

being found in *Margaritana arcuata*. I have a friend who has done quite a business in collecting them from that mussel."

E. H. Harn, Blairsville, Pa. in five years, has found 64 species and varieties of shells in his neighborhood. That is a sample of what can be done by patient search.

Mrs. M. Burton, Williamson University, Cal. sends us a copy of the Weekly Tribune of Los Angeles, Cal. of August 16th, containing an interesting article by Virginia Burton, upon the "Coffee-bean Cowries" of the California Coast (*Trivia Solandri* and *Trivia Californica*.)

Mr. Frank C. Baker, who has been studying at the Academy of Natural Sciences of Philadelphia for a year past, and who was one of the members of the expedition sent by the Academy to Southern Mexico, has accepted a position with Prof. Henry Ward of Rochester, New York, in his department of Invertebrates. Mr. Baker leaves many warm friends in Philadelphia, where he will be missed from the circle of conchologists as well for his kindly personal qualities as for his recognized ability in the study of Mollusks.

THE SHELL-BEARING MOLLUSCA OF RHODE ISLAND.

BY HORACE F. CARPENTER.

FAMILY UNIONIDÆ.

Genus *Anodonta*, Cuvier.

Shell transversely elongated, inequilateral, thin, toothless.

To distinguish instantly between the three genera, *Unio*, *Margaritana* and *Anodonta*, it is only necessary to examine the hinge. *Unio* has cardinal and lateral teeth in each valve; *Margaritana* has cardinal teeth, but no laterals, while *Anodonta* has no teeth, the valves being held together only by the ligament.

There are two hundred species of *Anodonta*, distributed world wide. Two of these are known to inhabit R. I., and a third may possibly be found within its limits.

193.—*Anodonta cataracta*, Say.

Syns.:

Anodonta fluviatilis, Lea, Gould, Stimp.

Mytillus illictus, Solander.

Shell thin, inflated, transversely sub-oval, fragile; basal margin curved; hinge margin straight; epidermis smooth, excepting at the

posterior and upper portion, where it is loosely wrinkled; color deep grass green, dusky above and behind, radiated; nacre silvery or bluish-white, margin greenish. Length given by authors, $4\frac{1}{2}$ inches; height, $2\frac{3}{4}$ inches; breadth, $1\frac{1}{2}$ inch.

When shells are figured in books the specimens selected for the purpose are always the largest and finest ones to be had. When Say described this species in 1816, he gave its length as $2\frac{2}{5}$ inches. Gould gives it $4\frac{1}{2}$ inches, but I have frequently seen specimens over five inches in length and have *one* myself six inches long. Gould considers the species very rare, found only in ponds in the central and western parts of Mass., but Perkins finds it near New Haven, in Conn., and we have at least two localities in R. I., and one in Attleboro, near the line.

194.—*Anodonta implicata*, Say.

Shell transversely oblong, almost as broad as high, very variable in proportions, thick and strong in some, thin and fragile in others; epidermis yellowish olive (darker above and behind), with dark brown zones; young shells grass green, resembling *A. cataracta*, middle aged resembling *U. radiata*; nacre silvery white until after the middle age, when it becomes flesh colored or salmon. Length about four inches, height, $2\frac{1}{4}$ inches; breadth 2 inches. Gould says it inhabits ponds in Essex and Middlesex counties in Mass., and has been found in Maine. Whether it occurs southward or not is uncertain. We find them in R. I., extremely common in all our ponds and rivers.

195.—*Anodonta undulata*, Say.

Shell transversely oval, thick; beaks prominent, the points in contact, and when not eroded they exhibit four or five undulations upon them; epidermis dark brown, radiated; hinge with a vestige of a tooth, this peculiarity forming a connecting link between *Anodonta* and *Margaritana*; nacre salmon colored, granulated in the centre, bluish-white outside the pallial impression, with a broad margin of olive. Length, $3\frac{1}{2}$ inches; height, 2 inches; breadth, $1\frac{1}{2}$ inch.

