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THE SPECIFIC VALUE OF UNIO DECLIVIS, SAY.

BY L. S. FRIERSON.

The synonymy of *Unio tetralasmus* Say, given by R. E. Call in the Transactions St. Louis Academy of Sciences, vol. vii, 1895, page 52, has been very generally followed; wholly by some, and partially by others. Mr. Call says: "It preserves its specific character so generally that it is a matter of great surprise that so many synonyms should fall under it. The study of the figures, descriptions and localities above indicated will furnish convincing evidence of identity. Of the total number [of synonyms] listed seven came from Louisiana and contiguous territory; of these seven, five are from the same state (*Louisiana*) and of those five two are from the same bayou." I have faithfully studied the descriptions, etc., above indicated, together with the shells themselves in their native habitat, Louisiana, with the result that I find *U. declivis* Say, to be readily recognizable as a perfectly distinct species from the balance of this group, with *U. geometricus* Lea, as a synonym (according to Dr. Lea himself). *Unio declivis* is, moreover, very rare as compared with the rest of the group, and generally misunderstood. In order that students may recognize the shell it is figured herewith, and the following specific differences noted:

First. It never attains the extreme size of *U. tetralasmus* as shown by the following measurements, based on adult specimens of each;

U. declivis, length 85, height 45, diameter 35 mm.

U. tetralasmus, length 133, height 70, diameter 50 mm.

Second. The beaks of *U. declivis* are more nearly *terminal* than in *U. tetralasmus* (both Say and Lea mention this fact in describing the species).

Third. The color of the nacre of *U. declivis* is "purplish" (*vide* Say and Lea), while that of *U. tetralasmus* is always white, very frequently dull, with large blotches of olive-brown. This is an invariable characteristic of the thousands I have collected.

Fourth. *U. tetralasmus* Say, is rounded or bluntly pointed posteriorly, with a rounded or obsolete posterior ridge; while *U. declivis* when *perfect* is much more acutely *rostrate* posteriorly, as noted by Mr. Say, with a "subcarinated" posterior ridge.

Finally, these species inhabit different stations, *U. declivis* being found in *rivers* (Say's type and Lea's *U. geometricus* both came from Bayou Teche, a navigable stream) while *U. tetralasmus* invariably lives in the "small streams and ponds of the South," as stated by Conrad. An apparent exception being Lea's *U. symmetricus* which he said came from (Alexandria, La.) the Red River; but he procured his shell at second hand from Dr. Hale, who no doubt was in error, as he assuredly was in the case of other shells said to have come from the same river. These shells can live in localities where, from three to six months at a time, there is *absolutely no water*; in fact living shells have been thrown out by the plowshare, and hundreds have been seen killed by fire sweeping over the dried-up ponds. (See plate III, middle figure.) *This ability to withstand droughts is no doubt a cause for the misunderstanding of the group.*

Mr. Simpson, in his "Synopsis of the Naiades," says: "and if there were no connecting links, it would be easy to make half a dozen species out of it." If the species happens to grow in constant waters, they form more or less perfect shells, and are easily seen to be distinct species. But on account of their drought-resisting abilities and the preference for *small* streams in the case of the *tetralasmus* crowd, it may easily be seen that a *majority* of the adult shells have had to resist droughts and live through a succession of dormant stages. During these dormant periods, the mantle of the animal is partially withdrawn and the deposition of the epidermis and columnar layers ceases, but the inner nacre is still deposited. The mantle is especially withdrawn from the *end* of the prominent *rostrated* portion of

U. declivis. In consequence there are produced in this way many variations and malformed specimens.

A colony of rough, black and corroded *U. tetralasmus* was taken from a stream across which a boy could jump, and planted in a railroad tank of fifteen acres, newly made by the K. C. S. R. R. Two years after, one of their progeny was taken from this tank, with a yellow, smooth epidermis as hard and glossy as glass, and as distinct from *U. declivis* as *luteolus* is from *ligamentinus* (see pl. iii, upper figure).

In this connection, the writer would remark that in an article published several years ago (NAUTILUS XI, 3), under the caption "Conchological Notes from Louisiana," he spoke of the above-mentioned difference in habitat of *U. declivis* and *U. tetralasmus*. But at that time all of his specimens were named according to prevalent tradition, and he exactly reversed their names.

Like many other young collectors, the writer has in this way sent out numbers of shells with erroneous names, and helped to make confusion worse confounded. He hopes herein to correct at least one of these errors, and at the same time to render justice to that most excellent naturalist, Thomas Say.

