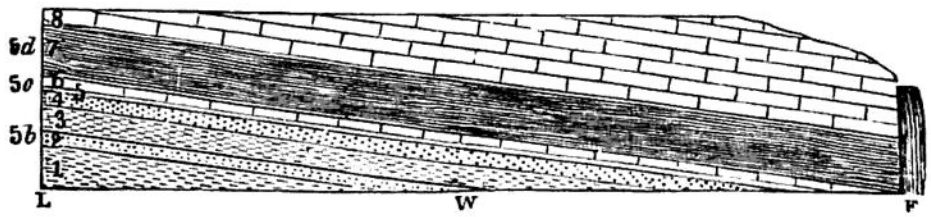
tions from those of the Clinton epoch. The limestone is largely a coral-made rock, and thereby indicates clear seas during the time of its formation. In Iowa and some other parts of the West, it abounds in chert or hornstone, which is usually in layers coincident with the bedding, like flint in chalk; and the fossils are all siliceous. At Lockport, N.Y., cavities in the limestone afford fine crystallizations of dog-tooth spar (calcite) and pearl-spar (dolomite), with gypsum, and occasionally celestite, and still more rarely a crystal of fluor.

In New York, the beds reach quite to the Hudson River, and are there distinguished as the Coralline limestone; they are, however, but a few yards in thickness. They spread westward through New York, making 250 feet of the height of the Niagara bluffs; continue beyond through Ontario, in Canada, with a thickness of 250 to 300 feet, to Lake Huron, west of Georgian Bay, and to the Manitoulin Islands; extend around the north side of Lake Michigan to Illinois, Wisconsin, northeastern Iowa, and the adjoining part of Minnesota — making in all a distance from east to west of 1000 miles.

The Niagara is stated to be absent south of New York, from the eastern half of Pennsylvania (where Lower Helderberg beds rest on Clinton), and from the larger part of West Virginia. It is absent also from eastern Tennessee and part of southern Ohio, owing to the Cincinnati geanticline; but occurs in western Tennessee, along Tennessee River, and in northern Kentucky; and also in Missouri, and in northern Arkansas, as a continuation probably of the area of central and southwestern Illinois.

In western New York, the lower third of the rock is usually shale, the other two thirds limestone. It is prominent on the Genesee River at Rochester, N.Y., and also at Lockport, where its geodes gave it early the name of the "Geodiferous" limestone. At Niagara Falls, directly at the fall, the limestone makes the upper 85 feet, and the shale the lower 80 feet, as illustrated in the following section, Fig. 738, from Hall. In the section, Nos.

738.




Section along the Niagara, from the Falls at F (south) to Lewiston Heights at L (north); W, the whirlpool; Nos. 1, 3, 5, 7, are shales, and 6, 8, limestones. Hall.

7, 8, are the Niagara, the greatest thickness of which is 165 feet; below it, as is seen in the bluff, at Lewiston Heights (L), lie the Medina beds, 1, 2, and the Clinton, 3 to 6. The recession of the fall is slowly going on, because of the undermining of the limestone by the wearing out of the shale.

In Ohio, the limestone, 300 feet thick with 10 to 100 feet of shale below, outcrops as a belt around the area of the Cincinnati geanticline.