student in Lehigh University and was well acquainted with the geomorphological problems of this region.

STREAMS*

The drainage of Northampton County is effected by two major streams, the Delaware and Lehigh rivers, and their tributaries. Practically the entire area is well drained, although there are some localities within the limestone regions where there is no surface run-off. The water there flows underground in solution cavities. There are a few small swampy areas in the slate regions, especially in the northeastern part of the county where the glacial deposits are especially prominent.

Delaware River

The Delaware River is one of the most important streams of Pennsylvania although it receives only 14.3 percent of the drainage of the State. It drains an area of 12,012 square miles of which 6,460 are in Pennsylvania. The east and west branches head in the Catskill Mountains and unite at Hancock, N. Y., on the Pennsylvania-New York boundary. The length of the main river to the Delaware State line is 248 miles. The gradient in the upper course, from Hancock to the Northampton County line, averages 5.29 feet per mile; from the Delaware Water Gap (elevation, 290 feet above sea level) to Easton (elevation 157), a distance of 29 miles, it is 4.6 feet per mile; below Easton it decreases, averaging 3.11 feet per mile, to tide water at Trenton. The gradient is not uniform and the velocity varies in different portions. In several places, particularly at Foul Rift and at the Weygadt just above Easton, hard rock ledges obstruct the stream and produce rapids which have long been difficult to navigate with canoes. Elsewhere the gradient is so low that deposits of alluvium have accumulated to form bars and low islands. Some of these islands are of considerable size and have existed so long that they are forested and in part cultivated. They are subject to flooding at times of high water and occasionally undergo diminution by erosion or accretion by deposition, thus changing their shape and size.

The Delaware River as it flows along the borders of Northampton County is not now regarded as navigable. For many years it was used for rafting logs and lumber to Philadelphia. In 1791 some of the rock ledges in the river at Foul Rift were removed to facilitate their passage. Also for a time some small boats from Philadelphia and Trenton ascended the Delaware River as far as Easton. Dr. B. F.

* Much of the following matter has been taken directly or abstracted from an exhaustive investigation of the water resources of the State in 1910-1920 by the Water Supply Commission of Pennsylvania and published in 10 parts (see Bibliography).