

feet thick, and perhaps more, the line between the Trenton and Beekmantown being difficult to draw with precision in that well. At Vernon, 17 miles west of Utica, 350 feet of the well section are assigned to the Trenton, and at Rome, 11 miles northwest of Utica, 375 feet. These thicknesses are not so great as those farther to the north, but the sudden increase in thickness between Ilion and Utica is quite analogous to that between Middleville and Trenton falls, along the more northerly line. At Chittenango, 35 miles west of Utica, the drill passed through 636 feet of apparent Trenton, and rested in that rock, a thickness directly comparable with that shown in Oswego and Jefferson counties.

Utica formation. This formation is, as a whole, surprisingly homogeneous all about the Adirondacks, consisting of fissile, black, somewhat calcareous, clay shales, which, like most carbonaceous shales, tend to split thinly and evenly and to have a somewhat slaty character. They become usually more fissile and less calcareous above, while below thin bands of shaly, black limestone commence to appear and increase in abundance, forming more or less of a transition to the Trenton beneath. Definite passage beds of the sort, of considerable thickness, are often found, but the evidence is not decisive as to whether they are, or are not, everywhere present in force. More likely they are not, and this seems specially probable on the west side of the region, and also in the lower Mohawk valley; whereas in the Champlain valley and the upper Mohawk region they have much importance. These beds are also a mixture faunally, the rather restricted fauna which characterizes the pure Utica occurring with a considerable number of Trenton forms, so that the line of demarcation between the two formations will vary greatly, according as it is drawn at the first appearance of the Utica fauna, on the one hand, or at the final disappearance of the Trenton fauna on the other. The case is one where it seems certain that the two contrasted faunas were living in the same basin at the same time, each in situations where the conditions were favorable, and each under different sorts of conditions; and that the one set of conditions increased in area occupied, and its fauna spread, at the expense of the other.

In the Champlain valley it is difficult to arrive at any precise notion regarding the thickness of the formation. It is the