

**Chemosynthetic tube worms concentrated around hydrothermal mounds over volcanic rocks,
Gays River Formation, basal Windsor Group, Ingonish Island, Cape Breton**

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The Gays River Formation outcrops on the north side of Ingonish Island as a 3 m thick dark coloured, thinly stratified, bituminous, gastropodal limestone. It contains metre-wide, single and compound mounds over which surrounding strata are draped. Mound cores consist of popcorn-like, multigenerational, botryoidal biocementstone. Around and over the mounds are concentrations of straight to gently curved, hollow, fossil tube worms. These fossils are up to 3 cm wide and up to 20 cm long, round to slightly compressed, and only partially filled with calcite. Wall structure is well preserved beneath pustular microbial crusts. These tubers are identical in form and stratigraphic position to those we have found on the Cape Breton mainland at Burke Head, Warren Lake and Young Point, in western Newfoundland on the Port au Port Peninsula, and in southern New Brunswick.

The biocementstone mounds are similar in geologic setting, textures, structures, and fauna to calcite tufa mounds in sa-

line lakes of the Great Valley. These localities include Mono and Pyramid lakes in California and Nevada, respectively. There, hot springs feed and concentrate bacteria that precipitate calcite tufa with matching textures and structures to those of the lowest Windsor Group mounds. In all cases, monospecific gastropods graze bacterial mats between the mounds.

The Ingonish Island exposure is the best locality for tube worms and associated mounds yet found in the Gays River Formation of Nova Scotia. The underlying volcanic basement of the island is a possible heat and chemical source for chemosynthesis. The Dalhousie University Ar/Ar lab is attempting to obtain a better radiometric age of the volcanism. An Imperial Oil Limited University Research Grant and the Royal Ontario Museum Foundation funded this research.