observed. Under these conditions no figures of thickness can be given. The sandstone beds aggregate 50 to 100 feet or more. The thickness of the argillaceous beds is indeterminate. Probably 0 to 200 feet is as good an estimation as can be made with existing information.

Name and correlation.—In the Second Annual Report of Rogers in 1838, he described the Hardyston as his Formation No. 1 of his Secondary rocks. Later he designated it as the Primal White Sandstone and correlated it with the Potsdam Sandstone of New York. While Prime was investigating the geology of the Lehigh Valley for the Second Geological Survey, the name Potsdam was continued. When later several paleontologists and stratigraphers proved conclusively that the Potsdam of New York is Upper Cambrian in age and is underlain by a great thickness of limestones, shales and quartzites of Paleozoic age it became apparent that the Pennsylvania and New Jersey basal Cambrian siliceous deposits should not be correlated with the Potsdam of New York but rather with the Poughquag quartzite of the Taconian (Georgian) series.

Wolff and Brooks Proposed the name Hardistonville in 1897, from Hardistonville, N. J. This name was slightly modified by Kümmel and Weller who proposed the shorter township name of Hardiston (later changed to Hardyston) which has since been widely adopted. Even yet, however, one finds the occasional use of the name Potsdam.

The Hardyston of Lehigh County is correlated with the Chickies formation of Chester and Lancaster counties, and with the Antietam sandstone of Franklin County, Pennsylvania.

Stratigraphic relations.—The Hardyston rests unconformably upon the older pre-Cambrian crystalline gneisses. Some of the earlier workers confused banding of the gneisses with bedding planes and announced the conformability of the two classes of rock. It is evident that there was a long interval of erosion between the deposition of the basal Hardyston and the solidification of the underlying igneous rocks.

Presumably, the Hardyston is overlain conformably by the Toms-town formation although no exposure of that contact is known within either Northampton or Lehigh County. Where strata of the two formations are seen in proximity, the close parallelism of strike and outcrop suggest conformability.

LOCAL DETAILS

Rittersville Hill.—The only exposures of the Hardyston formation in this county north of the Lehigh River are on the northern and western slopes of Rittersville Hill between West Bethlehem and East Allentown. The most easterly exposures are in a small ravine a short distance to the north of the roundhouse of the Central of New Jersey R. R. The rock is a fine-grained, dense, gray quartzite. A few layers are slightly pebbly. About 12 feet of beds are exposed with strike N.84°W., dip 34°NE. There has been considerable faulting here as decomposed shaly Tomstown limestone occurs in the ravine to the

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