

GEOLOGICAL SURVEY OF CANADA



COMMISSION GÉOLOGIQUE DU CANADA

## OPEN FILE 2144

This document was produced  
by scanning the original publication.

Ce document a été produit par  
numérisation de la publication originale.

# **CANADA - NEWFOUNDLAND MINERAL DEVELOPMENT AGREEMENT, LIST OF OUTPUTS PRODUCED BY THE GEOLOGICAL SURVEY OF CANADA DURING THE YEARS 1984 THROUGH 1989**

Mineral Development Program Office  
Geological Survey of Canada

Contribution to the Canada - Newfoundland Mineral Development Agreement 1984-1989



Energy, Mines and  
Resources Canada

Énergie, Mines et  
Ressources Canada

Canada

GEOLOGICAL SURVEY OF CANADA



COMMISSION GÉOLOGIQUE DU CANADA

OPEN FILE 2144

**CANADA - NEWFOUNDLAND MINERAL DEVELOPMENT  
AGREEMENT, LIST OF OUTPUTS PRODUCED BY THE  
GEOLOGICAL SURVEY OF CANADA DURING THE YEARS  
1984 THROUGH 1989**

Mineral Development Program Office  
Geological Survey of Canada

Contribution to the Canada - Newfoundland Mineral Development Agreement 1984-1989

Contribution to Canada-Newfoundland Mineral Development Agreement 1984-89, a subsidiary agreement under the Economic and Regional Development Agreement. Project funded by the Geological Survey of Canada.

Contribution à l'Entente auxiliaire Canada/Terre-Neuve sur l'exploitation minière 1984-89 faisant partie de l'Entente de développement économique et régional. Ce projet a été financé par la Commission géologique du Canada.



DEPARTMENT OF MINES  
GOVERNMENT OF NEWFOUNDLAND AND LABRADOR



Energy, Mines and  
Resources Canada

Énergie, Mines et  
Ressources Canada

Canada

## TABLE OF CONTENTS

	PAGE
<b>INTRODUCTION</b>	i
<b>1.1 MINERAL DEPOSITS SUBPROGRAM</b>	
1.1.1 Metallogeny, Central Mineral Belt (T.C. Birkett)	1
1.1.2 Resource assessment of Western Labrador (T.C. Birkett)	4
1.1.3 Metallogeny of carbonate terrane, Western Newfoundland (T.C. Birkett)	6
1.1.4 Metallogeny of Buchans-Roberts Arm Belt (H.S. Swinden, NDME )	8
1.1.5 Metallogeny, Newfoundland ophiolites (J.W. Lydon)	14
1.1.6 Metallogeny of Carboniferous terranes and reference stratigraphic drilling (R.V. Kirkham)	17
1.1.7 Analytical services support (A.G. Plant)	17
1.1.8 Chetwynd geochronological study (H.S. Swinden, NDME)	17
<b>1.2 GEOLOGICAL INVESTIGATION PROGRAM</b>	
1.2.1 Geology of the Southern Long Range (K.L. Currie)	18
1.2.2 Geology of the Northern Long Range (K.L. Currie)	20
<b>1.3 REGIONAL GEOCHEMISTRY SUBPROGRAM</b>	
1.3.1 Regional geochemical surveys (E.H. Hornbrook)	22
1.3.2 Follow-up of regional geochemical anomalies (E.H. Hornbrook)	23
1.3.3 Additional analyses of archived samples (E.H. Hornbrook)	24
<b>1.4 GEOPHYSICS SUBPROGRAM</b>	
1.4.1 Airborne gamma ray spectrometer and VLF surveys (K.A. Richardson)	24
1.4.2 Aeromagnetic gradiometer/VLF-EM (E.E. Ready)	26
1.4.3 Geophysical tests, mines (P.G. Killeen)	27
<b>1.5 OVERBURDEN STUDIES SUBPROGRAM</b>	
1.5.1 Glacial dispersal, Labrador (R.A. Klassen)	28
1.5.2 Surficial geology, Labrador (R.A. Klassen)	31
<b>GEOSCIENCE</b>	
1.6.1 Overhead costs (W.H. Poole)	31
<b>PUBLIC INFORMATION, EVALUATION AND ADMINISTRATION PROGRAM</b>	
Co-ordination of federal geoscience program (W.H. Poole)	32

## INTRODUCTION

The Canada - Newfoundland Mineral Development Agreement 1984-89 (MDA), signed by federal and provincial ministers in May 1984, is one of many subsidiary agreements under the Canada - Newfoundland Economic and Regional Development Agreement (ERDA).

To help strengthen and diversify Newfoundland's mineral industry, the Geological Survey of Canada (GSC) implemented a 5-year program of geoscientific projects that would provide new data and ideas to the mineral exploration community.

This Open File presents, in bibliographic form, the cumulative output of that program from 1984 through 1989. The Open File was compiled by D.G. Richardson and W.H. Poole and outputs have been assembled for each project under four categories: a) Publications, b) Open Files, c) Posters and d) Oral Presentations. Within each category, entries are arranged by fiscal year. Bibliographic information was obtained from project participants. A preliminary version of this unedited Open File has been examined by GSC participants. The name of the GSC project leader appears in brackets.

**CANADA-NEWFOUNDLAND MINERAL DEVELOPMENT AGREEMENT**  
**(1984-1989)**

**LIST OF OUTPUTS**  
**PRODUCED BY GEOLOGICAL SURVEY OF CANADA**  
**DURING YEARS 1984 through 1989**

Outputs have been divided into:

a) Publications b) Open Files c) Posters d) Oral Presentations

**1.1 MINERAL DEPOSITS SUBPROGRAM**

**1.1.1 Metallogeny, Central Mineral Belt (T.C. Birkett)**

a) Publications

1985-86

Wilton, D.H.C., MacDougall, C.S., and MacKenzie, L.M., Metallogeny of portions of the Central Mineral Belt, Labrador; in Report of Activities 1985, Newfoundland Department of Mines and Energy, p. 14-19, 1985.

1986-87

MacDougall, C.S. and Wilton, D.H.C., Middle Proterozoic granite-related mineralization in the Round Pond area, Labrador; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 457-466, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 392, 1987.

MacKenzie, L.M. and Wilton, D.H.C., Uranium, molybdenum and base metal sulphide mineralization: three different styles of ore formation in the Burnt Lake area, central Labrador; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 467-476, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 393, 1987.

1987-88

MacDougall, C.S. and Wilton, D.H.C., Geology of radioactive zones in the Round Pond area, Labrador; in Current Research, Part C, Geological Survey of Canada, Paper 88-1C, p. 271-275, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 461, 1988.

MacKenzie, L.M. and Wilton, D.H.C., The Grenville Province boundary in the Burnt Lake area, Central Mineral Belt of Labrador; in Current Research, Part C, Geological Survey of Canada, Paper 88-1C, p. 233-237, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 460, 1988.

North, J.W. and Wilton, D.H.C., Stratigraphy of the Warren Creek Formation, Moran Lake Group, Central Mineral Belt of Labrador; in Current Research, Part C, Geological Survey of Canada, Paper 88-1C, p. 123-128, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 462, 1988.

Wilton, D.H.C., MacDougall, C.S., MacKenzie, L.M., and Pumphrey, C., Stratigraphy and metallogenic relationships along the unconformity between Archean granite basement and the early Proterozoic Moran Lake Group, central Labrador; *in* Current Research, Part C, Geological Survey of Canada, Paper 88-1C, p. 277-282, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 458, 1988.

Wilton, D.H.C., Copper occurrences in the Bruce River Group, Central Mineral Belt of Labrador; *in* Current Research, Part C, Geological Survey of Canada, Paper 88-1C, p. 291-297, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 459, 1988.

1988-89

Brace, T.D. and Wilton, D.H.C., Preliminary lithological, petrological, and geochemical investigations of the Archean Florence Lake Group, central Labrador; *in* Current Research, Part C, Geological Survey of Canada, Paper 89-1C, p. 333-344, 1989; abstract in Current Research Report 89-1, Geological Survey of Newfoundland, Department of Mines, p. 302, 1989.

Scharer, U., Krogh, T.E., Wardle, R.J., Ryan, B. and Gandhi, S.S., U-Pb ages of early and middle Proterozoic volcanism and metamorphism in the Makkovik Orogen, Labrador; Canadian Journal of Earth Sciences, v. 25, no. 7, p. 1098-1107, July 1988.

Wilton, D.H.C., Studies in the Seal Lake Group, central Labrador, Part I: Description of copper occurrences; *in* Current Research Report 89-1, Geological Survey of Newfoundland, Newfoundland Department of Mines, p. 23-33, 1989.

Wilton, D.H.C., Studies in the Seal Lake Group, central Labrador, Part II: Geochemistry of diabase sills; *in* Current Research Report 89-1, Geological Survey of Newfoundland, Newfoundland Department of Mines, p. 35-46, 1989.

