ORTHOTHECA PUGIO, n. sp. Pl. II., fig. 4 *a* to *d*.

An elongated, thick shelled species having the tube somewhat flattened on the dorsal side, and arched longitudinally toward the ventral side. The known part of the tube is about 27 mm. long, with an orifice of 6 mm. The whole length would be about 40 mm. if the shell preserved its taper and were not decollated.

This species is like *Hyolithes communis*, Bill, but has no "dorsal lip." From *O. DeGeeri*, of the Swedish Cambrian, it differs in its rounded dorsal side and granulated surface. *O. Johnstrupi*, of the same country, has a more slender form and different sculpturing.

ORTHOTHECA SICA, n. sp. Pl. II., figs. 5, *a* to *e*.

This species which is of about the same size as *O. pugio*, may be distinguished by its smoother surface, more triangular section and more distinct surface striæ.

MUTATION. Pl. II., figs. 6, *a* and *b*.

This in place of a gradually rounded ventral side shows a flattening of the middle quarter of that side. In this it approaches *H. quadricostatus* Shaler and Fœrste, of the Attleboro fauna, but is a true Orthotheca, while the latter by its form is a Hyolithes.

ORTHOTHECA STILETTO. Pl. II, figs. 3, *a* and *b*.

A small, slender, straight species, with a very tenuous tube. It has a concave dorsal side, and a rounded, convex ventral side. Rate of tapering about 1 in 8. The dorsal side has fine, closely set striæ of growth just visible with a strong lens.

This species is near *O. affinis*, Holm, of the Paradoxides beds of Sweden, but is not half the diameter and has a more elongate form.

ORTHOTHECA BAYONET, n. sp. Pl. III. fig 1 *a* to *f*.

Tube very thin and with concave slopes on three sides, two of which are ventral. The dorsal side is concave in the middle and convex towards the angles. Each ventral slope is convex toward the middle of the ventral side and concave toward the dorsal edge. Longitudinally the tube curves toward the ventral side, especially toward the apex.

Sculpture.—The outer surface is finely granulated, and traversed by fine transverse striæ.