

of a short spine that originates at the center of each segment and extends upward and backward. The spine on the eighth segment is prolonged and extends back quite a distance beyond the extremity of the terminal spines of the pygidium. An individual 15^{mm} long shows the spine with a length of 10^{mm}. The spine is crushed down on the body, but appears to have been slender and curved up and back in a manner similar to that on the sixteenth segment of the thorax of *Cyphaspis Burmeisteri* Barrande. (Syst. Sil. de Bohême, vol. i, pl. xviii, fig. 62.) The body of the pleural lobes is narrow, and each pleura is extended in a long spine; pleural groove short and nearly as broad as in the genus *Olenellus*.

Pygidium subquadrangular; median lobe obconical, convex, divided into three segments and a terminal portion; lateral lobes formed of three segments directed backward, terminating in sharp points and gradually decreasing in size backward.

Surface finely granulose; radiating venulose lines ornament the palpebral lobes and free cheeks, and longitudinal striæ the genal spines and spinous extension of the pleuræ.

The specimen figured has all but the free cheeks in position; these were drawn from a smaller specimen.

The general form of the pygidium is similar to that of one figured by Mr. Billings (Pal. Foss., vol. i, p. 334, fig. 332*b*), from Point Levis, Canada, where it was associated with Upper Cambrian fossils, and it may be that when entire specimens are found some of the species referred to *Dicelloccephalus*, from the same bed and locality, will prove to belong to this genus.

Formation and locality.—Middle Cambrian. In a light pinkish-colored shale above a belt of limestone resting on the shales carrying *Olenellus Gilberti*, Pioche, Nevada.

OLENOIDES SPINOSUS Walcott.

Plate xxv, figs. 6, 6*a*.

Ogygia? spinosa Walcott, 1885. Monographs U. S. Geol. Survey, vol. viii, p. 63, pl. ix, fig. 22.

The original specimen preserves only the central portions of the head within the free cheeks. The glabella resembles that of *Ogygia*, so a provisional reference was made to that genus.

The discovery of *O. typicalis* gives the generic reference and a second specimen of the same parts of the head from the arenaceous shales at the same relative geologic horizon at Pioche affords details not shown in the Eureka specimen. The glabella is expanded more in front and the postero-lateral limb is preserved; no trace of the occipital spine is shown, but this was probably carried away with the test. Four pairs of glabellar furrows occur, instead of three, as mentioned in the original description.