

curve a little backward and become obsolete before passing upon the narrow, smooth border; segments each provided with a comparatively large longitudinal furrow, corresponding to those on the pleuræ.

"Entire surface apparently smooth, excepting fine radiating striæ on the anterior and lateral portions of the cephalic shield that are scarcely visible without the aid of a magnifier.

"Whole length, 1.60 inch; breadth of thorax, 1.07 inch; breadth of cephalic shield (somewhat flattened by pressure), about 1.12 inch; length of thorax, .70 inch; length of pygidium, .30 inch; breadth of pygidium .60 inch."

The very short genal spines of the head and also the peculiar curvature of the posterior margin between the facial suture and the spine, as shown in Mr. Meek's type specimen, are owing to the breaking away of the outer marginal rim and outer side of the spines with it, and the posterior marginal rim is crushed and bent out of shape and also partly broken away. Twenty entire specimens show the spines and marginal rim as in the figure given by Dr. White and as in the figures on plate xxvii.

*Formation and locality.*—Middle Cambrian. House Range, Antelope Springs, Utah.

#### PTYCHOPARIA ADAMSI Billings sp.

Plate xxvi, figs. 1, 1a-c.

*Conocephalites Adamsi* Billings, 1861. Geology of Vermont, vol. ii, p. 950, fig. 355; Pamphlet (1861) republished (1865) in Pal. Foss., vol. i, p. 12, fig. 15. *Idem*, 1863. Geol. Canada, p. 286, fig. 294.

*Conocephalites arenosus* Billings, 1861. Geology of Vermont, vol. ii, p. 952, fig. 358. *Idem*, 1865. Pal. Foss., vol. i, p. 15, fig. 18; Geol. Canada, p. 286, fig. 297.

*Original description.*—"Head broad, semicircular, moderately convex; glabella oblong-conical, nearly two-thirds the length of the head, the front obtusely rounded or somewhat straight, the anterior angles narrowly rounded, the sides nearly straight from the anterior angle to the neck furrow, just in advance of which is the widest part. The neck furrow well defined all across; the glabellar furrows indistinct; the dorsal furrow is well defined all round the glabella. The cheeks are moderately tumid; a line drawn across the glabella about the mid length would pass through the eyes. The distance of the eye from the dorsal furrow is equal to the greatest width of the glabella; the eye appears to be very small. The margin in front of the glabella is equal in width to about one-third the whole length of the head; it is bordered by an obtuse, narrow, elevated rim, just within which is a groove which is more deeply impressed on each side than directly in front of the glabella, there being at this place a gently convex elevation, resembling that which occurs in Barrande's species, *C. Sulzeri* and *C. Coronatus*. The ocular ridge is well defined where the surface is preserved, but is