Chasm & Quarry Tour

Natural Bridge State Park

SELF-GUIDED INTERPRETIVE TOUR

Welcome

Natural Bridge State Park, in North Adams, is a small 44-acre DCR park that provides a window into the past: ancient geology, curious marble rock formations, a history of visitors who left their mark, and an industrial quarry. Nature, over eons of erosion, has cut deep into the marble bedrock; and in just 130 years man has excavated even further! These actions left indelible marks here that you can see and touch. Use this guide to experience the natural wonder of this marble chasm, but also witness the result of man's determination. These are only some of the curious stories found here.

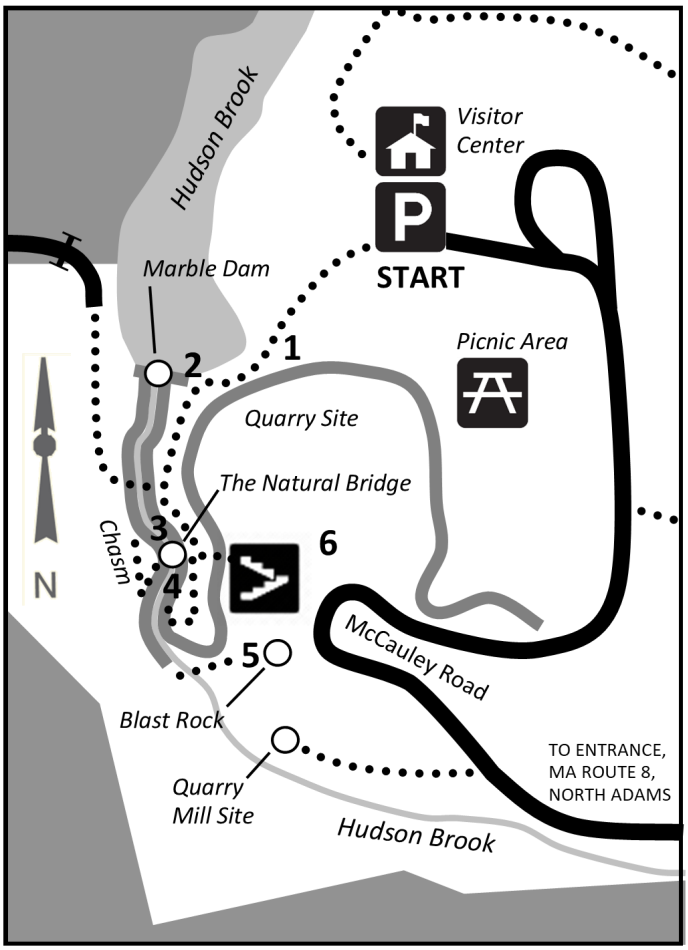
Take your time, explore, and use your senses. Enjoy a picnic on the grounds. Listen to the rushing water echoing through the chasm. Touch and admire the texture and brilliance of the marble surface. Take photographs and look for clues to the past.

About the Tour

The Chasm & Quarry Tour starts at the foot of the parking lot, in front of the Visitor Center. The tour takes **about 1 hour**. Total round-trip distance is **under a half-mile**. Ability rating is **easy**. The route goes over some uneven terrain, boardwalks, and a staircase.

The park and self-guided tour are open seasonally, from late-May to mid October. A parking fee is charged. For convenience you may also follow this tour in reverse order.

Refer to the tour map (at right) for the route.



Visitor Guidelines

- **Pedestrian access only**; please stay on designated trails
- Pets leashed at all times. Please clean up after your pet, dispose off-site
- Help PRESERVE this historic site for others. Leave only footprints, take only pictures
- **Prohibited:** carving or defacing rock surfaces, swimming, rock climbing or bouldering

Start down the gravel path in front of the Visitor Center. Walk about 250 feet. Stop by the fence and look down into the quarry on your left.

1) Digging into the Past

500 million years ago this was an ocean! Over millions of years, as sea creatures died their skeletons of **calcium carbonate** deposited, slowly hardened, forming into **limestone**. Over more eons the land thrust up, the limestone **metamorphosed** by intense heat and pressure, and formed into the **marble** we see here today.