#### b) Open Files

1987-88

MacDougall, C.S., and Wilton, D.H.C., A new sphalerite-galena showing with associated precious metals in the Round Pond area, near Makkovik, Labrador; Newfoundland Department of Mines and Energy, Open File 130/3 (110), 1987.

North, J.W., and Wilton, D.H.C., Sediment-hosted stratiform zinc mineralization in the Moran Lake Group, Central Mineral Belt, Labrador; Newfoundland Department of Mines and Energy, Open File 13K/6 (171), 1987.

Wilton, D.H.C., MacDougall, C.S., MacKenzie, L.M., and North, J.W., Precious metal contents in samples from the eastern Central Mineral Belt, Labrador; Newfoundland Department of Mines and Energy, Open File LAB 724, 1987.

c) Posters

1985-86

Payette, C. and Martin, R.F., The composition of rhyolites of the Upper Aillik Group, Labrador: Magmatic and post-magmatic "signatures", at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985; abstract published in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 51, 1985.

Wilton, D.H.C., MacDougall, C.S. and MacKenzie, L.M., Metallogeny of portions of the Central Mineral Belt, Labrador, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November, 1985; abstract published in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 14-19, 1985.

1986-87

MacDougall, C.S. and Wilton D.H.C., Middle Proterozoic granite-related mineralization in the Round Pond area, Labrador, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986.

1987-88

Brace, T.D., Metallogeny of the Archean, Florence Lake greenstone belt, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November, 1987.

Wilton, D.H.C., Geochemistry of copper occurrences and diabase sills in the Seal Lake Group, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987.

d) Oral Presentations

1985-86

Wilton, D.H.C., Gold and base metal environment in the Central Mineral Belt of Labrador at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985.

1987-88

Mackenzie, L.M., and Wilton, D.H.C., Metallogeny of the Burnt Lake area, Labrador: Four different styles of mineralization, at the 89th Annual General Meeting of the Canadian Institute of Mining and Metallurgy, Toronto, May 6, 1987; abstract published in CIM Bulletin, v. 80, no. 899, p. 85.

North, J.W., and Wilton, D.H.C., Proterozoic sediment-hosted Fe-Cu-Zn massive sulphide horizons in the Warren Creek formation of the Moran Lake Group, Labrador, Central Mineral Belt, at the 89th Annual General Meeting of the Canadian Institute of Mining and Metallurgy, Toronto, May 6, 1987; abstract published in CIM Bulletin, v. 80, no. 899, p. 85.

1988-89

Brace, T.D. and Wilton, D.H.C., Geology, geochemistry and metallogeny of the Florence Lake Greenstone Belt, Labrador, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 16, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A47, 1989.

Gandhi, S.S., Krogh, T.E. and Corfu, F., U-Pb zircon and titanite dates of two granitic intrusions of the Makkovik Orogen and a peralkaline granite of the Red Wine Intrusive Complex, central Labrador, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A42, 1988.

Gandhi, S.S. and Thorpe, R.I., Metallogenic implications of lead isotopic data from selected mineral occurrences of the Central Labrador Mineral Belt, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 17, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A120, 1989.

North, J.W. and Wilton, D.H.C., Stratigraphy, basement relationships and metallogeny of the early Proterozoic Moran Lake Group, Central Mineral Belt, Labrador, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 25, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A91, 1988.

Wilton, D.H.C., The Seal Lake Group and its copper deposits revisited, at the Newfoundland Department of Mines Review of Activities, St. John's, Newfoundland, November 3, 1988.

Wilton, D.H.C., Copper occurrences in the Proterozoic Seal Lake Group of Labrador revisited : Epigenetic revisionism, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 16, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A69, 1989.

### 1.1.2 Resource assessment of Western Labrador (T.C. Birkett)

#### a) Publications

1985-86

Birkett, T.C., Resource assessment, Western Labrador; in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 20, 1985.

1986-87

van Gool, J., Calon, T., and Rivers, T., Preliminary report on the Grenville front tectonic zone, Bruce Lake area, western Labrador; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 435-442, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 391, 1987.



1987-88

van Gool, J., Brown, D., Calon, T., and Rivers, T., The Grenville Front thrust belt in western Labrador; in Current Research, Part C, Geological Survey of Canada, Paper 88-1C, p. 245-253, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 463, 1988.

1988-89

Findlay, J.M., Fowler, A.D. and Birkett, T.C., Wakuach Gabbro sills of the Howse Lake area, Western Labrador; in Current Research, Part C, Geological Survey of Canada, Paper 89-1C, p. 345-351, 1989; abstract in Current Research 89-1, Geological Survey of Newfoundland, Department of Mines, p. 305, 1989.

b) Open Files

1988-89

Findlay, J.M., Fowler, A.D. and Birkett, T.C., Platinum group element potential of the Howse Lake area, Western Labrador; in Newfoundland Department of Mines-Geological Survey Branch Open File 230 (29), 1988.

c) Posters

1985-86

Birkett, T.C., The Fleming Chert Breccia, Labrador Trough, at the Newfoundland Department of Mines and Energy, Annual Review of Activities, St. John's, November 1985; and at the Geological Survey of Canada, Current Activities Forum, Ottawa, January 22-23, 1986.

1986-87

van Gool, J., Calon, T. and Rivers, T., The Grenville Front Tectonic Zone, Bruce Lake area, western Labrador, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986.

1987-88

Birkett, T.C., Review of the Western Labrador Resource Assessment, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 20-21, 1987.

Birkett, T.C., Parrish, R., Findlay, J.M. and Watanabe, D., Igneous rocks of the Labrador Trough south of 55°, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November, 1987.

Findlay, J.M., Birkett, T.C., Fowler, A.D. and Richardson, D.G., Glomeroporphyritic gabbros of the Howse Lake area, Labrador, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987; and at the 56th Annual Meeting and Convention of the Prospectors and Developers Association of Canada, Toronto, March 1988.

van Gool, J., Brown, D., Calon, T. and Rivers, T., The Grenville Front thrust belt in western Labrador, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987.

Watanabe, D., Birkett, T.C., Fowler, A.D. and Richardson, D.G., Preliminary study of the mafic plutonic rocks of the Nimish Subgroup, Dyke Lake-Astray Lake area, Labrador, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987; and at the 56th Annual Meeting and Convention of the Prospectors and Developers Association of Canada, Toronto, March 1988.

#### d) Oral Presentations

1988-89

Birkett, T.C., Roberts, A.C. and Mariano, A.N., Zirconium minerals of the Strange Lake Alkalic Complex, Quebec-Labrador, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 23, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A10, 1988.

Birkett, T.C., A geological comparison of the Strange Lake, Labrador, and Thor Lake, Northwest Territories deposits, at the Newfoundland Department of Mines Review of Activities, St. John's, Newfoundland, November 3, 1988.

Connelly, J.N., van Gool, J.A.M. and Rivers, T., Molson Lake Terrane, a new terrane in the parautochthonous belt of the Grenville Province in southwestern Labrador, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 15, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A23, 1989.

Findlay, J.M., Fowler, A.D. and Birkett, T.C., Glomeroporphyritic gabbro of the Howse Lake area, Labrador, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A39, 1988.

Mariano, A.N. and Birkett, T.C., Cathodoluminescence in minerals of the Strange Lake Alkalic Complex, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 23, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A79, 1988.

van Gool, J.A.M., Calon, T.J. and Rivers, T., Thrust tectonics along the Grenville Front zone in western Labrador, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A129, 1988.

### 1.1.3 Metallogeny of carbonate terrane, Western Newfoundland (T.C. Birkett)

#### a) Publications

1985-86

Saunders, C.M. and Strong, D.F., Assessment of lead-zinc deposits of the western Newfoundland carbonate platform; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p. 229-237, 1986; abstract published in Newfoundland Department of Mines and Energy, Current Research Report 86-1, p. 321.

1987-88

Botsford, J.W., Geochemistry and petrology of Lower Paleozoic platform-equivalent shales, western Newfoundland; in Newfoundland Department of Mines and Energy, Current Research Report 88-1, p. 85-98, 1988.

c) Posters

1985-86

Saunders, C.M. and Strong, D.F., Carbonate-hosted lead-zinc mineralization, Western Newfoundland, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985; abstract published in Newfoundland Report of Activities for 1985, p. 38-39, 1985.

1986-87

Saunders, C. and Strong, D.F., Assessment of lead-zinc deposits of the western Newfoundland carbonate platform: field and laboratory components, at the Newfoundland Department of Mines and Energy, Annual Review of Activities, St. John's, November 1986.

Welhan, J. and Gale, J.E., Groundwater, trace metal and carbonate chemistry, Daniel's Harbour zinc mine, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986.

