

race (*grandior*, n. var.), max. diam. 29-30.5 mm. In this peculiarity the fossil *L. undata* falls in line with other species, thus *P. bowditchiana* is a sort of large edition of the common living *P. punctulata* (Sby.) of Porto Santo.

At the Mount Church, above Funchal, I found *C. lucidum* alive, and made notes on the animal. The tentacles are dark grey, with black basal collar; eyes prominent, black; head and foot pale reddish ochreous, suffused with dusky; front of head, below tentacles, with about six transverse dusky lines; an elongate dark patch on each side above mouth; a large suffused rosy area behind each eye, visible when the light shines through the animal; sole pale ochreous, not divided, but foot emarginate posteriorly. The Mount is about 1900 ft. above sea level. At higher altitudes in Madeira snails seem to be very scarce. Thus around the Pico do Serrado, at about 3000 ft., the only snail I could find was *Geomitra calva* (Lowe), though I obtained three species of slugs. These slugs were *Milax gagates*, the typical jet black form, *Arion hortensis* (new to Madeira) and *Limax maximus*. At lower altitudes the *M. gagates* are plumbeous. (var. *plumbea* Moquin-Tandon). Many years ago I described *M. gagates* var. *maderensis*, a dark brown variety from Madeira. It is now clear that it is only a color-variation, not in any sense a local race. Everything indicates that all the Madeira slugs have been introduced, though some of them have been in the island a long while. I found *Arion hortensis* also at Madeira, and on the Portella Pass another addition to the fauna, *Agriolimax laevis*.

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#### NEW PLEISTOCENE MOLLUSKS FROM CALIFORNIA.

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BY T. S. OLDROYD.

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#### ANACHIS MINUTA, n. sp.

Shell small, thick, nuclear whorls smooth; preceding whorls four in number are cancellated by strong straight longitudinal ribs and nearly equally strong revolving ridges, three on each whorl. Whorls slightly convex, sutures broad and sunken; cancellations equally strong, on the whole length of the shell.

Aperture small and curved, outer lip thick, with two dentations within. Length, 4; breadth, 6 mm.

Type is in the Oldroyd collection Stanford University. Type locality, upper Pleistocene at Santa Monica. Collected by Dr. Frank Clark, Santa Monica.

*EPITONIUM CLARKI*, n. sp. Plate V, fig. 13.

Shell white, thin, nuclear whorls missing, with 7 well-rounded post-nuclear whorls; varices 14 in number, not all continuous; making a half turn around the spire, and with a short spine near the sutures. Shell encircled by fine thread-like spiral striations not very close together; on the top of each whorl near the suture it is entirely smooth but on the base of the whorl the lines are closer together, or in pairs; the lines extend over the whole base close to the umbilicus. Aperture ovate, outer lip thickened. Length, 19; breadth, 8 mm.

Type is in the Oldroyd collection Stanford University. Type locality, upper Pleistocene at Santa Monica. Collected by Dr. Frank Clark, of Santa Monica in whose honor it is named.

*TEGULA HEMPHILLI*, n. sp. Plate V, figs. 11 & 11a.

Shell a fossil, thick, depressed, spire slightly conical; color, a reddish brown and mottled in appearance. Whorls four in number, with slightly angulated shoulders, encircled with a row of faint nodules. The whole shell, covered with a coarse wavy striation. Base flattened, slightly concave. Aperture oblique; umbilicus wide and deep. Height, 16; breadth, 20 mm.

Type, University of California. Type locality upper Pleistocene at Pacific Beach, San Diego, Cal. The type and four other specimens were collected by Mr. Henry Hemphill, in whose honor the species is named.

*CLATHRODRILLA DIEGENSIS*, n. sp. Plate V, fig. 12.

Shell elongate, spire elevated, apex acute, nucleal whorl smooth; seven postnucleal whorls. The whorls of the spire are crossed by slanting ribs, sutures deep. On the top of each whorl there is a wide revolving groove; on the base of the upper whorls there is one groove, on the next to the last whorl there are two, the body whorl shows the lines of growth and is

grooved to the end of the canal. Outer lip thin and broken, the notch shows small on the last line of growth. Aperture elliptical; columella curved, slightly encrusted. There is a slight umbilical fissure. Length, 23; breadth, 9 mm.; length of aperture including canal 9 mm.

Type, University of California, coll. Type locality, upper pleistocene, at Pacific Beach, San Diego, Co. The type and three other specimens were collected by Mr. Henry Hemphill.

