

In 1889-90 Mr. S. F. Emmons published an account of observations on the gold deposits of Montgomery county, Maryland.<sup>1</sup>

In June, 1890, Prof. Lester F. Ward, accompanied by Prof. W. M. Fontaine and Mr. C. S. Prosser, made a geologic trip to examine the Newark formation. Their observations in Maryland were limited to the vicinity of the Potomac river.

#### *Appalachian Region.*

In July, 1885, Mr. H. R. Geiger began the study of the Paleozoic rocks in the Appalachian region along the Potomac river in western Maryland and West Virginia. He made detailed notes on the outcrops and carefully measured many local sections.

In 1886 and 1887 he extended his observations eastward down the Potomac river, and for some distance southward over the Great Valley region of Virginia.

In June, 1888, assisted by Mr. F. W. Geiger, he began work on the Harper's Ferry quadrangle, which extends over portions of Maryland, West Virginia and Virginia. As a result of several months' study, he arrived at a conclusion as to the relations of the sandstones and associated formations in the Blue Ridge and South Mountain to the limestones of the Great Valley.

In September, 1890, Mr. Arthur Keith began a re-examination of the Harper's Ferry quadrangle, accompanied by Mr. R. H. Gaines as assistant. An elaborate investigation was made of the difficult problem of the relations of the several formations, partly crystalline and partly sedimentary, which had puzzled geologists for so many years. A preliminary product of Mr. Keith's studies was a paper jointly with H. R. Geiger, read at the Geological Society of America, on "The Structure of the Blue Ridge near Harper's Ferry,"<sup>2</sup> and a short notice on "The Geologic Structure of the Blue Ridge in Maryland and Virginia."<sup>3</sup> His final publication is the Harper's Ferry Folio, No. 10, Geologic Atlas of the United States.

<sup>1</sup> Trans. Am. Inst. Min. Eng., vol. xviii, pp. 391-411.

<sup>2</sup> Bull. Geol. Soc. America, vol. ii, 1891, pp. 155-164, pls. 4-5.

<sup>3</sup> Am. Geologist, vol. x, 1892, pp. 362-368.