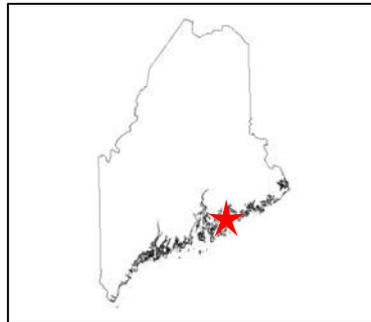


Geologic Site of the Month  
November, 2011

***The Landscape of Mount Desert Island Past and Present***



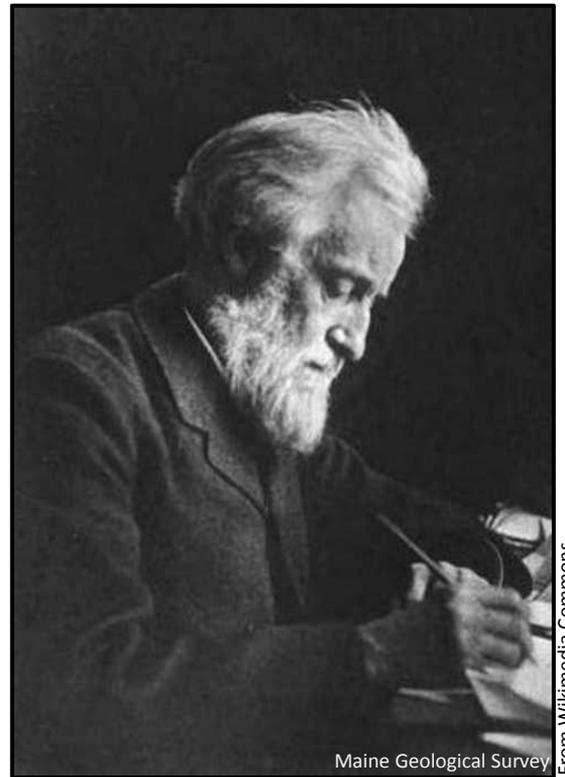
44° 21' 46.75" N, 68° 15' 15.33" W

Text by  
Tom Weddle, Maine Geological Survey  
With help from Dave Manski, Acadia National Park



## Introduction

*The Geology of the Island of Mount Desert* by Nathaniel Southgate Shaler (1849-1906), published in 1889, is an extract from the 8th annual report of the Director of the U. S. Geological Survey (USGS), 1886-87, Part II. The photo below is from the frontispiece to *The Autobiography of Nathaniel Southgate Shaler*, Houghton Mifflin Company, 1906



Maine Geological Survey

From Wikimedia Commons



### The Geology of the Island of Mount Desert

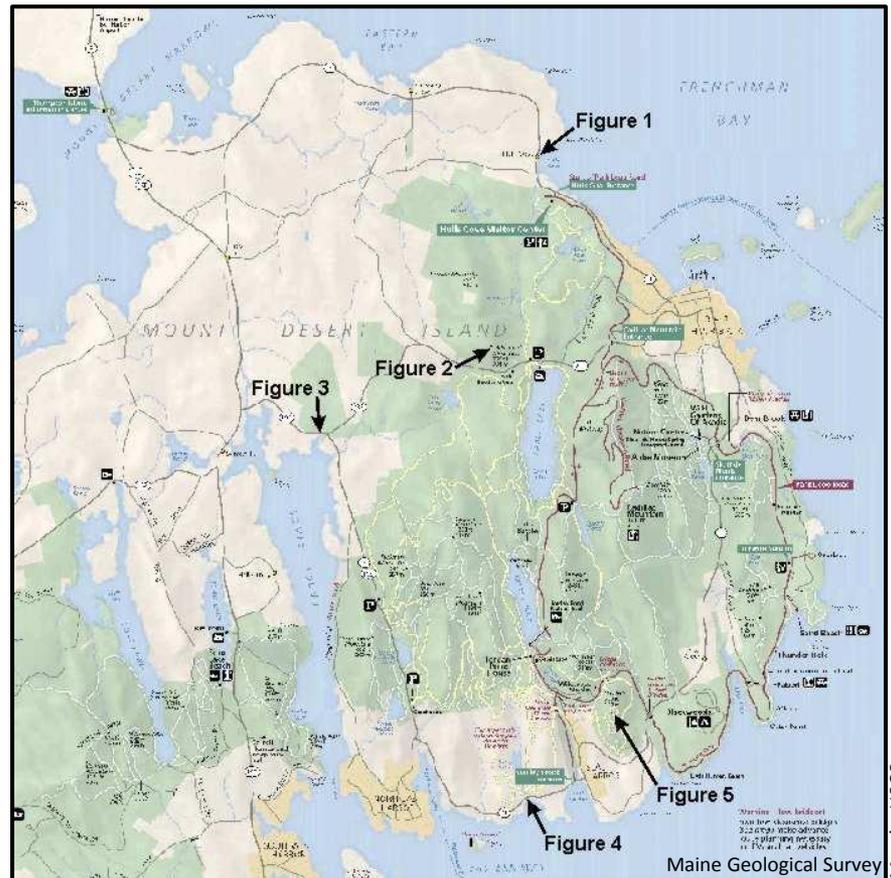
It is the first published detailed study of the island's geology, and includes two geological maps showing the surficial glacial geology and the bedrock geology. Shaler studied at Harvard College and taught there from 1869 until his death in 1906. Apparently, he summered in Maine on occasion and may have been contracted by the USGS to prepare his initial study of the island. Since then, several other volumes on the geology of the island have been published (Chadwick, 1939, 1944; Chapman, 1962, 1970; Gilman and others, 1988).

