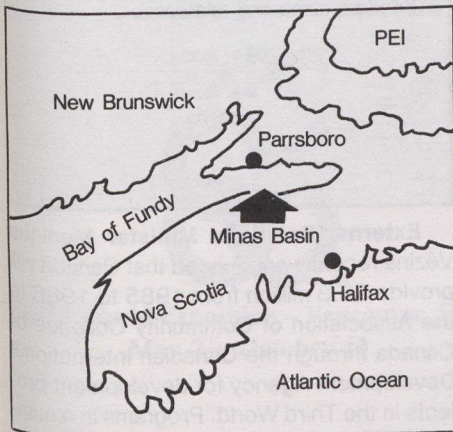


Fossil find in Nova Scotia

More than 100 000 pieces of fossilized bone belonging to dinosaurs, reptiles and fish 200 million years old were recently unearthed on the north shore of the Bay of Fundy's Minas Basin, about four kilometres east of rural Parrsboro in Nova Scotia. The find is the largest ever made in North America.



Geologist Paul Olsen of Columbia University, who excavated the fossils last summer with biologist Neil Shubin of Harvard, said the bones were found in a rock formation called the Newark Supergroup that stretches from Nova Scotia to North Carolina.

The most significant find among the 100 000 bone fragments were 12 skulls and jaws of Trithelodonts, the reptiles closest to humans, said representatives from the National Geographic Society, which financed the excavation. Other skulls, teeth, jaws and bones belonged to dinosaurs, crocodiles, lizards, sharks and primitive fish.

A series of footprints about the size of a penny made by a sparrow-sized dinosaur, the smallest dinosaur prints known anywhere, were considered very important. Bob Grantham, curator of geology at the Nova Scotia Museum, said the fossils are unique in North America and could help solve the riddle of why dinosaurs became extinct.

"These particular fossils are very small bones of mammal-like reptiles and are very rare," he said "they are definitely not your typical dinosaur fossils."

Dr. Olsen and Dr. Shubin said the creatures were of a species that had survived a catastrophe that killed at least 43 per cent of lake and land animals. The catastrophe, which occurred 500 000 years before the age of the fossils, could have been caused by an asteroid which hit the earth and created the huge Manicouagan crater 800 kilometres northwest of the fossil site.

Specimens recovered from the site will be turned over to the Nova Scotia Museum for display once scientists have studied them.

Mammoth mole burrows through mountains

The longest railway tunnel in North America, the Mount Macdonald tunnel in Glacier National Park, British Columbia, is being drilled by a mammoth tunnel-boring machine called a "mole".

The rotating face of the mole, studded with 52 cutting discs, is able to drill a hole almost seven metres in diameter at an average daily rate of 35 metres.

A Canadian-United States consortium, Selkirk Tunnel Constructors, is using the mole to drill the 8-kilometre eastern section of the tunnel in the mountain.

The western 6.4 kilometre section of the tunnel is being made by a Canadian-Japanese consortium, Manning-Kumagai, using a drill-and-blast system.

The tunnel is being constructed under the Connaught tunnel which opened in 1916. Once both sections have been completed one of the two consortiums will complete the 300-metre middle section.

Large-scale project

The Mount Macdonald tunnel is part of a \$600-million expansion project by Canadian Pacific (CP) to double-track the Selkirk section of its main railway line, including Rogers Pass, to handle added traffic expected by 1988-89. The railway company is expecting increased exports of grain, coal and sulphur from west coast ports.

The project also includes 17 kilometres of new surface line, a tunnel through Mount Shaughnessy, six bridges and viaduct.

Upon completion, the Macdonald tunnel will handle westbound trains and eastbound

traffic will continue along the original route. Westbound passage through the original route is difficult, especially at Rogers Pass where there is an imposing 2.2 per cent average uphill grade, which represents a vertical rise of 2.2 metres for every horizontal 100 metres. It takes as many as 12 locomotives to pull a westbound train up the steepest section of the Rogers Pass line.

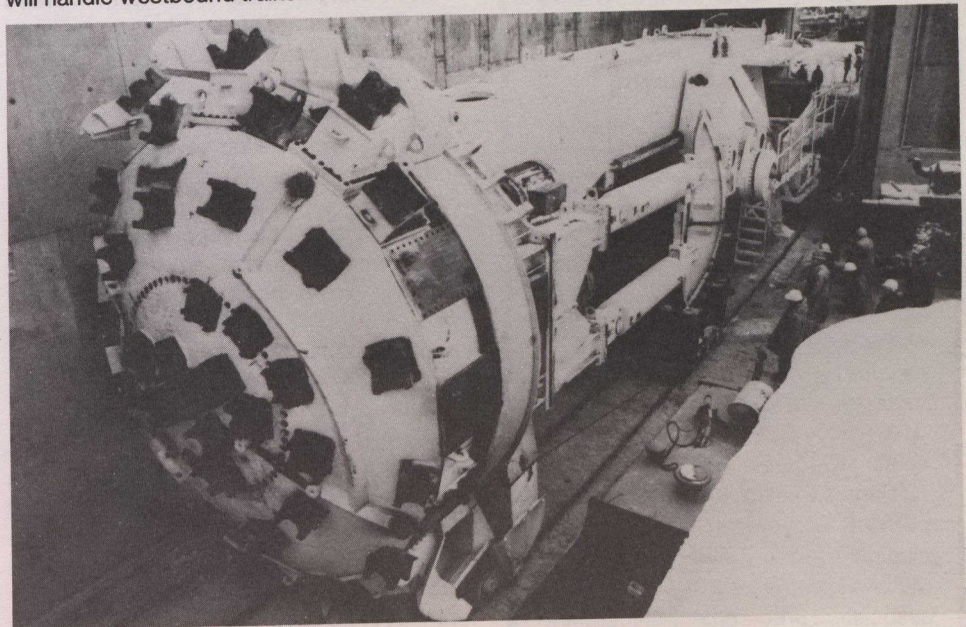
The new westbound line, including the Macdonald tunnel, will have an average grade of only 1 per cent. Up to 48 trains will be able to travel westbound through the new route each day instead of only about 15 on the original route.

Giant fans

The Macdonald tunnel will also have a sophisticated ventilation system which CP Rail claims is the first for a rail tunnel in the Western Hemisphere.

Huge steel-framed wooden doors, or gates, one at the entrance and the other in the middle, have been designed to permit changing the air in the eastern half of the tunnel while a train is still in the western half. The doors will be raised and lowered for each train allowing five giant fans to cool the locomotives and sweep out diesel exhaust fumes in the one-way tunnel. This will mean that a train will be able to go through the tunnel every 30 minutes.

Ontario Co. (Canada) Limited of Brampton, Ontario, is building the 349-metre shaft from the surface to the mid-point of the tunnel, with separate passages to allow air to flow in both directions.



A large tunnel-boring machine is drilling a hole in Mount Macdonald almost seven metres in diameter as part of CP Rail's undertaking to build the longest railway tunnel in North America.