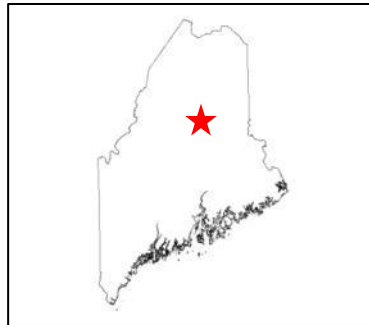


Maine Geologic Facts and Localities
October, 2005

Haskell Rock, East Branch Penobscot River, T5 R8 WELS



46° 4' 21.10" N, 68° 45' 55.88" W

Text by
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Introduction

The East Branch of the Penobscot River flows southward from Grand Lake Matagamon, just to the east of Baxter State Park (see regional map). The East Branch has been a popular river for recreational canoe trips since Maine's first ecotourist, H. D. Thoreau, described his guided excursion down the East Branch in "[The Maine Woods](#)" (1864).

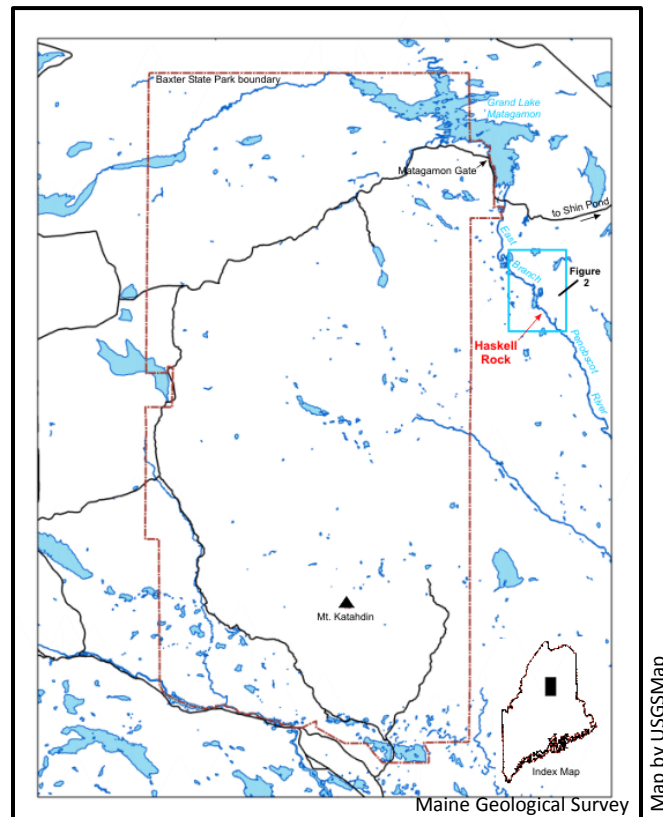


Figure 1. The East Branch of the Penobscot River flows southward from Grand Lake Matagamon east of Baxter State Park. Haskell Rock is in the East Branch, about six miles south of the Grand Lake Road.



Location

The first six miles downstream from the Grand Lake Road are more or less smooth paddling (except for Stair Falls), as far as the Haskell Deadwater. This is followed by a three-mile stretch of whitewater rapids and falls including Haskell Rock Pitch, Pond Pitch, Grand Pitch, Hulling Machine Falls, and Bowlin Falls.

