

Gastrioceras, Medicottia, Parapronorites, Popanoceras, Stacheoceras, Waagenoceras), also gasteropods (Bellerophon, Pleurotomaria, etc.) and brachiopods.<sup>262</sup>

**Russia.**<sup>263</sup>—The Permian system attains an enormous development in Eastern Europe. Its nearly horizontal strata cover by far the largest part of European Russia. They lie conformably on the Carboniferous system, and consist of sandstones, marls, shales, conglomerates, limestones (often highly dolomitic), gypsum, rock-salt, and thin seams of coal. In the lower and more sandy half of this series of strata remains of land-plants (*Calamites gigas*, *Cyclopteris*, *Pecopteris*, etc.), fishes (*Palæoniscus*), and labyrinthodonts occur, but some interstratified bands yield *Productus Cancrini* and other marine shells. The rocks are over wide regions impregnated with copper ores. The upper half of the series consists of clays, marls, limestones, gypsum, and rock-salt, with numerous marine mollusca like those of the Zechstein (*Productus Cancrini*, *P. horridus*, *Camarophoria Schlotheimii*), but with a rather more abundant fauna, and with intercalated bands containing land-plants.

Much attention has been given in recent years to these rocks, which have now been brought into closer comparison with those of other regions. As developed on the western slope of the Ural Mountains, they have been found to consist of the following groups of strata:

Red clays and marls, with intercalated sandstones and limestones, almost wholly unfossiliferous, but with a few lamellibranchs resembling *Unio* (*Anthracosia*) *castor* and *U. umbonatus*. This thick group may possibly be partly or wholly Triassic.

Copper-bearing sandstone, permeated with oxide and sulphide of copper, and containing species of *Calamites* (*gigas*), *Sphenopteris* (*lobata*, *erosa*), *Callipteris* (*obliqua*, *conferta*), *Noggerathia*, *Dadoxylon*, *Knorria*, etc.

Marls, sandstones, and conglomerates with ill-preserved plants (which seem to be on the whole like those of the Artinsk group below), *Unio castor*, *U. umbonatus*, *U. Goldfussiana*, *Archegosaurus*, *Acrolepis*, while

<sup>262</sup> Prof. Gemmellaro, "La Fauna dei Calcari con Fusulina," etc., Palermo, 1887-89.

<sup>263</sup> See for the earliest descriptions "Russia and Ural Mountains," Murchison, De Verneuil and Keyserling, 4to, 2 vols. 1845.