XLII.—*On the genus* Waltonia. By Thomas Davidson, Esq.

[With a Plate.]

M. Bouchard and myself, in Jan. 1848*, published a detailed description of the genus *Magas*, Sowerby, with figures illustrating the internal structure of this remarkable little shell, at that period incompletely known. Some time after I wrote a paper† with figures on a recent species known under the name of *Terebratula rosea*, which shell, from the peculiar arrangement of its internal organization differing from that of all known Brachiopoda, led me to propose for it a distinct generic name, that of *Bouchardia*, belonging to the family of *Magasidæ*; *Magas pumilus* and *Bouchardia rosea* being the only species in each genus. During a late visit to Paris, M. Valenciennes kindly lent me specimens of recent *Terebratulæ* brought to Europe by Quoy and Gaimard; and on a tablet on which were placed several specimens of *Terebratula sanguinea*, Leach, I found a small shell whose organization was completely different from those with which it was surrounded, but offering characters not allowing of its being placed in either *Magas* or *Bouchardia*, but claiming a new generic name, and forming part of the family of *Magasidæ*. M. D'Orbigny, in his 'Pal. Franç. Ter. Crétacés,' vol. v. p. 52, places in this family *Magas* and *Terebratulina*; I cannot however agree with that author in this association, as I consider the organization of *Ter. Caput serpentis* to be completely different from that of *Magas*, and not to belong to the same group or family. In a very interesting paper by Mr. King‡ on certain genera of Palliobranchiata, the internal organization of *Terebratula rosea* is alluded to; and in the great work by that author on the Permian fossils of England, Mr. King has adopted and placed in the same family of *Magasidæ* the genus *Magas*, Sow., and my *Bouchardia*.

Genus Waltonia.

Char. Shell bivalve, inequivalved, equilateral, subovate, slightly convex; beak almost straight, partly truncated by a large foramen extending from the summit to the umbo of the ventral valve which it partly encircles; deltidium small, disunited, and forming only a portion of the peduncular opening: at the base of the beak are two strong teeth corresponding with the sockets of the ventral valve. The interior of the dorsal valve is simple, with a slight central longitudinal elevation dividing the shell into two equal portions, not extending quite to the margin. In the ventral valve

* Bull. Soc. Géol. de France, vol. v. 2nd series, p. 139, pl. 2.

† *Ibid.* vol. vi. 2nd series, 1849.

‡ Annals and Mag. of Nat. Hist. vol. xviii. 1846.

a strong elevated central plate arises near the umbo, describing a gentle curve, diverging more obliquely again, and by another curve attains the central ridge of the dorsal valve on which it rests, and from whence it descends, forming a gentle diagonal line to the bottom of the ventral valve. From the inner edge of both the dental sockets of this valve a ribbon-shaped lamella by a gentle curve rises to near the middle of the central plate to which they are attached.

Obs. From the inspection of this shell it will be seen, that by its beak, foramen and teeth it differs considerably from *Magas* and *Bouchardia*. In the last-named genus the foramen is completely surrounded by the substance of the shell and separated from the umbo of the ventral valve, without deltidium, while in *Waltonia* the position of the foramen, deltidium and umbo are exactly similar to that of the genus *Terebratulina*, D'Orb.: it approaches also more to *Magas* by the simplicity of its hinge. Besides these particular family characters we find the same calcareous support, and the same central elevated plate, but more simple in its details. In *Magas*, besides the two ribbon-shaped lamellæ described, we find two upper anchor-shaped lamellæ situated parallel to the under ones: these are not to be seen in *Waltonia*, which has only one pair; while in *Bouchardia* the under ones are completely wanting, and we find only the upper or anchor-shaped pair. Thus *Magas* would be characterized by two pair of lamellæ, *Waltonia* by the lower ones only, and *Bouchardia* by the upper ones. In all three the dental portion and foramen vary. The punctuation also is less strong in *Waltonia* than in *Magas*, and more so than in *Bouchardia*.

On these important differences I think myself authorized to propose for this little shell a distinct generic title, and I take much pleasure in dedicating it to my old friend William Walton, Esq. of Bath.

Waltonia Valenciennesii, nob. Pl. XV. fig. 1.

Shell small, of a red colour, ornamented by irregular costæ or undulations disposed as in *Ter. fimbria*, the central costæ being directed towards the umbo, but extending only from the margin to about half the length of the valve. The lateral costæ, instead of being directed towards the umbo as in all plicated *Terebratulæ*, diverge in a sloping manner towards the middle of the shell, and consequently could never reach the umbo (see figures). The dorsal valve is more convex than the ventral one, which is almost flat, with two ears similar to those visible in *Terebratula Caput serpentis*, &c.; foramen large. Length $2\frac{1}{2}$ lines, breadth 2 lines, depth 1 line; from the seas of New Zealand, where Quoy and Gaimard discovered it.

I dedicate this species to M. Valenciennes, whose talents and associations with Lamarck and Cuvier place him in the first rank among our European scientific men.

The only specimen known belongs to the Garden of Plants; and in order to illustrate the distinctions between the three genera of this small family, I have given in Pl. XV. profile views of *Magas* (fig. 2), and *Bouchardia* (fig. 3), which thus express to the eye what the writer of this paper has been unable to describe.

Fig. 1 is the natural size of *Waltonia Valenciennesii*; the other figures are enlarged.

I have also here to express my thanks to my old friend M. Bouchard, to whom I exposed my views on this new genus, and in which he completely concurred.

XLIII.—*On the Operculum of Gasteropodous Mollusca, and an attempt to prove that it is homologous or identical with the second Valve of Conchifera.* By J. E. Gray, Esq., F.R.S.

To the Editors of the Annals of Natural History.

Gentlemen,

Having for several years entertained the opinion that the operculum of Gasteropods is identical with the second valve of bivalve shells, and having in the 'Synopsis' of the British Museum for 1842, and in several papers on Mollusca, mentioned it in that light, without any naturalist having attempted in any way to dispute the theory, I was induced to believe that it had been adopted as an axiom; but having lately mentioned the fact in the presence of Mr. Owen and several other comparative anatomists, and finding that they were not prepared to admit the propriety of the comparison, I have been induced to put on paper the reasons which led me to adopt the theory, which I have neglected to do before. I am the more induced to do so, as on reading Professor Lovèn's paper, I find that that very accurate and profound malacologist, who has paid much attention to the relation which the different classes of Mollusca bear to each other and the homologies of the different organs, though he has observed that these Mollusca are provided with a particular part, before very generally overlooked, which he calls the *lobus operculigerus*, but which I have long ago described as the mantle of the operculum, yet considers the operculum as analogous to *byssus*. His observations are as follows:—

"The Gasteropods have also another part of the foot, which may be named *lobus operculigerus*, sometimes highly developed

Davidson, Thomas. 1850. "XLII.—On the genus Waltonia." *The Annals and magazine of natural history; zoology, botany, and geology* 5, 474–476. https://doi.org/10.1080/03745486009494949.

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