

son with the rocks which are found to the east and west of this belt, it is found to form an exposed portion of the rim of a vast basin, whose opposite or southern boundary is met with in the Southern States of the Mississippi Valley. The thickness of this "Group," or "Lorraine Shales" as it is sometimes termed, is about 1,100 feet, with a dip in a southerly direction of about 30 feet in the mile. Within the vast basin which it thus forms, lie a considerable number of other formations in regular Geological succession, the forms they display following pretty accurately, with gradually diminishing radii—the general circle of exposure exhibited by the Hudson River Group.

The central basin or nucleus is composed of the vast coal-fields of Appalachia (of which Pennsylvania is part) Illinois, and Michigan, which, at a remote epoch, were doubtless united in one uniform deposit. Outside, as it were, of the Basin of the Hudson River Group may be traced the older formations upon which it reposes. These are three in number, called respectively the Utica Slate, the Trenton or Kingston Limestone, and the Califerous and Potsdam Sandstone. This last named rock reposes immediately upon the Gneiss or Laurentian series, and is supposed to have been deposited at the bottom of the first sea in which animal life was manifest—at least, no older rock is known to preserve the remains of organic life, or to exhibit any traces of its presence. The Hudson River Group has been quarried in the vicinity of Toronto, and it exhibits a deposit of shale, interstratified with thin bands of calcareous sandstone often fit for the purpose of flagging, and these occasionally being highly charged with fossils, exhibit the character of limestone, but they are of no value for economic purposes. The clays reposing upon the solid rock belong to the drift and boulder formation, and are of three kinds, buff, blue, and yellow, affording abundance of materials for the manufacture of white and red bricks. Fragments of trees are not uncommonly met with in the blue clay, which lies nearest the surface of the formation rock. It may be here remarked that the water held up by the clays is generally of excellent quality, though sometimes slightly impregnated with salt; while the water from the foundation rock is not only strongly impregnated with saline matter, but is often highly disagreeable from the presence of sulphur. In the Report of the Geological Commission of Canada for 1852-3, the following arrangement in the superposition of the clays is given. In a brick field on Mr. ex-Sheriff Jarvis's land, in the second concession from the Bay, the descending section presented:—