THE

PROCEEDINGS

OF THE

LINNEAN SOCIETY

OF

NEW SOUTH WALES.

VOL. III.

[With Twenty-seven Plates].

Sydney:

PRINTED & PUBLISHED FOR THE SOCIETY

By Foster and Fairfax, 14 Barrack Street,

AND SOLD BY THE SOCIETY.

1879.

On some Freshwater Shells from New Zealand.

By the Rev. J. E. Tenison-Woods, F.G.S., &c.

Plate 13, figs. 2, 3, 4, 5, 6.

The following freshwater shells were submitted to me for examination by Captain Hutton, F.G.S., from Lake Guyon, and Taieri River, with three species of *Bythinella* from the same localities. From the list given by Edward Von Martens, it appears that he regards *Paludestrina* and *Hydrobia* as synonyms and = to *Amnicola*, Gould. In July of this year, I sent a paper to the Royal Society of Tasmania, in which I reviewed the whole synonomy of *Hydrobia*, *Amnicola*, *Lithoglyphus*, *Paludestrina*, *Paludina*, *Paludinella*, *Littorina*, and *Bythinia*, all of which have at one time or another been regarded as names for the same kinds of shells. After having sent away my paper I was allowed to withdraw it, having found that P. Fischer had in the Journal of Conchology for April, 1878, given a valuable note on the same subject. I was thus enabled to incorporate his conclusions with my own, he having the advantage of seeing types of the genera he dealt with. His conclusions were nearly the same as I had arrived at, except that I was not aware any more than Von Martens, that Hartmann's *Hydrobia* entirely referred to marine species. Now Martens, it appears, regards *Hydrobia coralla* of Gould, as the type of Stimpson's *Potamopyrgus*, an opinion which is hardly shared by P. Fischer, as far as I can

gather from the paper referred to. Mons. Fischer's conclusions are that the genera *Hydrobia* and *Paludestrina* are synonymons, including marine and fluviatile shells, but as Hartmann only employed the term for marine shells, the name should be confined to them. 2. That *Paludinella* and *Assiminea* are synonymons. 3. *Amnicola* is probably a genus peculiar to America. 4. The little fluviatile species of *Paludina* with spiral opercula, should be arranged under the genus *Bythinella*, which is the only genus specially erected for them. 5. The marine species should be called *Littorinella*. 6. Mons. Fischer doubts however if the marine and fluviatile forms are generically distinct. Any further remarks on the subject are contained in my paper read before the Royal Society Tasmania. I merely state that I adopt the conclusions of Mons. P. Fischer.

Genus BYTHINELLA, *Moquin Tandon*, 1855.

Bythinella coralla, Gould (*Melania**), Boston Soc. Nat. Hist., vol. 2, p. 4. "This," says V. Martens, "is a very variable shell, sometimes with spines and sometimes destitute of them." Some of the figures of the species from the different authors who have given it different names, vary very much, yet I have no doubt that the shell is in every case the same as that which is represented on the accompanying plate; and I have but little doubt also that these forms are specifically identical with others under different names which are found in Australia and Tasmania. At least I cannot point out any single feature upon which I could rely for their distinction. Under these circumstances, it will serve no useful purpose to multiply names any more than to say that those shown on plate 13, figs. 2, 3, 5, are what I distinguish as variety a. and b. The differences between this shell and *B. Wisemaniana*, Braz., are that the spines are always distinct on the New Zealand shell, but they often merge into a keel on the species named. I think also the latter is a less turriculate and more turbinate form. The absence of these spines or keel from some of the specimens, is I imagine, wholly attributable to the fact that these features result from a periostraca which readily disappears.

* Either Reeve's figure of the shell is incorrect or the species must be different as the peristome is not continuous.

It will be remarked that those forms which have no spines are clean, smooth, diaphanous shells. All the specimens seen by me have more whorls, are more solid, and generally larger shells than those of Tasmania and Victoria; the operculum is few whorled with a lateral nucleus; some portions of it are almost transparent, while there are darker spots of reddish brown color, and the whole seems covered with a secondary exterior membrane of sooty appearance rather like the periostraca. A smooth variety is represented at plate 13, fig. 3. *Paludestrina Cumingiana*, M. P. Fischer, (Jour. Conch. 1860, p. 208,) is said by its author to be distinguished by its globular ventricose form; absence of spines on $3\frac{1}{2}$ first whorls, their greater number (17—20) on last whorl; their length, obliquity (curving towards spire); the obsolete keel on last whorl corresponding to spines; the peristome slightly thickened and entire. *Paludestrina salleana*, Fischer, is more conical, less globular, shorter spines, and on four last whorls, keels lirate but below the spines; last whorl less proportionately swollen. The figure of these two shells in the journal referred to seem to me to be too highly colored and would not lead one to infer that the spines arose from a periostraca, which they certainly do.