In his introduction to the report, Shaler notes that "I am indebted to the gratuitous labor of Mr. Samuel Storrow, of Boston, Mass., for the photographs used as a basis of the illustrations of this report." In the early years of publications by the USGS, the use of hand sketches based on photographs was a common practice to show figures and plates in the reports. In this website, we will compare some of the original figures in the report with present-day photographs of the same sites. Also of interest is the topographic map dated 1882, and used as the base for the two geological maps. Today, Mount Desert Island is most well known as the location of Acadia National Park. The 1882 map was published well before the national park was established, and it is interesting to note the name changes of some of the mountains; for example, Cadillac Mountain was known as Green Mountain, and had a [restaurant and tea house](#) on its summit, was accessed by carriage road, but also by a [cog railway](#), similar to the one still in existence on Mt. Washington in New Hampshire.



## Mount Desert Island

The location map approximately locates the viewpoint of Shaler's plates and the modern photos.



**Map 1.** Location map of Mount Desert Island showing viewpoints of Shaler's plates.



## Elevated Beaches at Hull's Cove

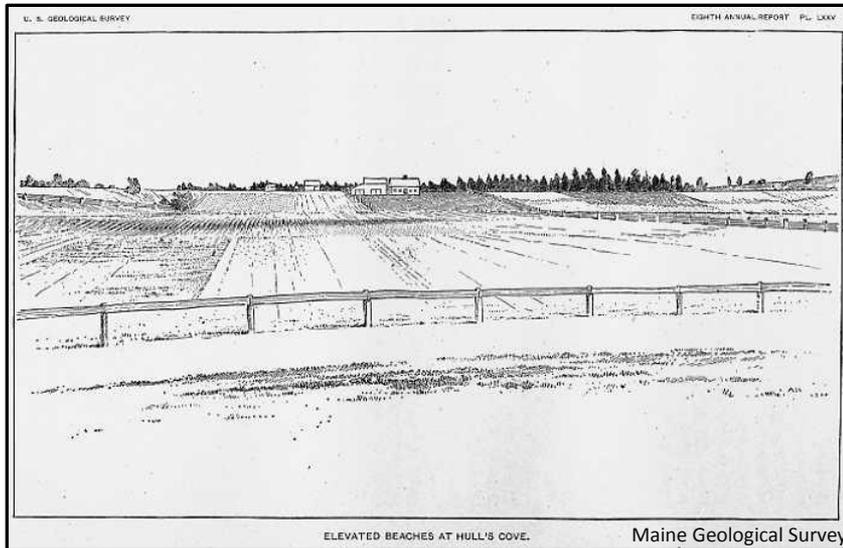


Plate from Shaler, 1989



Photo by Tom Weddle

**Figure 1.** Plate LXXV, Elevated Beaches at Hull's Cove and the modern view. The house shown in Shaler's plate is still standing, with some modifications, and the slope marking the ancient shoreline in front of the house is readily visible. There are significantly more trees and other vegetation in the modern photo compared with Shaler's image.

