

sent to Dr. A. S. Packard by Dr. Lütken, under the name of *B. paludosus*, Müller. The latter appears to be quite distinct, to judge from the figures; it is represented as having appendages between the claspers, and very slender, linear caudal appendages. In the form of the egg-pouch and the serration of the first joint of the claspers it is similar.

This species is very closely allied to *B. arcticus*; and when a larger series of specimens can be examined, it may prove to be only a local variety; but the specimens studied show differences that seem to warrant their separation.

XL.—On some *British Freshwater Shells*.

By J. GWYN JEFFREYS, F.R.S.

I LATELY received from Mr. Thomas Rogers, an active and enthusiastic naturalist at Manchester, specimens of a small *Planorbis*, for my opinion. He discovered them in the Bolton Canal. They proved to belong to a species new to Europe, viz. the *P. dilatatus* of Gould (*P. lens*, Lea), which was originally found near Cincinnati, and inhabits an extensive tract of the United States. The shell is about the same size as *P. nautilus*, which may be considered its nearest ally; but it has one whorl less, the periphery is angulated, the underside is remarkably gibbous, the mouth is very large, squarish, and scarcely oblique, the outer lip is expanded ("so as to make it trumpet-shaped," Gould), and the umbilicus is abruptly contracted, small, and deep. Some of the Manchester specimens are more or less distinctly, though microscopically, striated in the direction of the spire. The following is a description of the animal or soft parts:—

Body dark grey, often with a slight orange tint, closely and minutely speckled with flake-white: *mantle* thick, lining the mouth of the shell: *head* large and tumid: *mouth* furnished with broad lobular lips: *tentacles* cylindrical and extensile, widely diverging, broad and triangular at the base; the sheath or outer part is gelatinous, and the core or inner part is of a much darker colour and apparently greater consistence; tips rounded: *eyes* sessile, on the inner base of the tentacles: *foot* oblong, squarish in front, and bluntly pointed behind: *verge* curved, on the left-hand or umbilical side of the shell. The spawn is arranged in an irregular mass containing about a dozen membranous capsules, each of which has a yellowish yolk or vitellus in the centre.

It is active, and occasionally creeps, like many other aquatic

Gastropods, on the under surface of the water, with its shell downwards.

Inhabits the Bolton and Gorton Canals at Manchester.

Suspecting that this American species had been introduced into our canals through the cotton-mills, I wrote to Mr. Rogers for information; and he tells me that in one habitat (and probably in the other also) the waste from the first process or "blowing-machine" is discharged close to that part of the canal where the *Planorbis* occurs. As the best cotton is cultivated in river-bottoms, and the crop, when picked, is spread out and dried, nothing is more likely than that it should take up either the *Planorbis* or its eggs; and these could be transported alive to any distance. The vitality of *Planorbis*, and its capability of enduring considerable changes of temperature, may be inferred from the habit which certain species are known to possess of closing the mouth of the shell in summer (when the shallow pieces of water in which they live are dried up) with an epiphragm or membranous lid, to exclude the heat and prevent the evaporation of the natural moisture. Thus protected, they keep alive for weeks, and even months, until the return of the rainy season.

In connexion with the foregoing, I would suggest that *Sphærium ovale* may have been introduced in the same or some other way from the United States. That species also inhabits the canals near Manchester, and may be the *Cyclas transversa* of Say. It has long been known in this country. I have a specimen which was in Dr. Turton's collection of British shells more than forty years ago.

I have written to Mr. Anthony, of Cambridge, Mass., one of the leading conchologists in the United States, for information as to the range of distribution there of both these species, and especially as to whether they, or either of them, inhabit the cotton-growing districts.

Several species of land-shells (e. g. *Zonites cellarius* and *Helix nemoralis*, var. *hortensis*), and perhaps of freshwater shells also, are supposed to have been introduced into North America from Europe by the agency of man, and are now thoroughly acclimatized in the former continent.

XLI.—*Notes on Seals (Phocidæ) and the Changes in the Form of their Lower Jaw during Growth.* By Dr. J. E. GRAY, F.R.S. &c.

ONE of the most important studies of zoologists has been the examination and comparison of the differences in the colour



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