

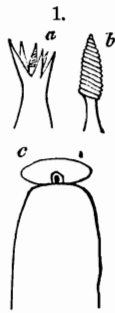
ART. XLVI.—*Contributions to Zoölogy from the Museum of Yale College.* No. 8.—*Descriptions of some New England Nudibranchiata*; by A. E. VERRILL.

DURING a dredging expedition to Eastport, Me., and Grand Menan, the past season, in company with Mr. Oscar Harger and C. H. Dwinelle, students in the Sheffield Scientific School, the following very interesting species was obtained. Many other Nudibranchs were also observed, most of which are well known species.

Dendronotus robustus, sp. nov. Figure 1.

Body stout, about 2 inches long; .5 broad, and about the same in height, somewhat quadrangular, tapering posteriorly, but much less acute than in *D. arborescens*, as well as much stouter throughout. Branchiæ in about six pairs, those of the three first pairs with a supplementary one of nearly the same size arising separately outside of, but close to their bases; on the fourth pair these originate from the base as large branches, and on the following ones they are more distinctly branches, arising from the sides near the bases of the branchiæ. The branchiæ are diffusely arborescent and very much subdivided, the divisions taking place very rapidly, the branches being more equal in length and more spreading than in *D. arborescens*, and do not have the long, slender and acute main branches seen in that species. The sheaths of the tentacles (figure 1, *a*) are round and stout, about .4 of an inch long and .12 in diameter, and are destitute of any lateral branches; they divide at top into five simple, round, smooth, tapering, acute divisions, of which the two posterior ones are longest. The tentacles (figure

1, *b*) are about equal in length to the lobes of the sheath, the pedicle forming about half of the visible part; the terminal portion suddenly enlarges at first, becomes somewhat conical, and tapers to an obtuse point; it has ten or twelve oblique plications. Front of head with numerous (about thirty) sparingly branched appendages arranged in two series. In the upper series there are about ten, the outer ones being largest; these have stout stems with a few conical, tapering branches, mostly on the lower side, which are tipped with sulphur-yellow. Below these are numerous unequal, smaller, and more simple appendages, about ten on each side, part of which are forked at the end, while others are simple and papilliform and surround the expanded oral disk; all are tipped with yellow. The oral disk (figure 1, *c*) is transversely elliptical. The foot is nearly as broad as the body ($\frac{1}{4}$ of an inch), and can be adapted for clasping by infolding the edges.



Color pale grayish, thickly sprinkled with small yellow spots, which become less numerous on the oral appendages and sheaths of the tentacles.

Whale Cove, Grand Menan, on sea-weeds in a pool near low-water mark. One specimen only, found by Mr. Oscar Harger.

Dendronotus arborescens Alder and Hancock (*D. Reynoldsii* Couthouy) differs widely from this species in having a very narrow foot; an elevated compressed body, which is more slender and more acute behind; a much smaller number (about ten or twelve) appendages in front of the head, of which the six upper ones are larger and much more branched, and the four lower ones very small; the gills longer and the branches more unequal, while the lowest branch on the outside arises from the side, above the base, even on the front pairs; and in having more clavate tentacles, with longer and branched lobes to their sheaths, while the sheaths also have a large, arborescent, gill-like branch originating from the outer side toward the base. By the last character alcoholic specimens can easily be distinguished. Both species occurred together in the same pool.

Doris bifida, sp. nov.

Outline broad oval, widest anteriorly, 1 inch long by $\frac{1}{5}$ broad, in extension, back very convex, mantle covered with numerous, scattered, prominent, pointed papillæ. Tentacles rather long, thickest in the middle, the outer half strongly plicated, but with a smooth tip, the base surrounded by small papillæ. Gills retractile into a single cavity, united together by a partial web,

Figure 1.—*Dendronotus robustus* Verrill; *a*, tentacle sheath, natural size; *b*, tentacle, enlarged; *c*, oral disk and anterior part of the foot, natural size; from living specimen by A. E. Verrill.

deeply frilled, much subdivided, bipinnate, the subdivisions fine and slender. Foot very broad, in extension projecting back beyond the mantle about a quarter of an inch, slightly tapering, rounded and slightly notched at the end. Oral disk or veil crescent-shaped, the front a little prominent, the sides extended backward and forming a curve continuous with that of the foot.

