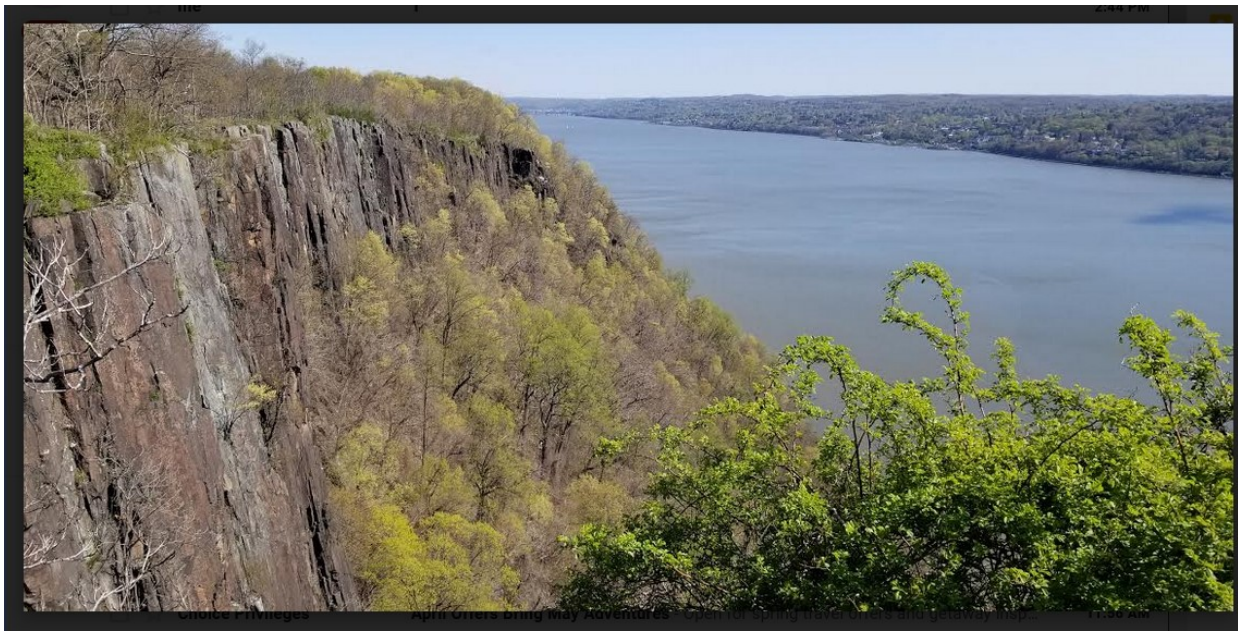
Fieldtrip

Hudson Palisade at State Line Lookout

by Bill Menke, April 23, 2021



View from Lookout Point

Starting/Ending Point. Parking lot at State Line Lookout, located along the Palisades Interstate Parkway in Alpine New Jersey, at about mileage marker 9. Parking is free.

Time: Three hours.

Conditions: Hiking along relatively well-maintained trails with significant elevation change. Hiking boots are recommended.

Suggestions: Bring a water bottle and wear a hat. This area is very photogenic, so consider bringing a camera. A compass would be handy, too.

Hazards: Tripping on a rock; falling down a steep hillside, dehydration, Lyme disease, Poison Ivy. I recommend against doing this fieldtrip in winter, but bring micro-spikes of other traction devices if there is any chance of ice.

A Plea. Don't damage rock outcrops by hammering on them or marking them. Don't collect rock samples which is illegal in a public park like this. Stay on the trails so not to trample the fragile cliff-top ecosystem. Don't try to scale the cliffs.

1. Café. If you didn't bring a bottle of water, consider buying one at the Café.

2. Lookout Point. View the Hudson River and the Hudson Palisade cliffs from Lookout Point, the viewpoint near the Café. Orient yourself: the Hudson River flows north-to-south; you are on the cliffs above its western bank. North is to your left and south to your right. The hills of

Westchester county are cross the river on its eastern bank. A sliver of Long Island Sound can be seen in the distance. Ask yourself what rock composes the valley in which the river flows; is it different from the rock composing the cliffs. Look at the rocks of the cliff, which have strong columnar jointing. The same rock was used to make the retaining wall, though there is one piece of a very different rock among them. Can you find it?

3. Walk west, past the back of the Café, to the Long Path trailhead. This trail is blazed with light-blue. Near the trailhead is a recently-broken piece of the local rock about two feet across. Look at it closely. It is an igneous rock with moderately coarse crystals called a diabase. The brown surface running through it is a joint surface. These surfaces make the columns in the cliff.

4. Now walk the Long Path through the woods. In addition to the diabase, you will come across boulders, many of them rounded, and some three feet across, of different kinds of rock. A white and grey banded gneiss is pretty common. A grey sandstone with small pebbles is pretty common, too. See how many different kinds you can find. These rocks are all glacial erratic boulders.

5. Stay on the Long Path as it veers to the right. Roughly, the trail now is heading south.

6. You will pass some large sandstone erratic boulders, one right in the middle of the trail.

7. You will pass a rock ledge just off the left side of the trait that has a shallowly sloping north side and a steeply sloping south side. It was sculpted by Ice Age glaciers and is called a roche moutonnée.

8. You will pass a seasonal pond on the rights side of the trail. Even though the diabase bedrock below the pond is strongly jointed, it must be very impermeable. I suspect that's because clay – a very impermeable material - is one of the weathering products of diabase.