1987-88

Gale, J., Whelan, J. and Miller, W., Groundwater studies at Daniel's Harbour zinc mine, Newfoundland, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987.

d) Oral Presentations

1986-87

Welhan, J.A. and Gale, J.E., Groundwater trace metal and carbonate chemistry, Daniel's Harbour zinc mine, Newfoundland, at the GAC/MAC/CGU Joint Annual Meeting, Ottawa, May 20, 1986, abstract published in GAC/MAC/CGU '86, Program with Abstracts, v. 11, p. 143.

1987-87

Sangster, D.F., Nowlan, G.S., Strong, D.F., Saunders, C.M., Barnes, C.R. and Hitch, M.W., Are Mississippi Valley Type (MVT) deposits thermal anomalies?, at the Colloque international: Mobilité et Concentration des Métaux de Base dans les Couverture Sédimentaires: Manifestations, Mécanismes, Prospection, Paris, France; abstract published in conference program with abstracts, p. 53, 1988. (Not presented at meeting)

1988-89

Botsford, J.W., Sediment-hosted manganese in Newfoundland : Setting and significance, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 23, 1988, and at the Geological Association of Canada Newfoundland Section, 1988 Annual Technical Meeting, St John's, November 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A12, 1988; and in Maritime Sediments and Atlantic Geology, v. 24, no. 2, p. 220, 1988.

Botsford, J.W. and Sangster, D.F., Metal precipitation related to Lower Ordovician oceanic changes: Geochemical evidence from deep-water sedimentary sequences in western Newfoundland, at the International Association of Sedimentologists International Symposium on Sedimentology related to Mineral Deposits, Beijing, China, July 30 - August 4, 1988. (Not presented at meeting)

Millar, W.D., Welhan, J.A. and Gale, J.E., Geochemistry of groundwater-lake interaction in a carbonate terrain : Application to geochemical exploration, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A84, 1988.

Welhan, J.A., Millar, W.D. and Gale, J.E., Hydrogeochemistry and physical hydrogeology of a mining disturbed karst flow system, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A133, 1988.

1989-90

Sangster, D.F., Nowlan, G.S., Strong, D.F., Saunders, C.M., Barnes, C.R. and Hitch, M.W., Are Mississippi Valley Type (MVT) deposits thermal anomalies?, at the 28th International Geological Congress, Washington, D.C., July 11, 1989; abstract published in IGC Abstracts, vol. 3, p. 3-18, 1989.

#### 1.1.4 Metallogeny of Buchans-Roberts Arm Belt (H.S. Swinden)

##### a) Publications

1984-85

Mercer, B., Strong, D.F., Wilton, D.H.C. and Gibbons, D., The King's Point Complex, Western Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 85-1A, p. 737-741, 1985.

1985-86

Swinden, H.S. and Sacks, P.E., Stratigraphy and economic geology of the southern part of the Roberts Arm Group, central Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p. 213-220, 1986; abstract published in Newfoundland Department of Mines and Energy, Current Research Report 86-1, 1986.

**1986-87**

Swinden, H.S., Geology and mineral occurrences in the central and northern parts of the Roberts Arm Group, central Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 381-390, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 394, 1987.

Swinden, H.S., Metallogeny of the Buchans-Roberts Arm belt; in Report of Activities 1986, Newfoundland Department of Mines and Energy, p. 15-18, 1986.

**1987-88**

Calon, T.J. and Green, F.K., Preliminary results of detailed structural analysis at Buchans; in Buchans Geology, Newfoundland, ed. R.V. Kirkham, Geological Survey of Canada, Paper 86-24, p. 273-288, Report 17, 1987.

Dunning G.R., Kean, B.F., Thurlow, J.G., and Swinden, H.S., Geochronology of the Buchans, Roberts Arm and Victoria Lake Groups and Mansfield Cove Complex, Newfoundland; Canadian Journal of Earth Sciences, v., 24, no. 6, p. 1175-1184, 1987.

Kirkham, R.V., Tectonic setting of the Buchans Group; in Buchans Geology, Newfoundland, ed. R.V. Kirkham, Geological Survey of Canada, Paper 86-24, p. 23-34, Report 1, 1987.

Swinden, H.S., Geology of the area west of New Bay Pond, Notre Dame Bay, and redefinition of the "Frozen Ocean Group"; in Report of Activities 1987, Newfoundland, Department of Mines and Energy, p. 19-23, 1987.

Swinden, H.S., Re-examination of the Frozen Ocean Group: juxtaposed Middle Ordovician and Silurian volcanic sequences in central Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 88-1B, p. 221-225, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 467, 1988.

Szybinski, Z.A., Geology and structural relationships of the Cutwell Group, western Notre Dame Bay; in Report of Activities 1987, Newfoundland Department of Mines and Energy, p. 81-83, 1987.

Szybinski, Z.A., New interpretation of the structural and stratigraphic setting of the Cutwell Group, Notre Dame Bay, Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 88-1B, p. 263-270, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 466, 1988.

**1988-89**

Evans, D.T.W., Metallogenic map of the Central Mobile Belt, Newfoundland; in Report of Activities 1988, Geological Survey Branch, Newfoundland Department of Mines, p. 9, 1988.

Hudson, K.A. and Swinden, H.S., Geology and petrology of the Handcamp gold prospect, Robert's Arm Group, Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 89-1B, p. 93-105, 1989; abstract published in Current Research Report 89-1, Geological Survey of Newfoundland, Department of Mines, p. 306, 1989.

O'Brien, F.H.C. and Szybinski, Z.A., Conodont faunas from the Catchers Pond and Cutwell groups, central Newfoundland; in Current Research Report 89-1, Geological Survey of Newfoundland, Newfoundland Department of Mines, p. 121-125, 1989.

Swinden, H.S., Jenner, G.A., Kean, B.F. and Evans, D.T.W., Volcanic rock geochemistry as a guide to exploration for volcanogenic sulphides: Examples from central Newfoundland; in Report of Activities 1988, Geological Survey Branch, Newfoundland Department of Mines, p. 16-18, 1988.

Swinden, H.S., Volcanogenic sulphide deposits of the Wild Bight Group, Notre Dame Bay; in The volcanogenic sulphide districts of central Newfoundland, Geological Association of Canada-Mineral Deposits Division, Field Trip Guidebook (compiled and edited by H.S. Swinden and B.F. Kean), p. 178-192, 1988.

Swinden, H.S., Strong, D.F. and Kay, A., Volcanogenic sulphide occurrences of eastern Notre Dame Bay: The Moreton's Harbour and Twillingate areas; in The volcanogenic sulphide districts of central Newfoundland, Geological Association of Canada-Mineral Deposits Division, Field Trip Guidebook (compiled and edited by H.S. Swinden and B.F. Kean), p.199-208, 1988.

Swinden, H.S. and Dean, P.L., Road logs for the Botwood-New Bay excursion; in The volcanogenic sulphide districts of central Newfoundland, Geological Association of Canada-Mineral Deposits Division, Field Trip Guidebook (compiled and edited by H.S. Swinden and B.F. Kean), p. 209-216, 1988.

Swinden, H.S., Road log for the road to the Isles/Moreton's Harbour excursions; in The volcanogenic sulphide districts of central Newfoundland, Geological Association of Canada-Mineral Deposits Division, Field Trip Guidebook (compiled and edited by H.S. Swinden and B.F. Kean), p. 217-226, 1988.

Swinden, H.S., Tuach, J., Kean, B.F. and Dean, P.L., Road log for the Badger-Beothuk trail excursion; in The volcanogenic sulphide districts of central Newfoundland, Geological Association of Canada-Mineral Deposits Division, Field Trip Guidebook (compiled and edited by H.S. Swinden and B.F. Kean) p. 131-143, 1988.

Swinden, H.S., Jenner, G.A., Kean, B.F. and Evans, D.T.W., Volcanic rock geochemistry as a guide for massive sulphide exploration in Central Newfoundland; in Current Research Report 89-1, Geological Survey of Newfoundland, Newfoundland Department of Mines, p. 201-219, 1989.

Szybinski, Z.A., Geology of the Cutwell Group, Notre Dame Bay, Newfoundland: A disrupted volcanic-volcaniclastic island-arc complex; in Current Research Report 89-1, Geological Survey of Newfoundland, Newfoundland Department of Mines, p. 141-147, 1989.

c) Posters

1985-86

Swinden, H.S., Metallogeny of the southern part of the Roberts Arm Belt, Newfoundland, at the Geological Survey of Canada, Current Activities Forum, Ottawa, January 1986; and at the 54th Annual General Meeting and Convention of the Prospectors and Developers Association, Toronto, March 1986.

Swinden, H.S. and Sacks, P.E., Metallogeny of the southern part of the Roberts Arm Group, central Newfoundland, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986; abstract published in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 32-37, 1985.

1986-87

Green, K., Detailed structural geology of the Buchans Mine area, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986.

Swinden, H.S., Geology and mineral occurrences in the north-central Roberts Arm Group, at the Newfoundland Department of Mines and Energy, Annual Review of Activities, St. John's, November 1986.

Szybinski, Z.A. and Jenner, G., The metallogeny of the Catchers Pond and Western Arm groups, at Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986.

