

minate as cul-de-sacs and others penetrate through the walls, affording communication between the interior and the cup and also between the outer surface and the interior.

In some specimens the interior structure is so irregular that no system of septa can be determined.

The specimens referred to this species from Silver Peak, Nevada, are separated by an interval of 3,000 miles from those at L'Anse au Loup, but I am unable to detect differences of specific value between them. Each has the annulated cylindrical form, pitted surface, irregular walls, the interior skeleton with the irregular system of septa, and vertical partitions with the round or oval system of passages running through and between them. Many of the smaller specimens are solid to the center, and may possibly be branches broken off from a central mass; but, so far as we know, all the specimens are simple and not branched. There is also a considerable variation in the mode of arrangement of the canals running through the interior, but I think all the specimens belong to one species.

*Formation and localities.*—Middle Cambrian, L'Anse au Loup; on the Straits of Belle Isle, Labrador; and Silver Peak, Nevada. Longitude 117° 20' E., latitude 38° N.

#### ARCHÆOCYATHUS BILLINGSI n. sp.

Plate iii, figs. 3, 3a-c.

Body of sponge cylindro-conical, annulated; cup deep. Both surfaces with irregularly depressed, round or oval pores that penetrate through the walls. Outer walls united by arched, transverse septa that are strengthened by irregular vertical partitions subparallel to the outer walls. Numerous small pores penetrate the septa and afford communication between the interseptal spaces which, with the outer pores, gave a free circulation to the water. Skeleton of the walls, septa, and partitions calcareous, apparently solid. In the cup and in the interseptal spaces where spiculæ from without apparently could not enter, we find in thin sections numerous small, irregular spicula-like bodies which I think were the spiculæ of the sponge.

The relations of this species to *A. Atlanticus* are shown by the form and by the tendency in some specimens of the latter to develop transverse septa and vertical partitions subparallel to the walls. Specifically they differ, but generically they approach each other quite closely, as may be seen by comparing the figures on plate iii.

The species occurs in a purplish limestone, associated with *A. Atlanticus*, *Ethmophyllum profundum*, &c. The largest example is a fragment of an elongate cylindro-conical specimen. Its greatest diameter is 15<sup>mm</sup>.

*Formation and locality.*—Middle Cambrian, L'Anse au Loup, Straits of Belle Isle, Labrador.