

WALCOTT.]

extremity pointed; section (aperture?) triangular. The surface shows no defined markings, though the outer covering is not preserved in the specimens which I have seen."

*Mr. Billings's description.*—" *H. Americanus*.—Length from twelve to eighteen lines, tapering at the rate of about four lines to the inch. Section triangular, the three sides flat, slightly convex or slightly concave, the dorsal [ventral] and lateral edges either quite sharp or acutely rounded. Lower [upper] lip rounded, projecting about two lines in full-grown individuals. Surface finely striated, the striae curving forwards on the ventral [dorsal] side, and passing upwards on the sides at nearly a right angle, curve slightly backwards on the dorsum [ventrum]. In a specimen eighteen lines in length the width of the aperture is about six lines and the depth about four, the proportion being slightly variable.

"The operculum has a very well-defined conical ventral [dorsal] limb, the apex of which is situated above the center, or nearer the dorsal [ventral] than the ventral [dorsal] side. The dorsal [ventral] limb forms a flat margin, and is so situated that when the operculum is in place the plane of this flat border must be nearly at right angles to the longitudinal axis of the shell. In an operculum six lines wide the height of the lower limb to the apex of the cone is two and a half lines, and the width of the flat border, which constitutes the dorsal [ventral] limb, about one line.

"This species occurs at Bic and St. Simon; also, at Troy, New York, where it has been found abundantly by Mr. S. W. Ford, of that city. It is *Theca triangularis* of Hall (Pal. N. Y., vol. i, p. 313, 1847). As that name was preoccupied by a species previously described by Colonel Portlock (Geol. Rep. on Londonderry, p. 375, pl. 28 A, figs. 3a, 3b, 3c, 1843), it must be changed. It is a very abundant species and varies a good deal."

The small shell figured on plate xiii, fig. 6f, is broader at the aperture than the typical form, but fig. 6 is intermediate, and other specimens still more closely unite the two extremes. This same range of variation is observed in the common species of the Potsdam sandstone of Wisconsin, *H. primordialis*. The operculæ of the two species are also of the same type, and when we compare the shells of *H. Americanus*, with a rounded ventral angle, with the specimens of *H. primordialis*, having a high ventral angle, the two species approach each other quite closely, the latter species being the representative in the Upper Cambrian of the former species in the Middle Cambrian.

There is a considerable range of variation in the angle of divergence of the sides, and also the angles formed by the union of the three sides. This species is quite abundant at Troy, although finely-preserved specimens are rare.

*Formation and localities.*—Middle Cambrian. Conglomerate limestone on the ridge east of Troy, New York, and in a similar formation at Bic and St. Simon, Canada.