

from rare (r) to very common (C). The Helderbergian species outnumber the Oriskanian two to one; but this predominant Helderbergian aspect disappears when the individual species are examined. The Helderbergian species, *Vermipora serpuloides*, *Dalmanella subcarinata*, *Rhipidomella oblata*, *Nucleospira elegans* and *Stenochisma formosa* are also found in the calcareous Oriskany of other regions associated with the large normal Oriskany shells.<sup>1</sup> *Tentaculites elongatus* is much more characteristic of the uppermost calcareous Oriskany than of the lower Helderberg, but it is specially the very typical Oriskany species, *Beachia suessana*, *Meristella lata* and *Spirifer murchisoni* which give the distinct Oriskanian aspect to these beds; these are abundant and normal in their development, and occur from the base to the top of these beds. Besides these, *Rensselaeria subglobosa*, *Dalmanites dentatus* and *D. dolphi*, though at present hardly known outside the beds of this region, are more Oriskanian in appearance than Helderbergian.

The development of marginal crenulations and spines on the cephalon and pygidium is characteristic of many Devonian trilobites.<sup>2</sup> In the genus *Dalmanites* this is scarcely noticeable in the Helderbergian but becomes exceedingly conspicuous in the Oriskany, Schoharie and Onondaga. It is first noticed as slight crenulations on the anterior portion of the cephalic margin of the species *pleuroptyx* Green of the Lower Helderberg; in *sternatus* Clarke of the calcareous Oriskany this crenulation is extended back along the margin of the cephalon; while in *dentatus* Barrett it is greatly accentuated into denticulations. This reaches its maximum development in the *regalis* Hall of the Schoharie and Onondaga. The appearance of such a highly ornamented *Dalmanites* as *dentatus* Barrett would on *a priori* grounds be placed above the Helderbergian. All the above named species considered as a whole are so characteristically Oriskanian that it is believed

<sup>1</sup>van Ingen & Clark, P. E. N. Y. State Paleontol. An. Rep't. 1902. p.1203-4; and Clarke N. Y. State Mus. Mem. 3, p.65-67.

<sup>2</sup>See also Clarke. N. Y. State Mus. Mem. 3, p. 87.