

South Alaska (35° 50' N.) (Dall); Arctic Ocean: Point Barrow (surface temperature, 40°·2 F. to 42°) (Dall);¹ Aleutian Islands (Krause).

Observations.—I. As in all other species of *Limacina* there is an operculum, but it is caducous in the older specimens. I emphasise the presence of this operculum, because recent works, such for instance as Claus's Textbook, still characterise *Limacina* (*s. str.* type *Limacina helicina*) by the absence of this structure. In 1878 Sars definitely demonstrated its existence.

The caducous character of the structure is no isolated fact, for we know not only genera (*Pleurotoma*, *Voluta*, &c.) in which certain species have, and others have not, an operculum, but also species in which it is sometimes present, sometimes absent, according to the individual (*Volutharpa ampullacea*, Middendorf).

II. I consider *Limacina pacifica*, Dall, as identical with *Limacina helicina*. In fact, according to Dall and Krause, this form differs from *Limacina helicina* only in having more whorls on its spire, and in the absence of an operculum. But these are precisely the characters of the adult *Limacina helicina*, with which *Limacina pacifica* is therefore identical.

*4. *Limacina antarctica*, Woodward (Pl. I. figs. 3, 4).

1856. *Limacina antarctica*, Woodward, A Manual of the Mollusca, p. 207, *nomen tantum*, pl. xiv. fig. 4.

Characters and Description.—Subdiscoidal, flattened shell, with a spire very slightly elevated, rather depressed. Six whorls, ribbed superiorly like those of *Limacina helicina*, and, in spite of the slight elevation of the spire, quite distinct, and separated by a well-defined suture. The whorls are rounded externally and inferiorly, the last is much expanded. Large mouth, broader than high, rounded off externally, and not prolonged into an angle. Arched columella. Large umbilicus, not surrounded by a keel as in *Limacina helicina*. Transverse striæ, perpendicular to the axis, arched, regular, and equidistant.

Dimensions.—Maximum diameter 4 to 5 mm.; the height equal to about half the diameter.

Operculum unknown, probably like that of *Limacina helicina*, and caducous in the adult specimens, which alone have been examined.

Animal very like that of the preceding species. The anterior (dorsal) marginal lobe of the fin is very small, though perhaps somewhat contracted in the only specimen in which I was able to examine it. The posterior lobe of the foot is markedly hollowed out on its free margin. Tentacles like those of *Limacina helicina*; the left rudimentary, the right very long, situated in a sheath, and further forward than the left.

¹ Report on the international North Polar Expedition to Point Barrow, 1885, Report on the Mollusks, p.