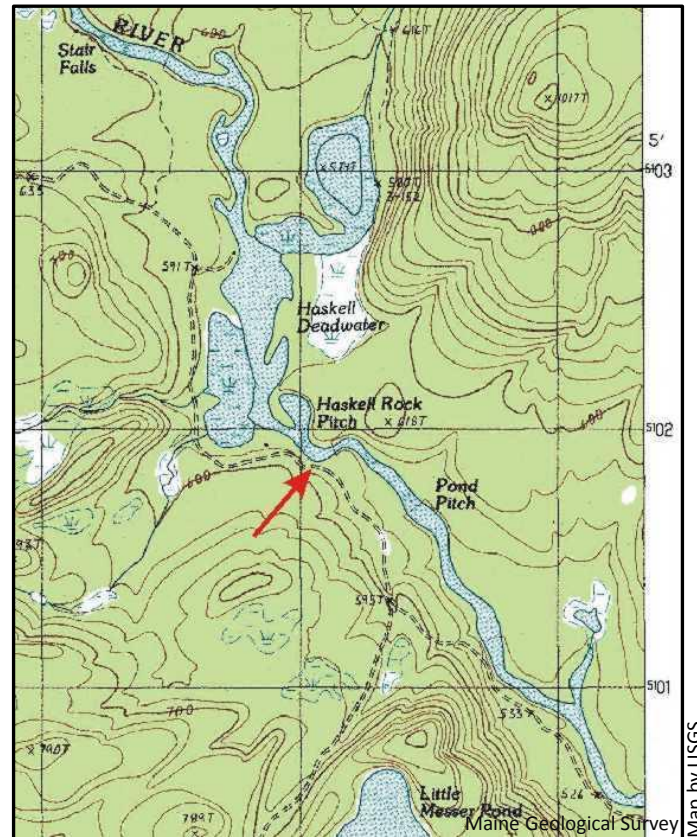


Figure 2. Haskell Rock is in Haskell Rock Pitch, a series of whitewater rapids downstream from Haskell Deadwater. (Portion of U.S. Geological Survey topographic map of the Traveler 7.5' quadrangle, 1988 edition.)

Location



Figure 3. View looking upstream at the beginning of Haskell Rock Pitch. Horse Mountain is in the distance to the north.

Location

The first of these, Haskell Rock Pitch includes Haskell Rock itself, a distinctive 20-foot high pillar in the middle of the river. According to E. S. C. Smith 1928), "the rapids or 'pitch,' take their name from that of an unfortunate lumberman who lost his life at this spot many years ago." (But see note about historical map error.)

