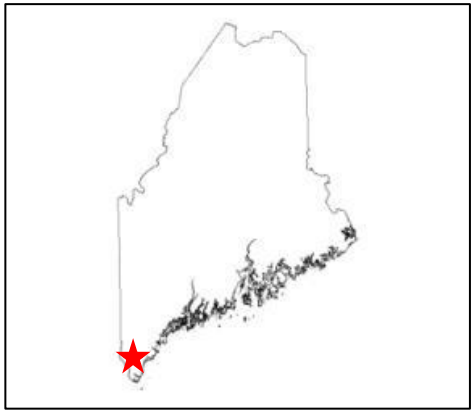
Geologic Site of the Month

June, 2013

Bauneg Beg Mountain Conservation Area
North Berwick, Maine
Great Works Regional Land Trust Preserve



43° 23’ 35” N, 70° 47’ 30” W

Text and photos by Thomas Weddle
Maine Geological Survey

Introduction

Bauneg Beg Mountain in North Berwick can be located on Map 2 in DeLorme's "Maine Atlas and Gazetteer" just south of Sanford. The mountain is in the region of southern Maine where early settlement began and the old adage of "how to get there from here" applies. The road networks were winding old cart paths during Colonial times, and one can find oneself disoriented if not careful (happens to me all the time). However, once you find the parking area off Fox Hill Farm Road and leave your vehicle, the preserve is a place of tranquility and natural beauty (Trail Map).

Land Use History

Once into the preserve, you'll find the trail crossed by stone walls and paths that may have been earlier roads adjacent to the stone walls. Imagine a treeless field as you walk. By their size, some trees are quite old and may have been the last of earlier stands.

Photo by: Thomas Weddle

Along the lower section of the trail you will see layered rocks; the layering seen here is also called bedding. The layering gets thicker from bottom to top and is tilted to the left. These layered rocks are named the Rindgemere Formation and are of Silurian age, a part of a stratified series called the Shapleigh Group.

Photo by: Thomas Weddle

Close up of the previous photo shows thin layers within the ledge, tilting parallel to the yellow pencil. Originally these rocks were deposited as layers of sediment in water. Later the rocks were metamorphosed and tilted during a time of continental collision. Note the green moss and gray-green lichen on the rock surface; it is not part of the rock but is a patchy combination of vegetation.

Photo by: Thomas Weddle

There are numerous large boulders in the preserve. These are glacial erratics that were transported by the last great ice sheet as it flowed through the region. The light-brown object on the rock face is a baseball cap. The boulder dimension has a volume of about 1500 cubic feet and weighs about 90 tons.

Photo by: Thomas Weddle

Granite is exposed at the summit. As with the erratics, here we see more evidence for glaciation. The crescentic-shaped feature above the cell phone is a gouge that shows ice-flow direction here was perpendicular to the gouge. These fractures form when stones in the base of the ice scrape across the bedrock and chip pieces from the bedrock surface. Arrow shows ice-flow direction; here it is 120-degrees to the southeast.

Photo by: Thomas Weddle

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Glacial striations also show ice-flow direction; the striations here are weakly visible due to weathering. Here they are parallel to the yellow pencil, which is in a glacial groove (a wide striation). The ice flow direction here is 120-degrees southeast, in agreement with the flow direction derived from the crescentic fracture.

The granite at the summit has a medium to fine-grained crystalline texture. However, there are areas in the granite that have large white crystals of the mineral feldspar. This type of coarse-grained granite is called pegmatite. Maine is famous for its pegmatite quarries where gemstones have been found.

