

first signalized by Murchison and his associates, lies in the union of the elsewhere distinct Devonian and Old Red Sandstone types. In some districts, these rocks consist largely of limestones, in others of red sandstones and marls. In the former, they present mollusks and other marine organisms of known Devonian species; in the latter, they afford remains of fishes, some of which are specifically identical with those of the Old Red Sandstone of Scotland. The distribution of these two palæontological facies in Russia is traced by Murchison to the lithological characters of the rocks, and consequent original diversities of physical conditions, rather than to differences of age. Indeed, cases occur where, in the same band of rock, Devonian shells and Old Red Sandstone fishes lie commingled. In the belt of the formation which extends southward from Archangel and the White Sea, the strata consist of sands and marls, and contain only fish remains. Traced through the Baltic provinces, they are found to pass into red and green marls, clays, thin limestones, and sandstones, with beds of gypsum. In some of the calcareous bands such fossils occur as *Orthis striatula*, *Spiriferina prisca*, *Leptaena productoides*, *Spirifer Anossofi*, *S. Archiaci*, *S. Verneuli*, *Rhynchonella cuboides*, *Spirorbis omphaloides*, and *Orthoceras subfusiforme*. The lower parts of the series contain *Osteolepis*, *Dipterus*, *Diplopterus*, and *Asterolepis* (*Homosteus*), while in the higher beds *Holoptychius*, *Glyptosteus*, and other well-known fishes of the Upper Old Red Sandstone occur. Followed still further to the south, as far as the watershed between Orel and Woronesch, the Devonian rocks lose their red color and sandy character, and become thin-bedded yellow limestones, and dolomites with soft green and blue marls. Traces of salt deposits are indicated by occasional saline springs. It is evident that the geographical conditions of this Russian area during the Devonian period must have resembled those of the Rhine basin and central England during the Triassic period. There is an unquestionable passage of the uppermost Devonian rocks of Russia into the base of the Carboniferous system, but a complete break between them and the highest Silurian strata. The lowest parts of the British Old Red Sandstone, containing *Pterygotus*, *Cephalaspis*, *Pteraspis*, etc., are wanting. Devonian rocks have been recognized in other parts of the vast Russian empire, across Siberia in the Altai mountains, in Asia Minor, and in Africa.

**North America.**—The Devonian system, as developed in the Northern States, and eastern Canada and Nova Scotia, pre-