

horizon of the Eifelian group or the Calceola beds of the Continent, that is, the lower division of the Middle Devonian rocks. Among these fossils are *Atrypa reticularis*, *A. aspera*, *A. desquamata*, *Kayseria lens*, *Leptæna interstitialis*, *Pentamerus galeatus*, *Rhynchonella procuboides*, *Spirifer curvatus*, *S. speciosus*, *Streptorhynchus umbraculum*, *Productus subaculeatus*, *Phacops latifrons*, *Cyathophyllum heterophyllum*, *C. damnoniense*, *C. helianthoides*, *Cystiphyllum vesiculosum*, *Calceola sandalina*, *Favosites Goldfussi*, *Heliolites porosa*, *Stromatopora concentrica*. The massive limestones yield the characteristic fauna of the Givet or Stringocephalus limestone, including the corals *Cyathophyllum helianthoides*, *C. damnoniense*, *Cystiphyllum vesiculosum*, *Alveolites*, *Favosites polymorpha*, *Striatopora denticulata*, *Amphipora ramosa*, *Heliolites porosa*, *Favosites Goldfussi*, *Stromatopora*, *Receptaculites Neptuni*, *Stringocephalus Burtini*, *Uncites gryphus*, *Terebratula Whidbornei*, *T. juvenis*, *Cyrtina heteroclita*, *Spirifer undiferus*, *Rhynchonella parallelopipeda*, *R. procuboides*, *R. pugnus*, *R. lummatoniensis*, *Pentamerus brevirostris*, *Leptæna interstitialis*, *Productus subaculeatus*, *Cypricardinia*, *Proëtus*, *Bronteus*, etc.<sup>138</sup>

Upper.—In South Devon, Upper Devonian rocks are now known to be well developed and to present palæontological representatives of the several zones which have been established in this division on the Continent. Three such zones have been recognized. 1st, Massive limestones which pass down continuously into those of Middle Devonian age. They contain *Rhynchonella cuboides*, *R. acuminata*, *Atrypa reticularis*, *Athyris concentrica*, *Spirifer bifidus*, *S. lineatus*, *Productus subaculeatus*, *Waldheimia Whidbornei*, *Merista plebeia*, *Conocardium*, *Harpes*, *Stromatopora Hüpschii*, *Actinostroma clathratum* (?), etc. 2d, Goniatite beds which, overlying and passing down into the limestones, are marked by the presence of numerous goniatites (*G. intumescens*, *G. complanatus*, *G. multilobatus*, *G. acutus*, *G. simplex*), with *Cardiola retrostriata*, *Myalina* sp., *Sanguinolaria*, *Bactrites*, *Alveolites*. 3d, Cypridina-slates, containing ostracods (*Entomis* or *Cypridina serratostrata*) and *Clymenias* (*C. lævigata* and other species). These three zones may be paralleled respectively with the Frasnien and Fammenien group of the Franco-Belgian area and with the

<sup>138</sup> Ussher, Quart. Journ. Geol. Soc. 1890, p. 501. E. Kayser, Neues Jahrb. 1889, i. p. 185.