

OUTSTANDING GEOLOGIC FEATURE OF PENNSYLVANIA

BOULDER POINT, YORK COUNTY

Stuart O. Reese, 2016



Location

Gifford Pinchot State Park, York Co., Warrington Twp.,
lat: 40.0797, lon: -76.8837; lat: 40.07924, lon: -76.88059 (parking);
Wellsville 7.5-minute quadrangle



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Geology

About 80 percent of Gifford Pinchot State Park is underlain by a dark igneous rock called diabase. This diabase originated as molten material that pushed into Triassic sandstone and shale about 200 million years ago. It is typically resistant to weathering but not immune from it. Large boulders of diabase are scattered throughout the park as erosional remnants.

Boulder Point is an excellent place to observe weathering of the diabase. Straight fractures (joints) typically divide the rock into rectangular blocks, and mechanical weathering by frost wedging or plant growth splits it along those joints. Chemical weathering processes preferentially attack the diabase blocks along their corners and edges, and over time the blocks are smoothed to rounded boulders. This phenomenon is called spheroidal weathering, and it can produce a polygon pattern on the surface of the boulders. At Boulder Point, one can see “Balanced Rock”—a large diabase boulder that sits on another slab of diabase. Both contact surfaces have undergone spheroidal weathering, so the boulder is balanced on two rounded pedestals.



Above: Balanced Rock at Boulder Point, Gifford Pinchot State Park. Boulder is approximately 7 by 8 by 26 feet in size and weighs an estimated 16 tons.



Above: Diabase outcrop showing spheroidal weathering.



Left: Polygon cracks caused by weathering of the diabase. Surface shown is 2.5 feet high by 3 feet wide.

Recommended Reading

Hoskins, D. M., 1978, Gifford Pinchot State Park—Diabase (molten liquid rock): Pennsylvania Geological Survey, 4th ser., [Trail of Geology 16-010.0](#), 5 p.

[Gifford Pinchot State Park](#) web page of DCNR.

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