1987-88

Swinden, H.S., Re-examination of the Frozen Ocean Group: juxtaposed middle Ordovician and Silurian volcanic sequences in central Newfoundland, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987.

Szybinski, Z.A., New interpretation of the structural and stratigraphic setting of the Cutwell Group, Notre Dame Bay, Newfoundland, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987.

1988-89

Hudson, K.A., Geology and origin of the Handcamp Prospect, central Newfoundland, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1988.

O'Brien, F.H.C. and Szybinski, Z.A., Lower Middle Ordovician fauna from the Cutwell Group (central Newfoundland): Its implications on stratigraphy and structure, at the 5th International Symposium on the Ordovician System, St. John's, Newfoundland, August 9-12, 1988; abstract published in Program with Abstracts, p. 68.

Szybinski, Z.A. and Jenner, G.A., Paleotectonic setting of the Ordovician volcanic rocks in the northwestern Dunnage zone, Newfoundland, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 15, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A40, 1989.

d) Oral Presentations

1985-86

Swinden, H.S., Geochemical setting of volcanogenic sulphide mineralization in the Wild Bight Group, central Newfoundland, at the GAC/MAC Joint Annual Meeting, Fredericton, May 15, 1985; abstract published in GAC/MAC Program with Abstracts, v. 10, p. A60, 1985.

Swinden, H.S., What's new in the Roberts Arm Group? , at the Newfoundland Department of Mines and Energy, Mineral Development Division Colloquium Series, St. John's, February 1986.

Swinden, H.S., Precious metal distribution in Ordovician volcanogenic massive sulphide deposits, central Newfoundland, at the Geological Society of America, Northeastern Section, 21st Annual Meeting, Kiamesha Lake, New York, March 14, 1986; abstract published in Geological Society of America 21st Annual Meeting, Northeastern Section Program with Abstracts, v. 18, no.1, p. 70, 1986.

1986-87

Swinden, H.S., Gold in massive sulphides in central Newfoundland, at the Newfoundland Department of Mines, Mineral Development Division Colloquium Series, St. John's, March 1987.

1987-88

Swinden, H.S., Paleotectonic settings of Early Paleozoic sulphide deposits in central Newfoundland, Special Canadian Institute of Mining and Metallurgy lecture tour to Acadia, Mount Allison and St. Francis Xavier Universities, Nova Scotia and the University of New Brunswick, New Brunswick, February 1988.

Swinden, H.S., Redefinition of the Frozen Ocean Group, central Newfoundland, at the Newfoundland Department of Mines, Mineral Development Division Colloquium Series, St. John's, February 1988.

Swinden, H.S., Lead isotope studies of volcanogenic sulphides: Application to paleotectonic interpretations of the Newfoundland Dunnage zone, at the Atlantic Geoscience Society, 1988 Colloquium, Antigonish, February 1988; abstract published in Maritime Sediments and Atlantic Geology, v. 24, no. 2, p. 215, 1988.



1988-89

Calon, T.J. and Szybinski, Z.A., Lobster Cove Fault : Dextral strike slip fault system, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A17, 1988.

Hudson, K.A., Geology of the Handcamp Prospect, at the Newfoundland Department of Mines, Mineral Development Division Colloquium Series, St. John's, March 1989.

Jenner, G.A. and Swinden, H.S., Trace element and isotopic geochemistry of the Pipestone Pond Complex, Newfoundland : Complex magmatism in an eastern Dunnage zone ophiolite, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 17, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A96, 1989.

O'Brien, F.H.C. and Szybinski, Z.A., Implications of the conodont fauna on the stratigraphy and structure of the Cutwell Group, central Newfoundland, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 15, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A15, 1989.

Swinden, H.S., Lead isotopes and tectonostratigraphic terranes in the northern Appalachians, at the Newfoundland Department of Mines, Mineral Development Division Colloquium Series, St. John's, January 1989.

Swinden, H.S., Petrogenesis of an early Ordovician rifted arc sequence in central Newfoundland, invited lecture to the Student Chapter of the Society of Economic Geologists, University of Western Ontario, London, Ontario, March 1989.

Swinden, H.S., Ore deposits as rocks: Lead isotopes, massive sulphides and Appalachian terrains, invited lecture to the Student Chapter of the Society of Economic Geologists, University of Western Ontario, London, Ontario, March 1989.

Swinden, H.S., LeHuray, A.P. and Slack, J.F., Appalachian terrane correlations suggested by lead isotopic analyses of volcanogenic massive sulphides-Project 233, at the IGCP Annual Meeting, Terranes in the Variscan Belt of France and Western Europe, Montpellier, France; abstract published in Program with Abstracts, p. 76, 1988.

Swinden, H.S., LeHuray, A.P. and Slack, J.F., Lead isotopes in volcanogenic sulphides in the northern Appalachian: Applications to correlation of paleotectonic terranes, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 23, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A121, 1988.

Swinden, H.S., Jenner, G.A. and Kean, B.F., The significance of refractory source melting in volcanogenic sulphide mineralization : Examples from central Newfoundland, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 15, 1989; abstract in GAC/MAC Program with Abstracts, v. 14, p. A22, 1989.

1989-90

Calon, T.J. and Green, F.K., Structure of the Buchans Mine area: New approaches to exploration, at the Annual Spring Meeting of the Newfoundland Section of the Geological Association of Canada, St. John's, 1989.

### 1.1.5 Metallogeny, Newfoundland ophiolites (J.W. Lydon)

#### a) Publications

1985-86

Dunsworth, S., Calon, T., and Malpas, J., Structural and magmatic controls on the internal geometry of the plutonic complex and its chromite occurrences in the Bay of Islands ophiolite, Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p. 471-482, 1986; abstract published in Newfoundland Department of Mines and Energy, Current Research, Report 86-1, p. 319, 1986.

Strong, D.F. and Saunders, C.M., Geological setting of sulphide mineralization at Tilt Cove, Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p. 319-325, 1986; abstract published in Newfoundland Department of Mines and Energy, Current Research, Report 86-1, p. 322, 1986

Strong, D.F. and Saunders, C.M., Geological setting of sulphide mineralization, Tilt Cove, Newfoundland; in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 42-45, 1985.

Zwicker, E.J. and Strong, D.F., The Great Bend ophiolite, eastern Newfoundland: field investigations; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p. 393-397, 1986; abstract published in Newfoundland Current Research, Report 86-1, p. 324, 1986.

Zwicker, E.J. and Strong, D.F., Magnesite-Talc mineralization in the Great Bend ophiolite, Eastern Newfoundland, in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 40, 1985.

1986-87

Dahl, R. and Watkinson, D.H., Structural control of podiform chromite in Bay of Islands ophiolite, Springer Hill area, Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 86-1B, p. 757-766, 1986; abstract published in Newfoundland Current Research Report 87-1, p. 385, 1987.

1988-89

Calon, T.J., Dunsworth, S.D. and Suhr, G., The Bay of Islands Ophiolite - Trip B8; Geological Association of Canada Field Trip Guidebook, May 1988, 92 pp.

Lydon, J.W., Lavigne, J. and Carrigan, W., Investigations of potential PGE environments in Newfoundland ophiolites; in Report of Activities 1988, Geological Survey Branch, Newfoundland Department of Mines, p. 77-79, 1988.

Strong, D.F. and Saunders, C.M., Ophiolitic sulphide mineralization at Tilt Cove, Newfoundland: Controls by upper mantle and crustal processes; *Economic Geology*, v. 83, no. 2, p. 239-255, 1988.

c) Posters

1985-86

Dunsworth, S., The Springers Hill chromite deposit, Bay of Islands, Newfoundland, at the Newfoundland Department of Mines and Energy, Annual Review of Activities, St. John's, November 1985.

Schwann, P.L., Hudson, K.A. and Lydon, J.W., Chromite in ophiolitic complexes of Newfoundland, Bluff Head Deposit, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 22-23, 1986, and at the 54th Annual General Meeting and Convention of the Prospectors and Developers Association, Toronto, March 1986.

1986-87

Dunsworth, S., Calon, T.J. and Malpas, J., Magmatic and structural history of the Bay of Islands plutonic complex and its associated chromite-PGE mineralization, at the GAC/MAC/CGU Joint Annual Meeting, Ottawa, May 21, 1986; abstract published in GAC/MAC/CGU'86, Program with Abstracts, v. 11, p. 66.

Hudson, K.A., Gold occurrences in the Betts Cove-Tilt Cove area, Northwest Newfoundland, at Newfoundland Department of Mines and Energy, Annual Review of Activities, St. John's, November 1986.

Lydon, J.W. and Richardson, D.G., PGE distribution in sulphide occurrences of magmatic affinity in the Bay of Islands ophiolite complex, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 1987; and at the Geo-Platinum'87 Symposium, Buckinghamshire, United Kingdom, Open University, Milton Keynes, April 23-24, 1987; abstract published in Proceedings of the Geo-Platinum 87 Symposium, edited by H.M. Prichard, P.J. Potts, J.F.W. Bowles and S.J. Cribb, p. 251-252, 1988.

