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Silurian-Devonian Stratigraphy in the Charlo Map Area, New Brunswick*

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Several years' field-mapping in the Charlo area just east of Dalhousie, N. B., have been done for the New Brunswick Mines Branch, and the work is now completed.

No geological work had been done here since ALCOCK'S study of the Chaleur Bay area some 30 years ago (1935). The geology is complicated, not only because several intervals of deformation have taken place, but because the two principal groups of rocks, with sedimentary as well as volcanic units, bear a strong resemblance to each other both lithologically and faunally.

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Table of Formations

	Charlo Area strat. units	lithology	Dalhousie Area	Gaspe Area
Pennsylvanian?	Bonaventure Fm.	conglomerate, sandstone, etc.	Bonaventure Fm.	Bonaventure Fm.
	------- angular unconformity -----			
Lower Devonian: Dalhousie Group	Archibald Settlement Fm.	orange felsite, agglomerate	Upper (?) Dalhousie Group	
	---------- unconformity? ---------			
	Jacquet River Fm.	mudstone, siltstone, limestone	Lower (?) Dalhousie Group	
	Sunnyside Fm.	basalt, andesite		
	Louison Creek Fm.	silty limestone		
	? ——— ? ——— ?			
Silurian or Devonian	Charlo Granite	granite, rhyolite		
	——— intrusive contact ———			
Silurian: Chaleur Group	Benjamin Fm.	orange felsite		Black Cape Fm.
	New Mills Fm.	red beds		
	Bryan Point Fm.	basal , porphyry agglomerate, etc.	?	Bouleux Fm. Gascons Fm.
	---------- disconformity? ---------		?	
	Nash Creek Fm.	mudstone, siltstone, argillite		La Vieille Fm. Anse Cascons Fm. Clemville Fm.
	---------- unconformity ----------			
Ordovician	Elmtree Group	phyllite, slate	?	Mictaw and Macquereau Groups

Phyllite and slate are the only representations of the pre-Taconic Elmtree Group.

There is a considerable difference between formations of the Chaleur Group at Black Cape and those in the Charlo area. No fossiliferous sedimentary units above the La Vieille appear to be present. Instead, basaltic flows of the Bryant Point Formation are succeeded by felsitic extrusives of the Benjamin Formation. An intervening redbed conglomerate and siltstone unit, the New Mills Formation, separates the two types of extrusives in many places. Perhaps these are local representatives of the Black Cape Formation of BURK (1964, p. 454). Several local granitic intrusions, the Charlo Granite, are similar to the Antinouri Lake Granite of Pointe Verte (GREINER, 1960, p. 14-16); field relationships seem to indicate a Silurian or Devonian age.

The Dalhousie Group, the status of which has been promoted from that of a formation, apparently lacks many of the 16 zones to be found at the type section. This group begins with a limestone unit, the Louison Creek Formation, not with conglomerate as Alcock thought. This is succeeded by a mixed acidic and basic volcanic unit, referred to as the Sunnyside Formation, to be followed by fossiliferous calcareous mudstones of the Jacquet River Formation. All of these, however, may be overlain somewhere or other by orange-coloured Archibald Settlement felsites, which closely resemble those of the Silurian Benjamin Formation.

Two fault systems, one north-south, the other east-west-trending, are prominent in the area.

Finally, a marked angular unconformity occurs between older formations and the Bonaventure conglomerate of presumed Pennsylvanian age.

Striking agreement for the lithologic units and stratigraphic succession was arrived at independently by R. R. POTTER (1964) in the Upsalquitch Forks area just to the southwest of the Charlo area.

The author is grateful to the NEW BRUNSWICK MINES BRANCH for its support of this project, as well as to many assistants and departmental colleagues for their help and suggestions. A detailed Preliminary Report and Map is now in press.

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Submarine Surveys on the Great Bank of Newfoundland and in the Gulf of St. Lawrence.*

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Introduction

During 1964 and 1965, submarine geological and biological surveys were carried out by aqualung divers of MEMORIAL UNIVERSITY on the Great Bank of Newfoundland and in the Gulf of St. Lawrence. During this period, 30 man-hours were devoted to direct examination of the Ballard

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