

tioned by Gray in Dieffenbach's "New Zealand," is not in any of our museums with New Zealand as locality, and has not been found here by any collector since it was described by Gray. We therefore may place it amongst our very doubtful species, though its occurrence in New Zealand is not impossible, and would correspond with the habitat of *Therasia ophelia*, Pf., which is said to have been found also near Cape York, Queensland.

ART. XXII.—*Miscellaneous Communications on New Zealand Land and Fresh-water Mollusca.*

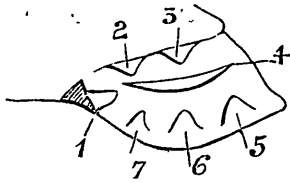
By H. SUTER.

[Read before the Philosophical Institute of Canterbury, 4th November, 1891.]

1. *Potamopyrgus*. In my last paper on our molluscs (Trans. N.Z. Inst., vol. xxiii., p. 94) I recorded the fact of *P. corolla*, Gould, being viviparous. I unfortunately forgot to mention that Professor F. W. Hutton had already brought this peculiarity to our knowledge in 1881 for the species *P. cumingiana*; Fischer, and *P. antipodum*, Gray (Trans. N.Z. Inst., vol. xiv., p. 144), and had also given figures of the embryonic shells. The priority of the discovery therefore belongs to our distinguished conchologist Professor F. W. Hutton. There remains only *P. pupoides*, Hutt., to be examined on its mode of propagation.

2. *Laoma marina*, Hutt., and *L. nerissa*, Hutt. Some years ago, when collecting in the Forty-mile Bush, North Island, I had the opportunity of examining a good number of the above-named shells, and I then made the observation that the lamellæ of the aperture of these shells show a great variability. I found specimens showing the three lamellæ only of *Laoma marina*, others—mostly smaller ones—with the seven lamellæ of *L. nerissa*; but I obtained also a good number of shells which were, with regard to the number of lamellæ, intermediate forms, showing more lamellæ than *L. marina* and less than *L. nerissa*. I thus became convinced that the two species are in reality but one; but it was not until some months ago that I found time for fuller investigation. Through the kindness of Mr. Charles T. Musson, of Sydney, who had been collecting in the Province of Auckland, I obtained a number of shells, and amongst them twenty-nine specimens of *L. marina* and *nerissa*, collected at Mount Wellington, Auckland. These I submitted to a close examination, the result of which I wish to give here.

As the figure shows, I give No. 1 to the columellar plait, 2 and 3 to the plaits on the penultimate whorl, 4 to the plait on the right lip above the keel, and 5, 6, 7 to the teeth on the basal lip. The lamellæ 1-4 are large, acute plaits, going some distance into the interior of the shell, whilst the



three teeth on the basal lip are only blunt elevations from a white callosity extending from the keel to the columella. Now, the type of *L. marina* shows the lamellæ 1, 3, 4 only, and *L. nerissa* 1 to 7. Amongst the specimens examined, eight were *L. nerissa*, eleven *L. marina*, and ten

belonged to intermediate forms. The columellar plait, 1, and the plaits 3 and 4 were found to be constant, never missing. Plait 2 was absent in twelve adult specimens, and rudimentary in seven shells, situated far back, and difficult to be seen. The callosity on the basal lip was never wanting; it could be observed even in typical specimens of *L. marina*. In fifteen shells there was only this callosity to be seen, without any denticulation. Of the teeth 5, 6, 7, the last one is the smallest, and therefore easiest reabsorbed. The teeth 5 and 6 were missing in twelve specimens, but tooth 7 in nineteen. The most frequently absent plait of all is 7; of the others, 2, 5, and 6 are equally often wanting.

The type of *L. marina* is only found in adult shells, *L. nerissa* in younger ones, which agrees well with the dimensions of the shells as given by Professor F. W. Hutton (Trans. N.Z. Inst., vol. xvi., p. 176)—0.13in. diam. for *L. marina*, and 0.11in. for *L. nerissa*.

All my observations lead me to the conclusion that in the young shells all the seven plaits are developed, but are reabsorbed later on in such a way that 7 first disappears, followed by 2, 5, 6, thus leaving for the adult shell the plaits 1, 3, 4 only.

I am of opinion that all these facts taken together show clearly that *L. marina* and *L. nerissa* are but one species; and this has been confirmed by examining their dentition. I prepared the radulæ of *L. marina*, *L. nerissa*, and an intermediate form, but all showed the very same dentition, and there is no doubt possible but that the two species must be united in one.

The name which has to be retained is *Laoma marina*, Hutt., being that of the adult shell. The diagnosis of the shell has to be slightly altered with regard to the plaits, as all the other parts of the shells are very much the same in both of the descriptions given by Professor F. W. Hutton. I propose the following diagnosis:—

*Laoma marina*, Hutt. (1883) (= *L. nerissa*, Hutt., 1883).