1987-88

Dunsworth, S.M. and Calon T.J., Magmatic and structural history of the Lewis Hills Massif and associated chromite mineralization, Bay of Islands ophiolite, Newfoundland, at the Newfoundland Dept. of Mines Annual Review of Activities, St. John's, November 1987.

Dunsworth, S.M. and Calon, T.J., The Mount Barren assemblage of the Lewis Hills Massif, Bay of Islands ophiolite: not a fossil oceanic fracture zone, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986, and at the GAC/MAC Joint Annual Meeting, Saskatoon, May 26, 1987; abstract published in GAC/MAC 1987, Program with Abstract, v. 12, p. 39.

Lydon, J.W., Al, T., Richardson, D.G. and Lancaster, R., Processes of platinum and gold enrichment in ophiolitic rocks of Newfoundland, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 1988; and at the 56th annual meeting and convention of the Prospectors and Developers Association of Canada, Toronto, March 1988.

Talkington, R.W., Watkinson, D.H. and Jones, P., Platinum-group minerals, iron nickel, and iron-cobalt alloys in chromitite, Lewis Hills Massif, Bay of Islands Complex, Newfoundland, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 25, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A122, 1988.

1988-89

Lydon, J.W. and Lavigne, J.G., Precious metal mineralization of Betts Cove ophiolite, Newfoundland, at the Geological Survey of Canada Current Activities Forum, Ottawa, Ontario, January 16-18, 1989; and at the 57th Annual Meeting and Convention of the Prospectors and Developers Association of Canada, Toronto, Ontario, March 5-8, 1989.

Suhr, G. and Calon, T., Structural domains in the upper mantle section of the Table Mountain Massif (Bay of Islands Ophiolite), Newfoundland, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A121, 1988.

#### d) Oral Presentations

1986-87

Talkington, R.W., Calon, T., Dunsworth, S., Malpas, J., Dahl, R., and Watkinson, D.H., Chromitite deposits of the Springer's Hill area, Bay of Islands ophiolites, Newfoundland: platinum-group element mineralogy and whole rock abundances at the GAC/MAC/CGU Joint Annual Meeting, Ottawa, May 19, 1986; abstract published in GAC/MAC/CGU '86 Program with Abstracts, v. 11, p. 134.

1987-88

Edwards, S.J., Melt generation and evolution in ophiolite mantle at the GAC/MAC Joint Annual Meeting, Saskatoon, May 25, 1987; abstract published in GAC/MAC 1987 Program with Abstracts, v. 12, p. 41.

Lydon, J.W., The potential for hydrothermal platinum deposits, at the Geo-Platinum'87 Symposium, Buckinghamshire, United Kingdom, Open University, Milton Keynes, April 24, 1987; abstract published in Proceedings of the Geo-Platinum 87 Symposium, edited by H.M. Prichard, P.J. Potts, J.F.W. Bowles and S.J. Cribb, p. 111-112, 1988.

Lydon, J.W., Processes of platinum and gold enrichment in ophiolitic rocks of Newfoundland: Some preliminary results, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1987.

Suhr, G. and Calon, T., Structural history of a mantle segment in the Lewis Hills Massif (Bay of Islands ophiolite, Newfoundland), at the GAC/MAC Joint Annual Meeting, Saskatoon, May 27, 1987; abstract published in GAC/MAC 1987 Program with Abstract, v. 12, p. 93.

1988-89

Dunsworth, S. and Calon, T.J., Field relations in the Lewis Hills Massif, Bay of Islands Ophiolite : A history of synkinematic, multiple intrusive oceanic crustal accretion, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A34, 1988.

Edwards, S.J., Melt generation and evolution in ophiolite mantle and the development of mantle heterogeneities, at the Geological Association of Canada Newfoundland Section, 1988 Annual Technical Meeting, St. John's, November 1988; abstract published in Maritime Sediments and Atlantic Geology, v. 24, no.2, p. 221, 1988.

Edwards, S.J., Magmatic events preserved in a mantle section of the Lewis Hills Massif, Bay of Islands Ophiolite, western Newfoundland, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A35, 1988.

Hudson, K.A., Gold/base metal mineralization and related alteration in the Nippers Harbour ophiolite, Newfoundland, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 23, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A58, 1988.

#### 1.1.6 Metallogeny of Carboniferous terranes and reference stratigraphic drilling (R.V. Kirkham)

No outputs

#### 1.1.7 Analytical services support (A.G. Plant)

Analytical data/results were provided directly to project geologists.

#### 1.1.8 Chetwynd geochronological study (H.S. Swinden)

##### a) Publications

1989-90

Dunning, G.R. and O'Brien, S.J., Late Proterozoic-early Paleozoic crust in the Hermitage flexure, Newfoundland Appalachians: U/Pb ages and tectonic significance; Geology, v. 17, p. 548-551, June 1989.

## 1.2 GEOLOGICAL INVESTIGATIONS SUBPROGRAM

### 1.2.1 Geology of the Southern Long Range (K.L. Currie)

#### a) Publications

1986-87

Currie, K.L., A preliminary account of the geology of Harry's River map area, southern Long Range of Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 653-662, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 397, 1987.

Piasecki, M.A.J., Possible basement-cover relationships in the Fleur de Lys terrane, western Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 87-1, p. 391-397, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 395, 1987.

van Berkel, J.T., Geology of the Dashwoods Pond, St. Fintan's and Main Gut map areas, southwest Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 399-408, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 396, 1987.

van Berkel, J.T., Johnston, H.P., and Currie, K.L., A preliminary report on the geology of the southern Long Range, southwest Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 86-1B, p. 157-170, 1986; abstract published in Newfoundland Current Research Report 87-1, p. 386, 1987.

1987-88

Fox, D. and van Berkel, J.T., Mafic-ultramafic occurrences in metasedimentary rocks of southwestern Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 88-1B, p. 41-48, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 465, 1988.

Piasecki, M.A.J., A major ductile shear zone in the Bay d'Espoir area, Gander terrane, southeastern Newfoundland; in Current Research Report 88-1, Newfoundland Department of Mines, p. 135-144, 1988.

van Berkel, J.T. and Currie, K.L., Geology of the Puddle Pond (12A/5) and Little Grand Lake (12A/12) map areas, southwestern Newfoundland; in Current Research Report 88-1, Newfoundland Department of Mines, p. 99-107, 1988.

1988-89

Currie, K.L., Geology of the Southern Long Range; in Report of Activities 1988, Geological Survey Branch, Newfoundland Department of Mines, p. 75-76, 1988.

Piasecki, M.A.J., Strain-induced mineral growth in ductile shear zones and a preliminary study of ductile shearing in western Newfoundland; Canadian Journal of Earth Sciences, v. 25, no. 12, December 1988, p. 2118-2129.

**b) Open Files**

**1986-87**

Currie, K.L., Geology, Harry's River area (12B/9; 12A/12), western Newfoundland; Geological Survey of Canada, Open File 1406, 1 map, scale 1:50,000, January 1987.

van Berkel, J.T. and Currie, K.L., Geology of the southern Long Range, southwest Newfoundland (12A/4, 5, 12; 12B/1, 2, 8, 9E); Geological Survey of Canada, Open File 1328, 1 map, scale 1:100,000, July 1986.

**1987-88**

van Berkel, J.T., Geology of Main Gut map area (12B/8), southwest Newfoundland; Geological Survey of Canada, Open File 1467, 1 map, scale 1:50,000, May 1987.

van Berkel, J.T., Geology of Dashwoods Pond (12B/1) and part of St. Fintan's (12B/2) map areas, southwest Newfoundland; Geological Survey of Canada, Open File 1466, 1 map, scale 1:50,000, May 1987.

**1988-89**

van Berkel, J.T. and Currie, K.L., Geological map of the southern Long Range, southwest Newfoundland (12A/4, 5, 12; 12B/1, 2, 8, 9); Geological Survey of Canada, Open File 1758, 1 map, scale 1:100,000, April 1988.

van Berkel, J.R. and Currie, K.L., Geology of Little Grand Lake (12A/12) and Puddle Pond (12A/5) map areas, southern Long Range of Newfoundland; Geological Survey of Canada, Open File 1738, 2 maps, scale 1:50,000, April 1988.

**c) Posters**

**1985-86**

van Berkel, J. and Currie, K.L., Geology of the Southern Long Range, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985, and at the Canadian Tectonics Workshop, Halifax, November 1985.

**1986-87**

van Berkel, J.T., The southern Long Range, Newfoundland, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986.

**1987-88**

Fox, D., Mafic-ultramafic occurrences in the southern Long Range Mountains, Newfoundland, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987.

van Berkel, J.T., Geology of the Puddle Pond (12A/5) and Little Grand Lake (12A/12) map areas, southwest Newfoundland, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987.

