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FROM THE PLIOCENE OF CALIFORNIA

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By GEORGE P. KANAKOFF¹

ABSTRACT: *Boetica hertleini*, a new species of mollusk apparently belonging to the family Lacunidae, is described from Pliocene deposits of Los Angeles County, California

On January 9, 1954, Mr. Stanford Lane brought several fossil shells imbedded in Miocene shale to the Los Angeles County Museum of Natural History for determination. This material was collected in the vicinity of Sand Canyon Road in Los Angeles County.

On January 30, 1954, the author, with a group of Invertebrate Paleontology students, visited the Miocene localities reported by Mr. Lane and while investigating the outcrops discovered a small triangular fill of Pliocene age. The excavations in this solidly packed black silt (Pico Formation) yielded an interesting marine fauna with several new species (Kanakoff, 1954, 1956).

A small lot of five specimens represented a new species of the genus *Boetica* Dall. As this genus was described in 1918 and was based on a unique specimen not since mentioned in the literature, Dall's (1918: 137) original description is repeated here:

"*Boetica* new genus, is proposed for *B. vaginata* Dall, a small shell resembling conchologically a very solid Lacuna but with a sulcus at the posterior commissure of the aperture and one like that of *Trichotropis* anteriorly; the surface smooth, but the operculum unknown. Habitat: San Diego, California, in 199 fathoms."

Dall later (1919: 349) gave a more complete description of *Boetica vaginata*:

"Shell small, solid, conical, white, smooth except for faint incremental lines, of about five rapidly enlarging whorls including a minute subglobular smooth nucleus; suture distinct, not deep; base rounded, aperture subovate, a distinct sharp groove in the subsutural callus, the outer lip simple, thick; the body with a thick coat of enamel curving into the concavely arcuate pillar lip; umbilicus perforate, the area bounded by a thickened spirally striated ridge parallel with the pillar lip, with the area between them excavated; at the anterior end of the pillar is a shallow, narrow sulcus, somewhat as in *Trichotropis*; height of shell, 4 mm.; of last whorl, 3 mm.; diameter, 2.5 mm. U.S. Nat. Mus. Cat. no. 209891a.

"Type locality.—U.S. Fish Commission Station 4322, off La Jolla, San Diego County, California, in 199 fathoms, shelly mud.

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"The exact position of this genus awaits the discovery of the operculum and soft parts:"

One additional dead specimen of *B. vaginata* is represented in the United States National Museum according to Mr. James H. McLean (USNM 211308; USFC station 2902, 53 fathoms off Santa Rosa Island, California).

And, finally, Mr. McLean collected one dead specimen of this species off Monterey, California in 45 fathoms. It is through the courtesy of Mr. McLean that Dall's holotype (Fig. 3) and the specimen from Monterey (Fig. 2) are figured here.

The extreme rarity of this genus, the fact that the known specimens are dead, and finally the finding of a small lot of them in the Pico formation, opens the way for speculation that the genus *Boetica* may now be extinct.

As Dall pointed out, the exact position of the genus *Boetica* is not certain, as long as the soft parts remain unknown. Following Dall, the genus is tentatively retained in the family Lacunidae.

Specimens of *Boetica* from the Pliocene of Pico formation closely resemble specimens of *B. vaginata*, but differ considerably in proportion, and in the shape of the wide umbilical plate. The species is therefore being put on record as:

***Boetica hertleini*, NEW SPECIES**

Figure 1

Diagnosis: Shell minute, porcellaneous, globose-conic, of five whorls; sutures distinct, base rounded, outer lip simple, flaring, thickened; inner lip adnate, arcuate, with a turn at the commissure, forming a tooth-like protrusion; umbilicus deeply perforate, bound by the thick spiral ridge, forming a

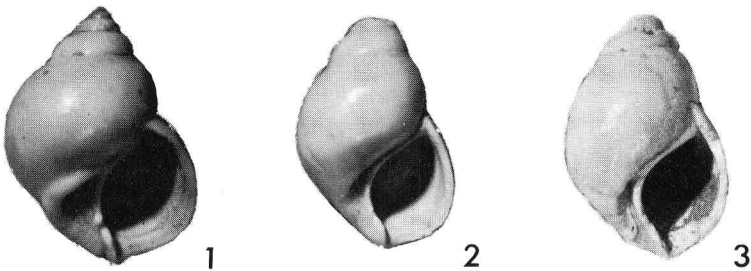


Figure 1. *Boetica hertleini*, new species, holotype (LACM).

Figure 2. *Boetica vaginata*, dead specimen collected in 45 fathoms off Monterey, California (LACM).

Figure 3. *Boetica vaginata* Dall, holotype (USNM).

platform narrow at the umbilicus and rapidly widening until it reaches the inner lip; nucleus smooth, subglobular; the semilunar wide flat area formed by the inner lip and the fasciole, under stronger magnification (X 60) appears uniformly tuberculated, and the body whorl shows the fine spiral incremental lines below the suture and at the base.

Dimensions: The holotype measures 5.1 mm. in altitude, 3.5 mm. in width; the body whorl includes $\frac{3}{4}$ of the shell height.

Type Material: Holotype LACMIP No. 1145, 4 paratypes, LACMIP No. 1146.

Type Locality: LACMIP No. 291 (Los Angeles County Museum, Invertebrate Paleontology locality): An exposed stratum of black silt, weathering into gray, in a gully in the center of the south half of Sec. 27, T. 4 N, R. 15 W, Mt. San Bernardino B. and M. (which is probably the same as Kew's (1924) locality No. 3390.5); it is exactly one half mile south of the Humphreys Railroad Station, Los Angeles County, California.

Age and Formation: Upper Pliocene, Pico formation.

This shell is named for Dr. Leo George Hertlein, Curator of Paleontology of the California Academy of Sciences, a prominent scholar, on whose knowledge, time and kindness the author has imposed for many years.

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