

**PAPER 74-5****NATIONAL ADVISORY COMMITTEE
ON RESEARCH IN THE
GEOLOGICAL SCIENCES****CURRENT RESEARCH IN THE
GEOLOGICAL SCIENCES IN CANADA
1973-74**

Compiled by
THOMAS E. BOLTON

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**GEOLOGICAL SURVEY
PAPER 74-5**

**NATIONAL ADVISORY COMMITTEE
ON RESEARCH IN THE
GEOLOGICAL SCIENCES**

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GEOLOGICAL SCIENCES IN CANADA
1973-74**

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1974

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CURRENT RESEARCH IN THE GEOLOGICAL
SCIENCES IN CANADA, JUNE, 1973 - MAY, 1974

The research projects listed in this compilation have been obtained mainly from the universities, federal and provincial department of mines, and non-industrial institutions carrying on research in the geological sciences; with the exception of a few projects by some of the larger oil companies, the compilation does not include research by mining and oil company geologists.

Some projects in geophysics and other fields concerned with geology and geological problems were reported and are herein included; comprehensive reports on geophysical research in Canada are published annually in the Canadian Geophysical Bulletin on Seismology and Physics of the Earth's Interior and Geomagnetism.

The survey was made between November, 1973 and January, 1974 and records research in progress from about June, 1973 to May, 1974.

The compilation is useful in enabling research workers to see who are working in similar fields and on similar problems. It indicates lines of research receiving the greatest attention. It also serves to record the large number of research projects undertaken as graduate theses in our universities, of which the results are available in manuscript form in university libraries.

Success in assembling project titles and other information for such a compilation *depends entirely on the response of institutions and research worker*. Acknowledgment is made in particular to those who assembled and forwarded the data on research projects

in the organizations under their direction. Readers carrying on research projects in geology and in allied fields of interest to geologists and which they consider should be included should notify the Secretary, National Advisory Committee on Research in the Geological Sciences, 601 Booth Street, Ottawa, K1A 0E8.

Use of the Compilation

In this compilation, projects are grouped under main headings that cover the different branches of the geological and allied sciences. The reader can thus find out readily the research in progress in the field in which he is interested. Many contributors provided, in addition to the title, a short statement on the subject under investigation and references to their most recent publication on the project. Those recorded in detail in the report of Current Research in the Geological Sciences in Canada, 1972-73, Geological Survey of Canada, Paper 73-5, 1973, are included in this year's survey by title only, unless new information was provided.

Many projects that seem to fall equally well under more than one heading are repeated under these headings. An index (p. 85) lists after each investigator the number of each project, as listed in the compilation, on which he is currently engaged.

AREAL GEOLOGY

Alberta

1. Bayrock, L. A. , Alberta Research:
Wapiti area, NTS Sheet 83L, 1972-74.

Waterways area, NTS Sheet 74D, 1973-74.
2. Bayrock, L. A. , Boydell, A. N. , Alberta Research:
Rocky Mountain House area, NTS Sheet 83B,
1969-74.

A map is in final stages of editing.
3. Fahrig, W. F. , Geol. Surv. Can. :
Basin analysis of the Athabasca sedimentary basin,
1968-.
4. Godfrey, J. D. , Alberta Research:
Precambrian mapping - Fort Chipewyan district,
1970-.

Precambrian mapping - Bocquene-Disappointment
Lakes district, 1973-.

Precambrian mapping - Ryan-Fletcher Lakes
district, 1972-.

Precambrian mapping - Wylie Lake district, 1971-.
5. Ollerenshaw, N. C. , Geol. Surv. Can. :
Geology of the southern Alberta Foothills, High-
wood River to Athabasca River, Alberta, 1970-.
6. Price, R. A. , Mountjoy, E. W. , Aitken, J. D. ,
Queen's Univ. , and Geol. Surv. Can. :
Operation Bow Athabasca, Alberta and British
Columbia, 1965-77.

British Columbia

7. Campbell, R. B. , Geol. Surv. Can. :
Operation Mount St. Elias, Yukon and British
Columbia, 1973-.

See Operation St. Elias; Geol. Surv. Can. ,
Paper 74-1, pt. A, p. 11-12, 1974.
8. Gabrielse, H. , Geol. Surv. Can. :
Operation Finlay, British Columbia, 1970-.

See Operation Finlay; Geol. Surv. Can. , Paper
74-1, pt. A, p. 13-16, 1974.
9. Hutchison, W. W. , Geol. Surv. Can. :
Prince Rupert-Skeena map-areas, British
Columbia, 1962-.
10. McMillan, W. J. , British Columbia Dept. Mines
Petrol. Resources:
Geology and mineral deposits of the Guichon
Creek Batholith, 1969-75.
11. Monger, J. W. H. , Geol. Surv. Can. :
Upper Paleozoic rocks of Stikine Arch, British
Columbia, 1969-.
12. Muller, J. E. , Geol. Surv. Can. :
Geology of northern Vancouver Island, British
Columbia, 1968-.

See Victoria map-area (92B, C), Pacific Rim
National Park, Vancouver Island, B. C. ; Geol.
Surv. Can. , Paper 74-1, pt. A, p. 21-23, 1974.

Geology of Victoria map-area, British Columbia,
1973-.
13. Northcote, K. E. , British Columbia Dept. Mines
Petrol. Resources:
Geology and mineral deposits of Rupert Inlet -
Cape Scott map-area, Vancouver Island, B. C. ,
1968-74.

Geology of the Iron Mask Batholith, 1974-76.
14. Preto, V. A. , British Columbia Dept. Mines Petrol.
Resources:
Nicola project, 1972-75.

