

"I send by this mail more of the *Bulimulus* you ask about; they are all dead shells. I could find no living ones; and have found these only in Cook and Montague Counties, Texas, at the top of the Red River Bluff, associated with the small shell (*Helicina orbiculata*) inclosed. The large *Helix* inclosed (*H. roemeri*) was at the foot of Bluff in the Red River Bottom. The *Bulimulus* was discovered by myself one mile north of St. Jo, Texas, in 1888, and again at the lower end of Warren's Bend, 25 miles N. W. of Gainesville, Texas, December 28, 1889."

An illustration will be given later.

ON SOME NORTHERN PUPIDÆ, WITH DESCRIPTIONS OF
NEW SPECIES.

BY DR. V. STERKI.

Pupa pentodon, Say.

Not very much is to be added to the foregoing. It may be said, that this species is not so generally found with such a pure glassy shell, as *curvidens* when fresh and living, but more or less opaque or spermaceti white. It is decidedly variable in size and also in shape, being shorter, and more tumid or conical, in decidedly wet localities. I have a specimen from Helena, Mont. (Mr. Elliott), and several from Ottawa, Ont. and Winnipeg, Manitoba (sent by Mr. Geo. W. Taylor). Those from the latter locality are long and slender with a very strong callus inside of the parietal wall, in which the lamellæ are in appearance nearly buried.

Pupa Pilsbryana n. sp.

Among a few examples of the smaller form of "Pupa hordacea Gabb" now described by Mr. Pilsbry as *hordeacella* from Arizona, in Mr. W. G. Mazyck's collection, there was one specimen of an evidently new species, well formed and mature, and fresh although dead. Possibly there are more such in lots of the species mentioned above and sent out by Gabb. A few days ago among Pupidæ from Albuquerque I found 4 examples, although somewhat different, evidently being of the same species, which consequently is confirmed. Known from the region of the Rio Grande del Norte, and that of the Colorado River, and being doubtless distinct from all the species described, it is to be brought to general knowledge under a new name,

for which I propose that of Mr. Pilsbry, the active student of our Pupidæ, to whom I am indebted for a number of valuable specimens and facilities to examine such.

Description: Shell minute, narrowly perforate, cylindrical-oblong to cylindrical, somewhat attenuated towards the rather blunt apex, colorless (when fresh glassy) with a very delicate bluish tint, smooth and polished, with few, irregular, microscopic striæ which are more marked near the aperture. Whorls $4\frac{1}{2}$ – $5\frac{1}{2}$ moderately rounded with a rather deep suture especially in the upper half, regularly and slowly increasing, the embryonal being relatively large, the last somewhat ascending toward the aperture; the latter of moderate size, lateral, subovate, margins approached, peristome somewhat expanded without a thickened lip or a callus in the palatal wall; outside is a barely perceptible trace of a crest near the margin and behind that a slight impression most marked upon the inferior palatal fold. Lamellæ 4 or 5; one apertural, rather high of moderate length, simple; one columellar, horizontal, of moderate size, simple; basal very small or wanting; palatals the typical, inferior deeper seated, of moderate size, superior small or very small.

Alt. 1.5–1.7; diam. 0.8–0.9mm.

There is a slight variation; the example from New Mexico being of lesser diameter, and having no trace of a basal lamella.

The soft parts have not been seen so far, but will be of high interest, since, to judge from the shell, our species seems to be an intermediate form between the hordeacella, etc., group, and *P. curvidens*, especially its var. *gracilis*.

P. Pilsbryana has much resemblance in shape and size to small, albino examples of *P. hordeacella* Pilsb., but, under a glass, is at once distinguished by the shorter, simple apertural lamella not ending at or very near the upper termination of the palatal margin, as it is in *hordeacella*, and by the smooth surface; the fine bluish hue may also be a distinguishing character if it prove constant.

Vertigo (?) *variolosa* Gould.

So far as I know, no specimen of this species from the continent is existing now in collections, that or those in the B. & B. collection having been lost sometime; but in the same, among a number of *P. contracta* Say, from Jamaica, one has been detected lately. Mr. Henry Moores of Columbus, Ohio, has had one example from Cuba, collected some 35 years ago by John Bartlett, and he was kind enough to lend it to me. It is more conical than in the figure and there are two

lamellæ in the palatal wall, yet there is hardly a doubt but that it represents Gould's species. Messrs. Geo. W. & P. B. Webster took much pains, last fall and winter, on their trips in eastern Florida, to secure specimens, but so far did not succeed. Whoever visits the Peninsula should look after it.

