

terr. Fl. Bleu: 14), from Ling-Ying, West Lake, Hangchow, China, has been studied. Surprisingly, it appears to represent a group of Microcystinae (Helicarionidae), which is not known from the islands of the Pacific Ocean, and is now made the type of a new genus, *Tengchiena*. The shell of *T. rathouisii* somewhat resembles that of *Liardetia*, and has rather heavy, but irregular growth-wrinkles, which obscure the spiral striae above the acute angle of its later whorls, a smoothish base with more conspicuous spirals, and a similar externally rimate umbilicus, which is internally closed by a thin callus. But, it is heavier and larger. Since it lacks a penial appendix, *T. rathouisii* appears anatomically closer to the Fijian subgenus *Laua* of *Diastole*, from which it differs in its large spermatheca, short epiphallus, apically swollen penis with heavy stimulator fold, simply bicuspid radular marginals, and superficially rimate shell.

Animal like *Diastole* (*Laua*) *lauae* H.B.B. (1938, Bishop Mus. Bull. 158: 55) but: Unpigmented, except for black ommatophores. Lung colorless, 7 times as long as its base or 4 times kidney length, which is thrice its base or 1.5 times pericardium. Ovary (G, f. 1; scale = 1 mm.) with 5 triangular lobes of few clavate alveoli, imbedded in basal half of apical liver lobe. Recurved talon (GT) exposed; smaller irregularly ovoid carrefour imbedded in albumen gland (GG). Uterus (UT) not gravid. Spermatheca (S) thin walled, elongate fusiform, with short stalk. Epiphallus (E) small, entering near penial apex and insertion of retractor (PR). Penis (P) internally, in basal half with two pilasters, one of which is continuous with large and high, transversely convoluted fold (outlined at PP) in apical half. Jaw with weak rounded median lobe. Radula (fig. 2; scale = .01 mm.) with 9 tricuspid laterals, 17-19 slender bicuspid marginals and 19-17 short outer marginals with additional cusps; 98 transverse rows (T; scale = .1 mm.; blocks of 9 teeth indicated).

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## FIELD NOTES ON SOME WEST COAST MOLLUSKS

BY E. P. CHACE

During the winter of 1941-42 Mrs. Chace and I did quite a bit of collecting near Monterey. We made several trips to Del Monte Beach and found and broke up many chunks of shale that had come in from the bottom of the bay. One in particular was very thrilling: a block nearly 3 feet square and 18 inches thick. When



I broke it up I found several fine specimens of *Parapholas californicus* Conr.,  $4\frac{1}{2}$  to 5 inches long, all dead but well-preserved shells. When washing these out I saw that one of them had other shells inside and on separating the valves I found 1 *Paphia staminea*  $2\frac{1}{4}$  inches long, 4 others about 1 inch long and 1 beautifully frilly specimen of *Venerupis lamellifera* Conr.,  $1\frac{1}{2}$  inches long. What little space was left inside the pholad was filled with sand. In this same rock were some *Adula falcata* Gld.  $3\frac{1}{2}$  inches long and a few *Lithophagus plumula* Hanley. Other rocks broken the same day added the following species to the list of borers and nestlers. *Pholadidea ovoidea* Gld., *P. penita* Conr., *P. rostrata* Val., 1 *Schizothaerus nuttallii* Conr., *Adula californiensis* Phil., *Kellia laperousii* Desh., *Petricola carditoides* Conr., *Saxicava pholadis* Linn., *Entodesma saxicola* Baird., *Cumingia lamellosa* Sby., 2 *Pododesmus macroschisma* Desh., and 2 fine *Paphia staminea ruderata* Desh., and several *Crepidula nummarius* Gld. var. *perforans* Val.

Some of the *Venerupis lamellifera* were quite small and flat, and showed fine radial sculpture between the beautifully developed frills. They had not grown large enough to fill the holes in which they were nestling. Others taken from *Lithophagus* holes were long and narrow and fitted the holes so closely that the frills were all worn off except on the posterior portion. These had a superficial resemblance to *Petricola carditoides*. Nearly all of the *Paphia* were the normal form but 3 or 4 had the frills of var. *runderata* Desh. very strongly developed, so that at first glance they could be taken for specimens of *Venerupis lamellifera*.

One of the *Kellia laperousii* Desh. that I took from the shale at Del Monte Beach was the largest that I have ever seen, measuring  $33 \times 26$  mm.

Collecting near Point Pinos was quite interesting and the highlights of that locality were: three live specimens and several dead pairs of *Venerupis lamellifera* from a thin seam of gravel that was exposed when I pried off a large slab of ledge rock. A goodly number of *Acmaea triangularis* Cpr. alive. I believe its usual situs is known to few collectors. It lives on the stems of calcareous, pink algae and usually the alga grows on the shells also, making them very difficult to see. *Acmaea ochracea* Dall, not



common in collections, was found living on small rocks in the deeper tide-pools, collectable only at a minus tide. It bears a superficial resemblance to the young of *A. limatula*, but this latter species lives up at the mid-tide level.

Chiton collecting here was good; 26 species were found. The highlights were *Callistochiton connellyi* Willett, previously known only from the type locality near Ensenada, Lower California, and *Lepidochitona lowei* Pils.

Another interesting find was made a few miles south of Carmel. This was a large, heavy specimen of *Marcia kennerleyi* (Cpr.) Rve., dead, but the valves still held together by the ligament.

While collecting at Morro Bay several years ago we found *Cryptomya californica* Conr. which has very short siphons, living about 6 inches below the surface but adjacent to the numerous crab burrows into which it extended its siphons.

Regarding the West Coast mytilids: students here on the coast consider *Mytilus multiformis* Cpr. a good species, of the Mexican and Central American coasts. It is very small, seldom reaching  $\frac{1}{2}$  inch, and grows in large mats on the surface of rocks. The northern limit of its range is Cape San Lucas. *Mytilus adamsianus* Dunker is listed from Santa Barbara to Panama (Mr. H. N. Lowe listed it from San Juan del Sur, Nicaragua). At present California collectors are calling our local shell *M. adamsianus*, but it is possible that future study may show differences between our California shell and those from further south. In that case the name *stearnsi* Pils. & Raym. may be available for our California shell.

Along the coasts of Los Angeles and Orange counties large colonies of *Lasaea* live in crevices of the ledge rock. Sometimes, but by no means always, *M. adamsianus* lives in the edges of these same crevices with the end of the shell exposed to the light. *Septifer bifurcatus*, on the other hand, is usually well hidden from the light.

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## COLOR VARIATION IN OLIVELLA BIPLICATA IN VARIOUS LOCALITIES

By D. S. AND E. W. GIFFORD

In THE NAUTILUS, volume 55, pages 10-12, we published an account of color variation in a series of 2757 specimens of *Olivella*



Chace, Emery P. 1942. "Field notes on some West Coast mollusks." *The Nautilus* 56, 41–43.

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