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Geology of the Badger Bay-Seal Bay area, north-central Newfoundland

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GEOLOGY OF THE BADGER BAY - SEAL BAY AREA, NORTH-CENTRAL NEWFOUNDLAND

by

K. Douglas Nelson

A Dissertation

Submitted to the State University of New York at Albany

in Partial Fulfillment of

the Requirements for the Degree of

Doctor of Philosophy

College of Science and Mathematics

Department of Geological Sciences

1979

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COLLEGE OF ARTS AND SCIENCES

The dissertation submitted by

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has been read by the undersigned. It is hereby recommended for acceptance to the Faculty of the University in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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GEOLOGY OF THE BADGER BAY - SEAL BAY AREA, NORTH-CENTRAL NEWFOUNDLAND

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Abstract of a Dissertation

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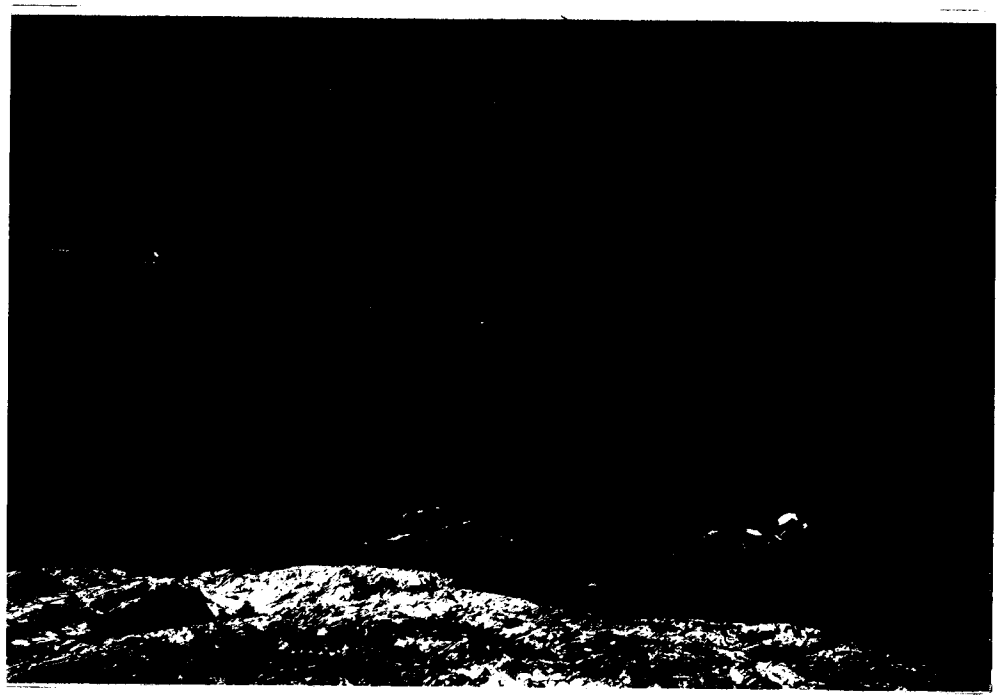
ABSTRACT

Coastline in the Badger Bay - Seal Bay area of north-central Newfoundland exposes the thickest and least disrupted section of Ordovician rocks in Newfoundland's Central Volcanic Belt. The following conformable stratigraphic sequence is observed: 1) >5 km. of variegated mafic and silicic submarine volcanics and volcaniclastics of lower Ordovician age; 2) a thin (<.5 km.) sequence consisting of thin bedded red and green argillites, manganiferous cherts, bioturbated cherts and black sulferous graptolite-bearing argillites of Caradocian age; 3) >1.2 km. of quartz-rich sandstones of upper Ordovician age. Correlative sequences occur to the east in the Fortune Harbour Peninsula area and on New World Island. Together they record Early Ordovician island arc volcanism, Medial Ordovician cessation of volcanism and subsidence, and Medial through Late Ordovician uplift and erosion of a terrane to the north or west. Analysis of the detrital mineralogy and provenance of the Late Ordovician sediments indicates that they were derived from strata now exposed in the Burlington Peninsula area of western Newfoundland. This places an independent constraint on the age of Fleur de Lys metamorphism and deformation recorded in that area. It is concluded that ophiolite obduction on the Western Platform, Fleur de Lys metamorphism and deformation in the Burlington Peninsula area, and cessation of arc-type volcanism in the Notre Dame Bay area occurred synchronously. These results support the hypothesis that ophiolite obduction in western Newfoundland resulted from the collision of an island arc with an Atlantic-type continental margin during Medial Ordovician time.



"The Outcrops O.K."

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