From the whole configuration and especially the lamellæ, *variolosa* appears to be a *Vertigo*.

***Vertigo gouldii* Binn.**

The true *V. gouldii*¹ has been collected at Helena, Mont., by Mr. I. B. Elliott, and at Ottawa, Ont., by Mr. Geo. W. Taylor; from the latter place in 2 somewhat differing forms. To mention it here, my *V. callosa* has not been found South of New York, nor west of middle Ohio, so far, to my knowledge, and among hundreds of small *Pupidæ* collected in Northeastern Ohio, by Mr. A. Pettingell, there was no example of that species.

***Vertigo binneyana* Sterki.**

When this species was first published,² I had only 2 examples from Helena, Mont., and 2 from Winnipeg, Manitoba, but was satisfied that it is a distinct form. Since then I have seen 2 from Glendive, Mont., and one from Albuquerque, N. Mex., the latter differing somewhat from the northern example, but unmistakably ranging with them. Thus it seems to live in the whole region of the western mountains.

***Vertigo bollesiana* Morse.**

Specimens have been collected at Sewanee, Tenn., the most southern habitat on the continent I know of, by Mr. Sanderson Smith. But a short time ago I saw, in a number of *P. servilis* Gld., from St. Croix, W. I., one example of this species, with rather strong lamellæ. Whether it was collected with its companions or later accidentally mixed in, is hardly to be decided otherwise than by other specimens brought from the West Indies.

The species is variable. Most examples from New York, Ohio, etc., are of good size, regularly striate, and of chestnut color, while those from New England and Canada are generally smaller, lighter in color and scarcely striate or nearly smooth; the inferior columellar (or "basal") lamella is sometimes quite small or even wanting. A peculiarity of

¹ Sterki, four new *Vertigo* sp. in Proc. Acad. Phila., 1890.

² L. c.

this species is a very small, nodule-like supra-apertural lamella ; but by no means constant, very often just a trace or entirely wanting. In its European equivalent, *V. substriata* Jeffr., this lamella is well formed and constant.

ON THE GENERIC POSITION OF *ARION FOLIOLATUS*, GOULD.

BY T. D. A. COCKERELL.

After remaining unknown and almost mythical for nearly forty years, the *Arion foliolatus* of Gould has been rediscovered by Mr. Henry Hemphill, in Washington Territory. Specimens were sent to Mr. W. G. Binney, which had been found near Gray's Harbor and at Olympia, and which are referable to two different forms, as follows :

Arion foliolatus Gould, type. One specimen agreeing with Gould's description and figure, from Olympia.

Arion foliolatus var. *hemphilli* W. G. Binney. Six specimens from Chehalis River, near Gray's Harbor. These slugs are described by Mr. Binney as "Bright yellow with bluish-black foot and edge of foot ; reticulations dark reddish fawn." The genitalia also differ in some details from the type, but this may be partly due to a different degree of maturity.

Mr. Binney has kindly sent me the internal shell, genitalia, and skin of the typical example, as well as drawings of both, and copious notes, and at his request I offer a few remarks on the generic position of the species.

From the material I have examined, I should certainly have regarded the slug as a *Prophysaon* with affinities to *P. hemphilli*. But the Olympia example has lost the end of its body,¹ and the

¹ Mr. Hemphill, in his letter to Mr. Binney, relates of this example :—"When I found the specimen I noticed a constriction about one-third of the distance between the end of the tail and the mantle. I placed the specimen in a box with wet moss and leaves, where it remained for 24 hours. When I opened the box to examine the specimen I found I had two specimens instead of one. Upon examination of both I found my large *Prophysaon* had cut off his own tail, at the place where I noticed the constriction, and I was further surprised to find the severed tail piece possessed as much vitality as the other part of the animal. The ends of both parts at the point of separation were drawn in as if they were undergoing a healing process." When the box containing the slug reached Mr. Binney, the tail-piece was decomposed.



Sterki, Victor. 1890. "On some northern Pupidae, with descriptions of new species." *The Nautilus* 3, 123–126.

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