The Physas sent to me differ considerably from the only two attributed to New Zealand by Von Martens, *P. tabulata*, Gould, and *P. variabilis*, Gray; but there are many more described by Reeve who does not notice the latter by Gray.

Physa tabulata is a much more inflated shell than the one first to be described; stouter, more solid, especially in the columella. *P. Novæ Zelandiæ*, Gray, is nearer but still wider, more flattened, and with a thicker columella. *P. antipodea*, Sow., is elongated and not flattened. *P. gibbosa*, Gould, (*Wilkes Expl. Exp.*) is very like it and corresponds closely in size and colouring. Gould's description is "*breviter subcylindracea, pallide straminea, polita, spira brevi, conica, acuminata, ult. anfr. superne gibbosa vel rotundate angulata, antice attenuata, apertura elongata, labio externo rectiusculo, plica columellari, brevi tortuosa.* There are quite sufficient differences to make one decide on calling the following a new

species. The differences are the color, the double angle on the whorls above and below the flattened portion; but I do not deny that they may be only varieties of one type of which *P. tabulata* is the extreme.

PHYSA GUYONENSIS, N. S. Plate 13, fig. 4.

P. t. subumbilicata, ovata, tenue striata lineis incrementi tantum, parum nitente, opaca, superne corrosa, luteo-cornea vel olivacea, plus minusve sordide atro nebulosa; anfr. 4, valde declivibus, rapide decrescentibus, ultimo valde superanti, medio late planato, 2 carinis obsoletis insignito; spira brevi, acuta; apertura late ovata. Peristoma acutum rotundatum, Labio reflexo, columella crassiuscula. Long. 13, lat. 7½ long. apert 9, lat. 5, long. spire 4.

Lake Guyon, New Zealand.

Shell subumbilicate, ovate, slightly striate with the lines of growth only, somewhat shining, opaque, corroded above, yellowish horn or olive, more or less sordidly clouded with black; four whorls rapidly decreasing and very much sloping; last much larger than the rest, and broadly flattened in the middle, with two obsolete keels in the midst, short, acute, aperture broadly ovate. Peristome acute, rounded, lip reflected, columella rather thick.

This species seems especially distinguished by the short spire, the sloping form, the flattened last whorl which has a faintly rounded keel above and below it. The thickening of the columella and the subumbilication are also peculiar. It is an approach to some of the North Australian forms, but not very near, and there is no congener like it in Southern Australia or Tasmania.

PHYSA LIRATA, N. S. Plate 13, fig. 6.

P.t. parva, imperforata, elongato-ovata, sub-diaphana, luteo-cornea, periostraca fuliginosa plus minusve induta; anfr. 4, declivibus, spiraliter punctatis regulariter liratis, superne conspicue carinatis, lineis incrementi confertis, tenuissimis; spira exserta, acuta; apertura elliptica, peristomate acuto, tenuissimo, labio contorto, haud reflexo, exacte definito, antice valde producto. Long. 9½, lat. 5, long. apert. 5, lat. 3, long spire 3, millim. Taireri River. Capt. F. W. Hutton.

Shell small imperforate, elongately ovate, shining, sub-diaphanous, yellowish horn, covered more or less with a sooty periostraca; whorls 4, sloping spirally and regularly punctately lirate (liræ somewhat distant), carinate above, lines of growth close and very fine; spire exsert, acute; aperture elliptic; peristome sharp, very thin; lip not reflected but twisted, exactly defined and anteriorly produced.

