

REPRINTS OF RARE ARTICLES ON MOLLUSCA. -- Timothy A. Conrad, 1834, "Description of some New Species of Fresh Water Shells from Alabama, Tennessee, &c." --- American Journal of Science, vol. 25, No. 2, pp. 338-343, 1 pl. (Reprinted with permission of the Editor of the American Journal of Science, Dr. John Rodgers).

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ART. IX. -- Description of some New Species of Fresh Water Shells from Alabama, Tennessee, &c.; by Timothy A. Conrad, Member of the Academy of Natural Sciences of Philadelphia.

UNIO COELATUS. Pl. 1. fig. 2.

Shell sub-triangular; much compressed, surface waved and with small irregular undulations becoming profound towards the posterior margin; anterior side and umbo destitute of undulations; umbones flattened; beaks prominent.

Inhabits Tennessee, Elk and Flint rivers, and is rare. Length 1.8 inches. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell sub-triangular, very inequilateral, and much compressed, with a broad furrow extending from the beaks to the base; anterior sides and umbo entire, and the remaining parts furnished with small irregular interrupted undulations, which are profound behind the umbonial slope; surface rough, with distant slight concentric grooves; umbones much flattened; beaks prominent, compressed; epidermis dark olive, and obscurely rayed; cardinal and lateral teeth very robust; anterior and posterior muscular impressions profound; nacre pearly white and iridescent.

Observations. This is a remarkable and very distinct species; very similar in outline to the *U. securis* of Lea; but differing from all its congeners in the singular manner in which its undulations or incipient tubercles are disposed; it is nearly as much compressed as the *U. securis*. The epidermis in some specimens is almost black.

UNIO PEROVATUS. Pl. 1. fig. 3.

Shell ovate, ventricose, valves moderately thick; beaks rather prominent, cardinal teeth erect; lateral teeth rectilinear, compressed; nacre white.

Inhabits Prairie creek, Marengo Co. Al. rare; Length 1.9 inches. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell ovate, rather ventricose, valves thick on the anterior side, but becoming much thinner on the posterior; anterior margin regularly rounded; basal margin rounded; posterior extremity subangulated; beaks a little elevated; approximate and undulated at tip; epidermis olive, and wrinkled towards the margin; cardinal teeth erect and prominent, not very thick; lateral teeth rectilinear, com-

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pressed; anterior muscular impression profound; posterior one slightly impressed; nacre white.

Observations. The regular ovate form of this shell will distinguish it from most other species. The young shell, however is broader behind, approaching to an oval figure, and is prettily ornamented with green rays on an olive yellow ground.

UNIO LIENOSUS. Pl. 1. fig. 4.

Shell narrow-elliptical, ventricose; beaks approximate, little elevated and corrugated; posterior basal margin abruptly rounded; posterior end sub-angulated; cardinal teeth rather compressed and oblique, and double in both valves.

Inhabits small streams in South Alabama. Length 2.8 inches. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell narrow-elliptical, ventricose or inflated in old shells; substance of the valves thick before and thinner behind; posterior dorsal and basal margin rounded, and the end subangulated; beaks approximate, not very prominent, and with interrupted undulations; concentric lines coarse and prominent; epidermis very dark olive, and obscurely rayed; wrinkled on the margin; cardinal teeth double in both valves, a little compressed and oblique, and coarsely striated; cavity most capacious under the umbonial slope; nacre varying from bluish white to deep salmon color, or purple.

Observations. This species is remarkable for preferring the smaller streams to the rivers, and is not an uncommon shell in such waters, I found them in company with the *U. rubiginosus*, Lea, which though not very rare in the small creeks of South Alabama, I never found in either the Black Warrior or Alabama rivers.

UNIO STRAMINEUS. Pl. 1. fig. 6.

Shell sub-oval, posterior side wider than the anterior and rounded; beaks slightly prominent, with irregular undulations; umbones convex; concentric lines remarkably coarse and prominent; cardinal teeth double in both valves, and sub-compressed; nacre pearly white and iridescent.

