

rich in organic remains. Barrande has named and described several thousand species from that basin alone, the greater number being peculiar to it. Some aspects of its organic facies are truly remarkable. One of these is the extraordinary variety and abundance of its straight and curved cephalopods, of which 18 genera and two sub-genera, comprising in all no fewer than 1127 distinct species, were determined by Barrande. The genus *Orthoceras* alone contained in his census 554 species, and *Cyrtoceras* had 330.¹¹⁰ Of the trilobites, which appear in great numbers and in every stage of growth, as many as 42 distinct genera were noted, comprising 350 species; the most prolific genus being *Bronteus*, which included 46 species entirely confined to the 3d fauna or Upper Silurian. *Acidaspis* had 40 species, of which six occur in the 2d and 34 in the 3d fauna. *Proëtus* also numbered 40 species, which all belong to the 3d fauna, save two found in the 2d. Other less prolific but still abundant genera are *Dalmanites*, *Phacops*, and *Illænus*. The 2d fauna, or Lower Silurian series, was found by Barrande to contain in all 32 genera and 127 species of trilobites; while the 3d fauna, or Upper Silurian series, contained 17 genera and 205 species, so that generic types are more abundant in the earlier and specific varieties in the later rocks.¹¹¹

Reference may be made here to the famous doctrine of "Colonies" propounded and ably defended by the illustrious Barrande. Drawing his facts from the Bohemian basin, he believed that while the Silurian strata of that region presented a normal succession of organic remains, there were nevertheless exceptional bands, which, containing the fossils of a higher zone, were yet included on different horizons among inferior portions of the series. He termed these precursory bands "colonies," and defined the phenomena as consisting in the partial co-existence of two general faunas, which, considered as a whole, were nevertheless successive. He supposed that, during the later stages of his second Silurian fauna in Bohemia, the first phases of the third fauna had already appeared, and attained some degree of development, in a neighboring but yet unknown region. At intervals, corresponding doubtless to geographical changes, such as movements of subsidence or elevation, volcanic eruptions, etc., communication was opened be-

¹¹⁰ "Syst. Silur." ii. suppt. p. 266, 1877.

¹¹¹ Op. cit. i. suppt. "Tribolites," 1871.