**d) Oral Presentations**

1986-87

van Berkel, J., Geology of the Southern Long Range, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986.

**1.2.2 Geology of the Northern Long Range (K.L. Currie)**

**a) Publications**

1985-86

Owen, J.V., Geology of the Silver Mountain area, western Newfoundland; in Current Research, Part A, Geological Survey of Canada, Part 86-1A, p. 515-522, 1986; abstract published in Newfoundland Department of Mines and Energy, Current Research, Report 86-1, p. 320, 1986.

Owen, J.V., Summary of field work in the Silver Mountain Area (12H/11), Western Newfoundland, in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 95-97, 1985.

1986-87

Erdmer, P., Geology of the Long Range Inlier in Sandy Lake map area, western Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 86-1B, p. 19-27, 1986; abstract published in Newfoundland Current Research, 87-1, p. 387, 1987.

Owen, J.V., Campbell, J.E.M., and Dennis, F.A.R., Geology of the Lake Michel area, Long Range Inlier, western Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 643-652, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 398, 1987.

Owen, J.V. and Erdmer, P., Precambrian and Paleozoic metamorphism in the Long Range Inlier, western Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 86-1B, p. 29-38, 1986; abstract published in Newfoundland Current Research Report 87-1, p. 388, 1987.

Owen, J.V. and Machin, D.C., Petrography and geochemistry of some mafic dykes in the Long Range Inlier, western Newfoundland; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 305-316, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 399.

1988-89

Owen, J.V., Geology of the Long Range Inlier; in Report of Activities 1988, Geological Survey Branch, Newfoundland Department of Mines, p. 74, 1988.

Owen, J.V. and Erdmer, P., The Grenvillian Long Range Inlier of the Great Northern Peninsula, Newfoundland-Trip B7; Geological Association of Canada Field Trip Guidebook, May 1988, 36 pp.



1989-90

Owen, J.V. and Erdmer, P., (in press), Middle Proterozoic geology of the Long Range Inlier, western Newfoundland: Regional significance and tectonic implications; in C.F. Gower, T. Rivers and B. Ryan (Editors), Mid-Proterozoic geology of the southern margin of Proto-Laurentia-Baltica, Geological Association of Canada, Special Paper, 1989.

Owen, J.V., Greenough, J.D. and Bellefontaine, K.A., (in press), Preservation of primary geochemical signatures in polymetamorphosed tholeiite: The Long Range dyke swarm, Newfoundland; Lithos, v. 23, 1989.

Owen, J.V. and Erdmer, P., Metamorphic geology and regional geothermobarometry of a Grenvillian massif: The Long Range Inlier, Newfoundland; Precambrian Research, v. 43, nos. 1-2, p. 79-100, April 1989.

#### b) Open Files

1985-86

Erdmer, P., Precambrian geology of the northern Long Range inlier, western Newfoundland (12); Geological Survey of Canada, Open File 1310, 1 map at 1:100,000 scale, 1986.

Owen, J.V., Geology of the Silver Mountain area, western Newfoundland (12H/11); Geological Survey of Canada, Open File 1279, 1 map at 1:50,000 scale, 1986.

1987-88

Owen, J.V., Geology of the central part of the Long Range Inlier, western Newfoundland (12I/2, 3, 4, 6, 7, 8, 9, and 10); Geological Survey of Canada, Open File 1505, 1 map at 1:100,000 scale, June 1987.

#### c) Posters

1985-86

Owen, J.V., Geology of the Northern Long Range, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985.

1986-87

Erdmer, P., The Long Range Inlier of western Newfoundland: Humber Zone basement window or thrust slice?, at the GAC/MAC/CGU Joint Annual Meeting, Ottawa, May 20, 1986; abstract published in GAC/MAC/CGU '86, Program with Abstracts, v. 11, p. 67.

Owen, J.V., The geology of the Long Range Inlier, western Newfoundland, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 1987.

Owen, J.V., Geology of the northern Long Range, at Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986.

1988-89

Owen, J.V., Geological compilation of the Long Range Inlier, western Newfoundland (1:250,000), at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1988.

d) Oral Presentations

1988-89

Erdmer, P. and Owen, J.V., The record of five orogenies in the Long Range Inlier of Newfoundland, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 23, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A38, 1988.

Owen, J.V. and Erdmer, P., Middle Proterozoic geology of the Long Range Inlier, Newfoundland, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 25, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A93, 1988.

### 1.3 REGIONAL GEOCHEMISTRY SUBPROGRAM

#### 1.3.1 Regional geochemical surveys (E.H. Hornbrook)

a) Publications

1986-87

Friske, P.W.B., Regional reconnaissance geochemical surveys, northern Labrador; in Report of Activities for 1986, Newfoundland Department of Mines and Energy, p. 108-109, 1986.

b) Open Files

1985-86

Regional lake sediment and water geochemical reconnaissance data, Province of Newfoundland (Labrador) (NTS 13A, parts of 3D, 2M and 12P); Geological Survey of Canada, Open File 1102, 21 maps and report, 1985.

1986-87

Regional lake sediment and water geochemical reconnaissance data, Labrador, Parts of 14E,F, and L; 24H, I; Geological Survey of Canada, Open File 1210, 100 p., 22 maps, scale 1:250 000, July 1986.

Regional lake sediment and water geochemical reconnaissance data, Labrador, Parts of 14C,D; 24A; Geological Survey of Canada, Open File 1209, 110 p., 18 maps, scale 1:250 000, July 1986.

1987-88

Regional stream sediment and water geochemical reconnaissance data, northern Labrador (parts of 14L, 14M, 24I, 24P, 25A); Geological Survey of Canada, Open File 1354, 140 p., 25 maps, July 22, 1987.

1988-89

Regional stream and lake sediment and water geochemical infill survey data, Province of Newfoundland (Labrador) (Parts of 13J and 13O); Geological Survey of Canada, Open File 1637, 100p., 52 maps, August 30, 1988.

Regional lake sediment and water geochemical reconnaissance data, Province of Newfoundland (Labrador) (Parts of 23I, 23J and 23O; Geological Survey of Canada, Open File 2037, 185p., 47 maps, October 1989.

c) Posters

1984-85

Friske, P.W.B., Hornbrook, E.H.W. and Ellwood, D.J., Regional lake sediment and water data, Province of Newfoundland (Labrador), at the 11th International Geochemical Exploration Symposium, Toronto, April 28 to May 2, 1985.

1985-86

Friske, P.W.B., Regional reconnaissance geochemical surveys, Labrador, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 7, 1985.

Friske, P.W.B., Hornbrook, E.H.W. and Ellwood, D.J., Regional lake sediment and water geochemical data, Province of Newfoundland (Labrador), at the 54th Annual General Meeting and Convention of the Prospectors and Developers Association, Toronto, March 1986.

1.3.2 Follow-up of regional geochemical anomalies (E.H. Hornbrook)

(Project transferred to Newfoundland Department of Mines and Energy in 1986.)

c) Posters

1985-86

Butler, J., Geochemical follow-up surveys, Labrador Trough, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985; abstract published in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 105-106, 1985; and in Current Research, Newfoundland Department of Mines and Energy, Report 86-1, p. 221-222, 1986.

McConnell, J., Exploration geochemical studies of Labrador granitoids, at the Newfoundland Department of Mines and Energy; abstract published in Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 102-104, 1985; and in Current Research Newfoundland Department of Mines and Energy, Report 86-1, p.219-220, 1986.

### 1.3.3 Additional analyses of archived samples (E.H. Hornbrook)

#### b) Open Files

1988-89

Regional lake sediment and water geochemical reconnaissance data, Province of Newfoundland (Labrador), (Parts of 13I, 13J, 13K, 13N and 13O); Geological Survey of Canada, Open File 1636, 150p., 47 maps, August 16, 1988.

## 1.4.GEOPHYSICS SUBPROGRAM

### 1.4.1 Airborne gamma ray spectrometer and VLF surveys (K.A. Richardson)

#### a) Publications

1986-87

Geological Survey of Canada, Colour gamma ray spectrometry maps, Burgeo-Red Indian Lake, Newfoundland; map 35005G, consisting of a set of seven 1:250 000 scale colour spectrometric maps (7 parameters), covering NTS 11P/9, 10, 11, 14, 15, 16 and 12A/1, 2, 3), March 1987.

Geological Survey of Canada, Gamma ray spectrometry, Tasisuak Lake, Labrador-Quebec; maps 35001G (14D/SW) and 35002G (14D), scale 1:250 000 in colour, May 1986.

