

Silurian Stratigraphy and Paleogeography
of the Matapedia - Temiscouata Region, Québec*

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Field work in the Matapedia - Temiscouata region has been carried out under the auspices of the QUÉBEC DEPARTMENT OF NATURAL RESOURCES, and this brief account of the results is published with the permission of its Deputy Minister. A more detailed treatment with facies and paleogeographical maps will appear later.

The area discussed lies in the Northern Appalachians in Quebec, southwest of the Gaspé Peninsula (Figure 1). About 3,500 square miles in extent, the area is bounded to the northwest by the Siluro-Ordovician contact, by the Québec-New Brunswick border to the southeast, by the Matapedia valley to the southwest and the Temiscouata valley to the northeast.

The Silurian overlies the Cambro-Ordovician with angular unconformity; structures in the Silurian are broad synclines and anticlines trending northeast-southwest. Field evidence suggests that the Taconic Orogeny occurred prior to Lower Llandovery time and after the (Normanskill) Middle Ordovician.

The Silurian sedimentary rocks are predominantly terrigenous. The basal strata of the Silurian vary in composition from place to place. The lowermost formation, the Cabano, is characterized by lithic wackes interbedded with lithic conglomerates or lutites. The Cabano Formation grades upward into lutites and arkosic wackes of the Lac Raymond Formation (new name, LESPÉRANCE and GREINER, in press). A coarse terrigenous facies, comprising the Pointe-Aux-Trembles Formation (new name, LESPÉRANCE and GREINER, in press), intertongues with the Lac Raymond, and extends to the southwest. The Pointe-Aux-Trembles Formation consists mainly of lithic pyroclastic sandstones and conglomerates. Further east the Cabano Formation is overlain by lutites making up the Awantjish Formation.

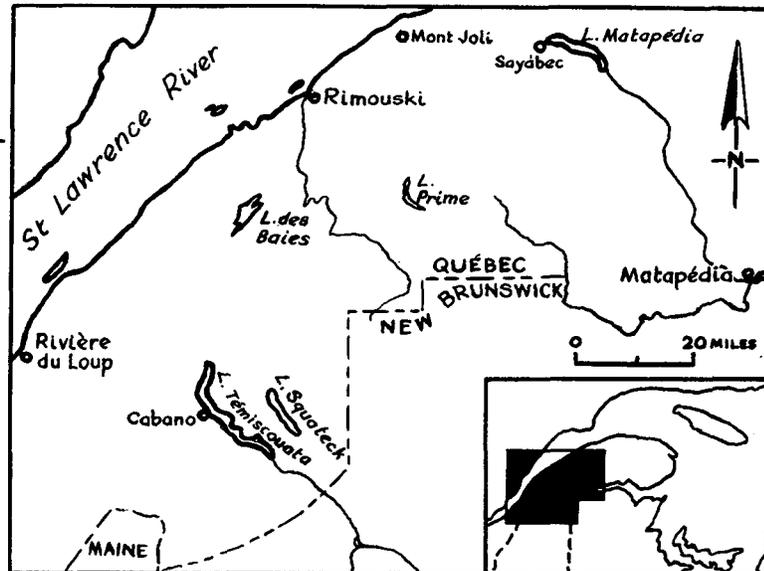


Figure 1 Location of the Matapedia-Temiscouata area, Eastern Quebec.

Rocks of the Wenlock Series are time transgressive from east to west and are restricted to the eastern part of the area. They are the Val Brilliant quartz arenite, and the Sayabec limestones. Both inter-tongue to the west with the Robitaille Formation (new name, *LESPÉRANCE* and *GREINER*, in press) of Ludlow age.

Because the boundary between the Silurian and Devonian is not defined as yet, assignment of strata to the Upper Silurian in the Matapedia - Temiscouata area is in part arbitrary. A boundary between the Gedinnian and Ludlovian may be acceptable, but strata intermediate in age between Ludlovian and Gedinnian do exist. The term "Skala" Series has been used for this time interval; Ludlow and "Skala" age beds are mentioned here because of their close lithological association with the Ludlow strata.

		TYPE	STANDARD	TEMISCOUATA	LAC DES BAIES LAC PRIME	MATAPEDIA	
SILURIAN	DEVONIAN	LOWER	HELDERBERGIAN	TOULADI Fm.	CAP BON AMI Fm.	CAP BON AMI Fm.	
		GEDINNIAN		?			
	?	"SKALIAN"		LAC CROCHE Fm.	?	?	
	LUDLOVIAN	UPPER	CAYUGAN	MT. WISSICK GP. ST LÉON Fm. L. SAUVAGESSE Mm. SAYABEC Fm.	LAC DES BAIES Mm. ST. LÉON Fm.	ST. LÉON Fm.	
	WENLOCKIAN	MIDDLE	NIAGARAN	ROBITAILLE Fm. ASSELIN Fm.	ROBITAILLE Fm. VAL BRILLANT Fm.	SAYABEC Fm. VAL BRILLANT Fm.	
	LLANDOVERIAN	UPPER	ALEXANDRIAN	POINTE AUX TREMBLES Fm.	LAC RAYMOND Fm.	LAC RAYMOND Fm.	AWANTJISH Fm.
				LAC RAYMOND Fm.	LAC CASTOR Mm.	AWANTJISH Fm.	UNNAMED
		CABANO Fm.		CABANO Fm.			
		LOWER					
					CAMBRIAN AND / OR ORDOVICIAN		

Table of Formations

In the southwestern part of the area, red siltstones and sandstones of the Robitaille Formation are of basal Ludlow age. These are overlain by the Mont Wissick Group (formerly the Mont Wissick Formation) of Ludlow and "Skala" age. This group includes, in ascending order, the Sayabec limestones, the St. Léon siltstones and sandstones and the Lac Croche limestones (new name, *LESPÉRANCE* and *GREINER*, in press). Farther east, the St. Léon siltstones grade upward into the Cap Bon Ami calcareous mudstones and argillaceous limestones. Helderbergian fossils occur in the Cap Bon Ami Formation at about 1000 feet above the base; below that the rocks may be "Skalian".

Paleogeography

In the Matapedia - Temiscouata region the Early Silurian sea transgressed from northeast to southwest, over and around the partly eroded "Taconic Mountains". The deposition of terrigenous sediments was followed by the deposition of Upper Llandoveryan pyroclastic sediments derived from the south-southeast. The volcanic activity accompanied a local uplift of the southwestern portion of the area. The major transgression of the Silurian started during Wenlock time and climaxed during the Ludlow. The Wenlockian sediments are indicative of a shallow marine, stable environment whereas the diversity and great thickness of the Ludlovian and "Skalian" sediments point to an unstable marine environment.

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