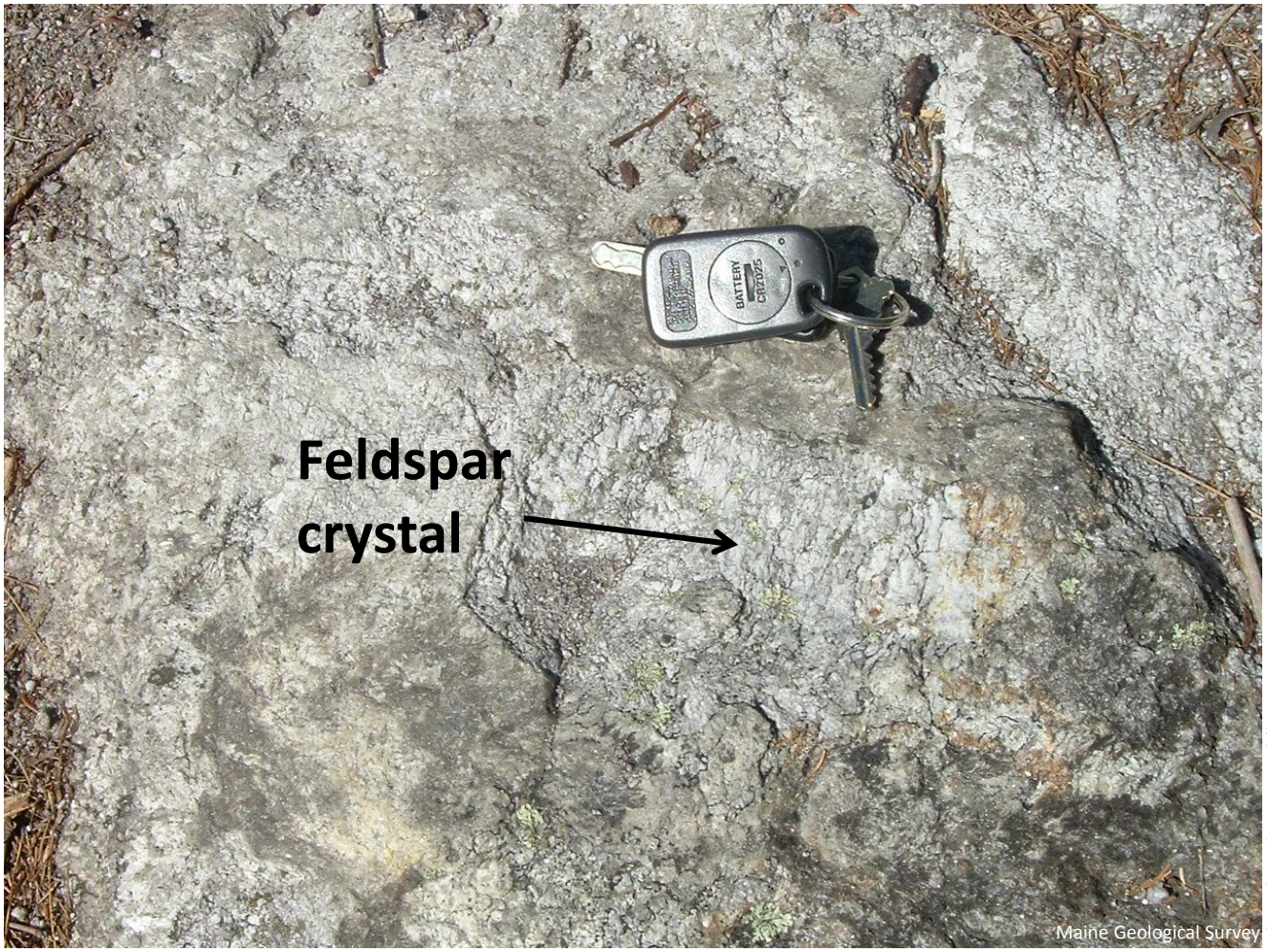

Photo by: Thomas Weddle

Farther along the trail before the stone wall at North Peak, exposures in the granite show dark red garnet crystals, left of key, below which is an intergrowth of gray quartz and white feldspar called “graphic granite” that resembles ancient Cuneiform writing.

