been carried from the area comprising Lehigh County by the Lehigh River since it began to cut the gap in Kittatinny (Blue) Mountain. Some of this material was carried away in solution and entered the Atlantic Ocean. The major portion was sand and silt carried in suspension or rolled along the bottom of the stream. Most of this material likewise was carried to the ocean, although some was dropped in the channel or on the flood plains of the lower course of the Lehigh or the Delaware Rivers.

The lower, south slope of the mountain at Lehigh Gap is composed of Martinsburg shales dipping to the north. Owing to the heavy cover of talus they are not exposed in place on the Lehigh County side, but on the Northampton County side railroad and highway cuts present excellent exposures. The higher slopes and the crest are formed by the Tuscarora gray sandstones and conglomerates dipping to the north throughout Lehigh County so far as known. The north slope is formed by the prevailing red sandstones and shales of the Bloomsburg and Clinton formations.

The economic importance of the Lehigh Water Gap deserves mention. Three railroads, one much-traveled highway, and a canal pass through it. Before the advent of railroads it was used by the early settlers, and still earlier by the Indians on their way to their favorite hunting grounds to the north of the mountain. The narrowness of the gap has made it necessary to remove considerable rock for these transportation lines, but this is insignificant in comparison with the work accomplished by the river.

Leiberts (Leiperts) Water Gap. The highway between Emmaus and Vera Cruz passes through a narrow water gap through South Mountain. Leiberts Creek, a tributary of Little Lehigh Creek, flows northward through the gap. The center of the gap is about 475 feet above sea level, the top of the mountain ridge to the west about 700 feet, and the one to the east 943 feet.

The gap is a large one to be cut by a small stream and furnishes some evidence in support of the view advanced by E. H. Williams, Jr., mentioned on a previous page. If the Lehigh River did flow southward through this notch to join the Perkiomen before the Ice Age the bulk of the cutting must be assigned to this larger stream. When and how the present northward-flowing stream replaced the supposed previous southward flow calls for considerable speculation.

Regardless of which stream cut Leiberts Gap, the location of the gap seems to have been determined by rock structure. There is evidence of faulting on both north and south slopes of South Mountain at this place in that the Hardyston sandstone is missing and limestone is in contact with the gneiss. An iron mine a short distance northwest of the gap and another one to the southeast were both in limestone, as evidenced by the rotten sericitic shales found in the mine dumps. These are typical of the metamorphosed impure limestones in which the valley type of limonite iron ores was formed.

A suggestion has been made that downward faulting has brought a narrow block of limestone below the present channel of Leiberts Creek and that limestone forms the basement throughout the gap. Attempts to secure well boring data to determine whether this is the case have