

some of the sandy marls contain a characteristically marine fauna, *Productus Cancrini*, *P. koninckianus*, *Athyris pectinifera*, and *Spirifer lineatus*.

Gypseous limestones and dolomites.

Artinsk group of sandstones, conglomerates, shales, marls, limestones, and dolomites, stretching from the Arctic Ocean to the Kirgiz Steppes, and lying conformably on the Carboniferous *Fusulina* Limestone. This group contains a remarkably abundant and varied assemblage of fossils. The plants include species of *Calamites*, *Noggerathia*, *Sphenopteris*, *Odontopteris*, etc. The fauna comprises a number of common Carboniferous shells such as *Productus semireticulatus*, *P. cora*, *P. longispinus*, *P. scabriculus*, *Streptorhynchus crenistria*, but with these are found many new types of cephalopods like the ammonoid forms above alluded to as occurring in the *Bellerophon* Limestone of the Tyrol (*Agathiceras*, *Gastrioceras*, *Medlicottia*, *Popanoceras*, *Pronorites*). About 300 species of fossils have been found in the group, of which a half also occur in the Carboniferous system, and only about a sixth in the Permian above.²⁶⁴

Asia.—The type of sedimentation found in the east and south of Europe extends into Asia. In the valley of the Araxes a limestone occurs containing *Productus horridus*, *Athyris subtilita*, and a number of the ammonoid forms above referred to; while in Bokhara other limestones occur at Darwas which from their cephalopods (*Pronorites*, *Popanoceras*, etc.) probably represent the Artinsk group of Russia. The same character of deposits and of palæontology is still more extensively developed in the Salt Range of the Punjab. In this region the ancient Palæozoic sediments with their saliferous deposits are overlain by a remarkable limestone which has yielded a large assemblage of fossils. At the base of this deposit comes a coarse conglomerate and sandstones followed by the well-known *Productus* Limestone.²⁶⁵ The lower portions of the limestone abound in

²⁶⁴ A. Krasnopolsky, *Mem. Com. Geol. Russ.* xi. 1889, No. 1; A. Karpinsky, *Verhand. k. Min. Gesell. St. Petersburg*, ix. 1874, p. 267; *Mem. Acad. St. Petersburg*, 1889; T. Tschernyschew, *Mem. Com. Geol. Russ.* iii. 1889, No. 4.

²⁶⁵ W. Waagen, *Mem. Geol. Surv. India*, "Salt Range Fossils," vol. i. *Productus* Limestone, 1879-88.