Study of the stratigraphy, structure and minerali-
zation of the Upper Triassic Nicola Group in
south-central British Columbia.
15. Reesor, J. E. , Geol. Surv. Can. :
Blanket Mountain area, British Columbia, 1972-.
16. Richards, T. , Geol. Surv. Can. :
Hazelton map-area, British Columbia, 1972-.

See Hazelton east-half (93M east-half); Geol.
Surv. Can. , Paper 74-1, pt. A, p. 35-37, 1974.
17. Roddick, J. A. , Geol. Surv. Can. :
Coast Mountains project, 1963-.
18. Taylor, G. C. , Geol. Surv. Can. :
Operation Smoky, British Columbia and Alberta,
1968-.

See Devonian stratigraphy, facies changes, and
zinc-lead mineralization, southwestern Halfway
River area (94B), northeastern British Columbia;
Geol. Surv. Can. , Paper 74-1, pt. A, p. 327-
331, 1974.

AREAL GEOLOGY

19. Tipper, H. W. , Geol. Surv. Can. :
Taseko Lakes map-area, British Columbia, 1961-

Smithers map-area, British Columbia, 1969-.
20. Stott, D. F. , Geol. Surv. Can. :
Cretaceous stratigraphy, Peace River to 60°,
British Columbia, 1961-.
25. Weber, W. , Schledewitz, D. , Lamb, C.,
Thomas, K. , Manitoba Mines Branch:
Kasmere project, Manitoba, 1971-74.

Geology, structural and metamorphic history, and
tectonostratigraphic synthesis of the Manitoba
portion of the Wollaston Fold Belt and its rela-
tionship to the Hurwitz Group in southern
Keewatin.

Manitoba

21. Elbers, F. J. , Gilbert, H. P. , Marten, B. E. ,
Hubregtse, J. J. M. W. , Manitoba Mines Branch:
Greenstones project, Manitoba, 1971-75.

See Greenstones project, Manitoba Mines Branch,
Geol. Surv. Can. , Paper 2/73, 1973.

Investigation of the geological evolution of the
volcano-sedimentary belts in northeastern Manitoba
with special emphasis on: chemical petrology of
the volcanic rocks; petrology of granitoid intru-
sions; deformational and metamorphic history;
mineralization.

22. Ermanovics, I. F. , Geol. Surv. Can. :
Berens River, Deer Lake map-area, Manitoba-
Ontario, 1969-.
- Precambrian geology of Norway House, Grand
Rapids and Berens River W $\frac{1}{2}$ map-areas, Manitoba,
1971-.

23. McRitchie, W. D. , Zwanzig, H. V. , Frohlinger,
T. G. , Baldwin, D. A. , Manitoba Mines Branch:
Burntwood project, Manitoba, 1970-75; Ph. D.
theses (Frohlinger, Baldwin).

See Burntwood project 1973; Manitoba Mines
Branch, Geol. Paper 2/73, 1973.

To provide a basis for an ongoing evaluation of the
geological environment of the Lynn Lake-Flin Flon
and Thompson region. Regional mapping of the
metasedimentary gneisses and associated anatectic
derivatives of the Burntwood River gneissic belt
will be completed during 1974 and more detailed
structural and stratigraphic studies will be initi-
ated at the same time in the predominantly meta-
volcanic terrain of the Hughes and Barrington
Lakes region. Detailed structural, metamorphic,
petrological, geochemical, geochronological and
mineral deposit investigations are being conducted
as an integral part of the overall assessment.

24. Weber, W. , Manitoba Mines Branch:
Geology of the High Hill-Silsby Lakes greenstone
belt, 1974.

New Brunswick

26. Greiner, H. R. , Univ. New Brunswick:
Biostratigraphy of the Silurian-Devonian in the
Chaleur area, New Brunswick, 1969-75.

Maps of the Campbellton, Oak Bay (east half),
Restigouche (west half), and Belledune areas have
been completed.

27. Ruitenbergh, A. A. , Giles, P. S. , Venugopal, D. V. ,
Howells, K. D. M. , Buttimer, S. M. , McCutchem,
S. R. , Chandra, T. , New Brunswick Dept. Natural
Resources:
Caledonia project, 1970-74. Annidale-Nerepis
project, 1973-76.

See "Fundy cataclastic zone", New Brunswick:
Evidence for post Acadian penetrative deforma-
tion; Bull. Geol. Soc. Amer. , vol. 84, p. 3029-
3044, 1973. V. L. F. -E. M. magnetic and gamma-
ray maps of the Lake George Antimony Mine
area; New Brunswick Dept. Nat. Resources, 1973.

Geologic maps of the Late Precambrian belt
(Caledonia area) at scale 1:50,000 have been
completed and publication is expected early in 1974.
The Annidale-Nerepis project is a detailed strati-
graphic, structural and metallogenic investiga-
tion of this Silurian belt. Geophysical work is
concerned with detailed V. L. F. -E. M. high
sensitivity magnetics and gamma-ray spectrometry.

28. Skinner, R. , Geol. Surv. Can. :
Juniper (east half) map-area, New Brunswick,
1971-.

Newfoundland and Labrador

29. Anderson, F. D. , Geol. Surv. Can. :
Belleoram map-area, Newfoundland, 1960-.
30. Cumming, L. M. , Geol. Surv. Can. :
Operation Strait of Belle Isle, 1968-.

