



DOMINION PARK

Location: Saint John, city park at the corner of Dominion Park Road and Tippett Drive
GPS: 45°16.15' N; 66°07.38' W

Access: accessible dawn until dusk, free

Geological Age: Late Precambrian, about 1 billion years old

Features: beach, kayak tours by appointment



ROCKS

Green Head Island is the 'Type Locality' for the Green Head Group that includes a Late Precambrian marble about 850 million to 1.2 billion years old. Ashburn Formation marble is a metamorphic rock created from limestone. It has been subjected to heat and pressure that caused the limestone to transform and recrystallize. The limestone was once sediment on the floor of a warm shallow sea. The Martinon Formation is also part of the Green Head Group. It is often seen as a sandstone or conglomerate rock. This formation is believed to be about the same age as the marble, but it represents a deeper water sediment formed on the underwater slopes leading to the deeper ocean.

THE PRECAMBRIAN

Precambrian is the name given to a very long period of geologic time. As the name suggests it is everything before the Cambrian Period, and encompasses the time from the formation of the Earth 4.6 billion years ago to the start of the Cambrian 542 million years ago. Four billion years is a long time and to call it all Precambrian simplifies a complex period of Earth history. In the 1800s fossils were one of the only tools to distinguish Precambrian from younger rocks. Beginning in the Cambrian, rocks often contain abundant fossils such as trilobites. The first presumed Precambrian fossil was discovered in the 1860s and was part of an intense search for the first record of Precambrian life. This first discovery was discounted by the end of the 19th century. Meanwhile Saint John geologist George Matthew described a fossil in 1890, not far from Dominion Park. His identification of the stromatolite *Archaeozoon acadense* has withstood scientific scrutiny and is now known as the first Precambrian fossil described in scientific literature.



Precambrian stromatolite

Cambrian trilobite

Fossils of *Archaeozoon acadense*



**FOSSILS ARE PROTECTED BY LAW IN NEW BRUNSWICK
 A PERMIT IS REQUIRED TO COLLECT FOSSILS**

If you find a fossil, note its location, photograph it and send the information to the New Brunswick Museum (www.nbm-mnb.ca).

LIME QUARRY

The Green Head lime quarry in Saint John includes remains of built structures and quarries preserving one of the last historic lime kiln operations in southern New Brunswick. It includes remains of the quarry, kiln foundations, wharf timbers and foundation walls of homes. During the 1800s the lime business was booming in the region with as many as nineteen kiln sites in operation. Quarries are located in the Precambrian Ashburn Formation marble of the Green Head Group. Joseph and Frank Armstrong whose lime product was known throughout the Maritimes for its quality operated the Green Head quarry for many years. Lime produced at the Armstrong Quarry was used locally. Buildings constructed in Uptown Saint John after the Great Fire of 1877 were mortared using Green Head lime. Joseph Armstrong was a pioneer in the development of the lime industry that was worth almost \$100,000 in export trade by 1889. The quarry operation is a historic reminder of a mining industry that supported southern New Brunswick's economy throughout much of the nineteenth century.

Green Head lime quarry ca, 1890 (NBM Archives)



Green Head lime quarry today