Inhabits with the preceding species. Length 2.5 inches. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell sub-oval, convex, inflated behind the middle; posterior side wide and rounded at the end; posterior dorsal and basal margins abruptly rounded; umbonial slope disposed to be subangulated; surface

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with strong prominent concentric lines and undulations; beaks slightly prominent and with undulations disposed in angular lines; epidermis straw colored, rayed only behind the umbonial

slope; wrinkled only at the two ends; cavity most capacious behind the middle of the valve; nacre pearly white and iridescent.

Observations. Approaches the *U. abruptus* of Say, and is a very rare species; a specimen very much resembles the *U. cariosus* of the Delaware and Schuylkill rivers.

UNIO ARCUS. Pl. 1. fig. 8.

Shell narrow-elliptical, thick and ponderous; dorsal margin regularly curved, or arched; beaks scarcely above the dorsal line; basal margin straight, posterior side somewhat cuneate.

Inhabits Alabama river. Length 2 inches. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell narrow-elliptical, thick and ponderous; dorsal margin forming an arched curve, which is scarcely interrupted by the beaks, umbonial slope abruptly rounded posteriorly, basal margin straight; epidermis olive and wrinkled; cardinal teeth thick, pyramidal; distant from the lateral teeth; anterior muscular impression profound; posterior rather deeply impressed; cavity not capacious; nacre pearly white.

Observations. This is a rare shell, and distantly related to the *U. phaseolus* of Hil-dreth; it is not however so compressed, is more pointed behind, &c. and differs altogether in the epidermal markings or color. It is never rayed.

UNIO ARCTATUS. Pl. 1. fig. 9.

Shell narrow-elliptical, elongated, much compressed; and slightly contracted over the umbo to the base; beaks not prominent; basal margin slightly arcuated, cardinal and lateral teeth distinct.

Inhabits Black Warrior and Alabama rivers. Length 2 inches. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell elongated, much compressed, slightly contracted from the beaks to the base; posterior side much produced and sub-angulated at the end; beaks depressed; epidermis very dark olive;

cardinal teeth disposed to be single in both valves; lateral teeth compressed and a little prominent, nacre bluish white.

Observations. This shell has somewhat the form of the *U. monodonta*, Say, but it is more nearly allied to *U. purpureus* of Say

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than to any other species. Beside its other characters, the uniform bluish white color of the interior will distinguish it from the latter.

ALASMODONTA RADIATA. Pl. 1. fig. 10.

Shell ovate-acute, ventricose; posterior end produced and pointed at the end; cardinal tooth in the right valve elongated and anterior to, and distant from the beak; cardinal tooth in the left valve elongated, and situated immediately under the beak.

Inhabits small streams in South Alabama. Length 2 1/2 inches. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell ovate-acute, ventricose, with the posterior side produced and pointed at the end; beaks prominent and pointed at the apex, which has two or three profound undulations; epidermis light olive, beautifully rayed with dark green; cavity capacious; nacre waxen yellowish.

ANODONTA SUBVEXA. Pl. 1. fig. 12.

Shell sub-oval, inflated; thin; anterior end rounded; posterior end subtruncated; posterior dorsal margin elevated and abruptly rounded at the extremity; callus resembling an incipient tooth.

Inhabits Black Warrior river. Length about 2 inches. Cabinet of the Academy of Natural Sciences of Philadelphia. Very rare.

Shell sub-oval, inflated, thin, with prominent beaks, undulated at the apex, and not distant from the middle of the valve; umbo inflated; umbonial slope angulated, and the space

behind with radiating lines; epidermis olive and rather obscurely rayed; cavity very capacious, most so behind the middle; nacre bluish, stained with a light waxen yellow.

ANODONTA DECLIVIS. Pl. 1. fig. 11.

Shell sub-ovate, thin, slightly ventricose; posterior end produced and cuneiform; margin of the dorsal slope nearly rectilinear, and the extremity truncated; beaks slightly prominent and tuberculated at the apex.