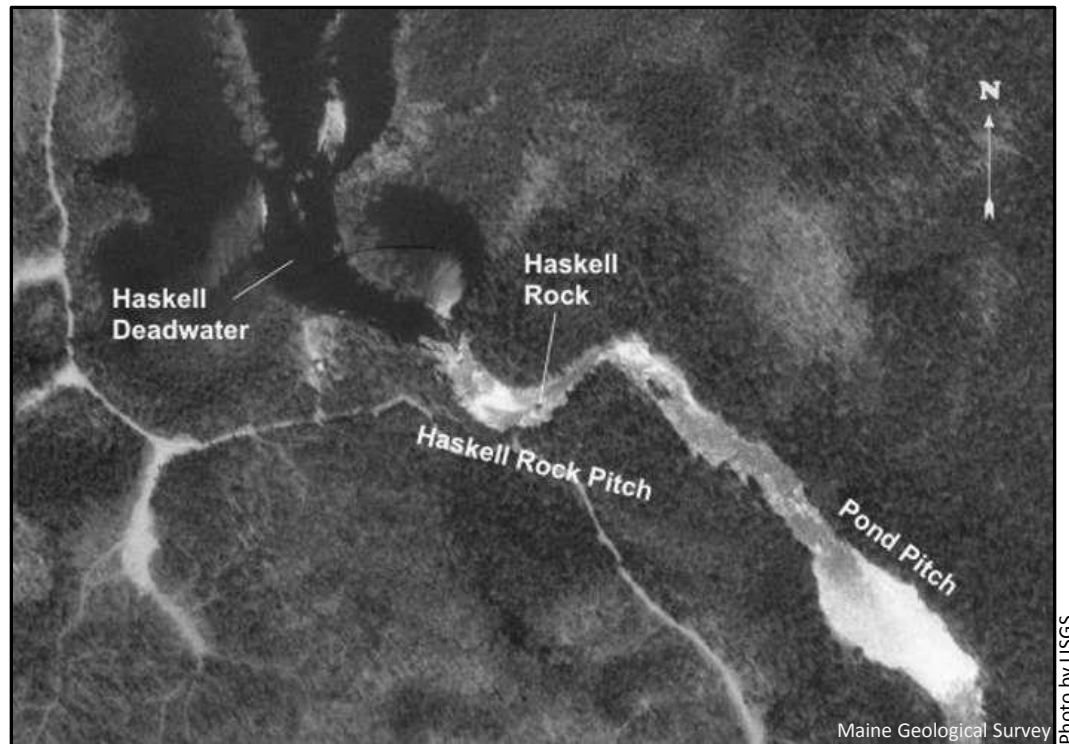


Figure 4. In this airphoto, taken at high water, the top of Haskell Rock can be seen jutting above the rapids at Haskell Rock Pitch. (Air photo from U.S. Geological Survey series, flown 1996-1999. Accessible by Maine Office of GIS orthoimagery viewer as part of their Digital Orthophoto Quadrangle (DOQQ) coverage.)

Location

Some confusion was introduced by the 1955 edition of the U.S.G.S. 15' topographic map (Figure 5) in which Haskell Rock Pitch is purported to be above the Haskell Deadwater. This was clearly an error, since the stretch below Stair Falls does not have rapids, and there can be no question as to the location of Haskell Rock itself. The current U.S.G.S. topographic map shows Haskell Rock Pitch in the proper place.

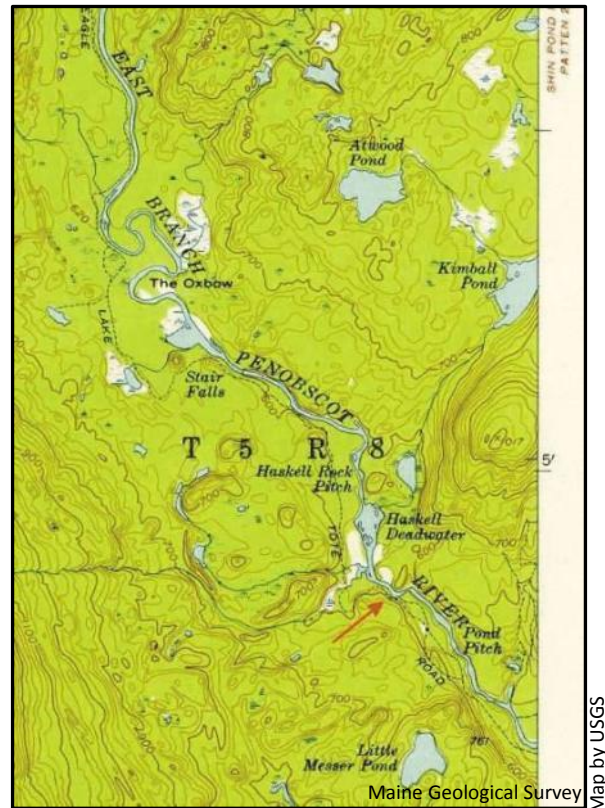


Figure 5. USGS 15' topographic map, 1955, with Haskell Rock Pitch mislabeled (red arrow).

[Courtesy of University of New Hampshire Library](#)



The Haskell Rock Conglomerate

Haskell Rock is made of conglomerate, a distinctive sedimentary rock composed of pebbles or larger stones that were embedded in mud or sand and hardened into rock. Conglomerate forms in places of rapid erosion and deposition, such as near shorelines or in fast-moving streams, where stones of various sizes are deposited together. For the Haskell Rock conglomerate in particular, the stones have a range of shapes, sizes, and compositions, though rounded pebbles and cobbles are common.



Figure 6. Close-up of the conglomerate showing the variety of embedded stones. The unusually spherical cobblestone is surrounded by pebbles with a range of sizes and less symmetrical shapes.

The Haskell Rock Conglomerate

The conglomerate can be traced in outcrops for some distance to the northeast and southwest of the river Rankin, 1961), which indicates that the pillar in the stream is an erosional remnant of a more extensive bedrock unit. Many boulders of the conglomerate, broken from the underlying bedrock by the force of glacier ice or river flow, are scattered about the river in this vicinity.