31. Fong, C. C. K. , Newfoundland Dept. Mines and Energy:
Regional mapping St. Georges Bay-Codroy Valley Carboniferous areas, western Newfoundland, 1973-75.
- At conclusion of the 1973 field season, most of the exposures along the southern shore of St. Georges Bay that, with two exceptions, are exclusively rocks of the Codroy Group were examined.
32. Greene, B. A. , Newfoundland Dept. Mines and Energy:
Geology of the Burin-Bonavista area, Newfoundland, 1973-78.
33. Jackson, G. D. , Geol. Surv. Can. :
Opocopa map-area, Quebec-Labrador, 1963-.
- :
Northwest Territories
34. Aitken, J. D. , Balkwill, H. R. , Cook, D. G. , Klassen, R. W. , Yorath, C. J. , Geol. Surv. Can. :
Operation Norman, District of Mackenzie, 1967-.
- To complete reconnaissance geologic mapping, to conduct stratigraphic and structural studies, and to evaluate the economic potential of bedrock formations in northern Mackenzie Mountains, Franklin Mountains, and adjacent plains.
35. Blusson, S. L. , Geol. Surv. Can. :
Operation Selwyn, 1965-.
36. Christie, R. L. , Geol. Surv. Can. :
Operation Prince of Wales, District of Franklin, 1962-.
- Operation Grant Land - northeastern Ellesmere Island and northwestern Greenland, 1963-.
- See Northeastern Ellesmere Island: Lake Hazen region and Judge Daly Promontory; Geol. Surv. Can. , Paper 74-1, pt. A, p. 297-299, 1974.
37. Fraser, J. A. , Geol. Surv. Can. :
Operation Coppermine and Bathurst Inlet, districts of Keewatin and Mackenzie, 1969-.
38. Frith, R. A. , Geol. Surv. Can. :
Indin Lake map-area (86B), District of Mackenzie, 1972-.
- See Geology of the Indin Lake area (86B), District of Mackenzie; Geol. Surv. Can. , Paper 74-1, pt. A, p. 165-171, 1974.
39. Henderson, J. B. , Geol. Surv. Can. :
Yellowknife and Hearne Lake map-areas, District of Mackenzie, 1970-.
40. Heywood, W. W. , Geol. Surv. Can. :
Operation northern Melville Peninsula, District of Franklin, 1970-.
- See Geological reconnaissance of northern Melville Peninsula, District of Franklin (parts of 47A, B, C, D); Geol. Surv. Can. , Paper 74-1, pt. A, p. 381, 1974.
- Operations Back River and Wager, Northwest Territories, 1970-.
41. Hoffman, P. F. , Geol. Surv. Can. :
Sloan River map-area, District of Mackenzie, 1973-.
- See Volcanism and plutonism, Sloan River map-area (86K), Great Bear Lake, District of Mackenzie; Geol. Surv. Can. , Paper 74-1, pt. A, p. 173-176, 1974.
42. Jackson, G. D. , Geol. Surv. Can. :
Operation Penny Highlands, District of Franklin, 1969-.
43. Kerr, J. W. , Geol. Surv. Can. :
Axel Heiberg and Ellesmere Islands, District of Franklin, 1961-.
- Southwestern Ellesmere - western Devon Islands (Operation Grinnell), District of Franklin, 1967-.
44. McGlynn, J. C. , Geol. Surv. Can. :
Calder River map-area, District of Mackenzie, 1973-.
- See Geology of the Calder River map-area (86F), District of Mackenzie; Geol. Surv. Can. , Paper 74-1, pt. A, p. 383-385, 1974.
45. Sanford, B. V. , Geol. Surv. Can. :
Paleozoic geology of the Hudson Bay region, 1971-.
46. Thorsteinsson, R. , Geol. Surv. Can. :
Cornwallis and adjacent smaller islands, District of Franklin, 1965-.
- Ontario
47. Amukun, S. E. , Ontario Division of Mines:
Geology of Tashota area, Thunder Bay Mining district, Ontario, 1973-74.
- See Tashota area, District of Thunder Bay; Ontario Division of Mines, Misc. Paper 56, p. 85-90, 1973.

