank, thus: *Rissoina (Eatoniella) olivacea*, Hutt. (1882); *Rissoina (Eatoniella) var. annulata*, Hutt. (1884).

Rissoina agrestis (= clumsy), n. sp. Fig. 10, a, b.

Shell solid, imperforate, dull, of a purple-brown shading to cream-colour on the body-whorl. Whorls $5\frac{1}{2}$, including a $2\frac{1}{2}$ -whorled domed striato-punctate protoconch with a well-defined convex channel at the suture. The three lower whorls are longitudinally, slightly diagonally, rudely ribbed, the channel being ribbed independently. Aperture somewhat angled behind and rounded in front, very thick. Columella vertical, marked by a white shining stripe. Animal unknown. Length, $1\frac{1}{2}$ mm.; breadth, $\frac{2}{3}$ mm.

Hab. Takapuna.

Type in my collection.

Very like the illustration of *Rissoa impressa*, Hutt.

Eulimella cœna (= ordinary), n. sp. Fig. 11, a.

Shell elongated, slender, white, smooth, imperforate, whorls 7, flat with a blunt heterostrophe apex. Sculpture none, suture slight, aperture ovate anteriorly, columella vertical and slightly twisted. Height, $2\frac{1}{2}$ mm.; breadth, 1 mm. Animal and operculum unknown.

Hab. Takapuna.

Type in my collection.

Corbula pura (= clean), n. sp. Fig. 12, a.

Shell white, thin, tinged with pink before and behind the umbones, which are one-third from the posterior rounded end. The fold is sharp, its outline concave, its anterior end being far in advance of the anterior dorsal margin. Prodissoconch quadrate, plain, slightly eroded, the entire shell lightly but clearly and regularly both concentrically and radiately striate, left valve very slightly the larger. Hinge teeth, sinus, and scars, &c., normal. Height, 5 mm.; breadth, 10 mm.; depth from valve to valve, 3 mm.

Hab. Dredged in Rangitoto Channel.

Type in my collection.

Standella aequalis (= uniform), n. sp. Fig. 13, *a*.

Shell a true oval, umbones two-fifths from the anterior end; the entire shell, prodissoconch included, lightly and irregularly concentrically striate. Hinge teeth, sinus, scars, &c., normal. Height, 17 mm.; breadth, 27 mm.; depth of single right valve, 6 mm.

Hab. Kauri Point.

Type in my collection.

REMARKS ON SOME NON-MARINE SHELLS.

Thaumatodon varicosa, Pfeiffer.

All the shells collected near Waiuku have two teeth, one on the body-whorl and another at the base of the columella margin. This is the case with both adult and juvenile specimens.

Ptycodon pseudoleiodon, Suter.

This shell is found in Waiuku in the adult stage normal and also with combinations, 3 · 1 · 7; 3 · 1 · 10; 3 · 1 · 12, &c.

Phrixgnathus phrynia, Hutton.

This and other shells are found in Waiuku with callous patches indicating the development or loss of throat teeth.

Laoma marina, Hutton.

This occurs (adult) with the throat teeth of *L. nerissa*, Hutton.

SHELLS TO BE ADDED TO FAUNA LIST.

The following shells in my collection should be added to or reinstated in the list of our fauna:—

Sigaretus undulatus, Hutt. Cape Maria van Diemen.

Ancilla depressa, Sow. Orua Bay.

Terebra venosa, identified by Mr. Suter. Cape Maria van Diemen and Port Waikato.

Pyrgulina rugata, Hutt. Takapuna.

Leuconopsis inermis, Hed. Takapuna.

Pholadidea spathulata, Sow. Narrow Neck.

Venericardia amabilis, Desh. Cape Maria van Diemen.

Venerupis carditoides, Lam. Takapuna.

Philene teres, Hed. Cheltenham Beach, Auckland.

Also the following two shells, which have been omitted from the "Index Faunæ":—

Venus (Gomphina) maorum, Smith, J., of Mal. 1902, ix., pt. 4.

Unio (Diplodon) websteri, Simpson, "Nautilus," July, 1902.