

Adventuring in Pennsylvania – Civil Engineering Everywhere

Since the snow has melted and the days have gotten warmer, the Outdoor Adventure House, which I live in, has started planning more trips on the weekends. A week ago, seven of us drove out to a trail and hiked up to what is known as the Pinnacle in Hamburg, PA. The four mile trek up to the rocky ledge allows you to see the whole Lehigh Valley which stretches on to New Jersey. The starting point was only a 20 minute drive from campus. A few people brought backpacks along to practice hiking with the extra weight but we all packed a small bag with lunch, water, and anything else. It was a cool morning but as soon as we began, the sun came out and it warmed up to around 60 degrees. We reached the top fairly quickly in just over an hour, took photos and sat on the ledge eating lunch.

Soon we climbed down the rock face and discovered some caves! These caves were among the small openings between cracked boulders holding up the lookout ledge. We crawled through as many spaces as we could, one was so small you had to inch your way through like a worm, taking videos on a GoPro. Many of them fit at least four of us comfortably and were so dark we needed a flashlight. The last one we went in was the largest. The entrance was formed by a split in the ledge that went straight up about fifty feet. Probably around 80 feet into the cave, we reached a T, to the right was a dead end but to the left was a tiny tunnel less than 3 feet in diameter. Despite the wet rocky surface and limited flashlights, we all ventured onward, one at a time. We were moving through the cave for over a half hour and it was impossible to tell how far we had gone. I was last in line and couldn't see more than a few feet in front of me, but could hear that the person leading was easily 50 feet in front of me. When we all finally decided to turn around, I figured we were about 100 feet underground and almost 200 feet into the cave, and apparently we didn't hit the end of it! We're all hoping to go back again and discover more with the proper equipment.

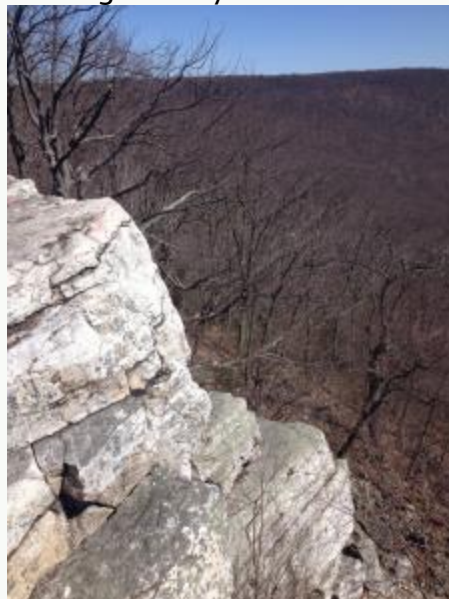
The trail looped back down a different way which we followed to a man-made reservoir. Walking around the body of water, I recognized many characteristics I had been learning about it in Hydraulics (CEE 222). A small runoff stream was flowing down the mountain into one end of the reservoir while the other end was dammed. We walked across the earth dam to check out the concrete spillway on the other side. There was a steady flow over the section that continued into a more controlled stream below. There was a pier that stuck out into the middle of the reservoir directly above

an underground pipe running through the dam. It connected to the end of the spillway but was most likely powering a turbine for electricity. All the water led to a water-treatment house near the parking lot. The reservoir was serving a dual purpose: controlling and storing the fresh water and powering the treatment facility. Being able to understand the entire concept and design of the hydraulic structure made it so fascinating. It also made me realize how prevalent civil engineering is all around us, even in the middle of the woods.

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The Pinnacle looking out over Lehigh Valley



Some crevices in the rock face.



Upstream side of the reservoir.



The dam with spillway on the other end.

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