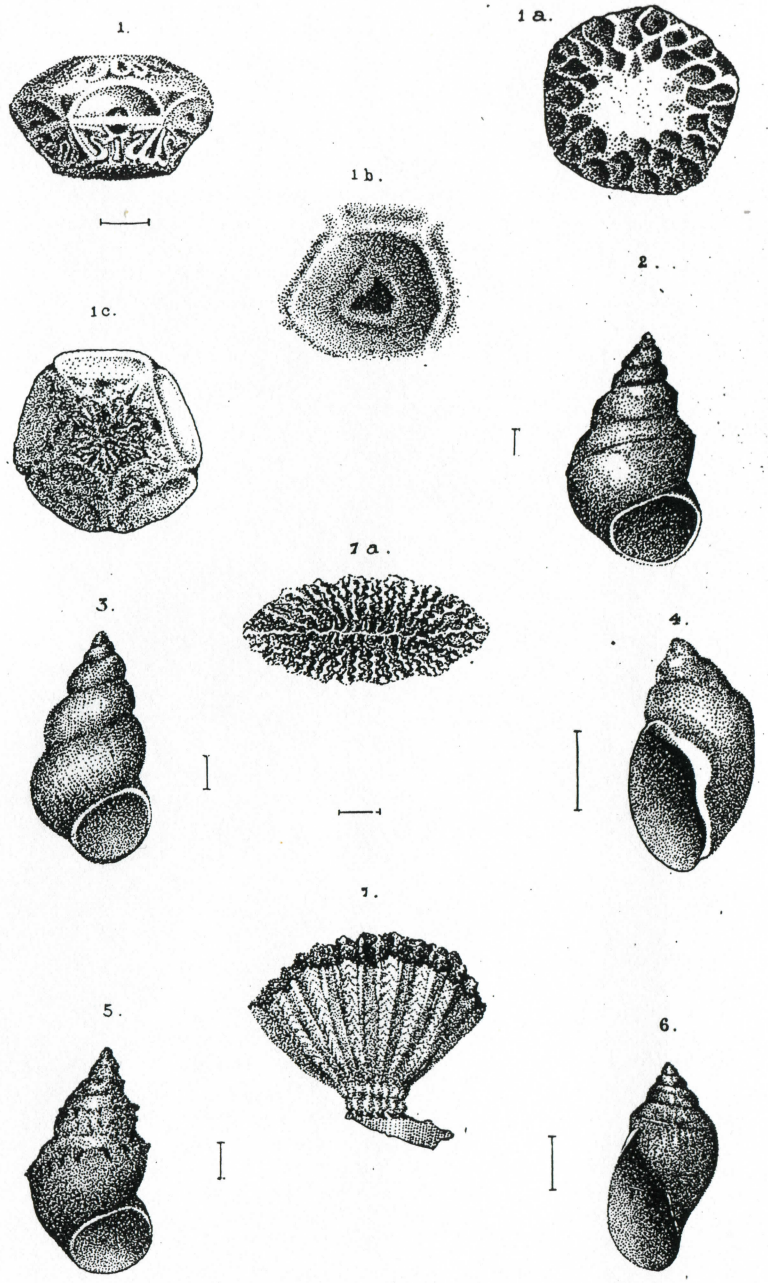
This shell differs from the preceding in its narrow elongate form and the conspicuous keel. On some specimens a second faint keel above may be noticed. When the shell is covered with periostraca the keel becomes a line of somewhat indistinct granules. This coupled with the faint indistinct dotted line makes me think that the shell in its perfect state or in its young state is covered with a horny periostraca, which has regular lines of spines or hairs at intervals. It would then resemble some of the Victorian and Tasmanian species, except that none of the hirsute kinds are so small as this shell, nor have they any keel. With these exceptions, the present shell comes nearest to *Physa Brunonensis*, Sow., of any Australian congener, and the nearest in New Zealand is *P. mœsta*, H. Adams, which is angled above but longer and more inflated.

The following is a list of all the N.Z. *Physæ* known to me. *P. tabulata*, Gray, *P. gibbosa*, Gould, *P. variabilis*, Gray, *P. Novæ Zelandiæ*, Gray, *P. mœsta*, H. Adams, *P. antipodea*, Sow., *P. guyonensis* and *P. lirata*, Nobis.

EXPLANATION OF FIGURES.

PLATE 13.

Fig. 2. *Bythinella corolla*, Gould; much enlarged.
Fig. 3. Variety a, much enlarged.
Fig. 5. Variety b, ditto.
Fig. 4. *Physa guyonensis.*
Fig. 6. *Physa lirata.*


1.
1a.
1b.
1c.
2.
7a.
3.
4.
7.
5.
6.