The stream which flowed through Lehigh Furnace Gap prior to its capture (Fig. 6), was very probably a large branch of Trout Creek, a tributary to Lehigh River. Lizard Creek, a subsequent stream that had the advantage of working headward on weaker formations, beheaded the stream which was striving to cut its way down through the hard conglomerates and sandstone of which Blue Mountain consists. With Lehigh Water Gap the two wind gaps, Little Gap and Lehigh Furnace Gap, constitute a sort of unit. Both wind gaps were occupied by tributaries to the Lehigh River and both are about equally distant from the Lehigh Water Gap. But Little Gap is deeper than Lehigh Furnace Gap, the elevation of the former being 1100 feet A. T., whereas the latter is 1305 feet A. T. The stream in Lehigh Furnace Gap was probably the first to be beheaded, because Lizard Creek had a distance of but two miles to go from Lehigh River in order to complete the capture. On the other hand, Aquashicola Creek had to cover four miles before it could behead the stream flowing through Little Gap. We have in this case two wind gaps, occupied contemporaneously by two streams comparable in size, both tributaries to the same stream and nearly the same distance from it. If wind gap elevations are related to peneplanes, it is difficult to explain the difference in elevation of the two gaps. According to this theory Lehigh Furnace Gap at 1305 feet A. T. marks a peneplane surface at that elevation, and Little Gap at 1100 feet A. T., which is 196 feet lower, still another. It seems almost inevitable that Aquashicola Creek, fully as large or even larger than Lizard Creek, would have beheaded the stream flowing through Little Gap, at about the same time or shortly after the capture had taken place at Lehigh Furnace Gap. It is difficult to believe that the Little Gap stream survived through another complete cycle of erosion before beheading took place. Such a survival would imply that either Aquashicola Creek accomplished the piracy which produced Lehigh Furnace Gap, or that it was a small stream and had not yet worked headward sufficiently far to behead the Little Gap stream.

It should be noted that Aquashicola Creek and Little Gap lying east of the Lehigh River are beyond the confines of Lehigh County. How much change has taken place in the Lehigh Furnace Gap since the stream originally present here was turned into Lizard Creek is not known, but it is not thought to be great.

A moot question that has aroused considerable discussion pertains to the correlation of wind gaps with old erosion surfaces (peneplanes). Barrell (1920), Hickok (1933), and Meyerhoff and Olmsted (1934 and 1936) hold to the view that the floors of wind gaps throughout the Appalachians can be correlated with each other in groups and that they are intimately related to the peneplane levels and are thus indicators of cyclic uplifts. Ver Steeg (1930, 1933, and 1935) on the other hand, as shown by the above quotation, argues strenuously against such relationship. The discussion of this question leads far afield and can not be treated except with consideration of many areas outside Lehigh County. Therefore it is regarded as proper to merely state the problem in this volume.

Caves, Sinks and Underground Drainage Systems

In the limestone areas of Lehigh County there are many subterranean openings into which surface drainage flows. Even a casual glance at the map shows the paucity of streams in the limestone regions as compared with the slate regions. Over considerable areas west of Allentown and in the Saucon Valley there is no surface run-off, all of the rain water not quickly evaporated or taken up by vegetation disappearing underground. Drainage systems with major and minor