Atlantic Geology

The General Nature of the Humber Arm Group in the Humber Arm Area: West Newfoundland

B. K. Stevens

Volume 1, Number 4, October 1965

URI: https://id.erudit.org/iderudit/ageo1_4art02

See table of contents

Publisher(s)

Maritime Sediments Editorial Board

ISSN

0843-5561 (print)
0843-5561 (digital)

Explore this journal

Cite this article

Stevens, B. K. (1965). The General Nature of the Humber Arm Group in the Humber Arm Area: West Newfoundland. *Atlantic Geology*, *1*(4), 13–15.

ANCIENT SEDIMENT STUDIES

The General Nature of the Humber Arm Group in the Humber Arm Area: West Newfoundland

by R. K. STEVENS

Department of Geology
Memorial University of Newfoundland

The Humber Arm Series is a Cambo-Ordovician succession of clastic and igneous rocks which underlie much of the western Newfoundland coastlands between Port au Port and Daniel's Harbour.

In the Humber Arm area these rocks fall into four broad units- a lower sandstone-shale unit, a carbonate shale unit, an upper sandstone and shale unit, and the youngest unit, an igneous complex.

The oldest rock is a succession of red and green argillaceous sandstones and shale overlain by dark shales with interbedded orthoquartzites, conglomerates and greywackes. Fluxoturbidite and slumped units are locally common. The general character of these rocks suggest a deltaic environment of deposition.

Lime breccias of the Cow Head type mark the base of carbonate-shale unit. The older carbonates are mainly platey, current-bedded limestones interbedded with black shale. The younger part of the unit is platey, sandy dolomite with interbedded green and black shale.

A thin sequence of flysch-like rocks marks the transition of the carbonate shale unit into a series of dark shales, greywackes, and massive arkosic sandstones. This appears to indicate a return to deltaic conditions of deposition.

Volcanic rocks at the base of the igneous complex are locally interbedded with arkosic sandstones.

The whole series seems to represent a facies intermediate between the eugeosynclinal Ordovician rocks of Central Newfoundland and the Cambro-Ordovician shelf deposits of west Newfoundland.

The present position of the Humber Arm Series on top of the shelf deposits of west Newfoundland is best explained by Rodger's and Noale's klippe hypothesis. However their supposition that the series is a deep water deposit does not seem to be valid according to the present study.

Stratigraphy of the Quebec Complex in the L'Islet-Kamouraska Area, Quebec

by CLAUDE HUBERT

Quebec Department of National Resources

On the basis of lithology and lithological association, six

map units are recognized. Massive and thick-bedded feldspathic sandstones constitute the Armagh Group. Rocks of the St-Roch Formation are chiefly mudstones with intercalated bands of conglomerate, feldspathic sandstone, siltstone, shale and limestone. The St-Damase Formation is composed of feldspathic sandstones in thick graded beds with lenticular bands of orthoquartzite and polymictic limestone conglomerate. The Kamouraska Formation is orthoquartzite and polymictic limestone conglomerate. Shales and siltstones constitute the bulk of the Riviere Ouelle Formation. The above five map units make up the Quebec complex. The sixth map unit is the Rosaire Group and contains orthoquartzite, subarkose, and slate.

The St-Roch is certainly Early Cambrian in age and probably includes rocks of Middle and Late Cambrian ages also. The St-Damase straddles the Cambrian-Ordovician boundary; generally, this unit overlies the St-Roch conformably. The St-Roch and St-Damase formations are exposed on the northwestern side of the area and are correlated with the Armagh Group which occurs on the southeast. The Kamouraska lies conformably on rocks of the St-Damase and Armagh and is overlain by the Riviere Ouelle. The Kamouraska and Riviere Ouelle formations are Early Ordovician in age. The age of the Rosaire Group which lies southeast of the Armagh is unknown.

The Armagh, St-Roch, and St-Damase clastics were derived from a Precambrian landmass located to the southeast. Rocks of the Armagh were deposited near shore in an unstable environment; those of the St-Roch and St-Damase formations accumulated in deeper water, farther offshore. The bands of limestone in the St-Roch, the polymictic limestone conglomerate and orthoquartzite of the Kamouraska, as well as the lenticular bands of such lithologies in the St-Damase were derived from a Cambrian sequence of quartz sandstone and limestone formations located to the northwest. Except for the limestone beds of the St-Roch which accumulated in deep water, the conglomerate and orthoquartzite were deposited in an unstable environment, probably in shallow water. The very fine-grained rocks of the Riviere Ouelle Formation may have been derived from either source area.

The Cambrian-Ordovician units are faulted into a series of slices. Within each slice, the rocks are strongly folded into a series of en echelon, doubly-plunging, complex brachyanticlines and synclines overturned to the northwest with minor parasitic folds on their limbs. Locally, homoclines of sinistral folds connect two series of doubly-plunging structures. Reverse faults are postulated to explain the conspicuous imbrication and repetition of the formation; some of the faults are minor dislocations but others have superimposed Cambrian rocks over Lower Ordovician ones. The folds and faults are presumably the result of the Taconic orogeny.

DAVID DINELY, Department of Geology, UNIVERSITY OF OTTAWA, reports on the research of his department. A local paleogeographic analysis of the Peel Sound Formation (Devonian) of the Arctic Somerset Island is near completion. BRIAN R. RUST has studied the petrology and depositional features of the formation in the northern part of the island. M. F. TUKE has completed a similar study in the south-central part of the island. RUST and J. P. COAKLEY have examined sedimentologic

features of rocks probably of Tertiary age in the Stanwell-Fletcher basin, Somerset Island, N.W.T. They believe they have discovered raised lake beds, of probably Pleistocene age. Work on these topics will continue during 1966.

M. F. TUKE has completed work started in 1964 by G. E. BENSON on the stratigraphy and sedimentology of the Aston and Hunting Formations (Proterozoic).

B. R. RUST also has been studying the sedimentary features of the Horton Group (Mississippian) of Cape Breton Island, N. S. He is attempting to reconstruct the various Horton depositional environments of central and northern Cape Breton. Further investigation is planned on interesting sedimentary structures in the Pictou Group (Pennsylvanian) near Sydney, Nova Scotia.

B. P. WILLIAMS (N.R.C. POST DOCTORAL RESEARCH FELLOW) and D. L. DINELEY have been currently engaged in a study of the Devonian sediments of Escuminac Bay, P.Q. and Campbellton, N.B. The work, which has been undertaken from a sedimentological viewpoint, is now nearing completion and the results, it is hoped, will shed some new light on the problems of correlation and environmental interpretation of the Devonian rocks of the Chaleur Bay area.

Echinoderms as Guide Fossils in the Correlation of the Windsor Group Subzones of the Minas Sub-Basin

by PETER H. von BITTER

Dept. of Geology
Acadia University, Wolfville, N. S.

A study of the echinoderms in the Windsor Group of the Minas Sub-basin is in progress as partial requirement for the degree of Master of Arts in Geology at Acadia University. This work is supported by the NOVA SCOTIA RESEARCH FOUNDATION and is directed by R. G. MOORE.

Echinoderm fragments belonging to the classes Echinoidea and Crinoidea are abundant in the limestone units of the Windsor Group.

Crinoid fragments belonging to the division Crinostyli (Columnals) (Moore, 1939) have been found in the Subzones B, C, D and E. These include:

a. Simple circular columnals with circular lumens (all 4 subzones)

b. Circular columnals with hexagonal lumens (C Subzone)

c. Spine bearing circular columnals with circular lumens (C Subzone)