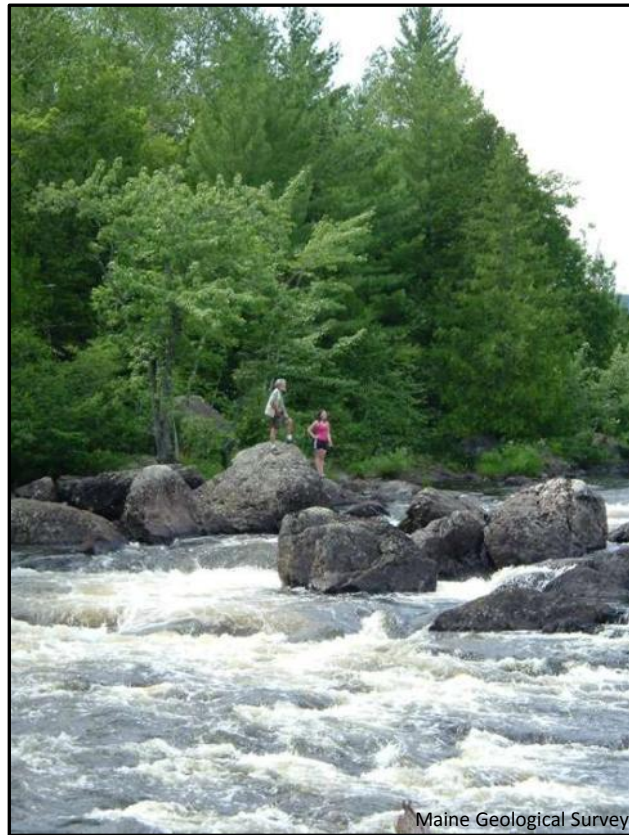


Figure 7. At low water, boulders of conglomerate lead from the west bank of the river to the outcrop at Haskell Rock.

The Haskell Rock Conglomerate

But Haskell Rock itself is a protrusion of solid rock, and remains attached to the underlying bedrock.



Photo by Bill Forbes

Figure 8. Looking downstream at Haskell Rock in the East Branch of the Penobscot River. Roger Hooke and Claire Marvinney have attained the lofty summit. Bob Marvinney pauses in the inferior position. Stones in the conglomerate are prominent in the right foreground.

The Haskell Rock Conglomerate

Erosion has begun to eat into the sides of the rock, and will continue to wear away the pedestal until eventually the rock topples into the river.

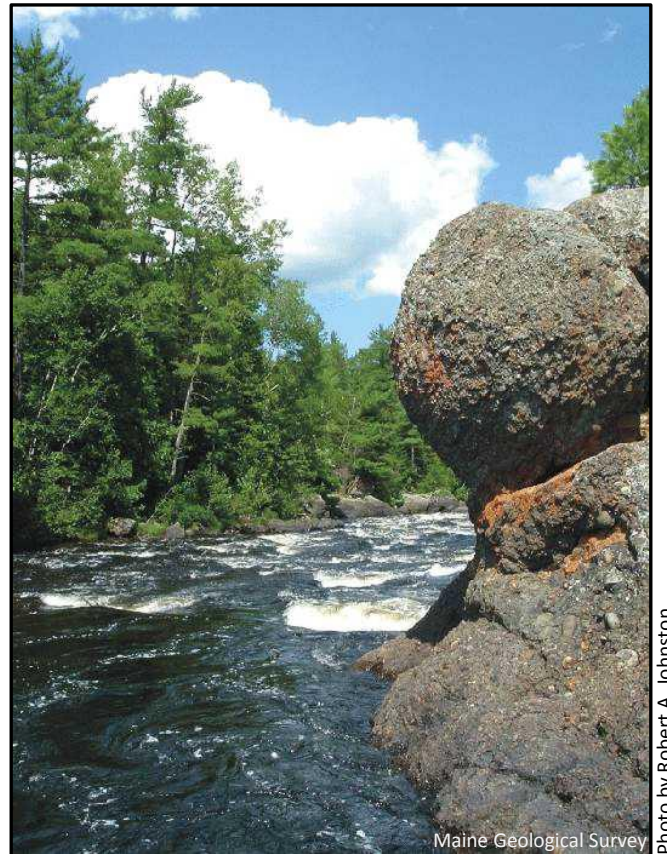


Figure 9. A gouge has been worn in the side of Haskell Rock by river action. Erosion is evidently more effective when the water is two or three feet above the level seen here, either due to higher stream velocity at flood stage, or to ice jams. Small cobbles are visible in the conglomerate in the right foreground.