AREAL GEOLOGY

48. Bennett, G. , Ontario Division of Mines:
Geology of the Lang-Stover area, Ontario, 1971-74.
49. Blackburn, C. E. , Ontario Division of Mines:
Lower Manitou-Uphill Lakes area, District of
Kenora, 1971-73.
- See Lower Manitou-Uphill Lakes area, District of
Kenora; Ontario Division of Mines, Prel. Map
P816, 1973.
- Upper Manitou Lake area, District of Kenora,
1973-74.
- See Upper Manitou Lake area, District of Kenora;
Ontario Division of Mines, Misc. Paper 56,
p. 20-24, 1973.
- Kenora-Fort Frances Sheet, Ontario, 1973-76.
50. Bond, W. D. , Ontario Division of Mines:
Geology of McCubbin, Poisson and McGillis Town-
ships, Ontario, 1971-.
- Geology of Conant, Jutten and Smye Townships,
Ontario, 1972-74.
- Houghton-Hough Lakes area (Savant Lake area),
District of Thunder Bay, Ontario, 1973-75.
- See Houghton-Hough Lakes area (Savant Lake area),
District of Thunder Bay; Ontario Division of Mines,
Misc. Paper 56, p. 25-32, 1973.
51. Bright, E. G. , Hunt, D. S. , Ontario Division of
Mines:
Timmins geological data series, compilation and
geological interpretative maps (District of
Cochrane, Ontario), 1971-75.
52. Card, K. D. , Ontario Division of Mines:
Geology of the Lake Panache area, Ontario,
1974-75.
53. Card, K. D. , Innes, D. G. , Ontario Division of
Mines:
Geology of the Benny area, Ontario, 1973-75.
- See Benny area, District of Sudbury; Ontario
Division of Mines, Misc. Paper 56, p. 111-117,
1973.
54. Carter, M. W. , Ontario Division of Mines:
Macmurchy and Tyrrell Townships area, Ontario,
1971-74.
- Leonard and Fawcett Townships area, Ontario,
1972-74.
- Area underlain by mafic to felsic volcanic rocks,
intruded by granite and diabase dikes. These
rocks are all overlain by sediments of the Cobalt
Group which are intruded by Nipissing diabase
sills.
- Connaught and Churchill Townships, Ontario,
1973-74.
55. de Grys, J. W. , Lovell, H. , Ontario Division of Mines:
Lorrain Township map and marginal notes,
Ontario, 1973-74.
- See Lorrain Township, southern part, District of
Timiskaming; Ontario Division of Mines, Misc.
Paper 56, p. 148-151, 1973.
56. Fenwick, K. G. , Ontario Division of Mines:
Lang-Cannon Lakes, District of Kenora, Patricia
Portion, Ontario, 1969-.
57. Fenwick, K. G. , Srivastava, P. , Ontario Division
of Mines and Sir George Williams Univ. :
Lampport and Duckworth Townships, District of
Thunder Bay, Ontario, 1972-74.
58. Fenwick, K. G. , Weinstock, F. D. , Ontario Division
of Mines:
Geology of Blackwell-Laurie Townships, District
of Thunder Bay, Ontario, 1973-.
- See Blackwell and Laurie Townships, District of
Thunder Bay; Ontario Division of Mines, Misc.
Paper 56, p. 75-79, 1973.
59. Frarey, M. J. , Geol. Surv. Can. :
Huronian rocks north of Lake Huron, 1961-.
- Lake Panache and Collins Inlet areas, Ontario,
1964-.
60. Giblin, P. E. , Leahy, E. J. , Robertson, J. A. ,
Sage, R. P. , Siragusa, G. M. , Thurston, P. C. ,
Ontario Division of Mines:
Sault Ste. Marie-Elliot Lake Sheet, Ontario,
1973-74.
61. Jensen, L. S. , Ontario Division of Mines:
Geology of Elliott, Tannahill, Dokis and Thackeray
Townships, District of Cochrane, Ontario,
1971-74.
- See Thackeray Township, District of Cochrane;
Ontario Division of Mines, Prel. Map P843, 1973.
- Geology of Stoughton and Marriot Townships,
District of Cochrane, Ontario, 1972-74.

- See Stoughton Township, District of Cochrane; Ontario Division of Mines, Prel. Map P823, 1973.
Marriot Township, District of Cochrane; Ontario Division of Mines, Prel. Map P824, 1973.
- Lightning River area, Ontario, 1972-74.
- Part of a study of the petrogenesis of the Archean volcanic rocks north of Kirkland Lake, Ontario.
62. Kaye, L. , Ontario Division of Mines:
Geology of the Rowan Lake area, District of Kenora, Ontario, 1972-74.
- Geology of the Crow Lake area, District of Kenora, Ontario, 1973-74.
63. Kustra, C. R. , Thurston, P. C. , Ontario Division of Mines:
Obonga-Leigh Lakes area, Ontario, 1966-.
64. Liberty, B. A. , Brock Univ. :
Southwestern Ontario - Paleozoic mapping, 1967-75.
65. Lovell, H. , Ontario Division of Mines:
Geology and scenery in and near the Lake Timiskaming rift valley, Ontario, 1969-.
- Lebel Township map, Ontario, 1969-.
66. Lovell, H. , Frey, E. D. , Ontario Division of Mines:
New Liskeard area, Ontario, 1970-.
- Gauthier Township map, Ontario, 1972-75.
- Englehart-Earlton area, Ontario, 1972-74.
- Evanturel, Ingram, Pense, Armstrong, Hilliard and Brethour Townships, District of Timiskaming; Ontario Division of Mines, Misc. Paper 53, p. 117-118, 1972.
67. Lumbers, S. B. , Royal Ontario Museum:
Geology of the Mattawa-Deep River area, Ontario, 1971-75.
- See Mattawa-Deep River area, District of Nipissing and County of Renfrew; Ontario Division of Mines, Misc. Paper 56, p. 144-147, 1973.
68. Mackasey, W. O. , Ontario Division of Mines:
Geology of Eva and Summers Townships, District of Thunder Bay, Ontario, 1967-74.
- Geology of Barbara, Meader and Pither Townships, District of Thunder Bay, Ontario, 1970-75.
- Geology of Legault, Colter, Lapierre and Hipel Townships, District of Thunder Bay, Ontario, 1973-75.
- See Legault and Colter Townships, District of Thunder Bay; Ontario Division of Mines, Misc. Paper 56, p. 91-94, 1973.
69. McIlwaine, W. H. , Ontario Division of Mines:
The geology of McTavish Township, District of Thunder Bay, Ontario, 1971-74.
- Area contains numerous Pb-Zn and amethyst veins which are associated with the non-conformity between Early Precambrian granitoids and the Late Precambrian Sibley Group.
- Dorion-Wolf Lake area, District of Thunder Bay, Ontario, 1972-.
70. McIlwaine, W. H. , Chorlton, L. B. , Ontario Division of Mines:
Geology of the Sapawe Lake area, District of Rainy River, Ontario, 1973-75.
- See east half of Sapawe Lake area, District of Rainy River; Ontario Division of Mines, Misc. Paper 56, p. 71-74, 1973.
71. Meyn, H. D. , Ontario Division of Mines:
Scholes and Clement Townships, Ontario, 1972-74.
- See Scholes and Clement Townships, District of Nipissing; Ontario Division of Mines, Misc. Paper 56, p. 139-143, 1973.
72. Norris, A. W. , Geol. Surv. Can. :
Operation Winisk, 1967-.
73. Pryslak, A. P. , Ontario Division of Mines:
Corless, Dent, Knott and Mitchell Townships, District of Kenora (Patricia Portion), Ontario, 1969-.
- Geology of the Narrow Lake-Shabumeni River area, District of Kenora (Patricia Portion), Ontario, 1971-.
- See Shabumeni River-Narrow Lake area (north-eastern part); Ontario Division of Mines, Prel. Map P901, 1973.
74. Pyke, D. R. , Ontario Division of Mines:
Redstone River area, District of Timiskaming, Ontario, 1970-74.
- Peterlong Lake area, Districts of Timiskaming and Sudbury, Ontario, 1972-74.
- Timmins area, Districts of Cochrane and Timiskaming, Ontario, 1973-75.
- See Timmins area, District of Cochrane; Ontario Division of Mines, Misc. Paper 56, p. 127-132, 1973.

