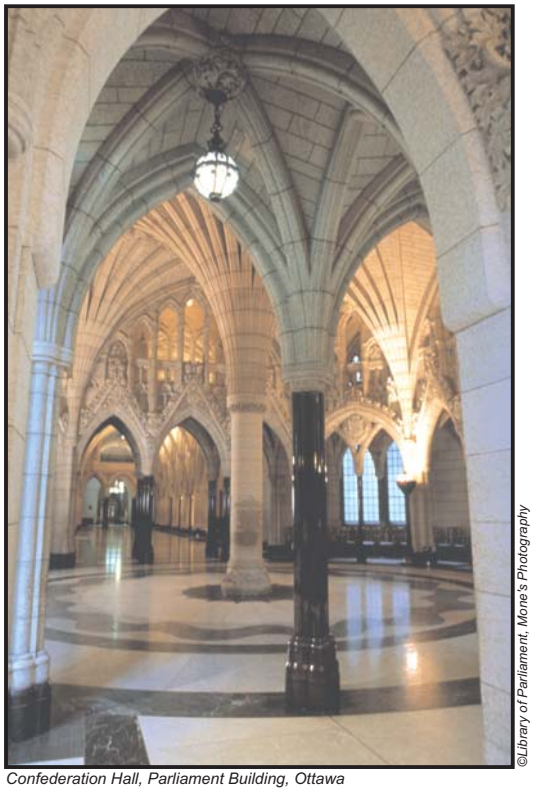
TYNDALL® STONE



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Confederation Hall, Parliament Building, Ottawa

Beautiful Building Stone

You may not have heard of Tyndall Stone before, but you've probably seen it. Think of news reports from the halls of Parliament in Ottawa that you've watched. The backdrop of elaborately carved walls, columns, and ceilings are made of this stone.

Tyndall Stone is used as an ornamental building stone in many cities in Canada and the United States. It is a light brown, fossil-bearing limestone that has darker coloured branching streaks called trace fossils. While there are many limestones used as building stone in North America, Tyndall Stone is unique.

Tyndall Stone is quarried at Garson, Manitoba, about 40 km northeast of Winnipeg. It was first discovered in the area around 1894, when a farmer came upon the mottled limestone while digging a well. The first large quarry was opened by William Garson in 1898. Gillis Quarries Limited began quarrying there in 1915, and the fourth generation of this family-owned business is still at it today.

The colour, beauty and strength of Tyndall Stone has allowed for its use in a variety of ways and architectural styles. Impressive buildings containing Tyndall Stone include the Parliament Buildings in Ottawa, the Canadian Museum of Civilization in Gatineau, the Provincial Legislature in Manitoba, the Rimrock Hotel in Banff, and the Empress Hotel in Victoria.

©Canadian Museum of Civilization, photo Harry Forster, no. S93-1294

Canadian Museum of Civilization, Quebec

DID YOU KNOW?

The fossils in Tyndall Stone are 450 million years old!

Garson calls itself the Limestone Capital of North America.

"Shoddy" is the name given to rough, undressed building stone.

Tyndall Stone is quarried using diamond-tipped saw blades that are 2.4 metres in diameter!

Tyndall Stone is not only used in large, impressive buildings—it can be found in fireplaces, chimneys, planters, and patios.

The name of the stone comes from Tyndall, the closest railway point to the quarries; the railway station was itself named after the noted British physicist Professor John Tyndall.

G. Nowlan, NRCan

Garson quarry, Manitoba

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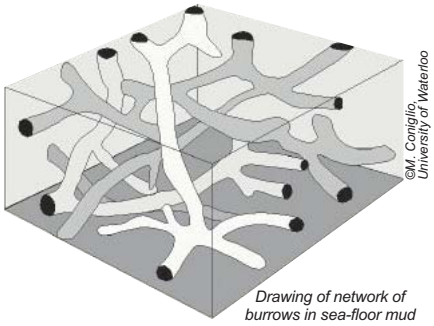
TYNDALL® STONE 2

How did Tyndall Stone Form?

Four hundred and fifty million years ago, what is now southern Manitoba was part of a warm, shallow, inland sea. During this time, which geologists call the Ordovician Period, this area was just south of the equator. Many different types of animals lived in this ocean. Some, such as corals, sponges, molluscs, and algae, we would recognize today. Others, such as trilobites and stromatoporoids, are extinct. All of these creatures lived on or above the soft, muddy sea floor. After they died, their remains became part of it. The calcium carbonate in their skeletons made the mud limey, so that when it hardened into rock it became limestone. Fossils of these animals and plants are visible today in Tyndall Stone.

Other animals burrowed in the mud of the sea floor for food or protection. And it is the preserved burrows of these creatures that make the beautiful mottling which gives Tyndall Stone its unique appearance. Nobody knows what exactly these animals were, because the traces of their burrows are all that they left behind. But shrimp in the Caribbean Sea make similar burrows today, so it's possible these creatures were shrimp-like.



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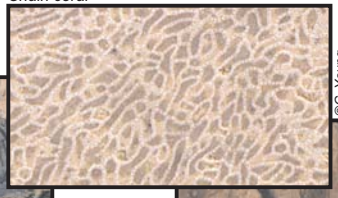
Drawing of network of burrows in sea-floor mud

G. Nowlan, NRCan

Bison, Winnipeg; Artist W. Arthur

Chain coral



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Cephalopod

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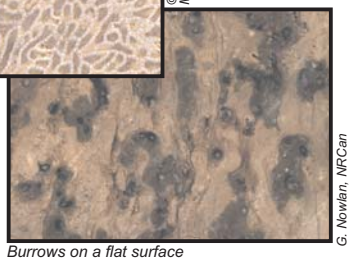

G. Nowlan, NRCan

Burrows on a flat surface

Snails and burrows

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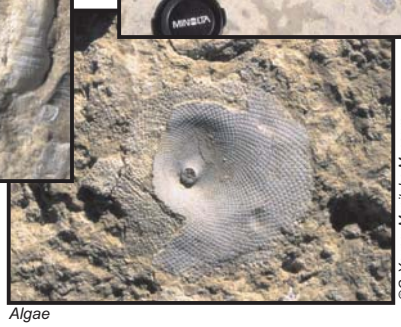
Coral



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Algae

Burrow vs. Rock

Why are the burrows a different colour from the rest of the rock? Well, it all comes down to a difference in grain size and chemistry. As the animals burrowed through the soft, limey mud, they left traces of their passage that caused the mud in the tunnels to be slightly different from the surrounding sediment. The more tightly packed surrounding mud hardened before the less dense deposits in the burrows. Later, magnesium-rich waters percolated through the rock and deposited dolomite in the burrows, but couldn't penetrate the tightly cemented limestone rock. The darker colour of the burrows may be a result of oxidation of trace amounts of iron in the dolomite, or of pyrite that was deposited along with the dolomite.

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