

known local geologist, was made one of the assistant geologists of the first geological district of this State.<sup>1</sup> Dr Horton encountered the same difficulty in determining the dip of the Trilobite mountain beds that all later observers have had, namely a tendency to confound cleavage and bedding. He says that the Trilobite mountain strata "repose unconformably upon the Millstone grit (Shawangunk grit) at the western base of Shawangunk mountain."<sup>2</sup> On the next page, however, he hesitates and says that this southeast dip is "far from certain. The stratification is to me still uncertain."

Several years later, W. W. Mather, geologist in charge of the first district, published his report where we find that he reached more definite conclusions. Speaking of the Manlius and Helderbergian series, he says "These limestones dip in a west to northwest direction, lying upon the subjacent Shawangunk rocks conformably; but some of the strata are rather enigmatical and appear to dip to the east-southeast in consequence of the cleavage or shivering of the strata since their deposition. In some of the strata the real dip is evident, but in others it is not, and it was only after minute examination that the real direction was with certainty determined."<sup>3</sup>

Dr S. T. Barrett of Port Jervis gave in 1876<sup>4</sup> the result of many years detailed work on the rocks of this region. He correlated the strata with those farther north and west in New York State, giving the horizons and thicknesses from bottom to top as follows:

	Feet
1 Tentaculite limestone .....	20
2 Favosites limestone .....	2-5
3 Lower Pentamerus and Cherty .....	40
4 Delthyris shale .....	120
5 Upper quarry .....	10
6 Upper shale .....	150
7 Trilobite layers .....	5-10
8 Oriskany and Cauda Galli .....	500-800

<sup>1</sup>N. Y. Geol. Rep't 1st dist. 1839. p. 135.

<sup>2</sup>N. Y. Geol. Rep't 1st dist. 1839. p. 150.

<sup>3</sup>Geol. N. Y. 1st dist. 1842. p. 332.

<sup>4</sup>N. Y. Lyc. Nat. Hist. 11:290.