AREAL GEOLOGY

75. Riley, R. A. , Ontario Division of Mines:
Townships of Ball, Todd, Fairlie and Byshe,
District of Kenora, Patricia Portion, Ontario,
1970-.
76. Robertson, J. A. , Ontario Division of Mines:
Geology of Massey area, District of Sudbury,
Ontario, 1966-75.
- Flack Lake-Mount Lake area, Ontario, 1969-74.
- See A review of recently acquired geological data
Blind River-Elliot Lake area; Geol. Assoc. Can. ,
Sp. Paper 12, p. 169-198, 1973.
77. Robertson, J. A. , Card, K. D. , Ontario Division of
Mines:
The Southern Province - regional geology, 1973.
- See The Southern Province; Geol. Assoc. Can. ,
Sp. Paper 11, p. 335-380, 1973.
78. Rupert, R. J. , Ontario Division of Mines:
Township 29, range 23 and environs, Ontario,
1970-74.
79. Sage, R. P. , Breaks, F. W. , Ontario Division of
Mines:
Operation Pickle Lake, Ontario, 1972-74.
- Operation Ignace-Armstrong, Ontario, 1973-75.
- See Operation Ignace-Armstrong, Districts of
Kenora, Rainy River, and Thunder Bay; Ontario
Division of Mines, Misc. Paper 56, p. 38-70,
1973.
80. Siemiatkowska, K. M. , Ontario Division of Mines:
Wakomata Lake area (east half), District of
Algoma, Ontario, 1973-74.
- See Wakomata Lake area (east half), District of
Algoma; Ontario Division of Mines, Misc. Paper
56, p. 106-110, 1973.
- The area consists of Township 182, east half of
Township 188, and the northern parts of Gould and
Grasett Townships, and is located at the contact
between the Superior and Southern Provinces of
the Canadian Shield. The rocks can be subdivided
into three major units: 1) Early Precambrian
felsic plutonic and mafic intrusive rocks; 2) Mid-
dle Precambrian sedimentary rocks of the Huron-
ian Supergroup and post-Huronian mafic intrusive
rocks; 3) Cenozoic (Pleistocene and Recent),
unconsolidated sediments.
81. Siemiatkowska, K. M. , Robertson, J. A. , Ontario
Division of Mines:
Massey-Webbwood area, District of Sudbury,
Ontario, 1971-74.
82. Siragusa, G. M. , Ontario Division of Mines:
Geology of the Kabinakagami Lake area, Ontario,
1972-74.
- Geology of the Nameigos-Simpson area, Ontario,
1973-75.
- See Nameigos, Mosambik, Carney, Doucett,
Cudney, and Simpson Townships, District of
Algoma; Ontario Division of Mines, Misc. Paper
56, p. 95-99, 1973.
83. Siragusa, G. M. , Thurston, P. C. , Sage, R. P. ,
Ontario Division of Mines:
Operation Chapleau, Ontario, 1969-74.
- Operation Winisk Lake, Ontario, 1970-.
84. Thurston, P. C. , Ontario Division of Mines:
The Shawmere anorthosite - its regional setting,
Ontario, 1970-.
- North Onaman area, Ontario, 1972-.
- See North Onaman area (western half); Ontario
Division of Mines, Prel. Map P846, 1973.
North Onaman area (eastern half); Ontario
Division of Mines, Prel. Map P847, 1973.
- Geology of Earngey, Birkett, Agnew and Costello
Townships, Ontario, 1973-75.
- See Earngey-Costello Townships area, District
of Kenora; Ontario Division of Mines, Misc.
Paper 56, p. 8-15, 1973.
- Detailed mapping in the Uchi volcanic belt with
emphasis on volcanologic aspects and the rela-
tionship between the Slate Lake metasediments
to the south and the volcanic pile.
85. Trowell, N. , Ontario Division of Mines:
Quest Lake-Sturgeon Lake area, District of
Thunder Bay, Ontario, 1971-74.
- Squaw Lake-Sturgeon Lake area, District of
Thunder Bay, Ontario, 1972-75.
- See Squaw Lake-Sturgeon Lake area, District of
Thunder Bay; Ontario Division of Mines, Misc.
Paper 56, p. 33-37, 1973.
- Involves regional stratigraphy, structure, cor-
relation and comparison of Squaw Lake alkalic
complex (feldspathoidal, zeolite, possible immis-
cible magnetite segregations) with Sturgeon Nar-
rows alkalic complex (nepheline syenite with

fluorite mineralization), examination of exhalative? carbonate zone characterized by ultramafic suite trace elements.

86. Wallace, H. , Ontario Division of Mines:
Geology of the Opikéigen Lake area, District of Kenora, Patricia Portion, Ontario, 1973-74.
- See Opikéigen Lake area, District of Kenora, Patricia Portion; Ontario Division of Mines, Misc. Paper 56, p. 80-84, 1973.
87. Wood, J. , Ontario Division of Mines:
Geology of the Hewitt Lake area, District of Kenora, Ontario, 1972-74.
- See Hewitt Lake area (east half), District of Kenora; Ontario Division of Mines, Misc. Paper 56, p. 3-7, 1973.

