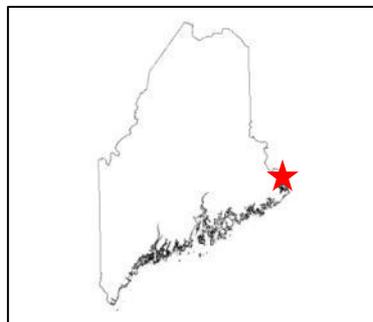


Geologic Site of the Month  
January, 2016

***Pulpit Rock, Perry, Maine***



45° 02' 41.75" N, 67° 05' 58.56" W

Text by  
Robert A. Johnston



## Introduction

Pulpit Rock is a sea stack, located between Mill Cove and Lewis Cove in the down east town of Perry on the Saint Croix River. A sea stack is an isolated, pillar-like rocky island, detached from the mainland by wave erosion (Bates and Jackson, 1984). Pulpit Rock was first noted in print by geologist C. T. Jackson in 1837 in his *First Report on the Geology of the State of Maine*. It has since been visited and described by a number of geologists. The area is noted for its high tides so it is imperative to plan a visit during a falling or low tide.



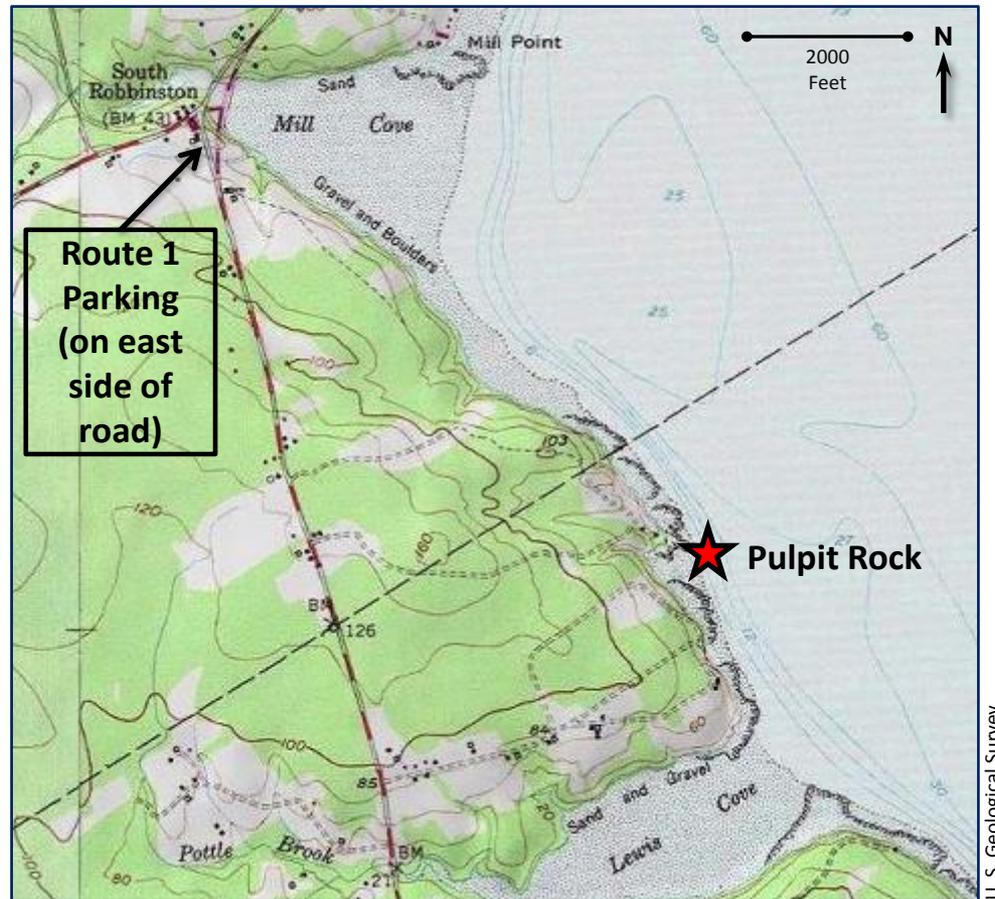
Photo by R. Johnston, 2015.

