

**The Role of Organic Carbon in Formation of Carbonate Carbon in the Meguma Group, Southern Nova Scotia**

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The interaction of organic matter and minerals during diagenesis has been demonstrated by carbon isotopic studies in the Meguma Group metasedimentary rocks of southern Nova Scotia. Carbonate in diagenetic concretions in sandstone beds toward the top of the psammitic Goldenville Formation and carbonate cements in the basal units of the Halifax Formation have a restricted range of  $\delta^{13}\text{C}_{\text{PDS}}$  of -14.8 to -22.2 per mil. A carbonate rim surrounding a bituminous bleb at Eastville is similarly depleted in  $\delta^{13}\text{C}$ .

Strong depletion in  $^{13}\text{C}$  is considered indicative of carbonate

formation from oxidation of organic material as opposed to precipitation from normal seawater. The oxidation of organic matter to produce authigenic carbonate minerals is thought to be an important process in the diagenesis and early metamorphism of organic carbon-bearing sedimentary rocks and in the genesis of metalliferous sediment.

Similar carbon isotope ratios have been obtained from carbonate minerals in scheelite and gold bearing veins in the Meguma Group indicating the role of organic carbon component in the vein-forming fluids.