## McFarland's Mountain

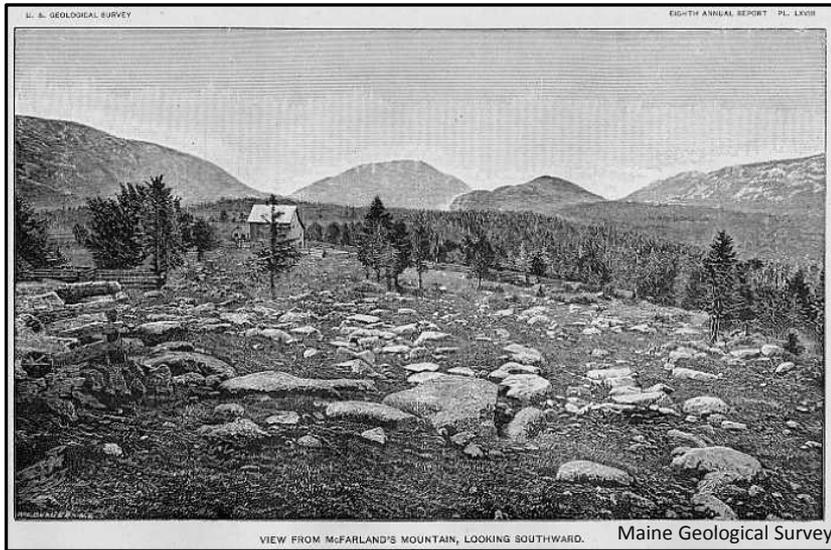


Plate from Shaler, 1889



Photo by Tom Weddle

**Figure 2.** Plate LXVIII, View from McFarland's Mountain, looking southward. The modern photo is not at the exact location as viewed from the location of Shaler's Plate LXVIII, but the mountains in the background indicate it is close. The mountains from left to right are Cadillac, Pemetic, North Bubble, Penobscot, and the shoulder of Sargent.

## Somes Sound

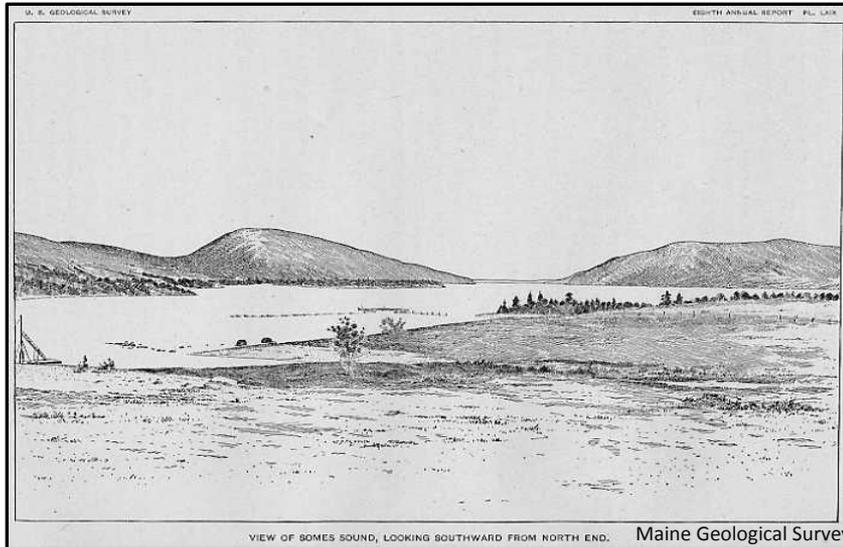


Plate from Shaler, 1889



Photo by Tom Weddle

**Figure 3.** Plate LXIX, View of Somes Sound, looking southward from North End. The modern photo shows more vegetation and an apple orchard not seen in Shaler's Plate. The mountains from left to right are Norumbaga and Acadia.



## Little Long Pond

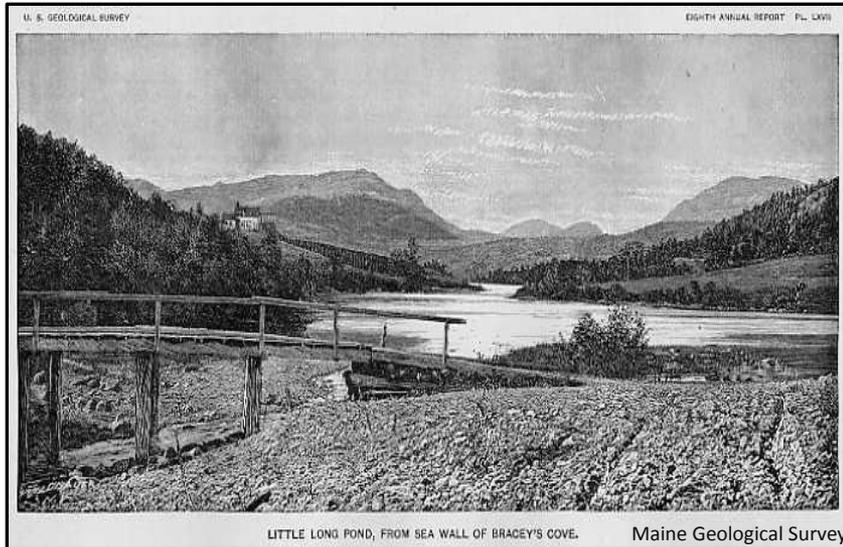


Plate from Shaler, 1889



Photo by Tom Weddle

**Figure 4.** Plate LXVII, Little Long Pond, from sea wall of Bracey's Cove. The house on the left served as the first Seal Harbor Post Office and also had a store. It was torn down when the Rockefellers purchased the property soon after the turn of the twentieth century. The modern photo shows the Rockefeller's Boat House on the right. Mountains in the background, from left to right, include Penobscot, North and South Bubbles, and Pemetic.