Maine Geological Survey

**Figure 1.** Pulpit Rock, Perry, Maine.



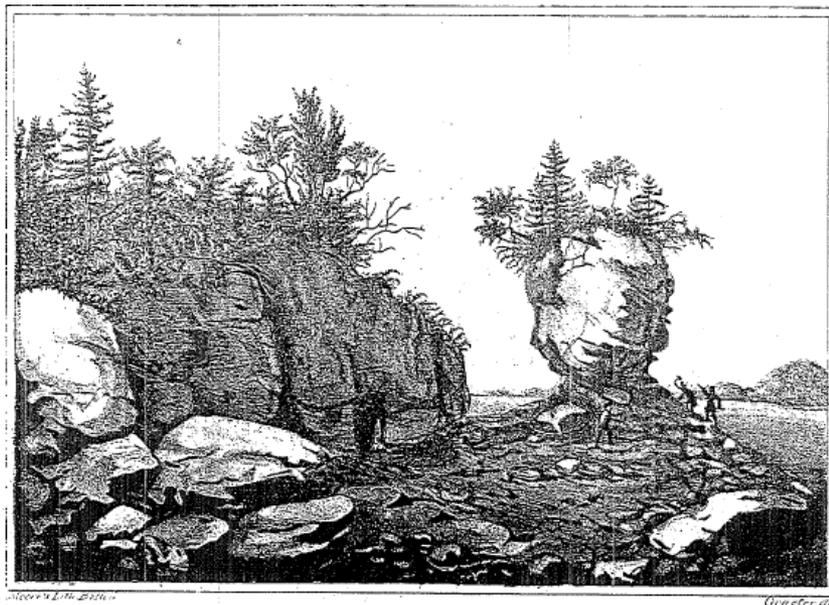
Location



**Figure 2.** A portion of the U.S.G. S. 7.5' topographic map of Robbinston showing the location of Pulpit Rock and parking area.

### Then and Now

C. T. Jackson, a Boston physician and geologist, was hired by the Maine State Legislature in 1837 to investigate the geology of the newly incorporated State of Maine. Jackson's main task was to search the state for economic minerals. Much of his travel was along the coast by boat which brought him up the Saint Croix River to the Calais area. Traveling with Jackson was German immigrant Franz Graeter, engaged as a draftsman. Mr. Graeter produced an atlas of drawings that accompanied Jackson's report. From Jackson's First Report: "One of the most remarkable of these isolated towers is found at Lewis Cove, Perry. It is a single mass of red sandstone thirty-eight feet high, and worn at its base so that it is but eighteen feet in diameter. Its summit, which is 24 feet in diameter, is clothed with verdure, and supports a number of forest trees. This tower has received the appellation of the Pulpit Rock".



**Figure 3.** Graeter 1837 drawing of Pulpit Rock.



**Figure 4.** Modern view of Pulpit Rock looking north. The rock is generally unchanged, only the trees are gone.



### Bedrock Geology

Pulpit Rock is an outcrop of the Perry Formation, a unit first described by Hitchcock (1861), which consists of coarse sediments and basalt flows (Figure 5). Exposed along the shore of Mill Cove to Pulpit Rock is a red to maroon boulder and pebble conglomerate deposited in a fluvial basin during the late Devonian time period (Gates, 1987). Smith and White (1905) assigned the age (between 374 and 360 million years ago) to the Perry Formation based on fossil plant remains. The Perry Formation is, therefore, one of the youngest rock units in Maine.

Interest in the Perry Formation came from speculation that it might contain coal deposits. Jackson (1837) first floated the idea because he thought the Perry Formation looked similar to rocks he had seen in eastern Nova Scotia where coal deposits were being exploited. The search for coal was further investigated by Maine State Geologist Charles Hitchcock, noted in his 1861 report to the State of Maine. George Otis Smith and David White were sent to the area by the U. S. Geological Survey and Maine Survey Commission to investigate the possibility of finding economic coal deposits. Their detailed mapping and exploratory drill holes found no evidence of coal in the Perry Formation (Smith and White, 1905).

Schluger (1973) and Gates (1987) mapped the detailed stratigraphy and sedimentary environments of the Perry Formation along the shore of the St. Croix River both in the U. S. and Canada. Clasts in outcrops are well rounded and consist mostly of coarse- and medium-grained granite (Abbott, 1986). A sharp unconformity exists between the Perry Formation and the underlying Eastport Formation, indicative of a long period of erosion following the deposition of the volcanic rocks of the Eastport Formation. A depositional basin formed during the late stages of the Acadian mountain building event which formed the Appalachians, and was filled with material from the erosion of local rock (rhyolite and granite), forming the Perry Formation.



