

Quite a marked variation occurs in two heads from near Swanton, Vermont. It is in the greater breadth of the marginal rim, as shown in fig. 1 of plate xvii. Other characters of the species are given under remarks on the genus of which *O. Thompsoni* is the type.

Formation and locality.—Middle Cambrian, Georgia formation. In the argillaceous shales of Parker's quarry, township of Georgia; east of Swanton, on the Bullard farm; west of St. Albans, in the outskirts of the city; in the massive magnesian limestones west of Parker's quarry, and also about one and one half miles east of the hotel at Highgate Springs, Vermont. Mr. Billings cites the species from Bonne Bay, Newfoundland; L'Anse au Loup, on the north shore of the Straits of Belle Isle; and the conglomerate limestones of Bic Harbor, on the St. Lawrence River, below Quebec.

OLENELLUS ASAPHOIDES Emmons, sp.

Plate xvii, figs. 4-8, 10; pl. xx, figs. 3, 3a, b; pl. xxv, fig. 8.

- Elliptocephala asaphoides* Emmons, 1844. Taconic System, p. 21, figs. 1, 2, 3, 1846. Agriculture of New York, vol. 1, p. 65, figs. 1, 2, 3.
Olenus asaphoides Hall, 1847. Pal. N. Y., vol. i, p. 256, pl. lxvii, figs. 2a-c. *Idem*, Fish, 1-49. Trans. N. Y. State Ag. Soc., vol. ix, p. 865.
Elliptocephalus asaphoides Emmons, 1849. Proc. Amer. Assoc. Advt. Sci., vol. i, p. 18; *idem*, 1855. Amer. Geol., vol. i, pt. 2, p. 114, figs. 1, 2, 3; pl. i, fig. 18.
Paradoxides asaphoides Emmons, 1860. Manual of Geology, p. 87, name of fig. 70. Under the figure on the following page the name is *Paradoxides macrocephalus*, and the figure is taken from an *Olenellus Thompsoni* (Barraude, 1861. Bull. Soc. Géol. de France, 2^e sér., t. xviii, p. 273, pl. v, figs. 4, 5).
Olenellus asaphoides Ford, 1871. Amer. Jour. Sci., 3d ser., vol. ii, p. 33. *Idem*, 1877. Same journal, vol. xiii, p. 265. *Idem*, 1878. Same journal, vol. xv, p. 129. *Idem*, 1881. Same journal, vol. xxii, p. 250.

The history of our knowledge of this trilobite may be divided into two epochs: First, that of the original discovery and description of the adult form and its connection with the Taconic controversy; secondly, that of the description of the embryonic phases of its growth; the first extending over a period from 1844 to 1850 and the second from 1871 to the present time, the period intervening between 1860 and 1871 being one in which little additional information was gained.

The material upon which this species was founded shows some of the characters of the head and thorax. The author gives figures of the head and six segments of the thorax of a large individual, a smaller crushed head, and a fragment of a thoracic segment. The same specimens were subsequently figured in the Paleontology of New York, vol. i, pl. lvii, figs. 2a-c, and accompanied by a description.

Dr. Emmons subsequently obtained a more complete specimen of the thorax, which is figured on plate i, fig. 18, of his American Geology. Fourteen segments occur in the thorax and decrease in size and length regularly from the head backward, a feature not observed in the other species of the genus and one that seems to distinguish the species from the closely related *O. Thompsoni*.