The locality given by Gould is the Blackstone River and its tributaries in Mass., and as this river flows through several miles of R. I. territory, I include it here although no specimens have been obtained within our limits.

FAMILY NUCULIDAE.

The Nuculidæ or Nut shells are small, pearly, angular shells. They commenced in the Lower Silurian and are abundant in all the various formations since. Most of genera belonging to this family are known only as fossils. Three of the living genera, *Nucula*, *Leda* and *Yoldia* inhabit New Eng. and two are represented in R. I.

Genus *Nucula*, Lamarck, 1799.

There are about fifty species, inhabiting all parts of the world, most of which are found in deep water. Five species are in New Eng. two of which probably inhabit R. I.

196.—*Nucula delphinodonta*, Mighels.

Syn.:

Nucula corticata, Holboll., Möller.

Shell small, obliquely triangular, very broad; beaks nearly at the posterior end, elevated and tumid; hinge with three posterior and seven anterior sharp elongated teeth; surface with coarse lines of growth; epidermis olivaceous. Length $\frac{13}{100}$, height $\frac{11}{100}$, breadth $\frac{9}{100}$ of an inch.

This species was found in large numbers in the stomachs of Codfish, taken in Casco Bay, and described by Dr. Mighels in Journ. Bost. Soc. Nat. Hist. iv, 1842. It inhabits soft mud from ten to one hundred fathoms water from Cape Cod to Greenland, and is included among the shells of R. I. only on the authority of Stimpson, who says it inhabits the whole coast, laminarian region, and of Prof. Verrill who found it in twenty-nine fathoms, east of Block Island and off Gay Head.

197.—*Nucula proxima*, Say.

Shell small, thick and solid, very oblique, ovate-triangular; beaks elevated, inclined forwards; surface crossed by minute lines, both radiating and concentric; epidermis light olive with darker zones; interior lined with pearly nacre; margins finely crenulated; hinge with twelve teeth before the beaks and eighteen behind them. Length $\frac{9}{20}$, height $\frac{7}{20}$, breadth $\frac{1}{4}$ inch.

Described by Thos. Say in Journ. Ac. Nat. Sc. Phila. 11, 270, 1822. It is frequently taken from the stomachs of fishes. Its habitat is soft mud below low water, but it has been collected on the shore at Martha's Vinyard. Distribution, from South Carolina to Gulf of St. Lawrence. It is very abundant in our bay, in mud, off Rumstick, near the mouth of Warren River, where every throw of the dredge will bring up hundreds of specimens.

Genus *Leda*, Schum., 1817.

This genus contains eighty species, four of which inhabit New England and farther north. I am not aware that any species of the genus inhabits R. I. although Prof. Verrill says in speaking of *Leda tenuisulcata*, Stimpson, it inhabits from R. I. to Gulf of St. Lawrence.

Genus *Yoldia*, Möller, 1832.

Five species of these peculiar shaped and highly polished shells inhabit New Eng. *one* of which is found not living, but in a semi-fossilized condition in Maine.

(*To be continued.*)

GENERAL NOTES.

HALIOTIS RUFESCENS, Swains. In the last number of the *Manual of Conchology* Mr. Pilsbry gives the range of *Haliotis rufescens*, Swainson, "From Mendocino Co. to San Nicholas Island California." In 1874 or 1875 I collected several very fine living specimens, at extreme low tide on rocks near the mouth of San Tomas River, Lower California. This extends its range fully two hundred miles south of San Nicholas Island. I may also add, that *Haliotis cracherodii*, Leach, ranges two or three hundred miles south of San Tomas River.—*Henry Hemphill, San Diego, Cal.*

HELIX HÆMASTOMA VAR. *CONCOLOR*. Among the hundreds of specimens of the *hæmastoma* which I have seen, I never found one



Carpenter, Horace F. 1889. "The shell-bearing Mollusca of Rhode Island (continued)." *The Nautilus* 3, 56–59.

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