

OUTSTANDING GEOLOGIC FEATURE OF PENNSYLVANIA

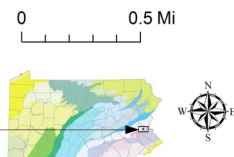
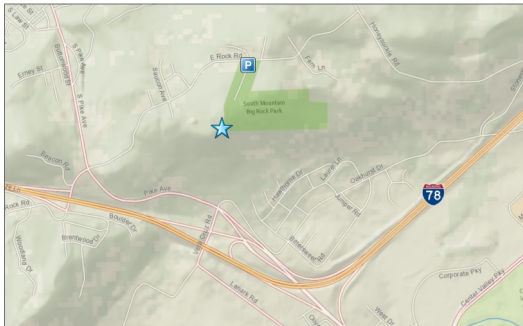
BAUER (BIG) ROCK, LEHIGH COUNTY

Stuart O. Reese, 2016



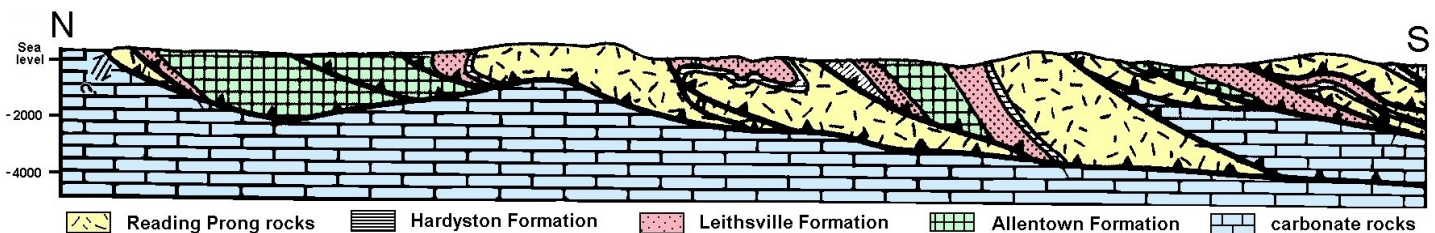
Location

South Mountain Big Rock Park, Lehigh Co., Upper Saucon Twp., lat: 40.56836, lon: -75.43552, or 560 East Rock Road, Allentown, Pa. (parking), lat: 40.56435, lon: -75.43787; Allentown East 7.5-minute quadrangle



Geology

Bauer Rock, also known as Big Rock, is a local topographic summit composed of a mass of dark- and light-banded hornblende gneiss, a metamorphic rock. The high point rises about 40 feet above the ridgeline of gneiss, at an elevation of about 1,040 feet. A view of Saucon Valley, about 400 feet lower in elevation and underlain by softer carbonate rocks, can be seen to the south. The gneiss is resistant to erosion and less fractured than the immediate surrounding rocks. The gneiss is part of the Reading Prong, a section of the New England physiographic province. More than a billion years old, these rocks are some of the oldest in the state. They have undergone metamorphism and have been affected by at least three mountain-building events. As a consequence, these rocks have been thrust over and pushed into other rock types, so that the entire sequence of rocks is extremely complicated. Multiple sheets of thrust rock packages—called “nappes”—have been pushed and rolled together.



Generalized cross section through Reading Prong rocks (yellow), based on Drake (1999). The cross section covers about 9.5 miles with no vertical exaggeration. Lines with teeth are thrust surfaces. The Leithsville and Allentown units also are carbonate rocks.

Left photo: From South Mountain visitors can glimpse Saucon Valley through the trees. Photograph by Kevin Tarbert, Pennsylvania Geological Survey intern.



Right photo: Unfortunately, Bauer Rock has been heavily vandalized with graffiti over the years.



Recommended Reading

Drake, A. A., 1999, Precambrian and lower Paleozoic metamorphic and igneous rocks—South Mountain and Reading Prong, chap. 3B of Shultz, C. H., ed., *The geology of Pennsylvania: Pennsylvania Geological Survey, 4th ser., Special Publication 1*, p. 36–49. [Copublished with Pittsburgh Geological Society.]

[South Mountain Big Rock Park](#) web page of Lehigh County.