Bedrock Geology – Perry Formation

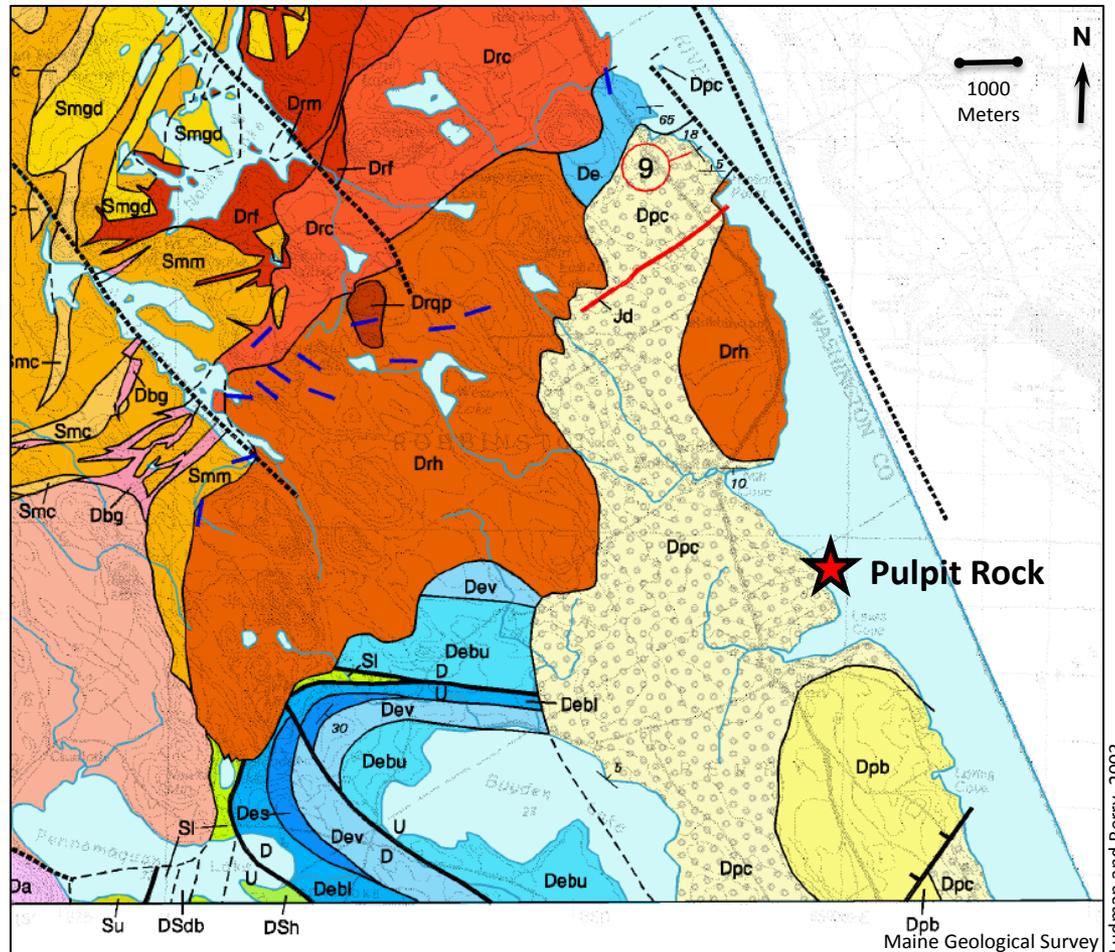


Figure 5. A portion of the bedrock geology map of Calais, scale 1:100,000, from Ludman and Berry, 2003. The light yellow **Dpc** is the Perry Formation sandstone and conglomerate member.



Perry Formation

Photo by R. Johnston, 2015

**Figure 6.** Red to maroon boulder and pebble conglomerate, exposed on Pulpit Rock (note knife for scale) of the Perry Formation. Sedimentary layering dips gently from upper left to lower right. The large clast at center left is a pebble of vein quartz. Note white barnacles at lower right.

### Directions

Take U. S. Route 1 south from Calais. Once in Robbinston (about 12 miles south of Calais) pass the Redclyffe Shore Hotel on your left and shortly thereafter the State of Maine boat launch. Go two additional miles, passing Mill Cove on your left, and carefully turn left into a parking lot that parallels Route 1 on the northbound side. Take the small path down to the shore and walk southeast along the shoreline. ***Remember to only attempt this hike at a falling or low tide!*** Walk 1.25 miles to find Pulpit Rock. Another alternative is to go to Pulpit Rock by seaworthy boat, launching at the State of Maine public launch in Robbinston and following the shoreline south about three miles to Pulpit Rock. Note that the intertidal zone is private property. Please be respectful of the private property owners.



## References and Additional Information

- Abbott, Richard N., Jr., 1986, [Preliminary report on the bedrock geology of the Devils Head, Robinston, and Red Beach 7.5-minute quadrangles, Maine](#): Maine Geological Survey, Open-File Report 86-73, 39 p. report, map, scale 1:24,000.
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- Schluger, P. R., 1973, Stratigraphy and Sedimentary Environments of the Devonian Perry Formation, New Brunswick, Canada, and Maine, U. S. A.. Geological Society of America Bulletin, v. 84, p. 2533-2548, 13 figs., August, 1973.
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