

Carboniférien, Calcaire Carbonifère et Terrain Houiller, E. de Beaumont, D'Orbigny.

Carboniferous Period, Dana, *Man. Geol.*, 1st. edit., 1863 and later.

Pennsylvanian, H. S. Williams, *U. S. Geol. Surv., Bull.* 80, 1891.

1. SUBCARBONIFEROUS PERIOD. — Mountain, or Carboniferous, limestone, the lower division of the Carboniferous system, Murchison, Lyell, etc.
 Lower Carboniferous. Lower part of the Système Carboniférien, Calcaire Carbonifère, D'Orbigny, Lapparent. Bergkalk, Untercarbon.
 Subcarboniferous, D. D. Owen, *Rep. Geol. Wisconsin, Iowa, and Minnesota*, 1852; Dana, *Man. Geol.*, 1863 and in subsequent editions.
 Subcarbon, Steinmann and Döderlein, *Elem. d. Pal.*, 1888.
 Mississippian, H. S. Williams, *U. S. Geol. Surv., Bull.* 80, *Correlation of the Devonian and Carboniferous*, 1891.
 Eocarboniferous, H. S. Williams, *Journ. Geol., Chicago*, 1894.

The comprising of the Permian period and the Carboniferous in a common era is questioned by some geologists. In North America the Permian beds are a direct continuation of the Carboniferous, and from the general absence of vertebrate and invertebrate fossils they are scarcely separable in most regions except through a careful study of the fossil plants. Such a study, made for Pennsylvania and Virginia in part by Lesquereux, but with completeness by Fontaine and I. C. White, has afforded satisfactory proof, as they state, that the Permian is fully represented in eastern America, and that the period is here only a continuation of, or a closing addition to, the Carboniferous period. There is the same evidence from the plants and also from the nearly universal conformity in the stratification of the two formations as to the close relations of the two periods in Europe, and this is sustained paleontologically, as these authors remark, "by the investigations of Weiss, Grand' Eury, and others."

The other continents were not so well supplied with coal-making areas as North America and Europe. South America has the rocks over part of its great interior, with little of the coal, and is in this respect like the western half of North America.

Asia has much coal of the Carboniferous period in northern China. But in India, or southern Asia, the chief coal era began in the Permian and continued into the Triassic; and the same was true for southwestern Africa, and the southern continent, Australia. The fact that one of the world's hemispheres was not concurrent in its geological movements with the other, mentioned on page 406, is here exemplified. It has afforded some strength to the argument that the Permian period should not be united to the Carboniferous. But the distinctions that exist can be recognized and appreciated for lands about the Indian Ocean, without interfering with the chronological subdivisions which best accord with the facts in the others where these subdivisions were first laid down.