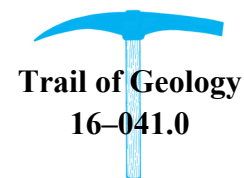


OUTSTANDING GEOLOGIC FEATURE OF PENNSYLVANIA

COLUMNAR JOINTED VOLCANICS, ADAMS COUNTY



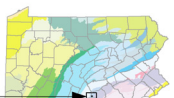
Stuart O. Reese, 2016

Location

Michaux State Forest, Adams Co., Franklin Twp., lat: 39.8717, lon: -77.4518; Iron Springs 7.5-minute quadrangle



0 0.5 Mi



Geology

Rare for Pennsylvania, these well-preserved columnar joints occur in metarhyolite (Precambrian age) and are exposed along the west wall of Carbaugh Reservoir in Michaux State Forest. The columnar structures exposed here are about 20 feet high and as much as 2 feet wide, and have hexagonal and pentagonal sides.

The columnar jointing indicates that these volcanic rocks formed at the surface—the columns are features of shrinkage and cooling. Metarhyolite contains substantial concentrations of alkali minerals, which are associated with continental crust. It is likely that the metarhyolite here started as volcanic glass that erupted on the land during continental rifting. The metarhyolite rocks in this area alternate with metabasalt rocks, both of which have been associated with the opening of the Iapetus Ocean, the “Proto-Atlantic,” during the late Precambrian over 541 million years ago. The area is part of the South Mountain section of the Ridge and Valley physiographic province.

Columnar jointing is seen at this outcrop of metamorphosed rhyolite (metarhyolite) of the southern South Mountain area. Photograph by Jim Shaulis, Pennsylvania Geological Survey.



Recommended Reading

Sevon, W. D., and Potter, Noel, Jr., eds., 1991, *Geology in the South Mountain area, Pennsylvania: Annual Field Conference of Pennsylvania Geologists*, 56th, Carlisle, Pa., [Guidebook](#), 236 p.

[Michaux State Forest](#) web page of DCNR.

Published by the [Pennsylvania Geological Survey](#).