Geological Survey of Canada, Geophysical series maps of an airborne gamma ray spectrometric, VLF and magnetic survey, southwestern Newfoundland; 1:50 000 radiometric contour maps with accompanying 1:150,000 stacked profile booklets, including maps: 35112(13)G-Corner Brook; 35112(12)G-Little Grand Lake; 35112(05)G-Puddle Pond, 35112(04)G-King George IV Lake; 36611(13)G-Peter Snout; 36611(12)G-Burgeo; 35212(09)G-Harry's River; 35212(08)G-Main Gut; 35212(01)G-Dashwoods Pond; 36511(16)G-La Poile River; 35212(07)G-Flat Bay; 35212(02)G-St. Fintan's; 36511(15)G-Grandy's Lake; 36511(10)G-Rose Blanche; 36511(11)G-Port aux Basques; and map 39004G, scale 1:250,000, VLF total field and quadrature profile maps of entire survey area, March 25, 1987.

1987-88

Geological Survey of Canada, Gamma ray spectrometer survey with VLF and magnetics in the Belleoram-Gander Lake area of Newfoundland; 1:50,000 radiometric contour maps with accompanying booklets of stacked profiles, including maps: 35402(01)G - Tug Pond; 35402(02)G - Meta Pond; 35402(03)G - Mount Sylvester; 35402(04)G - Twillick Brook; 35402(06)G - Great Gull Lake; 35402(07)G - Kepenkeck Lake; 35402(08)G - Port Blandford; 35402(09)G - Glovertown; 35402(10)G - Dead Wolf Pond; 35402(11)G - West Gander River; 36301(09)G - Harbour Buffett; 36301(10)G - Terrenceville; 36301(11)G - Belleoram-Pointe Enragee; 36301(12)G - Gaultois - Harbour Buffett; 36301(13)G - St. Alban's; 36301(14)G - Hungry Grove Pond; 36301(15)G - Gisborne Lake; 36301(16)G - Sound Island; 36611(08)G - Pass Island-Facheux Bay; and VLF total

field and quadrature profile maps at scale 1:250,000 of south-central Newfoundland survey area, March 23, 1988.

1988-89

Geological Survey of Canada, Airborne gamma ray spectrometric, VLF and magnetic survey, Great Northern Peninsula area, Newfoundland; 1:50,000 radiometric contour maps with accompanying booklets of stacked profiles, including maps: 35812(05)G-E 1/4-Lomond; 35812(06)G-NW 1/4-Cormack; 35812(10)G-W 1/2-Hampden; 35812(11)G-Silver Mountain; 35812(12)G-E 1/4-Gros Morne; 35812(13)G-E 1/4-St. Pauls inlet; 35812(14)G-Main River; 35812(15)G-W 1/2-Jackson's Arm; 35912(02)G-Cats Arm River; 35912(03)G-Indian Lookout; 35912(04)G-E 1/4-Portland Creek; 35912(06)G-Bellburns; 35912(07)G-Harbour Deep; 35912(08)G-W 1/2-Great Harbour Deep; 35912(09)G-Enalee; 35912(10)G-Torrent River; 35912(11)G-SE 2/3-Port Saunders; 35912(15)G-E 2/3-Castors River; 35912(16)G-W 2/3-Roddicton; and 1:250,000 VLF total field and quadrature profile maps of the entire survey area, June 29, 1988.

b) Open Files

1989-90

Geological Survey of Canada, Preliminary release of airborne gamma ray spectrometric colour maps at 1:250,000 scale, Baie-Verte area, Newfoundland (parts of 2E, 2L, 12H, 12I); Geological Survey of Canada Open File 1993, 10 colour maps and booklets of stacked profiles, July 26, 1989.

c) Posters

1986-87

Ford, K.L., Ternary radioelement map of southwest Newfoundland, at Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986; and at the 55th annual meeting and convention of the Prospectors and Developers Association of Canada, Toronto, March 8-11, 1987.

1988-89

Richardson, K.A., Applications of regional airborne gamma ray spectrometry to geological mapping and mineral deposit studies, at Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 2-4, 1988.

1989-90

Ford, K.L., Shives, R.B.K., Carson, J.M., Grant, J.A., Holman, P.B. and Hetu, R., Applications of regional airborne gamma-ray spectrometry in the Appalachian region of Canada, at the 28th International Geological Congress, Washington, D.C., July 11, 1989; abstract published in IGC Abstracts, vol. 1, p. 1-500, 1989.

## 1.4.2 Aeromagnetic gradiometer/VLF EM (E.E. Ready)

### a) Publications

1986-87

Geological Survey of Canada, High resolution aeromagnetic total field and vertical gradiometer surveys of the Lake Ambrose area, Newfoundland; maps: 21121G to 21136G, scale 1:25,000-aeromagnetic total field; 41121G to 41136G, scale 1:25,000-vertical gradient; C21137G to C21141G, scale 1:50 000-combined aeromagnetic total field and VLF EM total field profiles; and C41137G to C41141G, scale 1:50 000, combined aeromagnetic vertical gradient and VLF EM quadrature profiles, December 19, 1986.

1988-89

Geological Survey of Canada, High resolution aeromagnetic total field and vertical gradiometer surveys of the Springdale area, Newfoundland; 1:25,000 scale aeromagnetic total field maps 21313G to 21331G; 1:25,000 scale vertical gradient maps 41313G to 41331G; 1:50,000 scale combined aeromagnetic (residual total field) and VLF EM total field profiles-C21332G to C21337G; 1:50,000 scale combined aeromagnetic vertical gradient and VLF EM quadrature profiles-C41332G to C41337G, October 24, 1988.

Tod, J. and Ready, E.E., Aeromagnetic total field/gradiometer, VLF survey, central Newfoundland 1986/87; in Current Research Report 89-1, Geological Survey of Newfoundland, Newfoundland Department of Mines, p. 279-282, 1989; abstract published in Report of Activities 1988, Geological Survey Branch, Newfoundland Department of Mines, p. 95-96, 1988.

Tod, J. and Ready, E.E., Aeromagnetic total field, gradiometer, and VLF-EM survey of part of the Dunnage Zone, central Newfoundland; in Current Research, Part B, Geological Survey of Canada, Paper 89-1B, p. 23-27, 1989; abstract published in Current Research Report 89-1, Geological Survey of Newfoundland, Newfoundland Department of Mines, p. 307, 1989.

### c) Posters

1985-86

Hood, P., Aeromagnetic gradiometer surveys, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985.

1987-88

Geological Survey of Canada aeromagnetic contract survey group, Aeromagnetic total field, gradiometer, VLF surveys, Newfoundland, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 1988.

1988-89

Tod, J. and Ready, E.E., Newfoundland MDA-Aeromagnetic total field/gradiometer/VLF survey, 1986-87, at the Geological Survey of Canada Current Activities Forum, Ottawa, Ontario, January 16-18, 1989.

### 1.4.3 Geophysical tests, mines (P.G. Killeen)

#### a) Publications

1987-88

Mwenifumbo, C.J., *Mise-à-la-masse experiments in the MacLean extension orebody; in* Buchans Geology, Newfoundland, ed. R.V. Kirkham; Geological Survey of Canada, Paper 86-24, p. 251-261, Report 15, 1987.

Mwenifumbo, C.J. and Killeen, P.G., *Natural gamma ray logging in volcanic rocks: The Mudhole and Clementine base metal prospects; in* Buchans Geology, Newfoundland, ed. R.V. Kirkham; Geological Survey of Canada, Paper 86-24, p. 263-272, Report 16, 1987.

Sinha, A.K. and Stephens, L.E., *Deep multifrequency and transient electromagnetic surveys near Buchans; in* Buchans Geology, Newfoundland, ed. R.V. Kirkham; Geological Survey of Canada, Paper 86-24, p. 235-250, Report 14, 1987.

#### c) Posters

1985-86

Mwenifumbo, C.J., *Downhole geophysics results, Newfoundland Zinc Mine, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985.*

1986-87

Killeen, P.G. and Schock, L.D., *Making borehole geophysics quantitative: development of calibration facilities, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 1987; and at the 55th Annual Meeting and Convention of the Prospectors and Developers Association of Canada, Toronto, March 8-11, 1987.*

#### d) Oral Presentations

1986-87

Killeen, P.G. and Mwenifumbo, C.J., *Borehole geophysics, application of new techniques to exploration at the 55th Annual Meeting and Convention of the Prospectors and Developers Association of Canada, Toronto, March 11, 1987.*

## 1.5 OVERBURDEN STUDIES SUBPROGRAM

### 1.5.1 Glacial dispersal, Labrador (R.A. Klassen)

#### a) Publications

1985-86

Klassen, R.A. and Bolduc, A.M., Ice flow trends and drift composition, Flowers River area, Labrador; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p. 697-702, 1986; abstract published in Newfoundland Current Research, Report 86-1, p. 317, 1986.

Thompson, F.J. and Klassen, R.A., Ice flow directions and drift composition, central Labrador; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p. 713-717, 1986; abstract published in Newfoundland Current Research, Report 86-1, p. 318, 1986.

1986-87

Bolduc, A.M., Klassen, R.A., and Evenson, E.B., Cobble lithologies in eskers of central Labrador; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 43-51, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 389, 1987.

