OBSERVATIONS ON THE VARIABILITY OF THE TASMANIAN *UNIO*.

By R. M. Johnston, F.L.S.

Having collected many specimens of the genus *Unio* inhabiting the northern rivers of Tasmania, during the last seventeen years, more especially those found in various parts of the South Esk River, I have often been much impressed with the extreme variability of form and colour exhibited by different individuals. This is more particularly remarkable if specimens marking different stages of growth are compared with each other.

If specimens marking seven successive stages of growth be compared together as in the plate accompanying this paper, it will be observed that the variation in form—from youth to the adult stage—embraces characteristics which cover most of the distinctions upon which many of the Australian forms mainly depend for the recognition of distinct specific rank. Nor is this variability confined to the form of the shell. In the *first four stages of growth* the examples collected by me near Carrick, on the South Esk, correspond in nearly in all respects with *U. Wilsoni* (Lea), as figured and described by Reeve (fig. 472), *i.e.*, "Shell thin, rather depressed, elliptic, oblong, somewhat retuse below, with delicate and concentric grooves, shining, olive green, obscurely rayed (some examples only); umbonas ridge rounded and scarcely raised; beak a little prominent and not sculpturic; nacre, bluish white; primary teeth small, oblique, lamellar; lateral teeth, long, straightish."

Among these stages of growth some are to be found which are with difficulty distinguished from *U. Stuartii*, Adams and Angus, especially in its young stage.

Many of the individuals of the *fourth and fifth stages of growth* agree in most respects with *U. Nepeanensis*, Conrad, while the individual variations of the adult or *sixth and seventh stages*, embrace generally all the characteristics of the following Australian forms, viz.—

Unio Australis. *Lamarck*
—— depressus. *Lamarck*
—— ambiguus. *Parreys*
—— Balonensis. *Conrad*
—— Phillipianus. *Kuster*
—— Moretonicus. *Reeve*
—— Vittatus. *Lea*

If such be the variability of our local form in the individuals of the various stages of growth, there is good reason for the belief that the several forms erected into specific ranks in

various parts of Australia may ultimately prove to be local varieties, or particular stages of growth of one widely distributed species. Indeed, any of those named have already been linked together in the very interesting communications contributed by Edgar A. Smith, F.Z.S. (1), Prof. Tait and J. Brazier, F.Z.S. (2). For these reasons I, at least, am disinclined to accept a fresh synonym for the Tasmanian variable form. Among the individuals which prevail locally, of course, it would be easy to select some one or two types which would slightly differ in size and form with any one type-figure of allied Australian forms, but such a proceeding would be very misleading when we regard the extreme variability of our local example. As an illustration of what might be done in this way, I may observe that the manner in which the umboes of the shell are eroded by carbonic acid, often produces malformation or some considerable modification in the form of adult specimens.

This is conspicuously the case with one of the specimens figured (No.); and it is also remarkable that in this same specimen the animal has almost completely absorbed the primary teeth in both valves, while the lateral teeth have been partly absorbed towards their extremities.

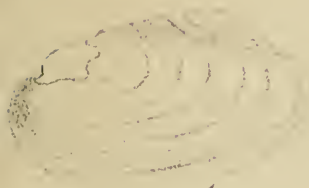
Under these circumstances it is apparent that a satisfactory classification of the *Unionidæ* of Australia cannot be established until the various stages of growth, and the individual variability of the forms of each Australian habitat have been properly studied. The observations made in this paper, together with the accompanying figures of Tasmanian forms, will, I hope, be of some help in this direction.

1 On the Fresh Water Shells of Australia (Journ. Lin. Soc., April, 1882).

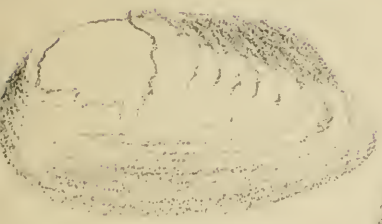
2 Check List of the Fresh Water Shells of Australia (Pro. Lin. Soc. N.S. Wales, May, 1881).

1

2

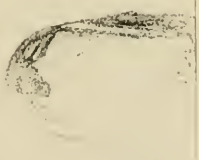


4

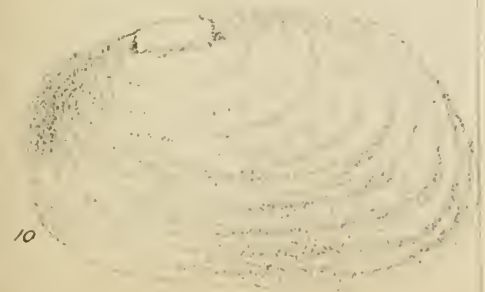


5

8

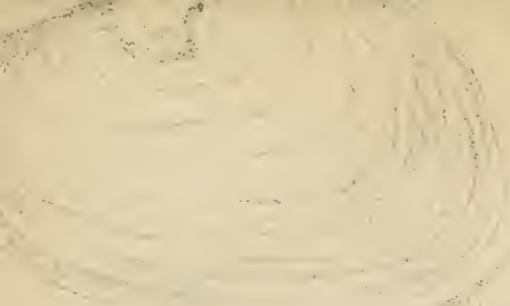


8a



10

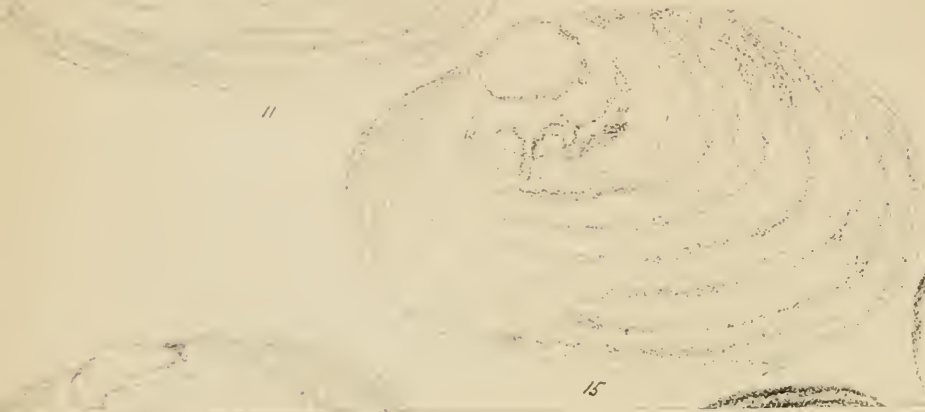

1
2
3
4
6
5
7
8
8a
10
9



11

12

13



15


12
13
15
16
14
16