

call them varieties or "*subspecies*," endeavoring in this way to dodge a dangerous breaker?

As the humblest student of these beautiful and variable forms of molluscan life, I shall not cease, upon every opportunity, to enter vigorous protest against these inversions of the natural order in development.

As there are no such things in nature as subspecific or varietal barriers, so there should be none in the literature devoted to her record.

Here may the educated finer sense, the critical insight, the intense love of truth, the most unbounded capacity for labor, the acumen derived from the union and cultivation of all these, find wholesome employment and scope for all legitimate ambitions.

This is better than erecting obstructions in this highway of the omnipotent, that must crumble of their own inherent falsity.

Magnetic City, N. C.

ON CHITON HARTWEGII CPR. AND ITS ALLIES.

BY H. A. PILSBRY.

In the "Proceedings of the Zoological Society of London" for 1855, Dr. P. P. Carpenter described a number of West American Chitons, now mostly well-known to western naturalists, among them *C. Hartwegii* and *C. Nuttalli*. The descriptions though concise are excellently worded, leaving no doubt of the exact forms intended; for Carpenter was an adept in the art of writing diagnoses. In his later publications on the shells of this fauna, the systematic position of these species caused Carpenter some trouble; for he refers them to both *Trachydermon* and *Chætopleura*; and the difficulty of placing them in either of these genera caused the present writer to make a new group, CYANOPLAX (in allusion to the color of the interior), to contain them. There cannot be much doubt that *Cyanoplax* is a subgenus of the Carpenterian genus TRACHYDERMON. The species *Hartwegii* was founded upon specimens collected at Monterey by Hartweg (whom Carpenter is pleased to call "*diligentissimus*"). The type measured about 31x19 mm. (1·26x·76

inch), and agreed in its rather long and narrow form and impressed sutures with fig. 85 of plate 14 of the Manual of Conchology.

The *Nuttalli* (named in honor of the naturalist whose name is so familiar to botanist, conchologist and ornithologist alike) was collected at the same locality, and was stated to differ in being wider, depressed, the valves squared where they join the girdle, the latter not projecting between them to form deep sutures. The type measured about $26\frac{1}{4} \times 20$ mm. This is the form figured by me on pl. 14, fig. 84 of the Manual.

It is not at all difficult to pick out specimens of this short, broad form, or of the longer, narrower form, even more pronounced in character than Carpenter's types; but trouble begins when we come to the intermediate examples. In one lot of 18 specimens recently received from Miss Shepard, 6 are typical *Nuttalli*; 8 are more or less typical *Hartwegii*; but it would puzzle a Philadelphia lawyer (or conchologist either) to tell what the other specimens are. The same extremes and intermediates occur in many other trays of specimens I have seen from various localities; so that one cannot doubt that the two forms named by Carpenter are merely the variations of one species, and are not correlated with differences of station or geographic range.

All of the specimens are dull greenish, gray or even black, the lighter forms generally having a row of dark blotches on each side of the dorsal ridge; and seen under a lens, all are minutely but sharply granulated, with coarser granules scattered irregularly over and among the smaller ones, especially on the lateral areas; and they are all rather deep colored inside, varying from "Robin-egg" to "Catbird-egg" blue.

Some months ago, the writer received from Mr. W. J. Raymond, fourteen specimens of *Cyanoplax*, which differ so markedly from the species discussed above that they must form a distinct species. After reaching this conclusion the shells were put aside, for one is slow to describe new littoral shells from so well worked a locality as middle California; but renewed study of them convinces me of the necessity of the step.

Trachydermon (*Cyanoplax*) *Raymondi* n. sp.

Shell longer and narrower than *T. Hartwegii*. Back somewhat keeled, varying in elevation. Color (1) olivaceous green mottled with white, sometimes with dark lateral streaks as in *Hartwegii*,

sometimes ruddy at the ridge, or (2) uniform blackish, or (3) dark brown, uniform or with whitish flecks.

Valves rather strong, slightly beaked when unworn, the posterior (sutural) margins straight or slightly concave. Intermediate valves rather rounded where they join the girdle, scalloping the inner border of the latter; not distinctly divided into areas. Lateral areas hardly or not raised (the diagonal being indistinct) *evenly sculptured with minute, equal granules*. Central areas also evenly sculptured throughout with similar granules, slightly finer on the ridge. End valves with the same equal sculpture, the tail valve with the mucro central and a little projecting.

Interior light blue, with darker stains at bases of the sutural laminae and behind the rather strong blue-white valve callus. Sinus and sutural laminae as in *Hartwegii*. Slits in valve i, 8; valves ii-vii, 1-1; valve viii, 11; teeth of end valves blunt, thick, but not distinctly bilobed. All teeth longer than the narrow, porous eaves.

Girdle narrow, black or with small whitish spots, leathery, very minutely papillose.

Length 23, breadth 11 mm. (type; San Francisco).

Length 12½, breadth 7 mm. (Bolas specimen).

Habitat, San Francisco, Bolas, Purissima, San Mateo Co., Monterey, with typical *Hartwegii*.

Specimens from the first three localities were collected by Mr. W. J. Raymond, who has seen them from Monterey also.

This is a longer species than *T. dentiens* Gld., with heavier valves, less apparent diagonal, and much longer, thicker teeth. It differs from *T. Hartwegii* (to use Mr. Raymond's words) in being (a) "narrower and smaller than southern *Hartwegii* (Monterey to San Diego) with which alone I have been able to compare them from the material at hand; (b) the color of the inside is lighter blue than in *Hartwegii*; (c) I cannot make out the warty sculpture, which you emphasize in the description of *Hartwegii*." Moreover, *the teeth are much longer* than in *Hartwegii*, from which the finer, even granulation well distinguishes *T. Raymondi*.

NOTICES OF NEW JAPANESE MOLLUSKS.

BY H. A. PILSBRY.

Clausilia (*Stereophædusa*) *Stearnsii* n. sp.

Shell elongated, regularly tapering, the next to the last and the



Pilsbry, Henry Augustus. 1894. "On Chiton hartwegii Cpr. and its allies." *The Nautilus* 8, 45–47.

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