

in the western part of the area to the highly crystalline rocks farther east and to discover the nature of the transitions by which this crystalline structure appears to be progressively developed. Second, to map minutely the highly crystalline rocks to the eastward, particularly about Baltimore, and to work out in detail certain petrographic problems with reference to the eruptive masses which occur there in such abundance. Considerable progress was made along these two lines, and a brief statement of the results is given in the Tenth Annual Report of the United States Geological Survey.<sup>1</sup> These and other results are also given in further detail in various unofficial publications.

Dr. Williams's operations in 1889-90 consisted of mapping the areal distribution of the crystalline rocks and collecting material for laboratory investigations in Harford, Baltimore, Carroll, Frederick and Montgomery counties, Maryland, as well as in the District of Columbia and in Fairfax county, Virginia.

Much progress was made in mapping the crystalline rocks of the Washington and Baltimore quadrangles. Incidentally to the work on the Baltimore quadrangle, a detailed investigation was made of a rare type of eruptive rock composed wholly of pyroxene, and its alteration into masses of steatite.

In the Frederick quadrangle the Triassic boundary was partially traced; the region about Barnesville, especially about Sugar Loaf Mountain, was mapped and studied; the great trap dike was traced entirely across the state, and many areas of sandstones and limestones were outlined. Incidentally a study was made of the Sykesville granite and its inclusions. Some account of the results of these investigations was communicated to the Geological Society of America at its Washington meeting, December, 1890, in a paper entitled the "Petrography and Structure of the Piedmont Plateau in Maryland."<sup>2</sup>

In 1890-91 the work was continued in Maryland and quite widely into the adjoining Piedmont area of Virginia. The boundaries of the Triassic in Maryland as determined by Professor Williams this season

<sup>1</sup> Tenth Ann. Rept. U. S. Geol. Survey, part i, 1890, pp. 152-154.

<sup>2</sup> Bull. Geol. Soc. America, March, 1891, vol. ii, pp. 301-318.