

## A NEW FOSSIL SHELL FROM THE PALOS VERDES SAND

By GEORGE P. KANAKOFF

Early in the spring of 1946, the author, accompanied by two Museum students, David Packard and Vera von Block (now Mrs. David Packard), secured 100 pounds of Upper Pleistocene screenings from an exposure in the Wilmington area in southern California.

Among the group of *Fissurellidæ* (Key-hole Limpets) sorted from this material were two minute specimens that did not fall into any known specific group. Later excavations at the locality eventually yielded a longer series of this interesting limpet.

The author is indebted to Dr. Leo George Hertlein and to Allyn G. Smith of the California Academy of Sciences for checking a small series of this limpet against young specimens of all related forms of the Panamic fauna. The Wilmington specimens are clearly distinct from all other species compared. This species, therefore, is presented here as

### ***Diodora constantia*, sp. nov.**

Plate 12, figures A, B, C.

Types: The holotype No. 1089 and the figured paratype No. 1094 (Plate 13, figures D, E, F.) are in the Los Angeles County Museum.

DIAGNOSIS: Shell small, depressedly-conical with laterally slightly concave slopes; base flat, ovate, slightly narrower at the anterior end; apex somewhat anteriorly situated, with orifice subovate, sloping forward at 18 degrees with the base, and characterized by a sharply hooked knob at the highest point of the posterior wall; sculpture consists of 25 major radiating ribs descending from the hooked knob, and 25 lesser alternating riblets, which vanish before reaching the apex, and  $7\frac{1}{2}$  concentric thinner laminae crossing over the ribs, giving a fine, sharp, lattice-like appearance; the margin regularly crenulated with alternating stronger and lesser notches; interior callus of the orifice ovate, and truncate and slightly excavated posteriorly; muscle scar faint.

The holotype (medium size adult) measures: length 7.832, width 5.232, and height 1.945 mm.

The figured paratype (typical young specimen) measures: length 4.722, width 2.666, and height 1.311 mm.



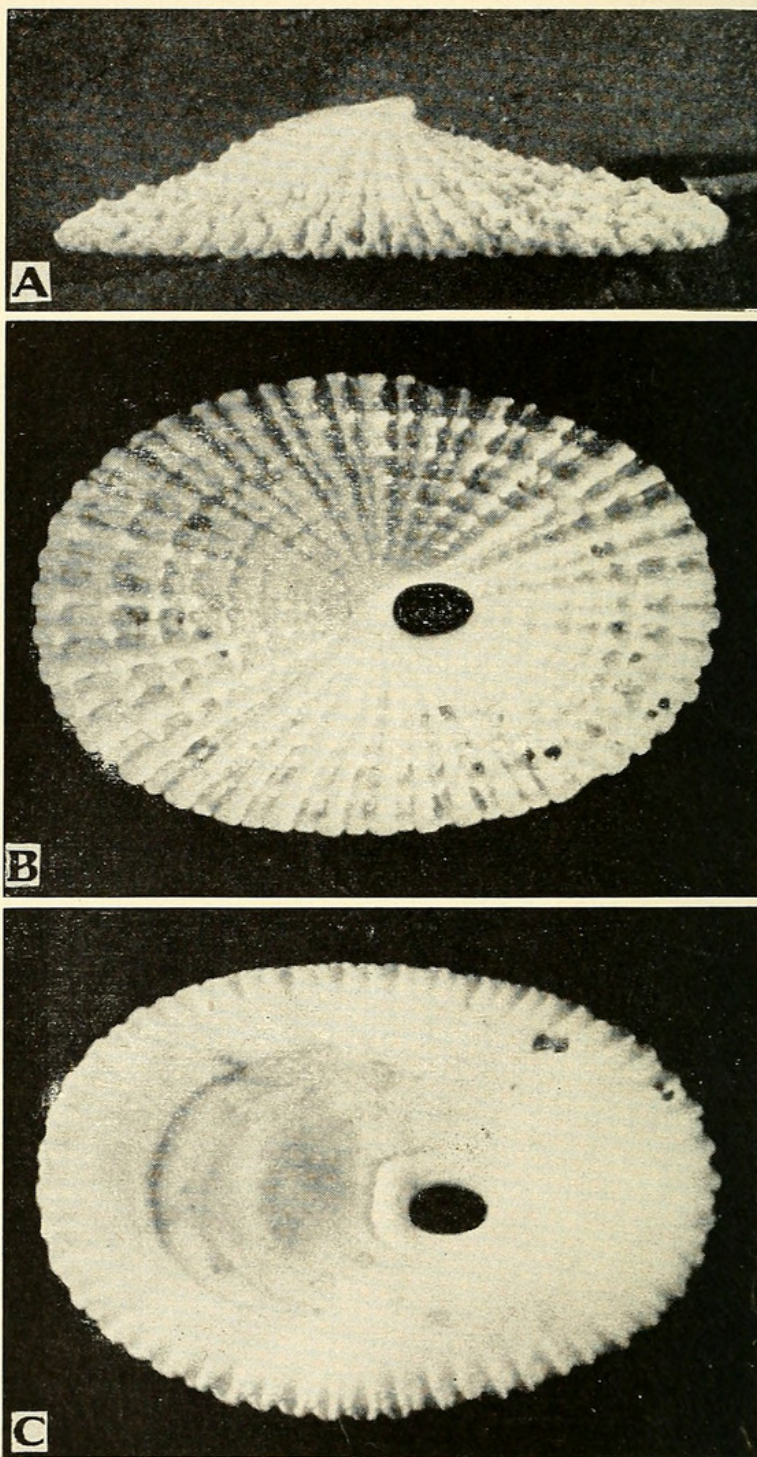


PLATE 12

*Diodora constantiae*, holotype No. 1089.

