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13. GEOLOGICAL MAPPING - ST. GEORGE'S BAY CARBONIFEROUS AREA

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Introduction

A regional mapping project covering the southwestern Newfoundland Carboniferous area was initiated in early July, 1973. The mapping project is expected to conclude in 1975 with the production of an inch-to-one-mile geological map of the area.

The southwestern Newfoundland Carboniferous area extends from Little Barachois Brook, approximately 12 miles southeast of Stephenville, to St. Andrews, approximately 10 miles north of Cape Ray. A two-man party carried out a pilot survey along the coastal zone on the southern shore of St. George's Bay in the summer of 1973.

The area examined is underlain in most part by Upper Mississippian sedimentary rocks. Coastal exposures are good, presenting, save a few covered localities, an almost continuous section of the Upper Mississippian Codroy Group. Inland exposures, however, are scarce and limited to outcrops in streams.

Four groups of rocks are present in the area. In descending orders they present the following section:

Barachois Group ..... Pennsylvanian
——————— fault contact ———————
Codroy Group .....U. Mississippian
--------- disconformity ? ---------
Anguille Group .....L. Mississippian
---------- unconformity ----------
Crystalline complex .....Precambrian basement

Precambrian Basement

Precambrian crystalline rocks crop out in two exposures in a small structural window at Journois Brook. At one outcrop a dark honey-coloured granoblastic rock, possibly a norite gneiss; and a dark mafic gneiss are exposed. A pink granitic gneiss is exposed in the other outcrop.

The contact relationship between the Precambrian and the younger rocks is obscure.

Anguille Group

Anguille rocks in the mapped area comprise two distinct types: a tabular quartzitic sandstone cropping out at Ship Cove; and a sandy conglomerate in Fischells Brook. The conglomerate

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contains boulders up to 1 ft. in diameter, many of which consist of Ordovician St. George and Table Head carbonate beds.

The base of the Anguille is not exposed in the mapped area.

Codroy Group

Upper Mississippian Codroy Group rocks in the area are divisible into four lithologic units, in descending orders they are:

Unit C
Unit B
Unit A
Ship Cove Limestone
——————disconformity ? ——————

At present, no attempt is being made towards establishing these lithologic units into formational ranks. Tentative correlation of these units to those presented by previous workers is tabulated below:

	Hayes & Johnson, 1937		Bell, 1947		This report	
CODROY SERIES	Woody Point Sandstone	CODROY SERIES	Woody Head Beds	CODROY GROUP	Unit C	
	Woody Cove Shale		Woody Cove Beds		Unit B	
	Black Point Limestone		Black Point Limestone			
	Codroy Shale		Gypsiferous Zones		Unit A	
ANGUILLE SERIES			Ship Cove Limestone		Ship Cove Limestone	
	Anguille Rocks undivided	ANGUILLE SERIES	Anguille Rocks undivided	ANGUILLE GROUP	Anguille Rocks undivided	

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Ship Cove Limestone

The Ship Cove Limestone, a sequence of grey limestone and shale alternations, marks the base of Codroy Group (Bell, 1947).

In the mapped area the Ship Cove Limestone crops out at Ship Cove, the type locality; and in Fischells Brook, and at both localities apparently conformably overlies the Anguille Group.

Unit A

Unit A consists of red and grey siltstone, red and grey sandstone, evaporite, and red and green shale. Siltstone beds are finely cross-bedded and many contain pseudomorphs of halite crystals. Sandstone beds are also cross-bedded and often pebbly. A sandstone bed at Shoal Point, and south of the mouth of Robinsons River, contains fragments of Calamites which are stained with malachite-copper rusts. At least two evaporite beds are present in this unit. They are composed of light blue anhydrite and grey and white gypsum. A borate mineral was collected from anhydrite beds at Flat Bay and in Fischells Brook. Beds of green and red shale occur between and within the evaporite beds.

Unit A rocks pass without break into underlying Ship Cove Limestone and overlying Unit B rocks.

Unit B

The base of Unit B is here placed at the first appearance of marine limestone beds, and thus tentatively takes in the Cormorant Limestone and its equivalents, Crabbes Limestone, Jeffrey's Limestone, Heatherton Limestone, and Fischells Limestone; all referred to the Black Point Limestone by Bell (1947).

Limestone beds in the unit are highly variable and consist of fossiliferous beds, oolitic beds,algal beds, algal reefs and non-fossiliferous beds. Laterally, lithology of beds varies within a short distance, rendering lateral tracing and correlation rather difficult. At the mouth of Rattling Brook, near Heatherton, well developed algal reefs overlie beds of dense, red, non-fossiliferous dolomite.

Unit C

This unit is composed of red arkosic sandstone and siltstone, and minor non-marine limestone. Both the sandstone and siltstone are highly calcareous and kunker-lime nodules are common.

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Sandstone beds are often conglomeratic and usually cross-bedded. A limestone conglomerate at Shallop Cove, immediately west of the town of St. George's, contains cobble size clasts that were derived from the Ordovician St. George and Table Head Groups.

Barachois Group

Barachois Group rocks are mostly exposed east of the area and were not investigated during the past field season. The only Barachois rocks examined are exposed in a down-faulted block west of the TCH in the Crabbes River Provincial Park. They consist of a sequence of grey, micaceous, conglomeratic sandstone, and red and grey shale. In Dribble Brook, a small stream running into the Flat Bay Brook, a sequence of grey, micaceous, conglomerate-sandstone beds are exposed. These beds were assigned by Baird (1951) to possible Barachois age.

References

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