

MANGANESE-RICH STRATA OF THE GOLDENVILLE - HALIFAX TRANSITION  
IN THE MAHONE BAY AREA, SOUTH SHORE, NOVA SCOTIA

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The Cambro-Ordovician Meguma Group is well exposed in the Mahone Bay and Lunenburg areas on the Nova Scotia South Shore. The Group has traditionally been divided into two formations: the lower, Goldenville Formation, consists mainly of metamorphosed turbiditic sandstones with subordinate slates; whereas the upper, Halifax Formation, consists predominantly of slate with lesser amounts of sandstone. Both formations are metamorphosed at chlorite grade.

Recently, several distinct members have been recognized in the Goldenville-Halifax transition in the Mahone Bay area. The lowest member identified, the New Harbour Member of the Goldenville Formation, consists of extremely thickly bedded (up to 20 m) sandstones with very minor slate. It is overlain by the Tancook Member (and the laterally equivalent West Dublin and Risser's Beach members), consisting of subequal proportions of slate and generally thinner turbiditic sandstone beds. Burrows, especially spreiten resembling *Teichichnus*,

become increasingly abundant up-section. About 60 m below the top of the unit, a bed of brown-weathering sandy limestone contains numerous shell and echinoderm fragments.

The overlying Mosher's Island Member consists of grey-green slate and argillite containing disseminated spessartines and concretions of manganous carbonate. With the exception of some sandstone beds near the base of the unit, in which spreite burrows are spectacularly developed, the sandstones are not bioturbated; they show well developed parallel laminations and current-ripple cross-laminations. The concretions probably developed early in diagenesis, perhaps as a result of Mn<sup>++</sup> accumulation in increasingly oxygen-deficient seawater. The Mosher's Island Member passes up into black pyrite-rich carbonaceous slates and thinly bedded siltstones of the Cunard Member of the Halifax Formation; both slates and siltstones in the Cunard Member contain abundant pyrite.