

SITES OF INTEREST



Flower Pot Rock (Triassic)

The Flower Pot Rock is an erosion feature in the soft Triassic sandstone of the Echo Cove Formation, about 230 million years old. They are named for their resemblance to flower pots. Along the Bay of Fundy 'flower pot' formations often have trees growing on top. New Brunswick's best known 'flower pot' rocks are the 'Hopewell Rocks' in the older Carboniferous age rocks. However, small gems like the one here are found along our shoreline.

A combination of ocean currents, the high tidal range, relatively soft sandstone and fractures in the bedrock all combine to leave this piece of the bedrock standing alone, stranded from the cliff face. The 'flower pot' here will eventually topple over as erosion narrows the base of the structure. They are small fragments of the eroding coastline that have withstood the pounding of the sea. They remind us where the coastline once stood and someday they will succumb to the sea.



Salmon River Beach (Quaternary)

The rocks on the beach at the mouth of Big Salmon River provide a look at the varied geology of the Fundy Trail Parkway and beyond. Many of the rocks washing down the river are from ancient volcanoes that were active more than 600 million years ago. Some of the boulders on the beach have travelled a long way, picked up by glaciers during the last ice age and moved here from other parts of New Brunswick. The last glaciers melted from here about 14,000 years ago. Along the cliff, between the soil and the bedrock, you may see a layer of sand and boulders. We call this glacial 'till', the deposits of the last ice age.

Melvin Beach (Triassic)



The rocks at Melvin Beach are Triassic age, the youngest rocks found along this part of New Brunswick's coastline. The Triassic Period began 250 million years ago, the time in earth history when dinosaurs first appeared. The Triassic rocks here are about 230 million years old, and although no dinosaur fossils have been found, rocks near St. Martins and Martin Head contain plant fossils that record the vegetation of this time period. Rocks in the Melvin Beach area contain rare trace fossils.



These sedimentary rocks accumulated in rivers and lakes, and as sand dunes along a rift valley as the supercontinent Pangea began to break up to create the Atlantic Ocean. If you look closely you will see layers of conglomerate that resemble concrete, and beds of fine-grained sandstone. These represent different environments. When you visit Big Salmon River, look at the modern river bed. You will likely see areas of the river bottom with large boulders and areas that may be sand. Rivers in the Triassic were also depositing sediment of varying size depending on the river energy. Some of the sand was deposited by wind as sand dunes.

GEOLOGY OF THE FUNDY TRAIL PARKWAY



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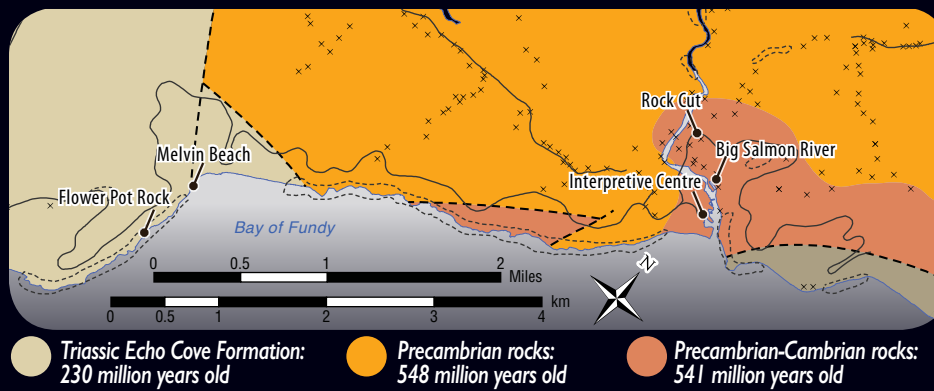
View rocks related to the birth of the Atlantic Ocean!

-> **Location** Hwy 111, 10km east of St. Martins, New Brunswick
Geological Ages: Precambrian to Cambrian
600 to 500 million years old,
Triassic 251 to 199 million years old!



FUNDY TRAIL PARKWAY

The Fundy Trail Parkway has old rocks, some of the oldest in New Brunswick, dating back more than 600 million years. The story they tell is about the death of an ancient ocean called Iapetus, and the birth of a new one, the Atlantic. In Greek mythology Iapetus was a Titan, and father of Atlas whose name we use for the Atlantic Ocean. The outcrops expose Precambrian to Cambrian rocks 540 to 600 million years old near Big Salmon River, and Triassic age rocks about 230 million years old near the western entrance to the Parkway.



One of the best places to see the oldest rocks is near the Mitchell Franklin Bridge crossing the Big Salmon River. These rocks record the story of the Iapetus Ocean. The Atlantic Ocean is a relatively recent geological feature, slowly getting wider over the last 200 million years. The Flowerpot Trail and Melvin Beach are the best places to see rocks related to the birth of the Atlantic Ocean.



DEATH and BIRTH of an OCEAN

The Earth's crust is always in motion, the continental rocks you are standing on are slowly moving, driven by a process geologists call plate tectonics. Molten rock from the Earth's interior rises to the surface to create new crust. As it rises and cools the new crust expands along volcanic mountain chains on the seafloor, slowly building a new ocean. Iceland is a place where new ocean crust is forming. As a new ocean is born, an old ocean dies. The ocean crust eventually gets cold and heavy and sinks back into the Earth's interior to be melted and recycled in a process called subduction. Old crust returns to the Earth's interior along deep ocean trenches. As the crust sinks it separates into heavy elements that sink, and light elements that bubble back to the surface – we call them volcanoes. In places like Japan, Indonesia and British Columbia the volcanoes are created by a dying ocean.

IAPETUS OCEAN

Looking at the rocks on the road west of the Interpretation Centre, you see volcanic rocks about 560 million years old and on the steep hill east of the Mitchell Franklin Bridge the sedimentary rocks are about 540 million years old. As volcanoes erupted they created layers of lava and volcanic ash, and sedimentary rocks that were once part of the Iapetus Ocean seafloor. These rocks have been folded and crumpled by the tremendous forces involved in ocean crust subduction. The rocks are so old they have few fossils; there was not much life to be fossilized. Near here geologists have found 'small shelly fossils' from the earliest Cambrian Period, like the tiny snail *Aldanella*.



ATLANTIC OCEAN

The Atlantic Ocean began as a crack in the Earth's crust, as molten rock pushed up from below. As magma pushes toward the surface large domes develop that eventually crack open. Cracks from each dome widen and join those on other domes, eventually forming a long break in the crust where the new ocean will be born. We see the first step in this process as a 'rift valley' (like the modern Great Rift Valley in Africa). Eventually the magma breaks through the surface and the valley bottom becomes a chain of volcanoes. A volcanic mountain chain runs the length of the Atlantic Ocean. In Iceland the volcanoes rise above sea level.



When a crack fails to join another it becomes a 'failed rift'. The Bay of Fundy is a 'failed rift'. Instead of becoming part of a new ocean, it became a 'rift valley' that filled with sediment. The red sandstone and boulder 'conglomerate' you see along the coast was deposited by rivers flowing into the valley.

EROSION

Rocks are eroded by the action of water and ice slowly breaking them down into smaller pieces. As the rocks are slowly worn down the boulders, sand and mud will be washed out into the Bay of Fundy. They will eventually become sedimentary rocks again as part of the recycling of the Earth's crust. The effects of coastal erosion can be seen along the cliffs and beaches here. Many of the rounded stones on beaches were once carried along by glaciers that covered this area more than 15,000 years ago.