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PLEUROBEMA ALDRICHIANUM, A NEW NAIAD

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THE specimens of the freshwater mussel herein described were among thousands of pleurobemas that were sent to the Museum of Zoology by the Alabama Museum of Natural History for identification in the early part of 1931. All these lots had once passed through the hands of Dr. Bryant Walker and had been named by him, but the correspondence dealing with the matter had been lost or mislaid, the determinations had not been transcribed to labels, and only a rare note of Dr. Walker's characteristic conciseness appeared in the collection. At Dr. T. H. Aldrich's request, all this rich material was re-examined by Mr. Henry Vander Schalie and me, and with such ability as we had it was once more determined. The original collection had been made by Mr. Herbert H. Smith in 1916 and 1917. It was made up almost entirely of Conasauga River shells—forms that in this stream are of bewildering variation, and that, at the beginning of the study of them, appeared to have no defining lines, one species from another.

At the time of Mr. Smith's field work, the naiades were much more common in the Conasauga River than in 1930

when the river was visited in five places by Mr. Vander Schalie and me. In the thirteen years between these collections, more loam had been washed into the stream from cotton fields, more clay from the large highway fills had become river mud, and more of the shading and earth-retaining woodland had been cut. Only by these changes can the quantitative reduction of the naiad fauna be explained, for beyond the additional silt the river is as unpolluted as ever, and there is no evidence on the ground of exploitation by clamming. Furthermore, the chart of the commercialization of fresh-water clams in Coker's *Fresh-Water Mussels and Mussel Industries of the United States* shows the Alabama River system as virgin territory except in the tributary Tombigbee.

DESCRIPTION

Pleurobema aldrichianum

Shell. Elliptical, very much the shape of a male *Micromya nebulosa* (Conrad), thin for the genus; inflated. Beaks full, eroded, probably high if uninjured. Lunule poorly defined, ligament short, narrow, a little curved. Anterior end broadly curved, nearly truncate; ~~anterior~~ anterior end almost pointed; base rounded, straight for a space of about 7 mm. Two ridges or angulations, one much more pronounced than the other, extend from the umbones down the posterior slope, becoming obsolete on the body of the shell. Epidermis tawny in the Ridgway scale of colors, a little silky in texture. Two of the rest stages are black, appearing as curving loops about 3 mm. wide on the early part of the mussel. First growth lines are fine and even; later ones are rather rough, but are regularly spaced. Nacre of the anterior end white, a little blotched with brown; bluish posteriorly. Beak cavity not very deep, slightly pitted above, with two indented lines extending from it that correspond to the posterior ridges of the surface of the shell. Two pseudocardinals and two laterals in the left valve, three pseudocardinals and one lateral in the right. Anterior muscle scars pitted, posterior scars scarcely impressed, white. Pallial line threadlike.

Measurements of type. Length 46.25 mm., height 27.50 mm., diameter 18.25 mm.

Type locality. Conasauga River, near Conasauga, Polk County, Tennessee. Herbert H. Smith collector, October 20, 1916. Type in Alabama Museum of Natural History, paratypes in Museum of Zoology, University of Michigan. Specimens examined, 55.

The material is uniform as is usual with headwaters forms of mollusks. The young resemble the quadrate *Fusconaia flava* (Rafinesque) in shape. As growth proceeds, the shell gradually becomes elongate and elliptical, reversing the manner of growth as in such species as *Lampsilis anodontoides* (Lea). Color of the type is slightly darker than most of the other specimens. The dark and broad rest stages are characteristic, a few specimens having the broken or ragged color deposits of *P. clava* (Lamarck) and *chattanoogense* (Lea), but none of them the rays of *P. johannis* Lea. The species belongs to the group into which *P. chattanoogense*, *murrayense*, *troschellianum*, and *johannis* fall. Simpson separated these four species into three different groups, but I am convinced that just as they are closely related geographically they are quite near to one another conchologically. It was not Mr. Simpson's fortune to examine so incomparable a series of Georgian pleurobemas as that owned now by the Alabama Museum of Natural History, and I feel that were this so he would have come to the same conclusion that I have. No soft parts are at present available, but may safely be assumed to vary little if any from the anatomy of *Pleurobema* as described by Simpson, which may be summarized thus: Inner gills larger than the outer, free or partly free from the abdominal sac, marsupium confined to and occupying all of the outer gills, ovisacs sometimes in pairs; color yellowish to salmon-red, more or less brown or blackish.

The specific value of *P. aldrichianum* was recognized by Dr. Walker. One lot contains a copy of a note by him, reading: "Don't know it. Somewhat like a n. sp. in the Call collection from the Chattooga." Specimens submitted to Mr. William B. Marshall by Dr. Aldrich were compared with the pleurobemas of the Isaac Lea collection, and pronounced new.

Measurements of paratypes in mm.			
Length	Height	Diameter	
39.25	23.75	15.25	Conasauga, Tennessee
18.25	13	7.25	“ “
44.25	26.25	17.75	Upper King's Bridge
38.25	23.75	17	“
25	17.50	11.25	“
38.25	24.50	15.50	Lower King's Bridge
27.50	18.25	11	“

The mussel occurs the most abundantly in the Conasauga River near the town of Conasauga, Polk County, Tennessee. The river here is of creek size. Between railroad and highway bridges, it runs over reefs of mica schist and blackened boulders and gravel of the same stone. Below the highway bridge is a deeper part, more sandy and gravelly and confined between rather high clay and sandy-clay banks. It is in this lower part that Mr. Smith probably collected his specimens inasmuch as no *aldrichianum* was taken in 1930 in the rocky section, which alone was examined carefully. A note in Mr. Smith's handwriting conveys the information that "Upper King's Bridge is the lowest point in the river where this species was obtained in considerable numbers." This locality is Beaverdale, Georgia, of the Dalton topographical sheet. At this place, the river is swift, shallow, and about sixty feet wide, the bottom of gravel and sand and with little water weed and algae. The collection from Lower King's Bridge, about four miles below Beaverdale, contained only three specimens of *aldrichianum*. So far as is now known, the species is confined to the Conasauga River.

Calvin Goodrich

PLATE I

Pleurobema aldrichianum. Type. Enlarged one-half. Conasauga
River, near Conasauga, Polk County, Tennessee.



