The upper portion of Hosensack Creek follows closely the division line between the pre-Cambrian crystalline rocks and the Triassic red shales and sandstones. Here the valley is narrow with steep slopes. In the Triassic strata farther down it has developed a broad, open valley.

The major portion of Indian Creek flows through the pre-Cambrian gneisses. The valley is narrow with steep slopes. Near the village of Powder Valley the valley is especially attractive.

Perkiomen Creek. In the vicinity of Sigmund, Perkiomen Creek flows in a horseshoe curve through Lehigh County, entering from and returning to Berks County. Most of its valley is cut in the pre-Cambrian crystalline rocks. At least one mill has been operated in Lehigh County by water power from this stream.

Floods

There are records of several serious floods in the region. (Plate 10.) In several places high-water marks on buildings have been carefully measured.

Since 1888 the U. S. Geological Survey has been engaged in accurate measurements of the principal streams of the United States and the results have been published in annual Water-Supply Papers, in Bulletins, Professional Papers, Monographs and Annual Reports. In recent years the Division of Hydrography of the Pennsylvania Department of Forests and Waters has cooperated in this work. An annual bulletin of Stream Flow Records is issued and in addition in 1916-1917 an elaborate Water Resources Inventory Report was published by the State.

Of pertinent value to this region are the stream-gage data obtained at Bethlehem on the Lehigh River. Records are available in U. S. Geological Survey publications from September 1902 to February 1905, April 1909 to December 1913, October 1918 to September 1921, and October 1928 to September 1937. The Pennsylvania Department of Forests and Waters has published these records from September 1902 to February 1905 and April 1909 to date.

A record of floods has also been compiled. A gage height of fifteen feet usually results in a flood of sufficient magnitude to effect some damage. Therefore, the table lists all known floods in which such a height was attained.

Since the zero or datum plane is selected somewhat arbitrarily, the elevations above sea level are important. At Bethlehem the datum plane before 1909 was 213.45 feet above sea level; from 1909 to 1928 it was 210.64 feet and since 1928 it is 208.50 feet above sea level. These variations in datum plane are mainly due to the locations being moved either up or down stream. In every case a datum plane has been selected that is a foot or two below the lowest water known to have been reached even in the most disastrous droughts. The figures given are within close limits of what would have been obtained if the gage locations and gage zeros had remained constant during the entire time.