

Length 10, diam. 5, aperture 4 mm. $6\frac{1}{2}$ whorls.

Length 9.5, diam. 4.9 mm.

Length 9.3, diam. 5 mm.

Length 9.2, diam. 4.4 mm.

Oahu: Kawaihapai, on a steep wooded bluff about 500 ft. above the coastal plain, and perhaps $\frac{3}{4}$ mile from the sea. Type no. 110593 A. N. S. P. Paratype in Bishop Mus.

This is a much larger, more robust species than other forms having a parietal callus and posterior commissure. The columellar lamella is broader and less oblique. By its form and texture it recalls *L. resinula*, which differs in apertural characters.

Kawaihapai is near the western cape of Oahu, and the bluff there is the last terrace of the Waianae mountains. My companions there were Dr. Cooke and Mr. Forbes of the Bishop Museum.

NOTES ON WEST AMERICAN EMARGINULINAE.

BY WM. H. DALL.

The large *Subemarginula yatesii* Dall, 1902, from Monterey Bay, seems to be represented by a fragment from the Bay of Panama. *S. bella* Gabb, described in 1865 is apparently very rare. I have an uneasy feeling that it may prove to be the young of *yatesii*; at all events the point will bear investigation; the specimens at my disposal are insufficient to decide the question. *Zeidora flabellum* Dall, 1895, is only known by the type specimen from deep water off Clarion Island. *Rimula mazatlanica* Carpenter, 1857, is likewise represented only by its type.

Puncturella (Cranopsis) expansa Dall, 1896, we have from Panama Bay and the Galapagos Islands in deep water.

The typical *Puncturellas* have the internal septum, below the slit, buttressed by props. *P. noachina* of British seas is the type. But a large number of the species are destitute of this feature. The northern species have thickish tentacles, with the

eyes on protuberances at their outer bases; the antarctic forms have long slender tentacles with the eyes about one third the length from the insertion of the tentacle. Behind the true tentacles is another pair, shorter and without eyes, probably really belonging to the epipodial series of cirri, but separated by a gap from the other shorter ones behind them. These pseudotentacles were figured from life by Couthouy and from a spirit specimen by Strebel, and are not represented in the forms of the northern hemisphere. The males in both groups have a well developed verge behind the right tentacle. This of course disposes of the identity claimed on conchological grounds for the antarctic and northern species like *noachina*.

Beginning with those species destitute of props to the septum we have *P. cucullata* Gould, 1849; high, with strong ribs, wide interspaces which may be smooth or radially grooved. It ranges from Kadiak Island to La Paz, Mexico. Nearest to this is *P. multistriata* Dall, n. sp. with small, slightly alternated, rather close set radial threads. This has generally been associated with *cucullata* as an extreme variation; but the very large series I have indicates that it is distinct. It ranges from the Aleutian chain south to San Diego, and the Cortez Bank, Cal.

P. cooperi Carpenter, 1864, has been received from southeastern Alaska and extends to the Santa Barbara Islands, Cal. It is small, erect and very feebly sculptured.

P. caryophylla Dall, n. sp. minute, high, cylindro-conic, with strong, even, radial threads, resembles nothing so much as a miniature solitary coral, and has been dredged off San Diego, Cal., in 40 to 80 fathoms.

P. longifissa Dall, n. sp. is low, narrow, small, with an arcuate back, strong radial threads, very posterior apex, and the slit half as long as the distance from the apex to the anterior margin. It has been found only in 10 fathoms, off Bering Island, Bering Sea.

The Antarctic species are *P. cognata* Gould, 1849, from Orange Harbor, Patagonia, which has been often identified as *P. noachina*, being one of the species with props. *P. falklandica* A. Adams, 1862, is without them, while *P. conica* Orbigny, 1841, has only the faintest traces of a supporting callus. Both

are common to the southern part of Chile, the Magellanic region, and the Falkland Islands.

The largest species of the genus, which reaches 58 mm. long and 28 mm. high, is *P. major* Dall, 1891, ranging from the Pribiloff Islands, Bering Sea, to Boca de Quadra in southern Alaska. It has faint transverse lines of callus but no pits, and the shell is very thin for its size. Lastly *P. galeata* Gould, 1849, has strong pits and props, with a finely threaded, close-set, radial sculpture. It ranges from Unalashka, Aleutian Islands, to the Santa Barbara Islands, California.

A NEW FORM OF BATHYTOMA FROM THE UPPER PLEISTOCENE OF SAN PEDRO, CAL.

BY PROF. J. J. RIVERS.

Plate III, figs. B, c, represent two examples selected from six discovered by Dr. F. C. Clark, who has been for several years an investigator of the coast species of both fossil and recent Mollusca.

Dr. Clark and myself have a partnership in Paleontology, each holding equal rights under the firm name of "Rivers and Clark". Dr. Clark does most of the excavating of strata, while I have the delight to nominate the species when I am able. Our material is great, and unless we can obtain assistance, years will elapse before a complete catalogue will be forthcoming.

Bathytoma clarkiana Rivers. I name this in honor of my colleague, Dr. F. C. Clark of Santa Monica, Cal. The fossil is heavily charged throughout the whole of its structure with carbonate of lime. The columella is thicker than in any described species. If the shell be placed with its aperture downwards, many conchologists would think it an exotic species of *Mitra*. But there are none of the known species of *Bathytoma* that represents this form in its attenuate outline. This figure will explain the oblique condition of the sutures that divide the whorls.



Dall, William Healey. 1914. "Notes on West American Emarginulinae." *The Nautilus* 28, 62–64.

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