Color dark purplish brown, sprinkled with white specks; tentacles deep brown, specked with white, tips yellowish; gills purplish at base, the edges and tips yellow; foot similar in color to mantle, but lighter.

Eastport, Me., at low-water mark, under stones, Aug. 19, 1868.

Onchidoris tenella.

Doris tenella Ag., in Gould, Invert. of Mass., Ed. 2, p. 229, Pl. xx, figures 289, 290, 293, 1870.

Specimens of this rare and imperfectly known species were obtained under stones in a large pool at low-water mark, near Eastport, Me.

The largest one was .35 of an inch long, and .20 to .25 broad, according to the position. The outline is oval, elliptical, or oblong, in different states of extension, and the edges of the mantle are often rolled inward. The back is strongly convex, the surface thickly covered with small conical papillæ, which are strengthened by numerous minute white spicula. The tentacles are rather long, oblong, scarcely tapering, with numerous transverse laminae, which cover nearly the whole length, the tip with a small obtuse papilla; the base is surrounded by a short sheath, with the edge divided into five small conical papillæ or teeth, the two anterior ones largest. Branchiæ nine, seven principal ones with two very small ones posteriorly; the larger ones are short, thick, lanceolate, with short lateral lobes. In the center of the branchial circle there is a small brownish papilla. The foot is long-oval, tapering behind and rounded in front, about half as wide as the mantle, and very much shorter. The oral disk is short and broad, subtriangular, with a very obtuse angle in front.

Color of the upper surface yellowish white, the papillæ mostly tipped with yellow, but some with flake-white; tentacles lemon-yellow with lighter tips; branchiæ yellowish white, edged and tipped with lemon-yellow, the yellow tint conspicuous in partial contraction; foot yellowish white; mouth and edge of oral disk bright yellow.

Onchidoris grisea.

Doris grisea Stimpson MS., in Gould, op. cit., p. 232, Pl. xx, figures 292, 295.

This species occurred under the same circumstances as the preceding, and more commonly. The color was generally clear white, sometimes tinged with pale sulphur-yellow, in some parts.

Onchidoris pallida.

Doris pallida Ag., in Gould, op. cit., p. 229, Pl. xx, figs. 284, 287, 288, 291.

This species was dredged in 20 fathoms in Eastport harbor. It has much larger tubercles than either of the preceding.

Doridella, gen. nov.

Body covered with an ample, smooth mantle, oval, convex. Dorsal tentacles retractile, without sheaths. Head prominent, the lateral angles prolonged anteriorly as short oral palpi or tentacles. Foot broad, cordate. Branchiæ posterior, in the groove between the mantle and foot.

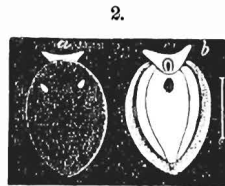
Doridella obscura, sp. nov. Figures 2 and 3.

Form broad oval, .3 of an inch long and .2 broad; back convex, smooth. Foot broad, cordate in front. Oral disk broad, emarginate or with concave outline in front; The angles somewhat produced, forming short, tentacle-like organs, which in extension project beyond the front edge of the mantle. Dorsal tentacles small, stout, retractile. Color of body blackish, lighter toward the edge, as if covered with nearly confluent black spots, the whitish ground color showing between them; foot, oral disk, and dorsal tentacles white; the central part of body, beneath, bright yellow.

Savin Rock, near New Haven, Oct. 28, 1868,—E. T. Nelson.

The eggs, laid in confinement, were very small, pale yellow, numerous, arranged in an open coil, (figure 3).

This is the only Nudibranch hitherto discovered in the vicinity of New Haven. It appears to be allied to *Phyllidia* and *Fryeria*, which are usually referred to the Tectibranchs.



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