This band of marble is 90-98% pure calcium carbonate. Also because of its bright white color, it became highly desired. A quarry operated here from 1810 to 1947. Looking at the quarry wall you may notice how the marble was removed in steps by **bench blasting**. Workers drilled a series of holes into the wall along a horizontal "bench." They used tools like **star drills**, **plugs and feathers**, and **drilling hammers** to dig into the marble surface. They placed **nitroglycerin** or dynamite into the holes, blasting a block of marble to the ground. At its height, the quarry removed 200 tons of marble per day! Also, later was a **dust mill**. Powerful machines crushed the marble into smaller pieces and powders for market.

*A quarry worker used a hand drill **(far right)** to make holes in the stone for explosives, or to split the stone using plugs and feathers **(near right)**, as seen above.*

Continue straight down the path, about 30 feet. Look over the fence to the dam on the right.

2) A Marble Dam for Water Power

This is the only **white marble dam** in North America! Built in 1838 from marble on-site, it was first used to supply water to operate a quarry mill used to saw marble into gravestones, chimney pieces, window caps, and other building ornaments.

Look for a square opening in the middle of the dam, a **sluice gate**. This was opened to flush trapped sediment behind the dam and maintain sufficient water flow. Underground and attached to the dam was a **penstock**, a pipe to transport water from the pond to the mill. Look for the remnant concrete penstock supported on pillars. Later in the mill's history the penstock ran to a Francis turbine, to create **hydroelectric power**. This electricity

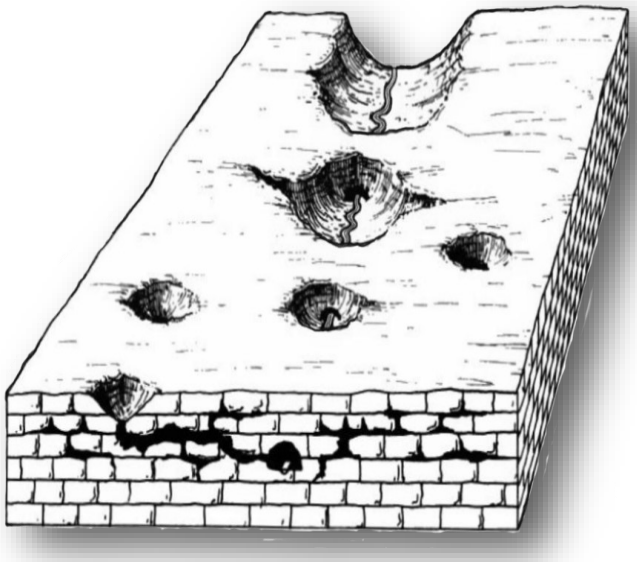
A view in 1874, near to where you are standing, looking down into the quarry and at the mill.

ran a stone crusher which turned marble into grit for livestock feed, or powder for pharmaceuticals and cosmetics—like aspirin or toothpaste!

Continue down the path for about 240 feet. Look for the directional sign to "Natural Bridge." A short staircase down takes you to a good vantage point of the underside of the bridge.

3) Bridge to Another Time

Here is **Natural Bridge**, the namesake rock formation of this park. Despite its unassuming appearance (30-foot-long and 15-foot thick) this **marble** formation is also the only one of its kind in North America! About a million years ago an immense mile-high ice sheet covered and scoured northern North America, including where you stand. As the climate warmed, about 13,000 years ago, the ice sheet melted, slowly retreating north. It released powerful meltwater carrying sediments. It flowed through here, exposed, and carved down and through the soft marble. That relentless force created the Natural Bridge and this 475-foot-long winding **chasm**. Water had cut rock in the process known as **erosion**!



This diagram shows how water possibly carved, or eroded, down through the marble bedrock to form the chasm and Natural Bridge.

Beneath the bridge, the 60-foot-deep chasm, demonstrates the undercutting erosion that left this bridge suspended. Today's modest flow of water continues to deepen the chasm more and more, but very slowly, over centuries.

Climb back up the stairs. Turn left along the footbridge over the chasm. Look over the fence on both sides and down along the chasm wall.

4) Pots Carved by Glacier

Peer down along the walls of the chasm for **potholes**. They resemble a cooking pot. Started when the glacial meltwaters poured in a torrent through here, tens of thousands of years ago. Over time, they grew, and grew, as small rocks whirled around and around in the powerful water's flow. The sediments in the water **erode** the marble surface, chipping away at it. This is a process called **sediment drilling**. This continues today. Notice the potholes higher up on the chasm walls. Those mark the earlier water level of the ancient glacial river.