*CONUS CALIFORNICUS FOSSILIS*, var. nov. Plate V, fig. 9.

This answers the description of *Conus californicus* with the exception that it is much larger, stronger, and with spire much more elevated. Length, 40; width, 19; height of spire 14 mm. angle of spire 70.

Type is in the Oldroyd collection, Stanford University. Type locality, lower San Pedro series, Nob Hill cut, San Pedro. This variety is found in both the upper and lower San Pedro beds.

*VERMETUS NODOSUS*, n. sp. Plate V, fig. 10.

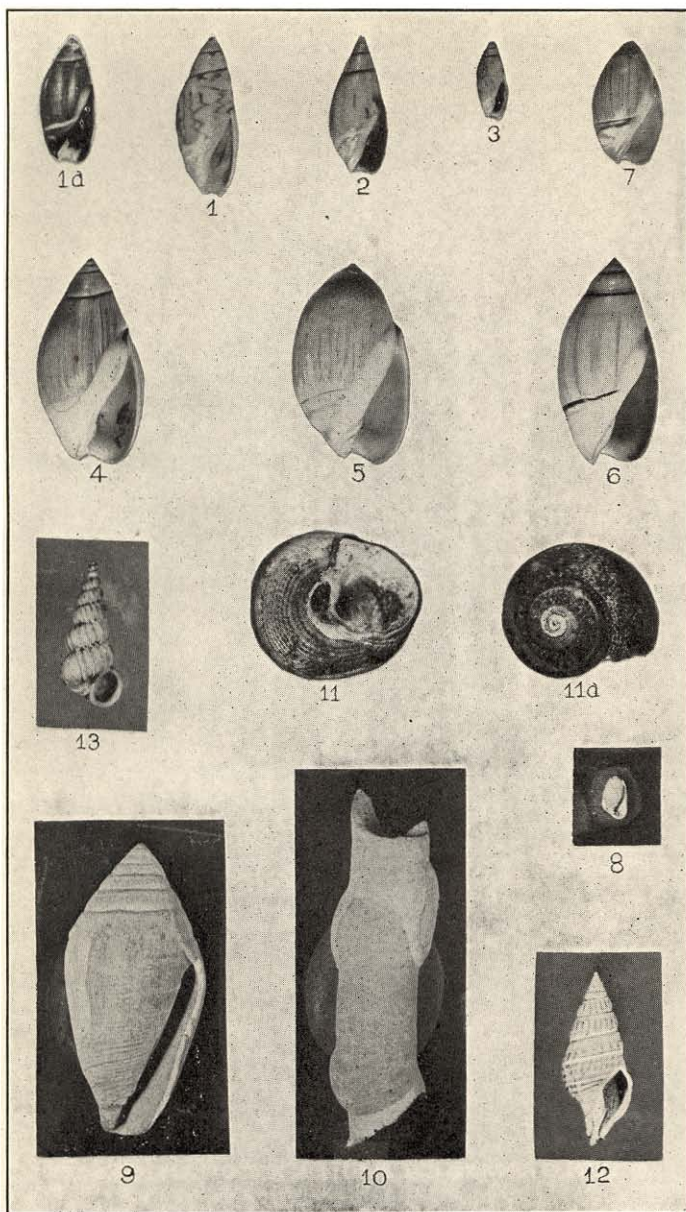
Shell a fragment; length, 46; breadth, 11 mm.; smooth and perfectly round and curved, septate within. The specimen has three large pear-shaped nodes, two of which are opposite each other, over the septum, one lengthwise of the shell, and the other crosswise.

Type is in the Oldroyd collection Stanford University. Type locality, lower San Pedro series of the Nob Hill cut, San Pedro.

*TORNATINA TUMIDA*, n. sp. Plate V. fig. 8.

Shell cylindrical, smooth, white, whorls five including the nuclear, which is small and sunken; spire rather flat, sutures deeply channeled; aperture nearly the length of the body whorl; posterior end narrowed, anterior much dilated and rounded toward the columella, which is strongly plicated, and covered with a light incrustation extending nearly to the top of the whorl. Length, 6; breadth,  $3\frac{1}{2}$  mm.

Type is in the Oldroyd collection Stanford University. Type locality Lower San Pedro series of the Nob Hill cut, San Pedro, Cal.



OLDROYD: PLEISTOCENE MOLLUSKS AND WESTERN OLIVELLAS.