By comparing the figure with that given by Conrad in his Monography, page 45 (and on which Mr. Call's synonymy is based, no doubt,) it will be seen that the shells of *U. declivis* and *U. tetralasmus* are utterly unlike.

EXPLANATION OF PLATE III.

Upper figure. *U. tetralasmus* Say. R. R. tank, De Soto, La.

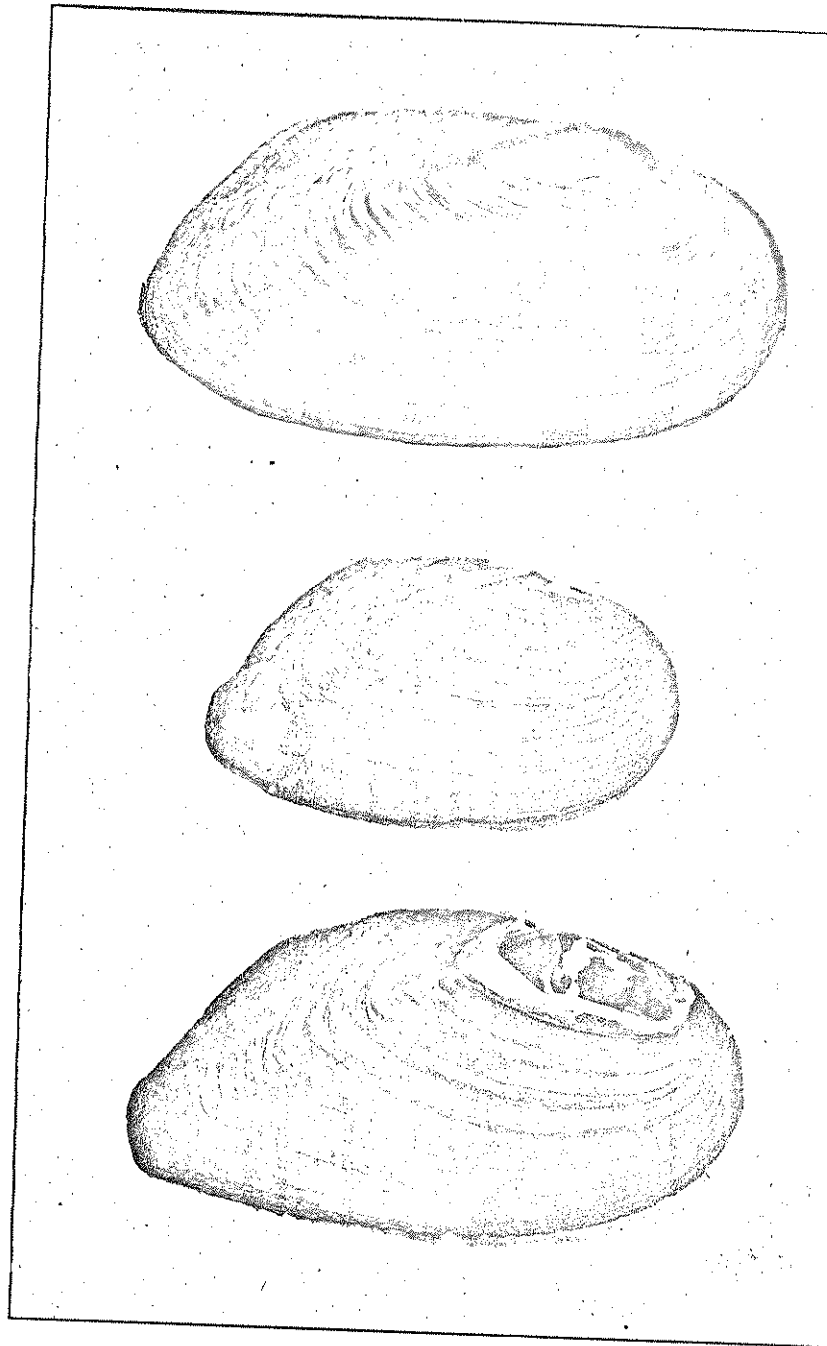
Middle figure. *U. declivis geometricus* Lea. Dried bed of Lake Connisnia, La., showing stunting and periodicity of growth induced by successive droughts.

Lower figure. *U. declivis* Say. Bayou Plaquemine, La., at Church Point.

A NEW SPECIES OF METZGERIA.

BY WILLIAM HEALEY DALL.

The genus *Metzgeria* Norman, has hitherto been known from a single species, the *pusilla* of Sars or *alba* of Jeffreys. This is reported from the coast of Norway and the northeastern North At-



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