Klassen, R.A. and Thompson, F.J., Ice flow history and glacial dispersal in the Labrador Trough; in Current Research, Part A, Geological Survey of Canada, Paper 87-1A, p. 61-71, 1987; abstract published in Newfoundland Current Research Report 87-1, p. 390, 1987.

1987-88

Klassen, R.A., Relationship between glacial history and drift composition; *Journal of Geochemical Exploration*, v. 29, p. 421-422, 1987.

Klassen, R.A. and Thompson, F.J., Studies of glacial history and glacial dispersal, Labrador; in Report of Activities 1987, Newfoundland Department of Mines and Energy, p. 106-107, 1987.

Klassen, R.A. and Thompson, F.J., Glacial studies in Labrador; in Current Research, Part C, Geological Survey of Canada, Paper 88-1C, p. 109-116, 1988; abstract published in Newfoundland Current Research Report 88-1, p. 464, 1988.

#### b) Open Files

1986-87

Klassen, R.A., Bolduc, A.M., Burns, R.K. and Thompson, F.J., Till geochemistry, Flowers River area, Labrador; Geological Survey of Canada, Open File 1282, 15 maps at 1:100,000 scale, 1986.

Thompson, F.J., Klassen, R.A. and Burns, R.K., Till geochemistry, Rigolet, Labrador (13J); Geological Survey of Canada, Open File 1318, 10 maps, September 1986.



Thompson, F.J., Klassen, R.A. and Burns, R.K., Till geochemistry, Snegamook Lake, Labrador (13K); Geological Survey of Canada, Open File 1319, 17 maps, September 1986.

Thompson, F.J., Klassen, R.A. and Burns, R.K., Till geochemistry, Kasheshibaw Lake, Labrador (13L); Geological Survey of Canada, Open File 1320, 16 maps, September 1986.

1988-89

Thompson, F.J., Klassen, R.A. and Burns, R.K., Till geochemistry, Dyke Lake, Quebec-Newfoundland (Labrador) (23NE); Geological Survey of Canada, Open File 1901, 11 maps (1:500,000), September 1988.

c) Posters

1985-86

Klassen, R.A., Thompson, F.J. and Bolduc, A.M., Regional Quaternary studies in Labrador, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985; and at the Geological Survey of Canada, Current Activities Forum, Ottawa, January 22-23, 1986.

1986-87

Klassen, R.A. and Thompson, F.J., Quaternary studies of ice flow history and drift composition Labrador, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1986; and at the Geological Survey of Canada Current Activities Forum, Ottawa, January 20-21, 1987; abstract published in Report of Activities for 1986, Newfoundland Department of Mines and Energy, p.138-140, 1986.

1987-88

Klassen, R.A. and Thompson, F.J., Quaternary studies of ice flow history and drift-composition, Labrador, at the Newfoundland Department of Mines Annual Review of Activities, St. John's, November 1987.

Klassen, R.A. and Thompson, F.J., Regional and detailed patterns of glacial dispersal, Labrador, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 1988.

1988-89

Bolduc, A.M., Evenson, E.B. and Klassen, R.A., A model for the formation of the Lac Brisson esker, Quebec - Labrador based on detailed compositional and morphological analysis, at the Annual Meeting of the Geological Society of America, Denver, Colorado, November 2, 1988; abstract published in Geological Society of America Abstracts with Programs, v. 20, no. 7, p. A285, 1988.

Klassen, R.A. and Thompson, F.J., The glacial history and Quaternary stratigraphy of Labrador, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A67, 1988.

d) Oral Presentations

1985-86

Klassen, R.A., Relationship between glacial history and drift composition, at The Association of Exploration Geochemists 11th International Geochemical Exploration Symposium, Toronto, April 30, 1985; abstract published in Programme and Abstracts, p. 65, 1985.

Klassen, R.A., Dispersal centres of the Laurentide ice sheet in Labrador and eastern Quebec, at the GAC/MAC Joint Annual Meeting, Fredericton, May 17, 1985; abstract published in GAC/MAC Program with Abstracts, v. 10, p. A31, 1985.

Klassen, R.A., Glacial history and drift composition in Labrador, at the Geological Survey of Canada, Current Activities Forum, Ottawa, January 20-21, 1986; abstract published in Geological Survey of Canada, Paper 86-8, p. 10, 1986).

1986-87

Klassen, R.A. and Thompson, F.J., Glacial history and dispersal train configurations in Labrador, at the Geological Survey of Canada Current Activities Forum, Ottawa, January 20-21, 1987; abstract published in Geological Survey of Canada, Paper 87-8, p. 1, 1987.

Klassen, R.A. and Thompson, F.J., Ice flow history and glacial dispersal patterns, Labrador, at the 89th Annual General Meeting of the Canadian Institute of Mining and Metallurgy, Toronto, May 5, 1987; abstract published in CIM Bulletin, v. 80, no. 899. p. 65, March 1987

1987-88

Klassen, R.A., Glacial history and ice flow trends: A basis for drift prospecting, at the 56th Annual General Meeting and Convention of the Prospectors and Developers Association of Canada, Toronto, March 1988.

Klassen, R.A., A proposal for the late-glacial history of northern Labrador and northeastern Quebec, at the VI Congress de l'association québécois pour l'étude d'quaternaire (AQQUA), Rimouski, Québec, September 1988.

Klassen, R.A., and Thompson, F.J., Ice flow history and glacial dispersal patterns, Labrador, at the 89th Annual General Meeting of CIM, Toronto, May 5, 1987; and at the International Union for Quaternary Research, XII International Congress, Ottawa, August 1, 1987; abstract published in INQUA '87 Programme with Abstracts, p. 201.

1988-89

Bolduc, A.M., Evenson, E.B. and Klassen, R.A. , Transport distances of coarse debris during esker formation: An insight from eskers in Labrador, at the GAC/MAC/CSPG Joint Annual Meeting, St. John's, Newfoundland, May 24, 1988; abstract published in GAC/MAC/CSPG Program with Abstracts, v. 13, p. A12, 1988.

1989-90

Bolduc, A.M., Klassen, R.A. and Evenson, E.B., Glacial and fluvioglacial transport of peralkaline debris: Lac Brisson esker, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 17, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A131, 1989.

Klassen, R.A. and Thompson, F.J., The Payne Centre and a late-glacial ice stream in southern Labrador, at the GAC/MAC Annual Meeting, Montreal, Quebec, May 17, 1989; abstract published in GAC/MAC Program with Abstracts, v. 14, p. A131, 1989.

### 1.5.2 Surficial geology, Labrador (R.A. Klassen)

(Project transferred to Newfoundland Department of Mines and Energy in 1986.)

#### a) Publications

1985-86

Batterson, M. and LeGrow, P., Quaternary exploration and surficial mapping in Letitia Lake area, Newfoundland; in Current Research, Newfoundland Department of Mines and Energy, Report 86-1, p. 257-265, 1986.

#### c) Posters

1985-86

Batterson, M. and LeGrow, P., Quaternary mapping and drift exploration in the Letitia Lake area, Labrador, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 1985; abstract published in Newfoundland Report of Activities for 1985, Newfoundland Department of Mines and Energy, p. 117-119, 1985.

## GEOSCIENCE PROGRAM

### 1.6.1 Overhead costs (W.H. Poole)

No outputs

**PUBLIC INFORMATION, EVALUATION AND ADMINISTRATION PROGRAM**

**Co-ordination of federal geoscience program (W.H. Poole)**

**c) Posters**

**1984-85**

**Mineral Development Program Office, Index map showing location of GSC projects within Newfoundland MDA during 1984-85, at the Newfoundland Dept. of Mines and Energy Annual Review of Activities, St. John's, November 1, 1984**

**1985-86**

**Mineral Development Program Office, Index map showing location of GSC projects within Newfoundland MDA during 1985-86, at the Newfoundland Dept. of Mines and Energy Annual Review of Activities, St. John's, November 7, 1985.**

**1986-87**

**Mineral Development Program Office, Index map showing location of GSC projects within Newfoundland MDA during 1986-87, at the Newfoundland Dept. of Mines Annual Review of Activities, St. John's, November 6, 1986.**

**1987-88**

**Mineral Development Program Office, Index map showing location of GSC projects within Newfoundland MDA during 1987-88, at the Newfoundland Dept. of Mines and Energy Annual Review of Activities, St. John's, November 1987.**

**1988-89**

**Mineral Development Program Office, Index map showing location of GSC projects within Newfoundland MDA during 1988-89, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, Newfoundland, November 1988.**

**d) Oral Presentations**

**1984-85**

**Poole, W.H., The New Federal-Provincial Mineral Development Agreement, at the Newfoundland Department of Mines and Energy Annual Review of Activities, November 1, 1984.**

**1985-86**

**Birkett, T.C., Review of projects by the Geological Survey of Canada, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 7, 1985.**

1986-87

Lydon, J.W., Review of projects by the Geological Survey of Canada, at the Newfoundland Department of Mines and Energy Annual Review of Activities, St. John's, November 6, 1986.

