TWO NEW OPISTHOBRANCH MOLLUSKS FROM THE GULF OF MEXICO BELONGING TO THE GENERA *PLEUROBRANCHAEA AND POLYCERA*

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TWO NEW OPISTHOBRANCH MOLLUSKS FROM THE GULF OF MEXICO BELONGING TO THE GENERA *PLEUROBRANCHAEA* AND *POLYCERA*[1]

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Recently, several opisthobranch mollusks from Florida and Texas were sent to the author for identification. Among these were two undescribed species, one a *Pleurobranchaea* collected at Port Aransas, Texas, by Joel W. Hedgpeth, the other a *Polycera* collected by Harold J. Humm at Alligator Harbor, Florida. Their descriptions are given below. Unfortunately, photographs of and color notes on living specimens were not available.

Pleurobranchaea hedgpethi new species

(Plate 1, figs. 1-8)

Suborder TECTIBRANCHIATA
Family PLEUROBRANCHIDAE
Subfamily PLEUROBRANCHAEINAE
Genus PLEUROBRANCHAEA Leue 1813

Body. — The body of the animal is moderately elongate to elliptical, slightly flattened, from 30 to 40 mm. in length and from 17 to 19 mm. in width (slightly contracted, preserved specimens). Mantle or dorsum shorter and narrower than the foot with a very narrow free edge. It is continuous anteriorly with the velum. At the posterior right end, the mantle edge is elongated slightly into a rolled-up tube which is placed over, but does not enclose the ctenidium. Dorsal surface of the mantle (dorsum) is thin, of a semi-translucent cream color, and minutely pimpled. It has faint indications of gray mottlings which disappear soon after preservation. The foot is elongate, with thin, flat edges, extending to a narrowly rounded posterior end. A small, gray, triangular, fleshy spur is located on the dorsal surface of the foot close to the posterior end.

Head. — The frontal veil is continuous with the dorsum and is wider than the rest of the body. Each anterior corner is extended to form a triangular, moderately long point which bears a narrow, deep slit on the posterior edge. The leading edge of the veil is minutely serrated. The mouth is located under the veil, and the buccal mass is very large, swollen, cylindrical, and quite hard in preserved material. There are two, siphon-like, grayish rhinophores located on the dorsum just posterior to the head region. A tiny black eye is deeply embedded in the flesh just posterior to each rhinophore.

Ctenidium. — The branchial plume lies on the right side of the body in the space between the slightly overhanging edge of the mantle and the foot. It is attached to the lateral body wall along most of the plume's length. The rhachis or primary lamella bears on its dorsal surface 23 to 28 pairs of

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smooth, alternately placed, rounded, nodules from which stem the secondary lamellae at right angles to the rhachis. Each of these secondary lamellae bears on its dorsal edge 25 to 26 alternately placed nodules from which stems a simple, thin lamella.

Shell. — None.

Mandibles. — The labial armature consists of a pair of oblong, flat, yellowish mandibles which are made up of platelets so small as to give the mandible the appearance of finely-woven, compact canvas cloth.

Radula. — The odontophore consists of numerous transverse rows of small, elongate, closely-spaced teeth. Each tooth bears two cusps. Towards the median line of the odontophore, the teeth are short with one large blunt cusp and just beside it a much smaller cusp. Towards the lateral portions of the odontophore, the teeth are larger and more elongate, with the inner cusp still being the larger but much narrower. The outer cusp is half the length of the inner one and is sickle-shaped.

Genitalia. — The external genitalia are located on the right side of the body a little anterior to the ctenidium. The penis and female orifices are contracted in our specimens to a low, mushroom-like bulb which is surrounded by a raised cup-like flap. The flap has a moderately long, blunt, tongue-like extension on the dorsal side which points anteriorly. The internal genitalia are illustrated in figure 7.

Type locality. — Port Aransas, Texas. Joel W. Hedgpeth, collector. April 13, 1948. Dredged in shallow water over muddy bottom.