Inhabits Flint river, Morgan Co. Alabama, extremely rare. Length 3 1/3 inches. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell sub-ovate, thin, slightly ventricose; umbonial slope angulated; posterior dorsal margin rectilinear; epidermis green olive, with dark concentric wrinkled lines; and on the posterior slope are numerous interrupted irregular lines; space behind the umbonial slope flattened;

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nacre waxen yellow, except on the margin, which is pearly white and highly iridescent.

CYCLAS STAMINEA. Pl. 1. fig. 5.

Shell oval, ventricose, inequilateral; with numerous regular prominent concentric lines; beaks slightly prominent; anterior and posterior ends nearly equally rounded; cardinal teeth none; lateral teeth distinct.

Inhabits small streams in South Alabama. Figure of the natural size. Cabinet of the Academy of Natural Sciences of Philadelphia.

Shell oval, regularly convex; inequilateral; anterior and posterior ends similarly rounded; umbo inflated; beaks a little prominent, apex obtusely rounded; epidermis yellowish, with darker stains; lateral teeth rather prominent; nacre bluish white; cavity capacious.

MELANIA OLIVULA. Pl. 1. Fig. 13.

Shell oblong or narrow-elliptical, smooth and entire; spine conical; volutions five; suture impressed; aperture somewhat elliptical, longitudinal; about half the length of the shell, color green olive; with strongly marked brown revolving bands; about 4 on the body whorl.

Var. A. Much more elevated, with a truncated or eroded apex; the whorl flattened, and the spine less conical.

Observations. Inhabits the Alabama river, adhering to the soft calcareous banks, which it perforates in such a manner that they resemble honey comb, or wood pierced by *Teredo navalis*.

MELANIA PRASINATA. Pl. 1. Fig. 14.

Shell subulate, slightly turrated; whorls 7 or 8, flattened; aperture elliptical, a little oblique; about one third of the length of the shell; body whorl sub-angulated at base; epidermis green olive.

Var. A. with broad revolving costae, those on the body whorl crenulated.

Inhabits Alabama river, adhering to limestone rocks. Cabinet of the Academy of Natural Sciences of Philadelphia.

ANCULOSA PICTA. Fig. 15.

Shell sub-oval, shoulder obtusely rounded; aperture obovate, large; columella callous above; epidermis olive, with numerous quadrangular small spots disposed in revolving lines, strongly marked in the aperture.

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Inhabits Alabama river, adhering to pebbles on the bars. Cabinet of the Academy of Natural Sciences of Philadelphia.

UNIO SUBTENTUS. Say. var. Pl. 1, fig. 3.

This beautiful variety of the *U. subtentus* was found by me in the Tennessee and Elk rivers.

The annexed delineation of the species is probably better than any hitherto given.

UNIO MYTILLOIDES. Raf. var. Pl. 1, fig. 7.

I obtained this shell in the Alabama river. Its characters appear to be intermediate between *U. ellipsis*, Lea, and *U. mytilloides*, Raf., yet is doubtless identical with the latter species.

SUPPLEMENT

PLANORBIS ANTROSUS.

Shell dextral, not depressed; whorls three; spire profoundly indented, or concave, with the summit of the body whorl angular; inner volutions angulated; umbilicus profound, with the margin and inner volutions angulated; body whorl abruptly dilated near the aperture; aperture longitudinally subovate, dilated.

MELANIA CONGESTA.

Shell subulate, with about nine volutions, the lower ones obscurely angulated, those of the spire becoming acutely carinated towards the apex; suture well defined; body whorl obscurely sub-angulated; aperture longitudinal, elliptical.

PHYSA POMILIA

Shell with four volutions, horn colored and polished; spire short conical; body whorl ventricose; aperture patulous. --- REMARK. It resembles *P. heterostropha*, Say, but is much smaller and thinner.

These three univalves inhabit Randon's creek near Claiborne, Alabama, adhering to limestone rocks.

(To be continued.)