

## A NEW SPECIES OF ONCHIDIOPSIS FROM BERING SEA.

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The genus *Onchidiopsis* Bergh (1853) was proposed for certain Arctic mollusks related to *Velutina* and possessing an internal nearly laminar shell. The minor characters of the few species known are in many respects different but their combinations are so intermixed that it is difficult to assign to the differences more than specific value. However the peculiarities of the present species are such that I venture to separate the genus into two sections, as follows:

Genus **ONCHIDIOPSIS** Bergh, 1853.Section ONCHIDIOPSIS, type *O. grönlandica* Bergh.

Adult animal with an impervious notæum.

Section ATLANTOLIMAX, type *O. (A.) hannai* Dall.

Adult with a large dorsal foramen in the notæum.

**Onchidiopsis (Atlantolimax) hannai** n. sp.

Animal, after preservation in spirits, of a yellowish white color except on the sides of the foot and on the osphradium. The foot is muscular, broad, tapering and bluntly pointed behind, extending about one-third of its length behind the hinder margin of the notæum even when contracted; the front edge duplex, auriculate at the anterior lateral angles; proboscis entirely retractile within a transverse slit, below the short stout tentacles; eyes black, distinct, completely imbedded in and a little above the not perceptibly swollen bases of the tentacles, on their outer sides; verge situated behind the right tentacle, large, twisted, at first stout and subcylindrical, then deeply constricted; then compressed and expanded with a conical papilla at the outer corner of the expansion<sup>1</sup> much as in *O. corys* Balch.

The sides of the foot are radially corrugated, the convex folds sometimes more or less granulose; above the corrugated area and in the pedal sulcus below the edge of the mantle the surface is smooth

<sup>1</sup> In Balch's figure of *O. corys* this papilla is shown at the inner corner of the expansion, a difference which is probably due to twisting. Cf. Proc. U. S. Nat. Museum, No. 1,761, pl. 22, fig. 1.

and white, though the corrugations are more or less tinged with slate color. The visceral hump is enormous, subglobular, shorter than the foot, height above the sole 52 mm.; above the sulcus between mantle-edge and foot 40 mm.; longitudinal diameter 42 mm.; transverse diameter 37 mm. The hump is largely covered by a thick, obscurely pustulous, almost coriaceous layer (the notæum) beneath which is a thin, transparent but quite tough mantle which in spirits expands below the basal edge of the notæum above the pedal sulcus especially in front (though not as much as in *O. corys*), like a mass of bubbles, with a hardly perceptible sinus on either side forming an incurrent and an exhalent channel, which however does not affect the margin of the notæum, the latter being entire except for a slight incurvation in the median line in front.

The summit of the notæum (in spirits) exhibits an ovoid foramen about 30 mm. long by 24 mm. wide, through which the shell, covered by the excessively thin transparent mantle, is partially visible.

There is a transverse slit-like opening between the mantle and the pedal sulcus, directly behind the head, in which the osphradium, ctenidium and excretory outlets are situated. The osphradium is of a greenish tint, with darker margins. The gill is translucent white. In the former the filaments are single and elongated on either side of the stalk, not short and double as in *O. corys*. The ctenidium has a single row of long, triangular, not auriculate lamellæ much as in that species.

The jaw much resembles that of *O. corys*, but the radula was so deeply retracted that it was thought best not to break up the unique specimen by cutting to extract it.

The base of the arc of the shell measures 40 mm. long by 32 mm. wide. It has much the shape of the bowl of a deep oval ladle and its depth is about 15 mm. when in normal position. Its structure is concentric, not in circles but in a rounded-quadrate fashion. On the edge of the left side behind is a knot-like nucleus. On the inner surface near this nucleus and extending for a length of about 12 mm. away from it are two elevated straight ridges, which at half their length from the nucleus join to form a single stronger ridge which gradually diminishes and becomes obsolete on the inner surface of the disk. The appearance of these ridges suggests that if the shell was spirally coiled they would form a columella. The outer surface of the shell, to which the mantle adheres tenaciously, is smooth, but undulated by more or less irregularly disposed concentric wrinkles. It is attached to the body only by a small area at the edge near the

nucleus. There is no indication of a periostracum, and the cartilaginous shell is nearly transparent.

The specimen was collected on the beach of St. Paul Island, Bering Sea, after a severe storm, December 5, 1914, by Mr. G. Dallas Hanna of the Bureau of Fisheries, in whose honor it is named. U. S. Nat. Mus. Cat. No. 215,162.

This species differs from *O. corys* by its widely foraminate notæum, its much larger visceral hump, its single instead of double osphradial lamellæ, and the character of its shell. *O. grönlandica*, *glacialis* and *pacifica* have an imperforate notæum. *O. grönlandica* has a low visceral hump and entirely different form of verge. *O. glacialis* has a proportionately much shorter and posteriorly pointed foot, lower hump and different type of verge, and *O. pacifica* shows much the same differences.

The disposition to "lump" together specifically animals of this genus in spite of minor differences, is responsible for much confusion. The differences of more than specific rank run parallel to those in *Velutina*, where some species have the shell entirely covered by the notæum and others have it more or less exposed. It has been suggested that all species have the shell covered in the young, but the specimens of all ages collected by me do not confirm this supposition.

While the edges of the shell and its concave surface, except for the portion near the nucleus, are free from the visceral hump below, it is nevertheless completely covered by an extremely thin layer of tough tissue which can be separated from the shell only with difficulty, usually coming off in small strips. This tissue I assume to be an extension of the mantle as it has none of the characteristics of a periostracum. The entrance of the vagina could not be made out. It required for its demonstration more extensive dissection than was thought advisable for the unique specimen. The animal is presumably hermaphrodite, like the other species of the genus which have been anatomically examined.