Geologic Significance

In addition to being fascinating to look at, conglomerates attract special interest from geologists because they generally reflect a dynamic time in geologic history, commonly marking a change from one geologic environment to another. This is the case for the Haskell Rock conglomerate. Because the rocks in this area have been tilted (Rankin, 1961), older layers are exposed to the southeast and younger layers (Figure 10) are exposed to the northwest. The river here runs nearly perpendicular to the bedrock layers, causing step-like rapids. The mostly submerged rocks have well defined layers of siltstone, fine sandstone, and conglomerate, in contrast with the conglomerate of Haskell Rock. This accounts for why the rocks have eroded differently and why the style of the rapids changes over such a short distance.

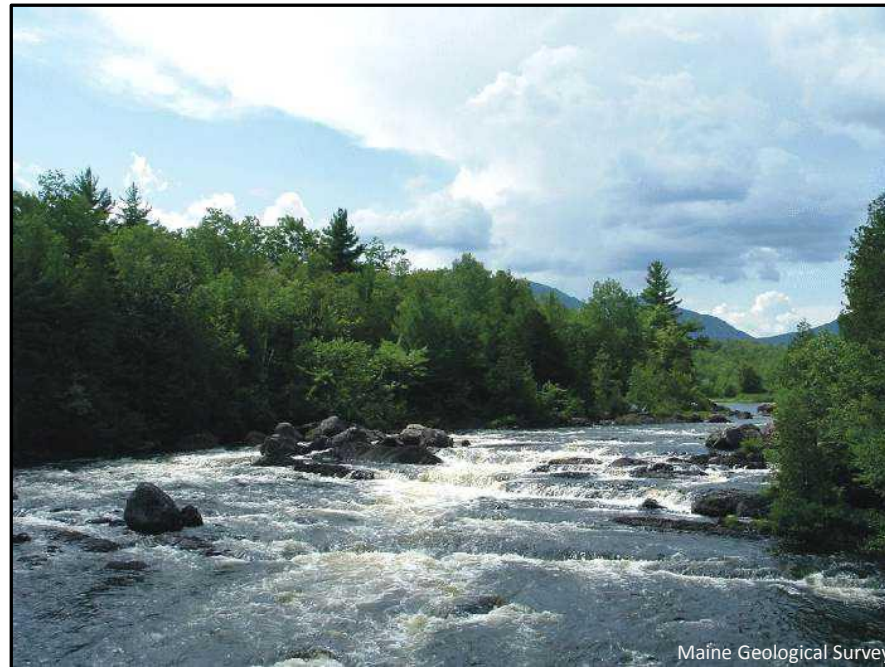


Photo by Robert A. Johnston

Figure 10. View toward the northwest from the top of Haskell Rock.



Geologic Significance

From the geologic map (Figure 11), we can see that the conglomerate is between a succession of unnamed Ordovician volcanic rocks below, and marine sedimentary rocks of the Devonian Seboomook Formation above. ([Geologic time scale for the Paleozoic Era](#)) The geologic map shows the Haskell Rock conglomerate (SOuc) between the older volcanic rocks of Ordovician age (Ouv) and the younger sandstone and slate of the Seboomook Formation (Ds), exposed along the East Branch. Later in the Devonian Period, the Katahdin granite intruded as a molten mass, cutting across all earlier rocks.

