

Mississippian Carbonate Petrology and Meguma
Paleocurrent Studies at Dalhousie University

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Stratigraphic and sedimentologic problems of the Nova Scotian mainland are being attacked by myself and students at DALHOUSIE UNIVERSITY. Interest is centered on the Windsor (Chester) carbonates of the Antigonish basin and the flysch-like Meguma sediments of the mainland of the province. Field work is financed by the NOVA SCOTIA RESEARCH FOUNDATION and laboratory work by the NATIONAL RESEARCH COUNCIL.

The Antigonish basin was a semi-restricted, possibly fault-block basin in the northeastern part of the mainland. In late Mississippian time, repeated marine transgressions and evaporation developed a number of cyclical sequences of carbonate, evaporite, and red beds. The carbonates are studied to interpret the depositional environment of the basin.

This present stage is that of detailed mapping and sampling, and petrographic and faunal study of orientated thin sections and acetate peels. Insoluble residue analysis by weight-percent and mineralogy, and elemental analysis by flame photometer and colorimeter are planned. The research program will concentrate on microfaunal and algal classification. The basal laminated limestone is best exposed, so initial work is concentrated here. Spectacular oolitic and algal development are displayed in overlying limestones.

The major part of the Nova Scotian mainland and possibly the Scotian Shelf is underlain by the Meguma Series. This is a vast unit of at least 40,000 feet of interbedded black argillite and quartz arenite, metamorphosed to varying degrees. It may be Ordovician, at least in part. Very little is known of the Meguma's age, basin geometry, and depositional environment. Primary sedimentary structures in the arenite laminites will be studied to determine sequence, lateral variability, and paleocurrent direction. Microscopy of arenites should detect distinctive mineralogy, size analysis, preferred grain orientation, possible microfauna, and their lateral variation.

FRED CAMPBELL and BOB GOODWIN are currently working on the Meguma and Windsor problems respectively for Master's theses.