

## Silification and silicified microfossils and stromatolites from the Scots Bay Formation, Fundy Basin, Nova Scotia: a progress report

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Silicified microfossils have been extracted from the chert-bearing, mixed carbonate and siliciclastic, non-marine lithologies of the Scots Bay Formation at the top of the Fundy Group (Late Triassic-Early Jurassic?) of the southern Fundy Basin. Silicified freshwater stromatolites (hemispheroids and algal laminites) also occur at several horizons. Many of the chert nodules are cored with well-preserved woody tissue of tree trunks, some of which are large enough to exhibit branching.

The silicified microfossils include several kinds of tiny freshwater snails, ostracodes and evidence of freshwater algae (Charaphyta). Small fish teeth, fish scales and fecal pellet-like structures are also present. Whole fish and leaf-like plant remains are extremely rare. The charaphyte fossils are

silicified carbonate sheaths that once encased stems with tiny branchlets originating from nodal areas. No unequivocal gyrogonites have been found yet. Only poorly preserved palynomorphs have been found so far.

Syngenetic as well as diagenetic silica occurs in the Scots Bay Formation. Possible preserved algal and/or fungal filaments within the cherts suggest some very early penecontemporaneous silica precipitation that fixed some nonskeletal materials. Structures resembling stromatolites occur within and on the chert nodules. These resemble "pseudo-stromatolites" that are known to form on logs from precipitation of silica in some hot springs. Extensive infilling of void spaces and replacement of carbonates by diagenetic silica indicates

a complex silica paragenesis. Hot springs could have been a common occurrence in the North Mountain Basalt extrusive terrane. The interpretation of a siliceous hot spring association provides a source for the silica that pervades the Scots Bay and North Mountain Basalt formations.

We confirm the interpretation of a near-shore lacustrine origin for the Scots Bay

Formation. The limited and discontinuous occurrence plus other features suggest that several small lakes, rather than one large lake, may have formed in collapse structures at the top of the North Mountain Basalt. We hope to determine the age and paleoenvironments of the Scots Bay Formation more accurately with these newly discovered silicified fossils.