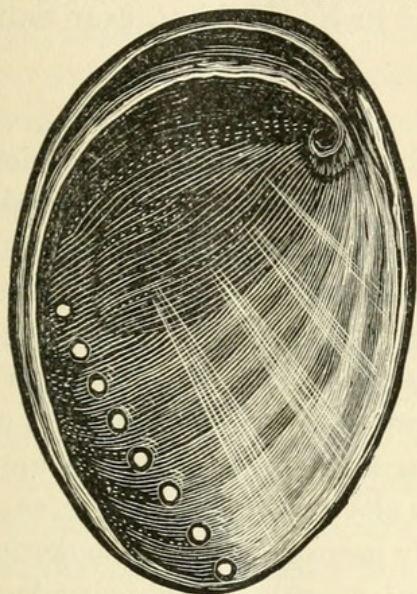


times assumes noble proportions. You can find them under stones or in out-of-the-way places among the rocks if you search when the tide is low. All of these mollusks, in fact, are rock lovers, and it is idle to seek for them except among the crags or broken boulders. It is exceedingly interesting to capture a good-sized fellow and watch his mode of locomotion. When placed on a smooth rock he moves



H. Cracherodii.

along at no snail's pace, but strides on like an elephant. Not quite so fast, to be sure, but the motion of his body, slightly swaying from side to side, and the tremendous muscular force which he evidently exerts cause one to involuntarily compare his gait to that of the great proboscidian. And as for that matter, our mollusk also has a thick, black proboscis, of no mean proportions.

The Haliotis, in short, is the noblest mollusk of our coast, if not of America. Of prodigious muscular power, quick and active in movement, guided by keen instincts, supplying nourishing food to man, and above all yielding a shell beautiful as the rainbow, it deserves an honorable place in the list of our important genera.

Very fine green pearls, almost rivaling the product of the pearl-oyster are sometimes taken from its mantle, and when its superior organization is considered, it is certainly far in advance of its headless neighbor. Every young collector should be sure to get good specimens of California "abalone" shells and those who are fortunate enough to visit the haunts of these creatures should endeavor to learn more of their habits, and observe their curious structure and interesting movements.

NEW VARIETIES OF *PATULA STRIGOSA*.

BY HENRY HEMPHILL.

Patula strigosa var. *carnea*.

Shell umbilicated, greatly depressed, dark horn-color, rather solid, shining, surface somewhat uneven and covered with irregular

oblique striæ; whorls $5\frac{1}{2}$, convex, the last faintly subcarinated in the depressed specimens, falling in front, sometimes faintly banded, but most of the specimens are plain and without bands; spire subconical, apex obtuse, suture well impressed, umbilicus large; aperture circular; lip simple, thickened, its terminations well approached and joined by a callus.

Height $\frac{5}{8}$ inch, greater diam $\frac{7}{8}$, lesser $\frac{3}{4}$ inch. Habitat, near Salt Lake, Utah.

***Patula strigosa* var. *picta*.**

Shell umbilicated, elevated or globosely depressed, of a dirty white color, stained more or less with chestnut; surface somewhat rough and uneven, covered with moderately coarse oblique striæ and fine revolving lines; whorls 6, convex, subcarinated, with a broad white band at the periphery and a dark zone of chestnut on the upper side, extending from the peripheral band to the suture, fading out as it traverses the whorls of the spire; beneath on the base of the shell it is striped with numerous bands that sometimes extend into the umbilicus and also into the aperture; spire elevated; apex obtuse, suture well impressed, umbilicus moderately large and deep, broader in the depressed than in the elevated forms; aperture nearly circular, lip simple, subreflected, its terminations approaching and joined by a thin callus.

Height $\frac{7}{8}$ inch, greatest diam. $1\frac{1}{8}$ inch, lesser 1 inch.

Habitat, Rathdrum, Idaho.

***Patula strigosa* var. *rugosa*.**

Shell umbilicated, elevated or globosely depressed, of a dull brown ash color; surface rough, covered with coarse irregular oblique striæ, and microscopic revolving lines; whorls 5, convex, with or without one or two narrow faint revolving bands. In most of the specimens the bands are obsolete; spire elevated, obtusely conical; suture well impressed; umbilicus large, deep; aperture nearly round, lip simple, thickened, its terminations approaching and joined by a thin callus.

Height of the largest specimen $\frac{3}{4}$ inch, greatest diam. 1 inch.

Height of the smallest specimen $\frac{1}{2}$ inch, greatest diam. $\frac{3}{4}$ inch.

Habitat, New Brigham City, Utah.

