

and not the true sutures, as we invariably find the line of the suture running obliquely outward and terminating at or very near the pleural angle. It occurs in this way in all other species of the genus in which we have observed the suture.

The sutures are shown for *O. Howelli* and *O. Gilberti* in the same manner (Expl. and Surv. West 100th Merid., vol. iv, pt. 1, pl. ii, figs. 3, 4), but with the type specimens before me I fail to find a trace of the suture indicated on the specimens of *O. Howelli*, and the one specimen of *O. Gilberti* showing the sutures has them running out to the pleural angle. Neither Mr. Meek nor Dr. White speaks of the facial sutures in his descriptions, so we conclude that the artist in charge of the drawings traced them in to meet his conception of their position.

When studying the variations in the head of *O. Gilberti* (= *O. Howelli*, Monographs U. S. Geol. Survey, vol. viii, p. 32), the writer determined the direction of the facial sutures, and found that they varied in direction with the configuration of the head, but that they always terminated at the pleural angle.

Mr. Ford, in speaking of the suture of *O. asaphoides*, says: "The shield appears to have fractured as easily in one direction as another. This would seem to indicate that the cheeks were very firmly united at the sutures in front" (Amer. Jour. Sci., 3d ser., vol. xiii, p. 271, 1877). He regarded this as the result of the metamorphoses accompanying the development of the young, when constant changes were occurring along the line of the sutures back of the eyes. After once obtaining an adult size, the test on the line of the sutures appears to have become strongly united back of the eyes, as in nearly every case the line of fracture is back from the eye to the margin, as the point of least resistance; and this is probably why the suture of *O. Thompsoni* and *O. Gilberti* have been represented at that point. In uninjured casts of the interior of the test of the head, the direction of the suture is indicated by a slightly raised line from the eye back to the pleural angle.

Pygidium.—To the original description add the word *very* before elongate.

RELATIONS OF THE GENUS TO OTHER GENERA.

Professor Hall notes the differences as compared with *Olenus* and *Paradoxides* (Thirteenth Ann. Rep. N. Y. State Cab. Nat. Hist., p. 114) as follows:

"When we compare with *Paradoxides*, we find the cephalic shield proportionally broader and shorter, while there is no expansion of the glabella towards the front, nor do the transverse furrows extend entirely across this part, except at its base. This feature and the facial suture, though indistinct, correspond more nearly with *Olenus*.

"The smaller number of thoracic segments is a distinguishing feature, and the direction of the segment-furrow differs essentially. In one feature, that of the greater development of the *third* segment, it