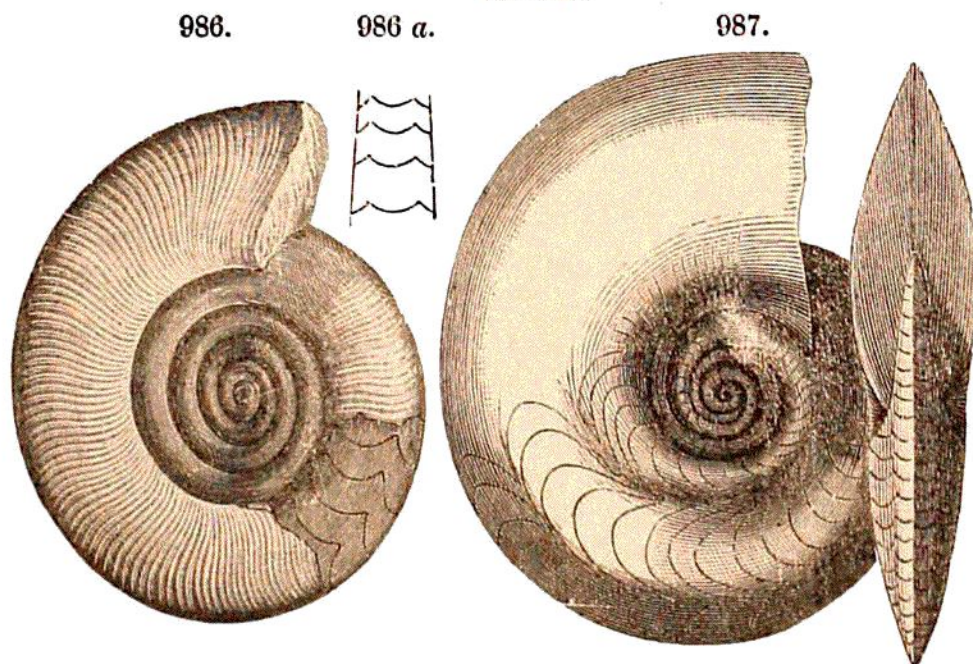


containing many Crinoids and Brachiopods: *Pentremites ovalis*, *Athyris concentrica*, *Spirifer decussatus*, *S. Uriei*, *Orthis plicata*, *O. parallela*, *O. interlineata*, *Productus praelongus*, *Streptorhynchus crenistria*; with several species of *Clymenia*, *Goniatites*, *Orthoceras*; also *Phacops latifrons*, etc.

Among the Devonian plants of Ireland, in beds that contain also remains of *Coccosteus* and *Glyptolepis*, there are *Cyclopteris Hibernica* Forbes, *Sphenopteris Hookeri* Baily, *S. Humphriesiana*, *Calamites radiatus* Br., *Lepidodendron Veltheimianum* Sternb., *Knorria acicularis* Göpp., *Cyclostigma minutum* Haughton, *C. Kiltorkense* Haughton, and other species. The whole number known of species of Fishes from the Lower Devonian of Great Britain, as stated by Etheridge in 1885, is 88, 4 species of *Onchus* being excluded; in the Middle Devonian, 2; in the Upper, 28. The only genera common to the Lower and Upper are *Pterichthys*, *Asterolepis*, *Holoptychius* and *Platygnathus*. Of the 577 species in the fauna, 50 pass up into the Carboniferous.

In the Ardennes, on the borders of France and Belgium, there is the west border of a broad Devonian area which crosses the Rhine north of Mayence with bold features along the river, and extends to Nassau and Westphalia. The Lower, Middle, and Upper divisions are named (1) the *Rhénan*, (2) the *Eifelian*, and (3) the *Famennian*. In the region of the Ardennes the Lower consists, according to Gosselet, of (1) the *Gedinnian*, about 2500' thick, containing *Homalonotus*, *Tentaculites*, *Spirifer Dumonti*; (2) the *Taunusian*, about 1800' thick, with *Pleurodictyon*, *Leptana Murchisoni*, *L. laticosta*; (3) the *Coblentian*, about 8000' thick, with *Strophomena depressa*, *Grammysia Hamiltonensis* (= *bisulcata*); and at top, *Spirifer cultrijugatus*, *Calceola sandalina* (the latter, perhaps, Eifelian). The Middle or *Eifelian*, over 3000' thick, includes the *Calceola* slates, and above these the Givet lime-

986-987.



CEPHALOPODS. — Fig. 986, *Clymenia* Sedgwicki; 986 a, dorsal view of septa; 987, *Goniatites retrorsus*. Fig. 986, D'Orbigny; 987, Vogt.

stone (*Givetian*) or *Stringocephalus* beds; the former containing *Phacops*, *Bronteus*, *Orthis striatula*, *Productus subaculeatus*, *Pentamerus galeatus*; the latter, *Stringocephalus Burtini*, *Heliolites porosus*, etc. The Upper or *Famennian*, over 2500', consisting of the *Frasnian* shales and limestone below, and the *Famennian* shales and Sandstones of Condros above, with *Atrypa reticularis*, *Orthis striatula*, *Spirifer Verneuli* (*S. disjunctus*), *Clymenia*, *Archæopteris Hibernica*, *Sphenopteris flaccida*. The Devonian outcrops also to the northwest in the Boulonnais, in Brittany and the Vosges, and to the eastward, in the Harz and Thuringia.