A large rough robust form with very convex whorls; some of the specimens so closely resemble *H. solitaria* Say, that one not well acquainted with both forms would be easily deceived and refer it to that species. In its adolescent state the lip is very thin or easily

broken, and on the surface of the adult shells these fractures give it a rough and uneven appearance.

***Patula strigosa* var. *parma*.**

Shell broadly umbilicated, greatly depressed, of a dark dirty horn color, surface somewhat rough, covered with coarse irregular striae, and microscopic revolving lines; whorls $5\frac{1}{2}$ or 6, subcarinated throughout, somewhat flattened above, rounded beneath, and striped with two chestnut-colored bands, one above and the other just at the periphery; spire very little elevated, umbilicus moderately large and deep; aperture ovately round, oblique; lip simple, subreflected, its terminations approaching and joined by a thin callus.

Height $\frac{1}{2}$ inch, breadth 1 inch.

Habitat near Spokane Falls, Washington.

***Patula strigosa* var. *hybrida*.**

Shell umbilicated, depressed, white, spire horn-color, surface of the shell covered with fine oblique striae, and widely separated revolving raised lines; whorls 5, flattened above, rounded beneath, the last falling in front, and striped with two faint chestnut bands, suture well impressed; umbilicus large, showing nearly all the volutions; aperture nearly circular; lip simple, thickened, its terminations approaching and joined by a thin callus.

Height $\frac{3}{8}$ inch, diam. $\frac{3}{4}$ inch, lesser $\frac{5}{8}$ inch.

Habitat near Logan, Utah.

This is an interesting shell as it is the beginning of the forms of *strigosa* that finally develop the revolving lines into prominent ribs as seen on the surface of var. *Haydenii* Gabb.

***Patula strigosa* var. *albida*.**

Shell broadly umbilicated, greatly depressed, white, tinged with horn color; surface covered with fine oblique striae and fine microscopic revolving lines; whorls 6, convex, the last falling in front; spire very little elevated, apex obtuse, aperture oblique, nearly round; lip simple, thickened, subreflected at the columella, its terminations approaching, joined by a thin callus.

Height $\frac{1}{2}$ inch, greatest diam. 1 inch, lesser $\frac{3}{4}$ inch.

Habitat near Logan, Utah.

***Patula strigosa* var. *fragilis*.**

Shell umbilicated, elevated or globosely depressed, translucent, thin, fragile, somewhat shining, of a dark horn color, surface covered by fine oblique striae; whorls 5, convex, the last descending in front, and

striped by two dark chestnut bands, one above and the other below the periphery; suture well impressed; aperture oblique; lip simple, thickened, umbilicus moderate, deep, partially covered by the reflected lip at the columella.

Height of the largest specimen $\frac{9}{16}$ inch, greatest diam. $\frac{7}{8}$ inch, lesser $\frac{3}{4}$ inch.

Habitat near Franklin, Idaho, among Red Sandstone.

A very thin and almost transparent variety of the very variable *strigosa*. By its peculiar shade, it is very evident that the animal has drawn largely from the red sandstone for the material to build its shell.

NEW FORMS OF AMERICAN PUPIDÆ.

BY DR. V. STERKI.

Pupa Californica, varieties, continued.

4. *From Monterey, Cal.* In size not much different from the type, yet a little smaller, and more generally obovate; the striæ are less coarse; the peristome is slightly but distinctly expanded. There is no superior palatal lamella, and the three present ones are small, the columellar even a trace or wanting entirely. The form may be named: *var. trinotata*.

5. *From San Diego, Cal.* The diminution of the lamellæ is going on; none but the apertural is left in this variety—*diegoensis*—and that even is quite small or a mere trace. In size and shape, the examples are not much different from the Monterey form, which is an intermediate one. In the relation of *var. diegoensis* and the very distinct *var. catalinaria*, and also *elongata* on the neighboring islands, there is a zoogeographical enigma, which may be solved in connection with other facts.

6. *From Rocklin, Cal.* (Placer Co. 25 Ms. N. E. of Sacramento.) Large, conic or ovate conic, or turriculate, umbilicated, rib-like striæ rather strong; whorls 5, well rounded, with deep suture, the last occupying more than $\frac{1}{2}$ altit.; aperture subovate or nearly circular, margins much approximate and the ends protracted, peristome shortly but decidedly expanded; lamella one, apertural, small. Alt. 2, 5; diam. 1, 5 mill. For its size, rounded aperture and single lamella I would name this form *var. cyclops*. It is with some doubt



Hemphill, H. 1890. "New varieties of *Patula strigosa*." *The Nautilus* 4, 15–18.

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