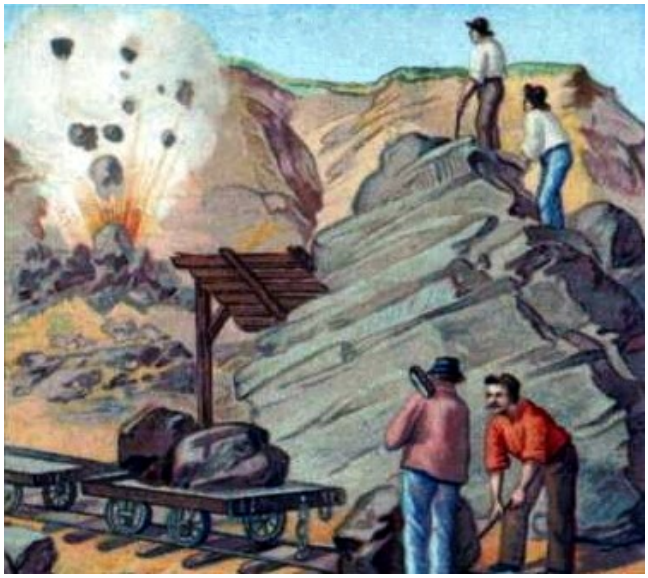
Climb the short set of stairs beside this boardwalk. Go straight across and down the stairs opposite. At the bottom, bear right and go to the tall rock outcropping.

Potholes were carved by flowing sediments in the powerful glacial meltwaters.

5) Take Cover!

This lonely outcropping was once used as a **blast rock** to shield quarrymen when they used explosives. Workers stood behind here, protected from flying pieces of marble blasted from the quarry wall. Stand behind the rock and imagine what it would be like to be a quarry worker as they cry—*"fire in the hole!"*—and then ***BOOM!***

Continue to the open lawn in the former quarry.

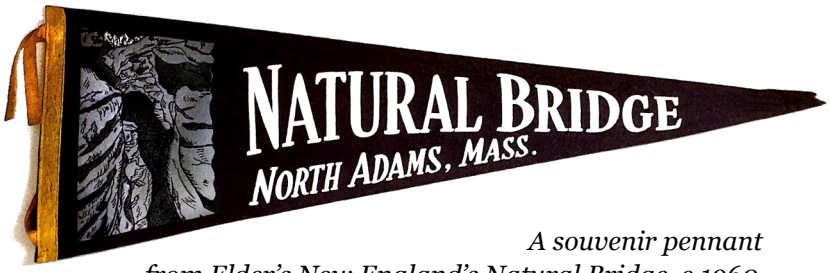


Quarry workers take shelter behind a blast rock while detonations shear material off the face of the quarry wall.

6) Out of the Ashes

The quarry operation came to a catastrophic end. A fire destroyed the mill in April 1947 and ended industrial use of this site. Who knows what this landscape would have looked like today if the quarrying had continued?

The quarry property was purchased by Edward Elder, he had a different vision. From 1950 -1983, he shared the geologic wonder of this site. Elder operated this as a popular tourist attraction off the Mohawk Trail—**New England's Natural Bridge**. Boardwalks were constructed allowing visitors different and dramatic views of the chasm. A self-taught geologist, Elder personally toured visitors, intriguing them to look for peculiar shapes in the marble features.



A souvenir pennant from Elder's New England's Natural Bridge, c.1960

In 1985 the property was purchased from the Elder family for a state park. It continues today to provide public access and enjoyment of this natural wonder.

This brings you to the end of the Chasm & Quarry Tour. Take more time to explore the various walkways that offer different views of the stops along this tour. As you enjoy the rest of your visit continue to notice where either Nature, or man, have made their mark on this site. Visit Natural Bridge State Park again to discover more of its stories, or take a guided interpretive tour.

To return to the Visitor Center or the start of your tour, retrace your steps along the route.

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Massachusetts

NATURAL BRIDGE STATE PARK
McCauley Road, North Adams, MA, 01247
(413) 663-6392, Open late-May through mid-October

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