9. Stay on the Long Path as you pass the Ski Trail B intersection. Note the big erratic boulder of sandstone near the intersection.

10. Stay on the Long Path as it crosses the paved park access road.

11. Just before the Long Path starts to descend, you will come to an overlook on the left that has a terrific southward view. At it, you will get a close-up view of the polygonal cross-sectional shape of the rock columns. Some of the rock pavement has interesting polygonal weathering, too. Consider that all weathered surfaces of it formed since the glaciers retreated twenty-thousand years ago. Before that they had glacial polish. If you hunt around, you can find a few poorly-preserved glacial scratches. Note that they are oblique to the axis of the Palisade ridge. If you have a compass, measure their azimuth.

12. Continue on the Long Path as it descends into a ravine. Ask yourself what made the ravine. Is it pre- or post-Ice Age? Look at the rock exposed on the uphill side of the trail. Is it diabase, or something else?

13. Cross the footbridge and view the little valley that its spans. Look at its shape and the size of the boulders in its bed. Then continue south, taking the right-hand trail that heads back uphill.

The Long Path and the Forest View Trail (blazed in blue and white) are concurrent along this stretch of trail.

14. As the trail veers to the left, it crosses a rock ledge with a big glacial flute. This rock and some of the rocks near them have poorly-preserved glacial striae, too. If you have a compass, measure their azimuth.

15. You will reach the castle-like Women's Federation Memorial, built on a wide rock ledge. A little staircase at its northeast corner takes you to the top viewing platform. The view from the railing at the cliff edge is terrific, too. Following the railing southward, you will find more poorly-preserved striae about 20 meters south of the castle.

16. Continue southward fifty meters to a three-way intersection, with an unblazed gravel road on the left, the Long Path in the middle and the Forest View trail on the right. Follow the Forest View trail 20 meters, and examine two large glacial erratic boulders, one of gneiss and the other sandstone, on the left-hand side of the trail.

17. Now return to the three-way intersection and take the left-hand gravel road southward. After just a few yards, go left onto a small side trail that leads to a small overlook with a green fence. Looking down, you will see an abandoned dock extending out into the river, and marsh areas with Phragmites reed. Continuing along the slide trail a bit further, you will reach a larger overlook. Look at the shape of the lower part of the cliff. The cliff is not vertical all the way to the bottom, bur rather fans out into a more-gentle slope about half way down. Ask yourself why. Now reverse direction and head back to the gravel road.

18. When you reach the gravel road, go left, heading south.

19. You will pass ruins dating from the 1920's that include a swimming pool, surrounded by ancient ornamental hedges. Consider that the hedges survived a century, but didn't spread much. They are non-native but not invasive.

20. Continuing south along the gravel road, you will come to a large chasm, surrounded by a green fence. Ask yourself whether this tension crack formed right after the glaciers retreated and the cliff was unloaded, in which case it may be pretty stable, or whether it is a more recent feature (but still older than the 1920's fence), in which case it may be slowly widening and lead to the sliver of cliff (including the part you're standing on), falling into the Hudson River.

21. Turn around and head back, past the castle, to the bridge across the ravine. Don't cross the bridge when you reach it, but rather take the Forest View trail steeply downhill. Look at the rocks exposed on the side of the trail.

22. The first large outcrop that you come to has two different rock types, one atop the other. The bottom rock is clearly shale. But what's the top rock? Looking up the hillside, you can clearly see the columnar joints of the diabase ten meters overhead. But is the top rock in the outcrop diabase? I think not; it's a coarse sandstone, perhaps baked by the proximity to the diabase. The actual contact between the diabase and the sedimentary rock is just a little uphill, but is not

exposed along the trail. (Please, don't try to climb the hillside to find the contact. Not only is it dangerous, but you'll ruin the fragile but beautiful cliffside vegetation).

23. You'll pass more sedimentary outcrops as you continue to descend the Forest View trail. Keep track of the range of lithologies. What do they tell you about the environment in which the rocks were deposited?

24. As you near river level, the trail winds among large boulders. Of what rock type are they composed? And how did they get there?

25. Go left (north) on the Shore trail (blazed in white) when you reach river level. As you walk along this level trail that parallels the river, think about the kind of soil exposed in its bed. Also look at the loose rocks on the ground. They are a mix of diabase, sedimentary rock and erratic boulders. What rock type is most common (and why)?

26. Compare the vegetation along the Shore Trail with that along the cliff-top Long Path. What are the differences?

27. Stop when you reach the point where the Shore Trail begins to climb up onto large rocks. This might be a good place for a lunch break. The rocks here are part of a rockfall off the cliff. This area has a nice view of the Hudson River and the Westchester (eastern) shore. You now know that the rock at river level is sedimentary. How far east do you suppose that the sediments extend?

28. Reverse your route and walk south along the Shore trail, and then uphill along the Forest View trail until you reach the bridge. Cross the bridge and huff north and uphill along the Long Path, back to the paved park access road.

29. Turn right and follow the paved park access road north along the cliff edge, admiring the many views. Keep your eyes peeled for Peregrine Falcon, which can often be seen soaring off the cliff edge or perched in overhanging trees.

30. About 25 meters north of the first pay-binoculars, you will pass a point where the cliff edge is very close to the retaining wall. This is the site of the 2012 rockfall, when a sliver of cliff collapsed. The color of the remaining rock is lighter brown than the rest of the cliff.

31. Consider buying a snack at the Café and relaxing at a cliff-side picnic table before heading home.