A. Lateral view. B. Dorsal view. C. Ventral view.



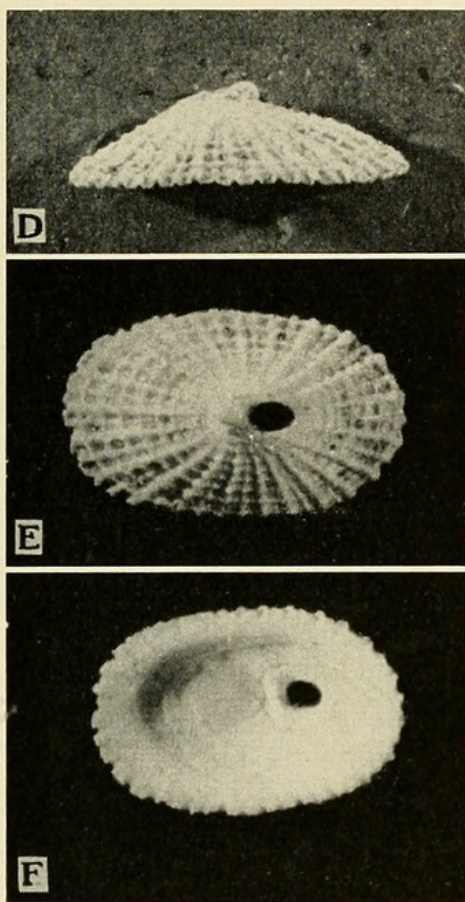


PLATE 13

*Diodora constantia*, figured paratype No. 1094.

D. Lateral view. E. Dorsal view. F. Ventral view.

TYPE LOCALITY: LACMIP 147 (Los Angeles County Museum, Science Division, Section of Invertebrate Paleontology, locality No. 147). Exposure on the east bank of Vermont Avenue, 450 feet south of the southeast corner of Sepulveda Boulevard, Wilmington, California. Fossiliferous sand stratum over 15 feet in thickness, the type material being found in the two lower feet, one foot above and below the road level.

AGE: Uppermost Pleistocene.

FORMATION: Palos Verdes sand.



**DISTRIBUTION:** In type locality — over 70 specimens. At the sites in Newport Bay Mesa: LACMIP 66-2, 3 specimens; LACMIP 136, 6 specimens.

**PARATYPES:** 70 specimens of varying age from the type locality.

**DISCUSSION:** *Diodora constantiae* is the smallest species of the genus; it resembles sculpturally the very young specimens of *D. dysoni* (Rve.) from the East Coast of the United States, but differs in shape, being low-spined. In dorsal aspect it resembles the very young specimens of *D. inæqualis* of the Panamic fauna, but differs from them in all other aspects, (1) walls being thinner, (2) being the flattest, (3) in having its ribs running in curve toward the apex, (4) the sculpture being finer and sharper, and (5) especially in shape of its hooked apex. The characteristic sharply hooked knob of the apex in young specimens gradually thickens with growth and acquires a hooked spout-like shape in old and senile specimens.

Aiming to secure a longer series of this interesting limpet, large quantities of material were collected and parallel series of the related species were obtained. Selecting 50 perfect specimens from the type lot, graduated from 1.2 to 12.5 mm. in length, the biometric curves of their dimensions and their ratios were made experimentally with the following results: Absolute means, based on 50 specimens of each lot:

	<i>D. constantiae</i>	<i>D. inæqualis</i>	<i>D. densiclathrata</i>
1. length	6.423 mm.	16.287 mm.	33.427 mm.
2. width	4.447 mm.	9.862 mm.	25.121 mm.
3. height	1.777 mm.	4.841 mm.	12.621 mm.
4. ratio 1:2*	1.595	1.652	1.330
5. ratio 1:3	4.060	3.293	2.648
6. ratio of the length of the posterior wall to the length of the anterior wall	1.681	1.863	1.687

\*It is interesting to note that in all fossil series studied (and this includes *Lucapinella callomarginata* as well as the species here listed), the specimens fell into two groups with respect to the ratio of width to length. One group was proportionately wider, the other more slender, strongly suggesting females and males of the same species (respectively).

*D. constantiae* is named for the author's secretary, collaborator, co-collector and beloved wife, Constance A. Kanakoff.



1953. "A new fossil shell from the Palos Verdes sand." *Bulletin of the Southern California Academy of Sciences* 52, 67–70.

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