Types. — Holotype is U.S.N.M. No. 574607; one paratype was returned to the collector, the third specimen destroyed in the course of examination.

Range. — A few months after this manuscript was submitted for publication two additional specimens were obtained by the U. S. Fish and Wildlife trawler, "Oregon" (station 411), 120 miles N. W. of Campeche and about 20 miles north of the East Triangles Islands, Gulf of Mexico. 34 to 36 fathoms. August 17, 1951. These are not paratypes.

Remarks. — This species appears to be closest to *Pleurobranchaea obesa* Verrill 1882 (off Martha's Vineyard to Delaware Bay. 192 to 312 fathoms) but Verrill's species differs in being larger and in being much more darkly colored with browns and purples (alcoholic material). The anterior serrations of the veil in Verrill's figure (Report U. S. Fish. Comm. for 1883 (1885), "Albatross," pl. 28, fig. 107) are fewer and much coarser than in *P. hedgpethi. P. tarda* Verrill 1880 (off Martha's Vineyard to Chesapeake Bay. 28 to 300 fathoms) is quite different in having the dorsum without conspicuous edges, in lacking a large fleshy hook at the posterior dorsal section of the foot, and in having a tongue-like flap around the genital openings pointing posteriorly instead of anteriorly as in our species.

Our three preserved specimens have lost most of their color, but Mr. Hedgpeth recalls that in life they were sepia brown with lighter mottlings.

TWO NEW OPISTHOBRANCH MOLLUSKS

Polycera hummi new species

(Plate 2, figs. 1-8)

Suborder NUDIBRANCHIATA

Superfamily DORIDACEA

Family POLYCERIDAE

Subfamily POLYCERINAE

Genus POLYCERA Cuvier 1817

Body. — Body limaciform, slightly compressed laterally, smooth, 10 to 15 mm. in length, highest just anterior to the dorsal branchiae, becoming pointed posteriorly, and gently sloping anteriorly to the rounded head. Color unknown. Foot elongate, thin at its lateral edges, tapering posteriorly to the tip of the slender tail, and produced into two lateral horns at its truncate anterior end. A fleshy ridge runs from each of the horns to the sides of the oral opening. Just laterally to this juncture on the head is a small triangular, external flap.

Head. — Head bluntly rounded, no frontal veil, and bearing on each side a pair of erect, fairly short, slender and slightly flattened tentacles. The anterior tentacle is usually ¾ as long as the posterior one, but in one specimen they are about equal-sized. The bases in each pair may be separate or fused. The two rhinophores located just posterior and slightly inboard to the tentacles are non-retractile, the clavus perfoliate with 13 to 14 oblique, thin leaves that are welded to a common vertical ridge along the anterior side. The stalk of the rhinophore is cylindrical, not quite the length of the clavus that it bears. The dorsal tip of the clavus is mounted by a fairly large, bean-shaped bulb.

Branchial plumes. — Located on the dorsum just posterior to the highest region of the animal. The plume consists of nine main plumules, the most anterior ones generally being the largest. The underside of each plumule is smooth; the upper side is divided into numerous lateral septa. In some specimens, there are only 7 plumules. Immediately posterior to the plume is the small, round, slightly raised anal papilla. Borne on the dorso-lateral margin on each side of and partially posterior to the plumes are two groups of blunt club-shaped processes, dilated above, contracted at the base. In some specimens there are four processes on each side, but in others there may be only three on the right side and four on the left.

Shell. — None.

Labial disc armed with a finely spinose collar. Mandible strong, of a light yellow color, oblong, with a sharp, anterior cutting surface. The posterior edge is bifurcate with a wide v-shaped trough into which a large mandibular muscle fits. Radula with a wide supporting membrane and with a narrow band of 11 rows of teeth, colored dark reddish brown. Rhachis naked, wide. There are two pleural teeth on each side of the naked rhachis. The inner one is the smaller and bears two fairly large, widely separated denticles on the anterior edge. The larger, outermost pleural tooth is sharply hooked at its anterior end, and bears at the outer posterior end a thick, blunt, triangular

denticle. There are 4 small, squarish uncinal teeth, the innermost only bearing 5 small denticles on its anterior edge.