Quebec

88. Biron, S. , Ministère des Richesses Naturelles du Québec:
Cartographie régionale dans la région de Marsoui, 1973-74.
89. Brisebois, D. , Ministère des Richesses Naturelles du Québec:
Cartographie régionale, région des Iles-de-la-Madeleine, Québec, 1973-74.
90. Caty, Jean-Louis, Chown, E. H. , Univ. du Québec à Chicoutimi et Ministère des Richesses Naturelles du Québec:
Stratigraphie et sédimentologie du bassin Mistassini, 1972-76.
- Stratigraphie détaillée et étude sédimentologique des formations dolomitiques du Groupe Mistassini. Etude géochimique de la zone d'altération entre les dolomies et le socle granitique. Délimitation des zones minéralisées de Cu, Pb, Zn et leurs relations avec la stratigraphie et la structure.
91. Chown, E. H. , Caty, J. L. , Ministère des Richesses Naturelles du Québec:
Cartographie géologique du Lac Mistassini, Québec, 1972-74; thèse de doctorat (Caty).
92. Dressler, B. , Ministère des Richesses Naturelles du Québec:
Géologie des régions du Lac Lalande, Lac Jogues et Lac Buteux, Québec, 1973-74.
93. Franconi, A. , Ministère des Richesses Naturelles du Québec:
Cartographie de la région du Lac Wagama, Québec, 1972-75.
94. Globensky, Y. , Ministère des Richesses Naturelles du Québec:
Cartographie des régions de Laurentide et de Verchère, Québec, 1973-74.
95. Hocq, M. , Ministère des Richesses Naturelles du Québec:
Cartographie de la région du Lac Michaux, Québec, 1973-74.
96. Kretz, R. , Univ. Ottawa:
Geology of the Otter Lake area, Quebec, 1955-75.
- The study area extends from the Gatineau valley, north of Ottawa, westward to the Coulonge valley, and covers about 600 sq. mi. Moving westward, marble, sillimanite gneiss, and quartzite decrease in amount, while amphibolite and veined gneisses become more abundant. Also a north-east trend gives way, within a zone, to a north-west trend. An attempt is being made to arrive at an understanding of the structural and petrologic development of the rocks within this area.
97. Remick, J. , Ministère des Richesses Naturelles du Québec:
Géologie de la région du Lac Soscumica, Québec, 1973-74.
98. Rive, M. , Ministère des Richesses Naturelles du Québec:
Cartographie de la région de Ste-Véronique, Québec, 1973-74.
99. Sharma, K. , Ministère des Richesses Naturelles du Québec:
Géologie de la Rivière La Grande et du Lac Sakami, Québec, 1973-74.
100. Taylor, F. C. , Geol. Surv. Can. :
Operation Torngat, Quebec and Newfoundland, 1966-.
- Operation Nuvilik, Quebec, 1972-.
- See Operation Nuvilik, New Quebec and North-west Territories; Geol. Surv. Can. , Paper 74-1, pt. A, p. 189-190, 1974.
101. Wallach, J. , Ministère des Richesses Naturelles du Québec:
Cartographie de la région de la Rivière Némiscau, Québec, 1973-74.

AREAL GEOLOGY

Saskatchewan

102. Chandler, F. W. , Geol. Surv. Can. :
Geology of the Wollaston Belt, northwest
Saskatchewan, 1973-.

103. Forsythe, L. H. , Saskatchewan Geol. Surv. :
Geology of Pylypow Lake area (west half)(74A-
5W), Saskatchewan, 1973-74.

Upper greenschist to upper amphibolite facies metamorphic assemblages are found in complexly folded metasediments and meta-igneous rocks. Five fold deformations were recognized, the dominant one trends north-northeast. North-northeast and north-northwest trending faults and lineaments are prominent. Metamorphic corundum was found for the first time in Saskatchewan. Uranium locally occurs associated with microcline pegmatites. Meta-arkoses similar to copper-bearing ones found along the Wollaston Trend are abundant, but no mineralization was found during mapping.

104. Fuh, Tsu-Min, Saskatchewan Geol. Surv. :
Constituent analysis, 1972-73. The geology of
the Pylypow Lake area (east half)(74A-5E),
Saskatchewan, 1973-74.

See The principle of constituent analysis, with special reference to the calculation of weight percentage of minerals in metamorphic rocks; Can. J. Earth Sci., vol. 10, no. 5, p. 657-669, 1973.

Computer based field sheets were used for recording geological observations in the Pylypow Lake area (east half). Lithological characteristics and structural measurements for the rock specimen collected and their localities on the map were printed in the tables by the computer.

105. Johnston, W. G. Q. , Saskatchewan Geol. Surv. :
Wathaman Lake (64D-13E), Saskatchewan,
1973-74.

700 geochemical samples collected during course of survey have been analysed by the Saskatchewan Research Council.

106. Kirkland, S. J. T. , Saskatchewan Geol. Surv. :
The geology of the Manawan Lake area (south
half)(63M-6S), Saskatchewan, 1973-74.

The Manawan Lake area lies entirely within the Precambrian Shield and is underlain mainly by a series of metasedimentary gneisses and granitic to dioritic rocks. Less metamorphosed arenaceous and arkosic sedimentary rocks and intermediate to basic volcanic rocks from north-

trending zones in the central part of the area. Small lamprophyre dykes occur in the western half of the area. In the eastern half of the area, east of a major north-trending fault, several north-trending, doubly-plunging folds form prominent structural features.

