

## NEW MOLLUSCAN SPECIES FROM THE CALIFORNIAN PLIOCENE

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The types and paratypes of the forms described in this paper are in the Leland Stanford Junior University type collection.

The writer wishes to acknowledge his indebtedness to Dr. James Perrin Smith for his assistance and suggestions, to Mrs. Ida S. Oldroyd for help in identifying the living forms and to Mr. Leo G. Hertlein for his aid in the preparation of this paper.

The names of the species described in this paper have been used by the writer in a discussion of the Pliocene faunal zones of Southern California in a paper which was published in the Pan-Amer. Geol. Vol. 43, May 1925. The undescribed species listed there are all described in the present paper.

### Descriptions of New Species

*Cancellaria elodiae*, n. sp.

Plate 1. Fig. 1.

Shell thick, ventricose, spire low, about five rapidly enlarging whorls, body chamber large, suture distinct but not channeled; body whorl sculptured with about twenty-four spiral ridges with wider interspaces; intercalaries rare; fine axial riblets present on upper three whorls but almost obsolete on the body chamber; inside of outer lip showing fine riblets, aperture semilunar, canal short, straight, open; pillar straight with two narrow but high plaits with narrow interspace, external siphonal fasciole present but not prominent. Height of type 64 mm., diameter of type 37 mm., apical angle 70°.

Type No. 109 in L. S. J. U. collection.

Fernando Formation, lower Pliocene of Fugler's Point, Santa Barbara Co., Calif. Collected by J. O. Lewis.

This species resembles *C. perrini* Carson but differs from it in having less prominent axial ribbing, no nodes, no shoulder, and slightly less prominent external siphonal fasciole. This species also resembles *C. palmeri* Carson but differs in being smaller, in having a more oval aperture, and in having a lower spire.

This species is associated with *Janira*, *Ostrea veatchii*, *Alectrion moranianus*, *Mioptleionia oregonensis*, *Cryptoconus carpenterianus*, *Cardium meekianum* and *Paphia staleyi*.

*Conus beali* n. sp.

Plate 1. Fig. 2.

Shell medium thick, whorls five or more and slightly convex on the table, distinctly tabulate, spire high; body whorl slightly contracted below; sculpture consisting of faint, small, spirally revolving ridges at base of body whorl, becoming obsolete above. Height of type 64 mm., diameter of type 32 mm.

Type No. 115 in L. S. J. U. collection.

Fernando Formation, lower Pliocene of the Puente Hills, Orange Co., Calif. Locality N. W. ¼ Sec. 25, R. 2S 11W. of San Bernardino Meridian. R. N. Ferguson, collector.

In the Fernando beds of the Puente Hills are also found the following species:—*Astrea breagensis*, *Conus californica*, *Trochita radians*, *Chione elsmerensis*, *Chione fernandoensis*, *Panope generosa*, *Solen sicarius*, *Thracia trapezoides* and leaves and wood fragments referred to *Salix* and *Quercus* cf. *agrifolia*.

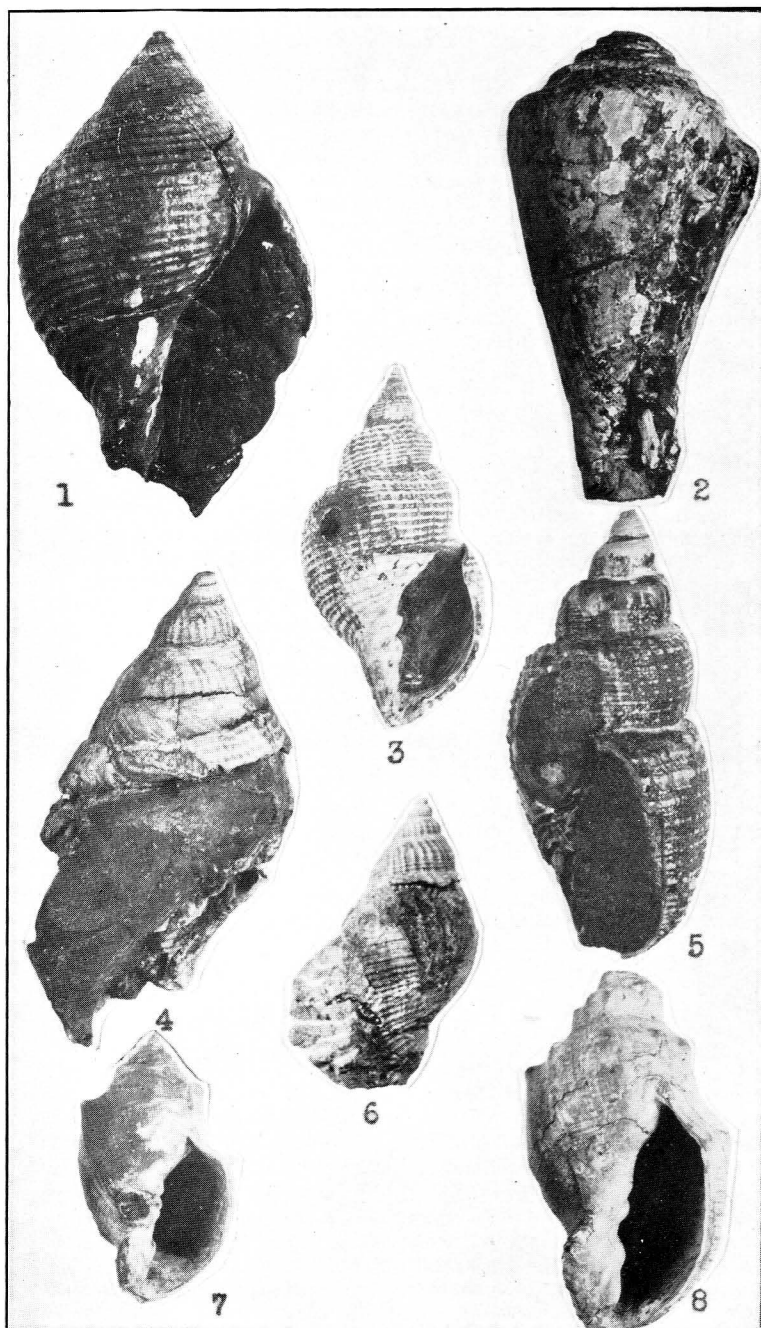


PLATE 1.

on body whorl, with narrow interspaces, extending from the side of the whorl to the suture above; base of body whorl marked by four heavy, rounded, spiral ridges with narrower interspaces; aperture of moderate size, subcircular, outer lip simple, inner lip slightly thickened, umbilicus false. Height of type 22 mm., maximum diameter of type 41 mm., minimum diameter of type 35 mm.

Type No. 116. L. S. J. U. collection.

Fernando Formation, lower Pliocene, at mouth of Brea Canyon, Puente Hills, Orange Co., Calif. Collected by C. M. Carson.

At this same locality are also found leaves referred to *Salix* and *Quercus* cf. *agrifolia*, *Conus californica*, *Trochita radians*, *Chione fernandoensis*, *Panopea generosa*, *Thracia undulata*, *Thracia trapezoides* and *Solen sicarius*.

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(Photographs by Crandall of Palo Alto)

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