Type locality. — Alligator Harbor, Franklin Co., Florida. Dr. Harold J. Humm, collector. April 20, 1950.

Types. — Holotype is U.S.N.M. No. 574647; 2 paratypes are in U.S.N.M. No. 574648; the remaining 2 paratypes were returned to the collector.

Range. — Known only from the type locality.

Remarks. — This species is the first *Polycera* recorded from the Western Atlantic. It differs from other *Polycera* species in its remarkable resemblance to *Ancula* in its external features. The radula and jaws, however, are those of a typical polycerid. Despite its superficial resemblance to *Ancula*, *P. hummi* differs in having a flap or ridge of flesh running from the lateral anterior end of the foot to the side of the oral bulb, in having a central, vertical rhachis supporting the leaves on the anterior edge of the rhinophore, and in having only one large plume which is divided into several plumules instead of the three main plumes found in *Ancula*. The most anterior lateral accessory appendages in *Ancula* arise just anterior to the branchial plume area, while in *P. hummi* the most anterior ones arise just opposite the plume. Although the strange Ancula-like characters of this *Polycera* are perhaps suggestive of a new genus, we believe it would be wiser first to obtain live material of true *Polycera* and *Ancula for* comparative studies.

EXPLANATION OF FIGURES

Plate 1. — Pleurobranchaea hedgpethi, n. sp. Fig. 1. — Dorsal view of animal. (x2). Fig. 2 — Posterior view of left rhinophore. Fig. 3 — Enlarged left lateral view of pedal spur. Fig. 4 — Enlarged view of genital opening and papilla. Fig. 5 — Enlarged dorsal view of branchial plume; details of first two pairs of lamellae are given only. Fig. 6 — Cross-sectional view of primary lamella showing a pair of heart-shaped tertiary lamellae. Fig. 7 — Reproductive organs, the parts slightly displaced so as to show their mutual relations. *go*, genital orifice; *hd*, hermaphroditic duct; *hg*, hermaphroditic gland; *ng*, nidamental-albumen gland complex; *pe. m.*, penial retractor muscle; *pr. g.*, prostate gland; *pr. p.*, praeputium; *sp. d.*, sperm duct; *sp. th.*, spermatheca; *va.*, vagina. Fig. 8 — Row of selected teeth from the left side of the radula ribbon showing the outermost teeth to the left (greatly magnified).

