

hibits a well-marked grouping into two great series of deposits, the name "Dyas," proposed by Geinitz, has on that account been to some extent adopted. In North America, where no good line of subdivision can be made at the top of the Carboniferous system, the term "Permo-Carboniferous" has been used to denote the transitional beds at the top of the Palæozoic series, and this name has been proposed for use also in Europe and in Australia.

In Europe two distinct types of the system can be made out. In one of these (Dyas) the rocks consist of two great divisions: (1) a lower series of red sandstones and conglomerates, and (2) an upper group of limestones and dolomites. In the other (Russian or Permian) the strata are of similar character, but are interstratified in such a way as to present no twofold petrographical subdivision.

Rocks. —The prevailing materials of the Permian series in Europe are undoubtedly red sandstones, passing now into conglomerates and now into fine shales or "marls." In their coarsest forms, these detrital deposits consist of conglomerates and breccias, composed of fragments of different crystalline or older Palæozoic rocks (granite, diorite, gneiss, mica-schist, quartzite, graywacke, sandstone, etc.), that vary in size up to blocks a foot or more in diameter. Sometimes these stones are well rounded, but in many places they are only partially so, while, here and there, they are quite angular, and then constitute breccias. The pebbles are held together by a brick-red ferruginous, siliceous, sandy, or argillaceous cement. The sandstones are likewise characteristically brick-red in color, generally with green or white layers and spots of decoloration. The "marls," showing still deeper shades of red, and passing occasionally into a kind of livid purple, are crumbling sandy clay-rocks, some-