Philadelphia and beyond. At Phillipsburg, Riegelsville, near Morrisville as well as many other places these deposits have long been worked for ballast and concrete aggregate.

The highest point on Kittatinny (Blue) Mountain now preserved in the vicinity of the Delaware Water Gap has an elevation of 1,461 feet and the river a short distance away is somewhat less than 320 feet. The greatest depth of the river in the gap is not known nor can one determine how much higher the mountain was when the river first started to cut the gorge. As a minimum figure, we can safely say that it has cut a notch over 1,200 feet in depth and possibly even several hundred feet more. The Lehigh River at Lehigh Gap apparently has cut almost exactly the same amount, perhaps a few feet less.

When these two major streams started the cutting, it is probable that they were flowing over a featureless plain either of erosion, the newly formed Schooley peneplane, or of deposition according to Johnson. We assume that this plain had a fairly gentle slope to the Atlantic Ocean, although absolute proof is lacking.

Barrell in his studies in this region noted the change of slope in the profiles of both the Delaware and Lehigh gaps and suggested that they represented alternating periods of uplift and stability. He called the more gentle slopes "facets" and attempted to correlate their lower levels with the floors of local wind gaps. As previously mentioned, Barrell had not completed his investigations at the time of his death.

Ver Steeg in his much more detailed investigations reaches different conclusions as shown in the following quotation.

Barrell believed that the form of the wind and water gaps might give valuable evidence as to the nature of erosion cycles. He was of the opinion that the facets in their profiles are indicative of still stands of the land, during which peneplanation took place. The present writer believes that the facets are the result of unequal resistance of hard rock beds to erosion. Where there are alternating layers of hard and soft rock which stand at an angle sufficiently low, rock ledges produce facets. As a rule, the more resistant beds project into the gaps, whereas the softer beds weather down to gentler slopes. Where the beds stand at high angles, facets are absent.

Shale and limestones underlying great areas on both sides of Blue Mountain, being much less resistant to erosion, have been removed by tributary streams in much greater volume. To restore the region now composing Northampton County to its pre-water gap condition, it is estimated that we would need to add an average of 300 feet over the South Mountain belt, 400 feet over the slate region and 800 feet over the limestone region. This is an average of about 477 feet for the entire county. These are regarded as the minimum figures. Ex-

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1 Johnson, D., Stream Sculpture on the Atlantic Slope: 1921.