107. Munday, R. J. , Saskatchewan Geol. Surv. :
Reconnaissance mapping of the Mudjatik (NE)
area (74B-NE), Saskatchewan, 1973-74.

Bedrock is predominantly felsic, with minor concordant mafic, biotitic and siliceous sheets of presumed metasedimentary origin. Metamorphic assemblages belong to the amphibolite-granulite facies. A complex deformational sequence can be unravelled.

108. Pearson, D. E. , Saskatchewan Dept. Mineral Resources:
Structure and metamorphic history of the Precambrian Shield of northern Saskatchewan, 1970-73.

See The Location and Structure of the Precambrian Kisseynew Gneiss domain of northern Saskatchewan; Can. J. Earth Sci., vol. 9, p. 1235-1249, 1972.

109. Scott, B. , Saskatchewan Geol. Surv. :
Geology of part of the Thluicho Lake area (east
half)(74N-11E), Saskatchewan, 1972-74.

Cu anomalies are well-developed in the A, and B Soil horizons, directly over low-grade chalcopryrite mineralization, at the Bob Lake and Ellis Bay properties. Profile diagrams indicate that the overburden consists largely of residual material; i. e. , the contour patterns are fan-shaped, opening upwards.

110. Sibbald, T. I. I. , Saskatchewan Geol. Surv. :
Reconnaissance mapping of the Mudjatik (NW)
area (74B-NW $\frac{1}{4}$), Saskatchewan, 1973-75.

Application of modern structural and metamorphic analytical procedures has led to an understanding of the structural geometry and the sequences of structural and metamorphic events within the area. A limited geochemical study of lake sediments was also undertaken.

Yukon Territory

111. Blusson, S. L. , Geol. Surv. Can. :
Operation Stewart, District of Mackenzie and
Yukon, 1968-.

112. Poole, W. H. , Geol. Surv. Can. :
Mt. Haldane and Dublin Gulch map-areas, Yukon,
1964-.

113. Tempelman-Kluit, D. , Geol. Surv. Can. :
Operation Snag, Yukon, 1970-.

DATA STORAGE AND RETRIEVAL

114. Agterberg, F. P. , Geol. Surv. Can. :
Probability models for estimating mineral
potential, 1969-.

See Project Appalachia; Geol. Surv. Can. , Paper
74-1, pt. A, p. 135, 1974.

115. Carlson, V. A. , Alberta Research:
Alberta hydrogeological information map series,
1968-.

Central data file, 1968-.

116. Collins, D. H. , von Bitter, P. H. , Royal Ontario
Museum:
Techniques for standardized objective descrip-
tion of fossils, 1972-.

117. Dickie, G. J. , Garber, J. , Univ. Windsor:
Oil and gas pools of southwestern Ontario,
1973-74; M. Sc. thesis (Garber).

A computer-based file on the geological and
reservoir characteristics of oil and gas pools in
southwestern Ontario is being built. Data on the
geometry, stratigraphy and production character-
istics is being analysed to determine trends in
oil and gas occurrence.

118. Groen, H. A. , Pauk, T. , Ontario Division of Mines:
Mineral deposits of Ontario, 1970-.

119. Groen, H. A. , Sun, S. , Ontario Division of Mines:
Canadian index to geoscience data: Ontario
portion, 1970-.

120. Holroyd, M. T. , Geol. Surv. Can. :
Pattern recognition, 1968-.

To conduct research into and develop varied com-
puter methods for visual display and enhancement
of digital data in profile or map form for purpose
of clarifying and extracting significant features
within a highly complex background.

121. Jackson, E. V. , Winsby, J. A. , James, G. L. ,
British Columbia Dept. Mines and Petrol. Resources:
Mineral inventory of British Columbia. Mineral
potential maps of British Columbia, 1969-.

122. Kruus, J. , Inland Waters Directorate, Dept.
Environment:
Retransmission of hydrologic data, 1972-.

A system to measure hydrological data using 8
analogue channels has been successfully tested
in Ottawa and on the St. John's River - date is
obtained twice daily using a teletype output in
Ottawa.

Extraction of hydrologic information from
E. R. T. S. satellite imagery, 1972-.

See A preliminary evaluation of ERTS - 1 multi-
spectral imagery for water resource studies;
Inland Waters Directorate, Rept. , 1973.

123. Nichol, I. , Willington, S. , Queen's Univ. :
The interpretation of exploration oriented geo-
chemical data in computer processable data
files, 1971-74.

124. Page, R. O. , Clifford, P. M. , McMaster Univ. :
Volcanic stratigraphy at Quartzite Lake, North-
west Territories, 1974-; Ph. D. thesis (Page).

About 100 square miles of salic Archean volcanic
rocks are being mapped in detail. The strati-
graphy will be delineated, detailed analysis of
physical and mineralogical variations will be
undertaken, and relationships of the volcanic
rocks to "exhalite" sedimentary rocks will be
established.

125. Sinclair, A. J. , Univ. British Columbia:
Geostatistical analyses of production, grade and
geological variables in recognized mining
camps, 1973-.

126. Singh, B. A. , Fleischer, F. C. , Bain, D. ,
Maddeaux, N. , Ontario Ministry of the Environ-
ment:
Ontario water well record data storage and
retrieval system (MOEWEL), 1968-73.

Retrieval programs allow selective retrieval,
plotting and contouring of geologic and hydro-
geologic data derived from provincial water-well
records.