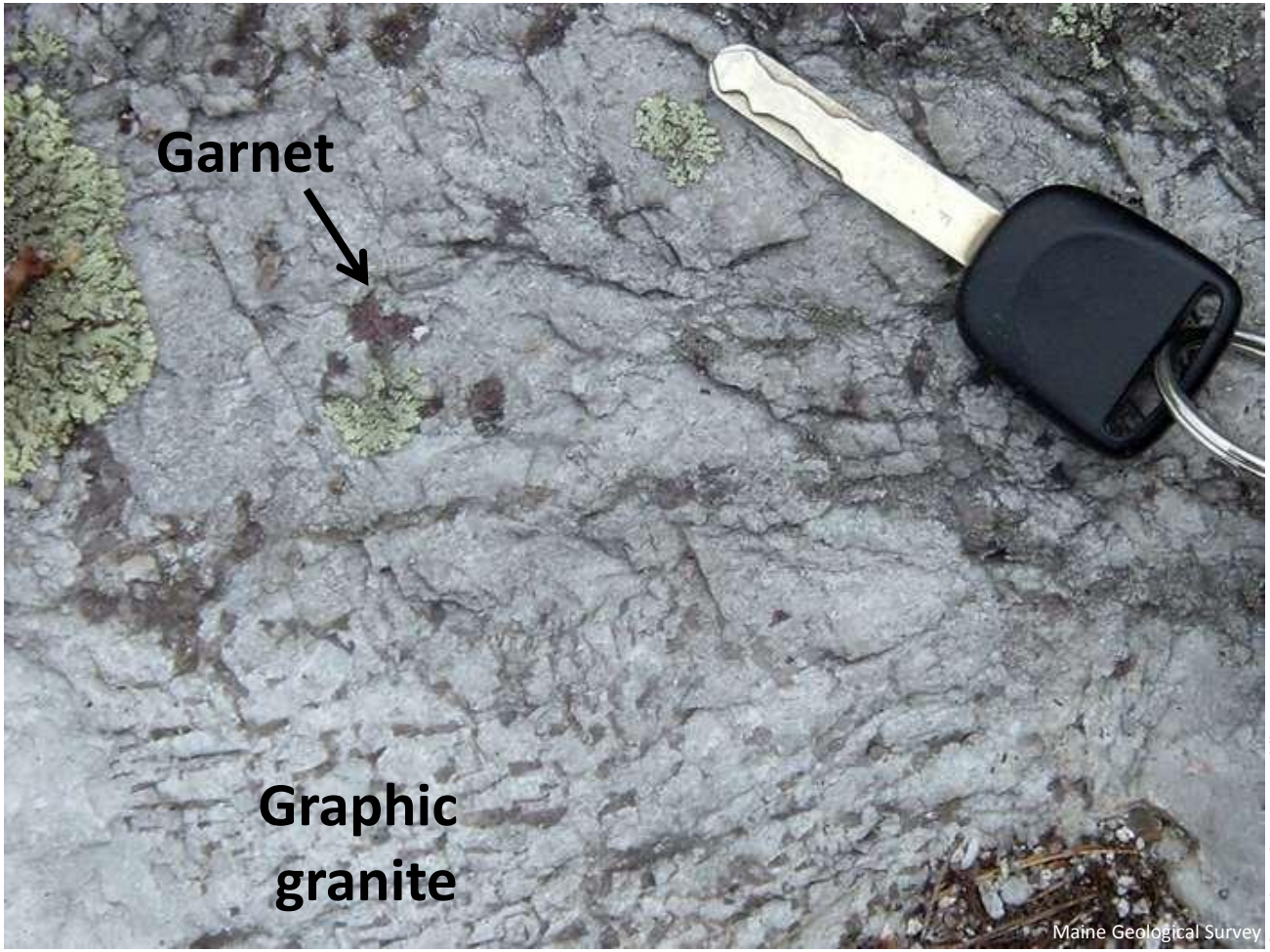

Photo by: Thomas Weddle

Before you get to the stone wall there is a fresh exposure of the layered rock. The layering is not as uniform as the earlier example, and the beds in the rock appear distorted and crumpled as seen in the closeup below. The layers were deformed after the beds were laid down.

Photo by: Thomas Weddle

This last outcrop just misses the contact between the granite (on left of the dashed line) and the layered rocks to the right; but it's buried by soil material. And now you know the rocks better, so keep a look out for new exposures!

Photo by: Thomas Weddle

Additional Information

Great Works Regional Land Trust website and trail map.

Thompson, Peter J., 2004, Bedrock geology of the Milton quadrangle, New Hampshire-Maine: Maine Geological Survey, Open-File Map 04-77, scale 1:24,000.

Thompson, Peter J., Bothner, Wallace A., Laird, Jo, and Hussey, Arthur M., II, 2004, Nature of the contact between the Central Maine Terrane and Merrimack Group near the New Hampshire - Maine border. *In* Hanson, Lindley S. (editor), Guidebook to field trips from Boston, MA to Saco Bay, ME: New England Intercollegiate Geological Conference, Salem State College, p. 1-15.