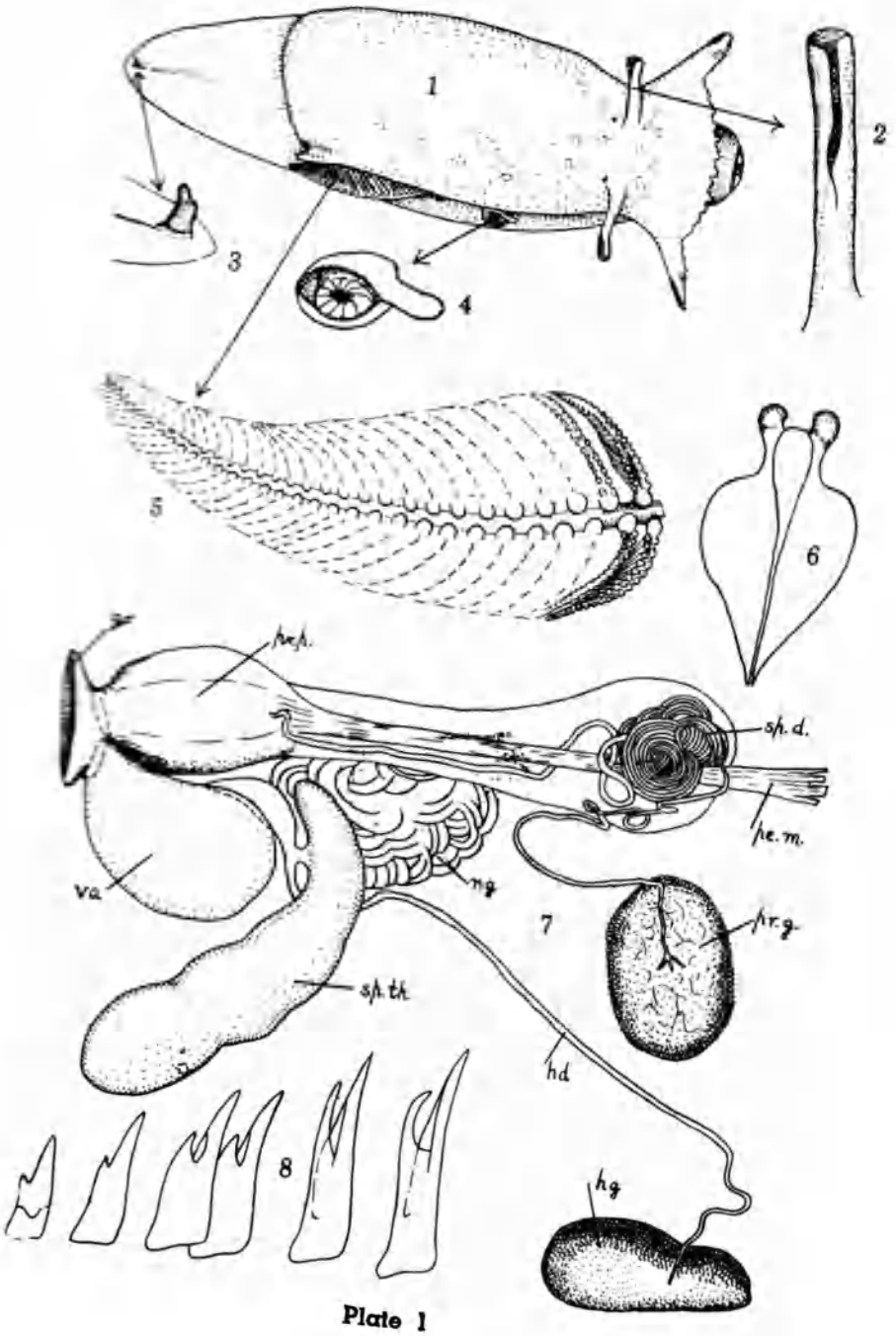

Plate 1

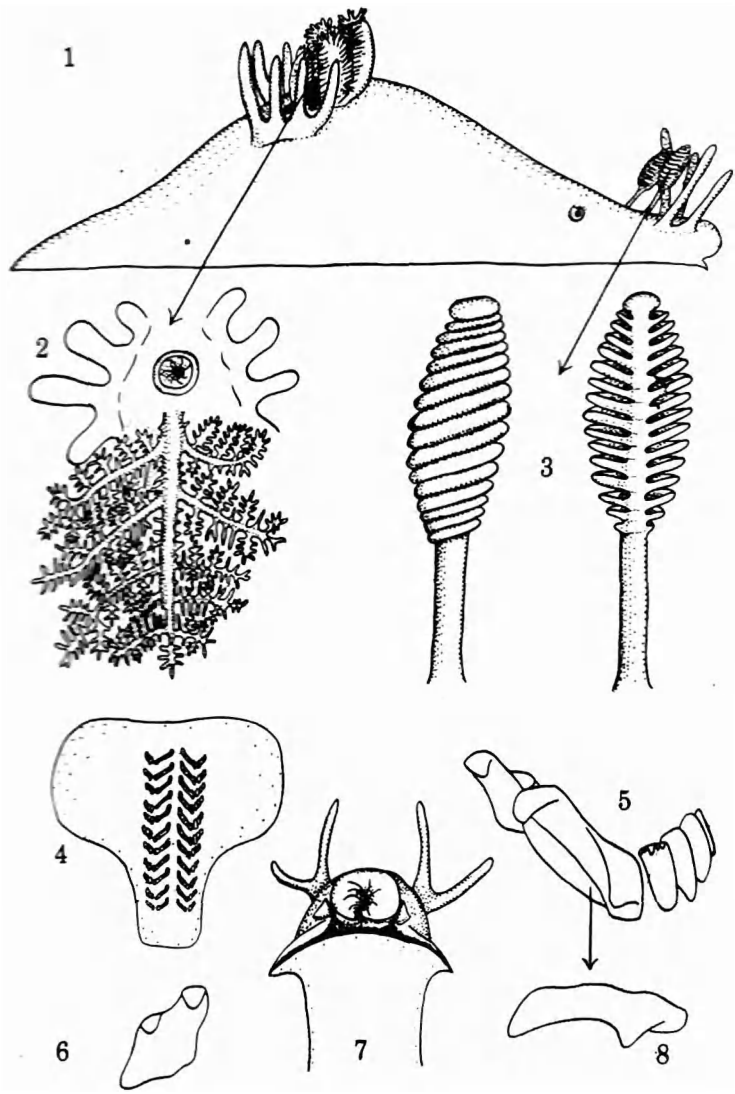

Plate 2. — Polycera hummi, n. sp. Fig. 1. — Right lateral view of animal (x5); *go.*, genital orifice; *te*, tentacles; Fig. 2 — Dorsal view of branchial plume showing the renal pore directly posterior and the four pairs of branchial appendages on each side. Fig. 3 — Rhinophore, lateral view shown in the left drawing, anterior view to the right (x20). Fig. 4 — Dorsal view of radula ribbon showing the row of teeth at the center. Fig. 5 — Radular teeth from the right side of the odontophore; from left to right; inner pleural, outer pleural, and four uncinal teeth. Fig. 6 — A left outer pleural tooth. Fig. 7 — Ventral view of head region. Fig. 8 — Top or edge view of the inner pleural tooth shown in Fig 5.

ADDITIONAL NOTES ON *POLYCERA HUMMI*

Some time after submitting this manuscript for publication, but too late for incorporation, some additional data on *Polycera hummi* came to hand.

The range of this species is now known to include Beaufort, North Carolina. A collection of nudibranchs made by Mr. Robert M. Linsley was recently deposited in the U. S. National Museum by the Duke University Marine Biology Station. Mr. Linsley collected nine specimens of this species and made sketches of and color notes on the living animals.

In February 1952, Dr. H. J. Humm and Miss Martha Nez airmailed a living specimen in a jar of sea-water to the National Museum. The following notes are from that specimen. In details, the individual from Alligator Harbor, Florida, is very similar to Mr. Linsley's sketches of the Beaufort specimens.

The shape of the living animal when crawling on a flat surface is much less elevated than is shown in our drawing of a preserved specimen. Total length of extended animal, 20.0 mm.; length of head processes, 5.0 mm.; length of rhinophores, 2.5 mm.; length of largest and most anterior gill plume, 5.0 mm. The surface of the body bears numerous, small, low, conical papillae. These are largest in the region of the dorsal side of the posterior end of the foot and along a raised, fleshy ridge which runs posteriorly from the head processes along each side of the back of the animal.

The color of the animal is translucent grayish brown with heavy mottlings and speckles of jet-black. There is a microscopic dusting of yellowish white granules over the entire outer surface. The four head processes and the cerata on each side of the gill plumes are brightly colored with wide bands of blue and yellow. The head processes are more brightly colored and have, from the distal end towards the base, the following order of color bands: translucent gray, sky-blue, chrome-yellow, again sky-blue, and finally a base of grayish with weak, black mottlings. The posterior end of the foot bears a horseshoe-shaped band of sky-blue, posterior to which there is an area of chrome yellow. The rhinophores and gill plumes bare dark gray with black mottlings.