

Montclair rocks! And we've got the cliffs to prove it



The rocky basalt cliffs defining the edges of Mills Reservation are the cooled lava of an ancient volcano, and in modern times the site of a quarry.

ADAM ANIK/FOR MONTCLAIR LOCAL

by Elizabeth Oguss

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Once upon a time, this green and pleasant town was a treeless tundra where mastodons lumbered by the shores of Glacial Lake Passaic.

New Jersey's great fossil finds are to the west of us, but you can see something even older than an Ice Age fossil right here in Montclair: 200 million-year-old volcanic lava. Hardened into basalt, it forms the ridge on Montclair's western border

and is known as First Watchung Mountain. It was the eastern edge of Glacial Lake Passaic, whose remains exist now as the Great Swamp, in Somerset and Morris counties.

Gregory Pope, associate professor of earth and environmental studies at Montclair State University, gave me the scoop on Montclair's prehistory. To see the past in the present, he said in an email interview, head to "one of the overlooks on top of Watchung Mountain, such as from Mills Reservation or from Eagle Rock."

A satellite view of Mills Reservation, in Montclair's northwest corner, shows that it lines up with Eagle Rock to the south, and Garret Mountain to the north; they're all part of First Watchung Mountain. A short climb leads to rocky cliffs overlooking the town and beyond. (Nearby is the concrete base of a World War II anti-aircraft gun emplacement.)



Volcanic lava hardened quickly into basalt. First Watchung Mountain was the eastern edge of Glacial Lake Passaic. ADAM ANIK/STAFF

The spot is NJ Audubon's spring hawk watch, which is what first drew me there. It also attracts hikers and artists. Robert Smithson (1938-73), a Passaic native best known for "land art" such as "Spiral Jetty," was inspired by Montclair's topography.

From that spot, look east. (It's easier when the trees are bare.)

"The location poses questions about 'why is this here?' which are answered by the geology and geological history," Pope says. "And, from the view, one can see the differences in topography relative to Montclair: you can see to lower valleys of Montclair, Bloomfield, and Orange (softer rock, more eroded), The Meadowlands (submerged valley), the next ridge beyond being The Palisades with Fort Lee and Weehawken ..."

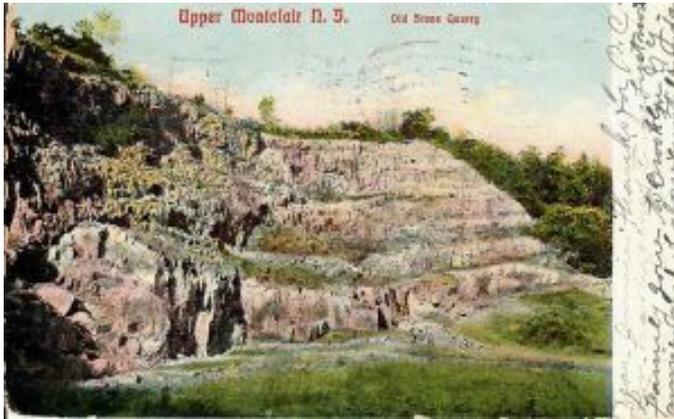
Pope said Montclair's basalt is about 200 million years old, about the same age as the Palisades. The ridges to the west – Second and Third Watchung mountains – are younger, but the highlands beyond, west of Interstate 287, are more than 600 million years old, he said.

When at Mills, Pope says, look for rocks that aren't basalt. "These would have been brought in by the glaciers that scoured over the mountain ridges here. We can find sandstone (from the lower valleys) and sometimes granite or gneiss from the Harriman and Bear Mountain area of New York."

If you don't want to climb the hill at Mills, there are some cool glacial erratics in Anderson Park.

Readers of John McPhee know that geologists love road cuts, those exposed sections of rock along highways. An excellent view of the basalt on two mountain ridges can be seen on I-280 in West Orange, Pope said, but only by passengers, not drivers. "I'm guilty of driving while observing, an occupational hazard."

Montclair has one or two, but they're not safe to look at, according to Pope. But there's "plenty of exposed rock" on the MSU campus, which is built largely on an old quarry, and a nice view from University Hall, he said.



This circa 1909 postcard shows a quarry in Upper Montclair, which may be the Osborne & Marsellis Quarry. COLLECTION OF ELIZABETH OGUSS

Mike Farrelly, Montclair historian, thinks the the quarry in my vintage postcard may be the Osborne & Marsellis Quarry, which began in 1890. It later included a stone-crushing operation, and in about 1918 was reorganized as a road-building company. Most of the stone quarried in Montclair went into gravel for railroads and roads, Farrelly believes, but some went into buildings, such as St. James Episcopal Church on Bellevue and Valley, and the train station on Upper Mountain.

I asked Pope if a child could get started on a career in geology without leaving town.

“Yes! What child wouldn’t be curious if you told her or him that the rocky cliffs of Mills Reservation or Eagle Rock were once volcanic lava (basalt)? And the source of that lava was from a volcano long ago eroded. And that volcano was around the same time as the early dinosaurs. Nearby (for instance Roseland and Riker Hill Park) there is direct evidence of dinosaurs, footprints specifically, in related rock formations (the sandstones that are directly above the lava rocks).”

“Visions of geologic past are really interesting!”

Places to go:

Morris Museum Rock and Mineral Gallery

morrismuseum.org

Franklin Mineral Museum

FranklinMineralMuseum.com

See a mastodon skeleton

The Newark Museum

newarkmuseum.org

**Helpful geology links from MSU
Professor Gregory Pope**

<https://tinyurl.com/y9sah23q>

<https://tinyurl.com/yaeoz7tp>