## Rock Detached by Wave Action

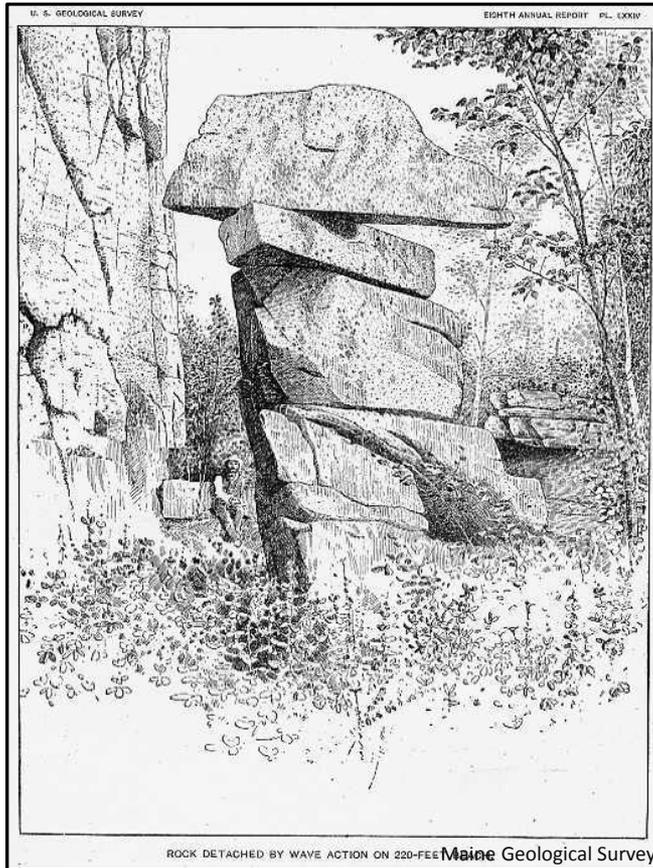


Plate from Shaler, 1989

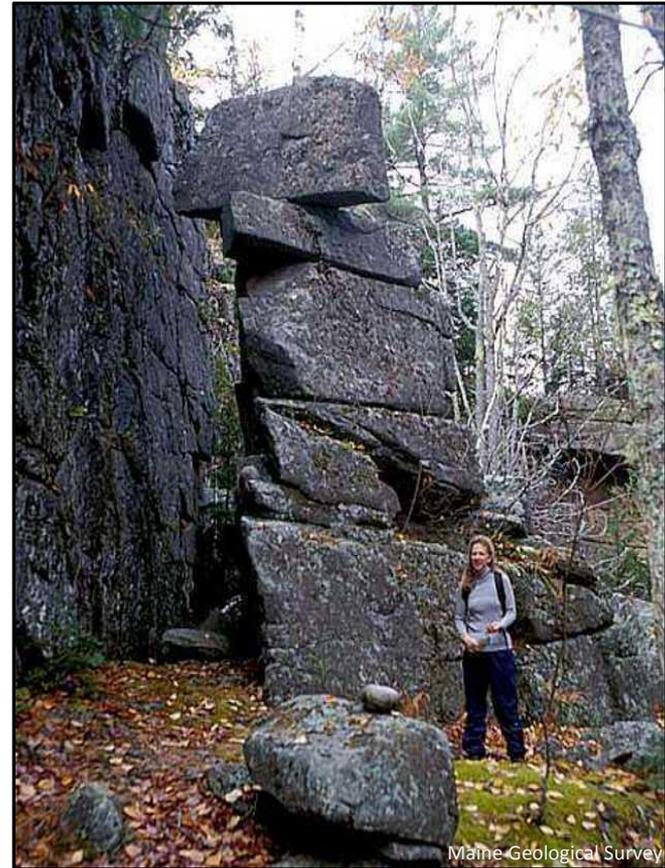
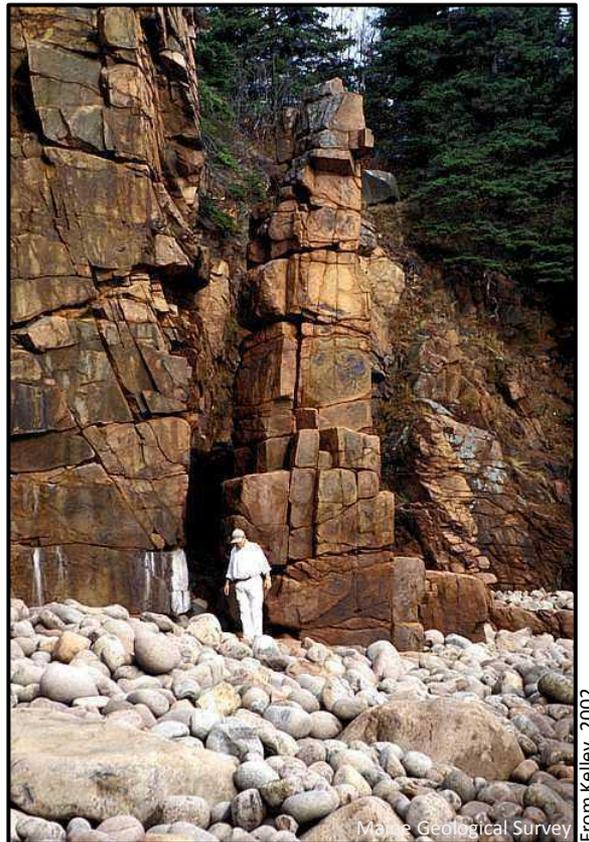


