

to the dorsal margin above and rounding into the broadly-rounded ventral margin below; anterior end slightly narrower than the posterior.

Length, 56^{mm}; height, 31^{mm}. The length and height are probably slightly increased by the flattening of the shell by compression.

Surface markings, if any, unknown. This large specimen was found associated with characteristic Middle Cambrian fossils, in the silico-argillaceous, shaly beds resting on the great quartzitic series of the Big Cottonwood Cambrian section. The carapace is flattened between the laminæ of the shale, and only a slight rim around the ventral, anterior, and posterior margins indicates any original irregularities of the surface. The unusual feature is the presence of the spinous dorsal angles. A tendency to an almost spinous angle is seen in some of the Silurian species of *Leperditia*. This is the largest species now known to me from the Cambrian System. Several species occur at the Potsdam or Upper Cambrian horizon that will be described with that fauna.

It may be that the reference to *Leperditia* is incorrect, but, with the evidence at hand, it appears to be required. The form suggests at first a reference to the carapace of a phyllopod crustacea allied to *Hymenocaris* or *Protocaris*, but the straight dorsal margin and acute dorso-lateral angles are very much against this view.

Formation and locality.—Middle Cambrian. One mile below Argenta, in Big Cottonwood Cañon, Wasatch Mountains, Utah.

Genus PROTOCARIS Walcott.

Protocaris Walcott, 1884. Bull. U. S. Geol. Survey, No. 10, p. 50. (Dated 1884, but not generally distributed until 1885.)

Carapace without evidence of a dorsal suture, rounded on the dorsal line, and bent downward on the sides; without any rostrum. Body many-jointed, 31 segments extending out from beneath the carapace, the last segment broader than the preceding and terminating in two spines. Type, *Protocaris Marshi*.

In comparing *Protocaris* (*P. Marshi*) with *Hymenocaris* (*H. vermicauda* Salter, 1852, Brit. Assoc. Rep., pt. 2, Notices and Abstracts, p. 58; Mem. Geol. Surv. Great Brit., vol. iii, p. 293, plate ii, figs. 1-4; plate v, fig. 25, 1866), we find that in the simple bent or folded eyeless shield or carapace they are closely related, but in the structure of the body they differ materially. *Hymenocaris* has, in one instance, 9 strong segments shown in its more elongate body, the terminal one ending in three pairs of spines; usually 6 or 7 segments are seen; 8 or 9 are less frequent (Brit. Assoc. Rep. 1883, p. 219). *Protocaris* has 30 narrow segments, a large terminal segment or telson, with two rather strong caudal or terminal spines.