

Oneida County, N.Y., where the limestone stands in bold bluffs along the wild cañon of West Canada Creek, and affords a good place for the study of the rock and its fossils.

1. **Trenton Epoch.** — In the region of Trenton Falls the limestone is a blackish to dark gray thin-bedded rock, owing its color, like the Utica shale, to carbonaceous or bituminous material. The lower part of the Trenton formation is called the *Black River limestone*, from Black River; it outcrops to the north of Trenton Falls, and, like the Trenton, it is widely distributed over the country. A stratum, 30 feet or less thick, at the bottom of this limestone in central New York, is the *Birdseye limestone* — a gray, dove-colored rock, speckled with white crystalline points, that are due in part at least to the presence of a fossil coral and its crystallization into calcite. The Kentucky Chazy limestone contains similar “birdseyes,” and has great thickness. The Trenton in Wisconsin, Illinois, and Iowa is a bluish gray to buff-colored rock. Above it lies the “Galena limestone,” about 250 feet thick, mostly dolomite, which is noted for its deposits of lead ore; it corresponds to the later part of the Trenton epoch.

2. **Utica and Hudson Epochs.** — The shales of the Utica epoch outcrop along a narrow region in the Mohawk valley, east and west of Utica, the place after which they are named; and those of the later Hudson epoch, along the south side of the Utica shales. They also extend down the Hudson River valley (whence the name) to Fishkill; but part of the shales formerly called Hudson River shales have proved to be Cambrian.

The *Hudson shales* have their greatest thickness in eastern New York. A boring 15 miles west of Albany passed through 3440 feet of shales, partly the Utica shales, into the Trenton limestone. In central New York, 20 miles west of Oneida Lake, a boring went through 1000 feet of Hudson and Utica shales, and at Utica, through 800 feet of the two. The impure limestone and shales of the region about Cincinnati are of the Hudson epoch. The thickness at Cincinnati is about 750 feet. The lower part of the series contains fossils of the Utica shale of New York, mingled with other species belonging to the Trenton or the Hudson rocks of New York. In Ohio and Kentucky the Cincinnati beds overlie 600 or 700 feet of limestones and shales which are mainly of the Trenton epoch.

## 1. CANADIAN PERIOD.

### 1. Calciferous Epoch.

a. *Eastern Border region.* — In northwestern Newfoundland, on the Straits of Belle Isle, Upper Calciferous is stated to include 2061' of limestone. Below these are the Lower Calciferous of the age of the New York beds (Billings, Logan). The beds continue down the coast of Newfoundland to Bonne Bay and beyond. The Calciferous is 250' thick at the Mingan Islands, and continues from there to St. Convent, on the Lower St. Lawrence.

b. *Appalachian and Interior Continental regions.* — In some places in New York the layers of the Calciferous are hard and siliceous, and contain geodes of quartz crystals, as at Diamond Rock, Lake George, and at Middleville and elsewhere in Herkimer County,