Photo from Kelly, 2002

**Figure 5.** Plate LXXIV, Rock detached by wave action on 220-foot beach. Shaler refers to the formation as "Pulpit Rock." The modern photo shows the same location as Shaler's Plate LXXIV, but if you compare both images you should see that there is a difference.

### Sea-Stacks

The modern photo is from Kelley (2002), and he refers to the rock formation as "Chimney Rock." Shaler refers to the formation as "Pulpit Rock." The feature is a relict sea-stack found on Day Mountain and which formed at an elevation of an ancient marine shoreline. Compare it with the modern sea-stack at the shoreline in Monument Cove in the park (Figure 6).



**Figure 6.** The sea stack at Monument Cove. Note the rounded boulders on the beach and the fractures in the bedrock.

## Rock Detached by Wave Action

If you haven't noticed the difference between the modern photo and Shaler's plate of Pulpit Rock, look at the uppermost block of the ancient sea-stack. In Shaler's plate it looks somewhat like a profile of a dog's head, with an ear and snout. In the modern photo, you can no longer see the snout, but the ear is still there. Kelley (2002) relates the story of the stack: "Chimney Rock is such striking testimony to a raised sea level that wealthy Mt. Desert Island summer resident, John Rockefeller, was interested in it, and Chimney Rock was described in local newspapers. Most impressive was the uppermost stone, which must have been last turned by a great storm perhaps 13,000 years ago. Unfortunately vandals read of Chimney Rock and managed to topple the uppermost stone. As testimony to his fondness for science, Mr. Rockefeller had a crane brought up the nearby Carriage Path and replaced the fallen stone." One has to wonder if the vandals made off with the dog's snout as it must have broken off during its fall, and if it now sits in someone's yard, or is it lost to history?



## References and Additional Information

- Chadwick, G. H., 1939, Geology of Mount Desert Island, Maine: American Journal of Science, v. 237, no. 5, p. 355-363.
- Chadwick, G. H., 1944, The geology of Mount Desert Island (Acadia National Park): New York Academy of Sciences, Transactions, series 2, v. 6, no. 6, p. 171-178.
- Chapman, C. A., 1962, The geology of Mount Desert Island, Maine--With explanation and descriptive field guide: privately printed, Urbana, Illinois, 52 p.
- Chapman, C. A., 1970, The geology of Acadia National Park: Chatham Press, Old Greenwich, Connecticut, 128 p.
- Gilman, R. A., Chapman, C. A., Lowell, T. V., and Borns, H. W., Jr., 1988, [The geology of Mount Desert Island; a visitor's guide to the geology of Acadia National Park](#): Maine Geological Survey, Bulletin 38, 50 p.
- Kelley, J. T., 2002, [Sea-level change on Mt. Desert Island](#): Maine Geological Survey website.
- [The geology of the Island of Mount Desert](#), Maine, Shaler, Nathaniel Southgate, 1889, Part 2; The geology of the Island of Mount Desert, Maine: U.S. Geological Survey, 8th Annual Report, Part 2, p. 987-1061.