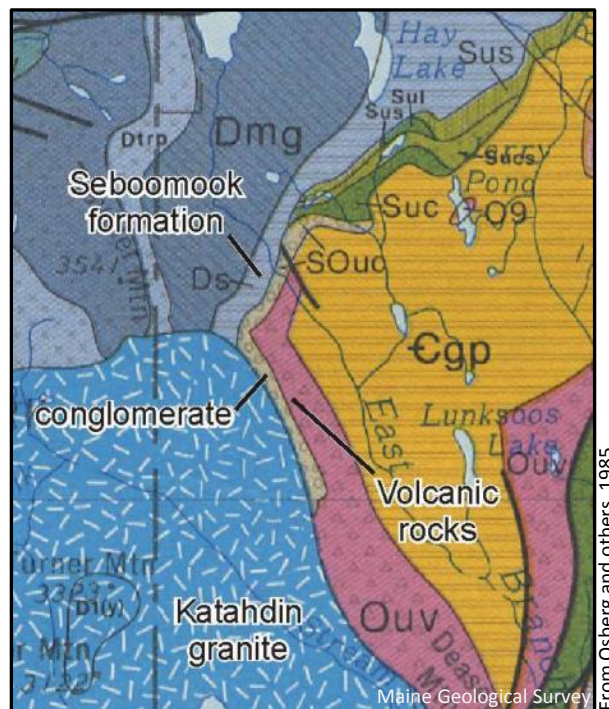


Figure 11. Portion of Bedrock Geologic Map of Maine, by Osberg, Hussey, and Boone, 1985, showing the key position of the Haskell Rock conglomerate (SOuc).



Geologic Significance

During the transition from active volcanic islands to an ocean basin with deeper-water sedimentation, a variety of rocks from the older islands were eroded to produce the conglomerate. Thus the Haskell Rock conglomerate contains stones of volcanic rock, slate, sandstone, black chert, quartz diorite, and milky quartz (Smith, 1928; Rankin, 1961) which were eroded from the older units.

Similar units of conglomerate are found resting on Ordovician volcanic rocks elsewhere in northern Maine, which are interpreted as the eroded remnants of Ordovician volcanic islands (Neuman, 1984). In many places, the conglomerates and related near-shore sediments in northern Maine were deposited in Early Silurian time. The section at Haskell Rock, however, is somewhat older, dated as Late Ordovician (Ashgill) age (Neuman and Rankin, 1980; Neuman, 1980). The section from Pond Pitch to Haskell Rock is the thickest and apparently most continuous exposure of rocks this age in Maine (Neuman, 1980).



Geologists Attracted to this Spot

The most recent careful work was done in 1976 by Dr. Robert Neuman assisted by Dane Sparrow, who described a measured stratigraphic section along this part of the river, and reported on its paleontology (Neuman, 1980). Doug Rankin described the Haskell Rock conglomerate and mapped its relationship to surrounding rocks as part of his Ph.D. work in this area (Rankin, 1961). Edward Smith (1928), of Union College, spent "a short time" in the summer of 1927 studying the conglomerate at Haskell Rock and suggested that it might be a glacial deposit (an idea subsequently disproved by Rankin, 1961). Dr. John M. Clarke (1909) mentions "a coarse conglomerate" at Haskell Rock, though being a paleontologist he was disappointed at finding no fossils in it.

Even the earliest geologic explorations of Maine made note of this distinctive rock, undoubtedly due to its prominence and easy access. Charles H. Hitchcock (1861) mentions "a very coarse conglomerate" in T5 R8. Ezekiel Holmes (1839) lists "puddingstone", an earlier term for conglomerate, among the rocks of this area. This history is typical of many places in Maine where the early geologists made note of interesting occurrences in their reconnaissance surveys, but left it to later workers - even a century later - to take the time to draw out the details.



Geologists Attracted to this Spot

[The Geological Society of Maine](#) included Haskell Rock as part of its annual summer field trip on July 23, 2005. We are grateful to participants on that trip who provided photographs for this web site.



Photo by Robert A. Johnston

Figure 12. A band of geology enthusiasts wending through the woods of northern Maine. Geological Society of Maine summer field trip, July 2005.

References and Additional Information

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