Shell conoidal, subperforated, striated; colour pale-yellowish horn, sometimes faintly banded with chestnut, and tessellated with the same colour at the keel. Spire conoidal, rather obtuse; whorls  $5\frac{1}{2}$ , slowly increasing, rather flattened, the last acutely keeled, delicately but rather irregularly striated; suture margined; umbilicus covered; aperture vertical, subrhomboidal; peristome thin; columella with a large acute plait; in the adult specimens two parietal plaits, one on the penultimate whorl near the outer side, the other on the right lip above the keel; basal lip slightly callous. In younger shells a second plait on the penultimate whorl near the columella, and three blunt plaits on the basal lip, may be observed. Of the basal teeth the innermost is the smallest, and most frequently missing. Greatest diam. 0.13, least 0.11; height, 0.1 in.

3. *Thera barbatula*, Reeve (= *Helix beta*, Pf., 1854). In the revision of our land-shells by Professor Hutton this shell is mentioned as synonymous with *Th. stipulata*, Reeve (*Helix alpha*, Pf.) (Trans. N.Z. Inst., vol. xvi., p. 193). Recent experience has shown me that this is not correct, but that the two species are very different, and each of them well characterized. Mr. A. Hamilton, of Dunedin, some time ago kindly sent me living specimens of shells collected in the neighbourhood of his town, and amongst them was a good number of *Thera stipulata*, R. On closer examination I found three specimens which differed considerably from the others, and on comparing them with descriptions they proved to be *Thera barbatula*, Reeve. In this species the diameter is only  $3\frac{1}{2}$  mm., as against  $4\frac{1}{2}$  mm. in *Th. stipulata*; whilst the height is nearly the same,  $3\frac{1}{2}$  mm. and 3 mm. respectively. Therefore *Th. barbatula* is trochiformed, and *Th. stipulata*, with a broader base, conical. The first has 7 whorls, the latter only 5 to  $5\frac{1}{2}$ . *Th. stipulata* is lamellarly ribbed, the membranaceous lamellæ are broad, extending over the whole breadth of the whorl, and ending in a short hair. *Th. barbatula* is strongly plaited, but the membranaceous lamellæ develop only near the keel, each ending in a rather long filament.

It is very likely that no difference was made between the two species in the collections which passed through the hands of Professor F. W. Hutton, or that *Th. barbatula* was wanting altogether. Up to the present I have not seen the latter from any other place than the neighbourhood of Dunedin, and it seems to be rather scarce.

4. *Vitrinoidea dimidiata*, Pf., the slug-like mollusc, was sent to me some months ago by Mr. Cavell, of Boatman's, near Reefton, a most enthusiastic collector and conchologist, who found

it in the neighbourhood of his place. To my knowledge this mollusc was hitherto only recorded from the North Island, and its occurrence on the South Island is highly interesting. I may add that Dr. O. F. von Moellendorff, one of the highest authorities on the molluscan fauna of the Philippine Islands, &c., fully agrees with me that our mollusc belongs to the genus *Vitrinoidea*, Semper.

ART. XXIII.—*On the Dentition of some New Zealand Land and Fresh-water Mollusca, with Descriptions of New Species.*

By H. SUTER.

[Read before the Philosophical Institute of Canterbury, 4th November, 1891.]

Plates XX.—XXIII.

***Paryphanta urnula***, Pf. From Lowry Bay, Wellington.  
Plate XX., fig. 1.

*Radula* about 14mm. long, 3½mm. broad at the anterior end, tapering posteriorly, with about 40 transverse rows of teeth, the rows forming an obtuse angle of about 120°, salient posteriorly.

Teeth, 14—0—14, all aculeate; the first rather small and fragile, rounded anteriorly and pointed behind. The following teeth are growing longer, with a curved ridge across the middle, thus giving them the appearance of an open knife. On the fourth tooth the forming of a median projection on the outer side is beginning, and a longitudinal ridge is running down the posterior half of the tooth. The teeth are increasing in size to the last but one. The thirteenth is long and stout, broadly rounded anteriorly, the head of the tooth sole-shaped, a longitudinal almost straight ridge along the inner side of the tooth. Last tooth only about half the length of the foregoing.

The radula of this species is remarkable for the small number of teeth, compared with *P. busbyi*.

The specimens were kindly given me by Sir James Hector. Two are kept alive, but will be used later on for further investigations.

***Phacussa hypopolia***, Pf. From Hooker Valley, South Island.  
Plate XX., figs. 2, 3, 4.

*Jaw* strongly arcuated at both ends, rather high, slightly tapering, with numerous narrow plaits, which denticulate