

HYOLITHES BILLINGSI n. sp.

Plate xiii, figs. 1, 1a-d.

- Salterella obtusa* Billings, 1861. Geology of Vermont, vol. ii, p. 955. *Idem*, 1865. Pal. Foss., vol. i, p. 18.
Hyolithes primordialis? White, 1874. Geog. and Geol. Expl. & Surv. West 100th Merid. Prelim. Rep. Invert. Foss., p. 6, and vol. iv, pt. 1, p. 37, pl. i, figs. 5a-c.
 Not *Theca obtusa* Salter, 1866. Mem. Geol. Surv. Great Britain, vol. iii, p. 352.

Original description.—"From six to eight lines in length; diameter at aperture about three lines. The transverse section is always subtriangular, and in some of the specimens one side appears to be flat like a *Theca*, and I would refer it to that genus, only that the tube is composed of successive layers. None of the specimens are perfect, but the form is sufficiently different from that of the other two to indicate a distinct species."

When breaking up a piece of rock holding *Salterella pulchella* from L'Anse au Loup, I found several specimens of this species corresponding to the above description, and, not being able to separate them from typical forms of the genus *Hyolithes* and as several species have two or three layers of shell, I refer the species to that genus. The shell is very thick and strong in the specimens identified with *H. obtusa* from Nevada.

The Nevada shell agrees in every respect with those from L'Anse au Loup. The operculum associated with it appears to be identical with that of *H. Americanus*, except in the more rounded ventral angle. *H. Billingsi* appears, in many examples, to be very closely related to the smoother shells of *H. Americanus*, and I am strongly inclined to consider it little more than a variety of that species. It is, in fact, a form intermediate between the latter and *H. primordialis*, and, if the three forms had been found in the same layer of rock, I should be inclined to unite them in one species; but, as they are from widely separated localities and *H. primordialis* associated with a different and later fauna, it appears best, until the three are found associated, to consider them as distinct.

As the specific name was preoccupied by Salter's *H. obtusa*, I propose *H. Billingsi*, in honor of the original discoverer of the species.

Formation and localities.—Middle Cambrian. L'Anse au Loup, Labrador, on the north side of the Straits of Belle Isle, in a hard reddish limestone; at Pioche, Nevada, it is associated with *Olenellus Gilberti*, &c., in a gray granular limestone. In the Highland Range it occurs in the shales above the *Olenellus* shale; and one mile below Argenta, Big Cottonwood Cañon, Utah, it is abundant in a silico-argillaceous shale. The specimens in the shale are compressed, but they appear to be identical with those from Pioche, Nevada.