DATA STORAGE AND RETRIEVAL

127. Singh, B. A. , Mellary, A. A. , Fleischer, F. C. , Chapman, R. , Ontario Ministry of Environment: Ontario ground water quality data storage and retrieval system, 1970-75.
128. Sutterlin, P. G. , Dreimanis, A. , Aaltonen, R. A. , Cooper, M. A. , Univ. Western Ontario: Development of a computer processible file of Pleistocene deposits and geotechnical data from Ontario using the SAFRAS system, 1971-74.
- See Some considerations in the management of computer-processible files of geological data; J. Internat. Assoc. Mathematical Geol. , vol. 6, no. 4, 1974.
129. Umar, Pervez, McGill Univ. : Application of mathematical techniques in mineral resource appraisal, 1973-76.
130. Zodrow, E. L. , St. Francis Xavier Univ. (Sydney): Mineral target area section by statistical methods Cape Breton, Nova Scotia, 1971-74.
- Creation of the data file which is now to be used for retrieval has been completed. The statistical investigation and interpretation follows.

ENGINEERING GEOLOGY

131. Archambault, G. , Univ. du Québec à Chicoutimi: Influence de la composition et des structures sur le comportement mécanique des roches et des massifs rocheux, 1972-.
- Etudes géomécaniques sur l'influence de la structure et du champ des contraintes tectoniques sur la mise en place de la minéralisation et la stabilité des ouvertures souterraines et également détermination de l'influence de la composition modale et des microstructures sur les propriétés physico-mécaniques des roches.
132. Barnett, D. M. , Geol. Surv. Can. : Terrain performance, Melville Island, District of Franklin, 1971-.
- To prepare case histories of terrain performance encountered by airfields, roads and "overland" vehicles, in relation to geological materials, geomorphic setting and ground ice.
- See Surficial geology and geomorphology of Melville Island, District of Franklin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 239, 1974.
- Origin, morphology, and chronology of sub-lacustrine moraines, Generator Lake, Baffin Island, Northwest Territories, Canada; Can. J. Earth Sci. , vol. 11, no. 3, p. 380-408, 1974.
133. Barron, K. , Bielenstein, H. U. , Grant, F. , Mines Branch, Energy, Mines and Resources: Roof stability in coal mines, 1970-.
- See Strata control by bolting in the western Canadian mountain coal mines; Bull. Can. Inst. Mining Metal. , vol. 66, no. 739, p. 79-87, 1973.
134. Barron, K. , Fisekci, M. Y. , Mines Branch, Energy, Mines and Resources: Coal and gas outbursts, 1970-74.
135. Bérard, J. , Ecole Polytechnique: Les réactions d'alcalis du grès de Potsdam utilisé dans les bétons à ciment Portland, 1974-75.
- Certaines structures en béton constitué de grès de Potsdam montrent une fissuration intense et une expansion appréciable. Des carottes de sondage ont permis de déceler une grande quantité d'opale riche en K et Na dans les alvéoles du béton.
136. Bozozuk, M. , Burn, K. N. , Eden, W. J. , National Research Council: Geotechnical properties of eastern marine clay, 1951-.
- See Measured contact pressures below raft foundation supporting a stiff building; Can. Geot. J. , vol. 10, no. 2, p. 180-192, 1973.
137. Brown, R. J. E. , National Research Council: Permafrost distribution in Canada, 1953-.
- See Distribution of permafrost in North America and its relationship to the environment: 1963 to 1973 - a review; Proc. Second Internat. Conf. on Permafrost (North American papers), p. 71-100, 1973.
- Observations on the occurrence of permafrost throughout the permafrost region of Canada, with emphasis on the boundary of the discontinuous and continuous permafrost zones, Arctic

Archipelago and Western Cordillera, are being collected continuously by direct field observations, review of the technical literature, and reports from other individuals and agencies. Accompanying this collection of information is the study of the climatic and terrain factors comprising the permafrost environment as a means of improving the understanding of and ability to predict the distribution and occurrence of permafrost.

138. Carson, M. A., McGill Univ. :
The long term stability of natural clay slopes, 1967-.
139. Coates, D. F. (Director), Mines Branch, Energy, Mines and Resources:
Pit slope project, 1972-77.
140. Code, J. A., Geol. Surv. Can. :
The stability of natural slopes in the Mackenzie Valley, 1972-.
141. Cruden, D., McCann, A., Univ. Alberta:
Stability of natural slopes in rock, 1972-; M. Sc. thesis (McCann).
142. Gelinas, P. J., Deschamps, G., Scott, J. D., Univ. Ottawa:
The study of cementation bonds in recent sensitive clays, Ottawa area, 1973-75; M. Sc. thesis (Scott).
143. Gelinas, P. J., Quigley, R. M., Univ. Ottawa and Univ. Western Ontario:
Contributions to the study of shoreline erosion, north shore of Lake Erie, 1970-.
144. Goodrich, L. E., National Research Council:
Ground thermal regime, 1970-.

See Thermal conditions in permafrost - a review of North American literature; Proc. Second Internat. Conf. on Permafrost, 1973.

To develop, evaluate and apply numerical models for the prediction of ground thermal regimes under natural and disturbed conditions; to devise and test apparatus for measuring thermal properties of soils in the laboratory and in the field; to establish the information required for design purposes concerning the thermal properties of soil and the ground thermal regime.

145. Heginbottom, J. A., Geol. Surv. Can. :
Erosion in a permafrost environment, 1969-.
- See Effects of surface disturbance in permafrost; Canada Task Force on Northern Oil Development, Environmental Social Committee Rept. 73-16, 1973.
- Terrain sensitivity evaluation and mapping, Mackenzie Valley Transportation Corridor, 1971-.
- See Terrain disturbance susceptibility, Norman Wells area; Canada Task Force on Northern Oil Development, Environmental Social Committee Rept. 73-24, 1973.
146. Hodgson, D. A., Geol. Surv. Can. :
Terrain performance, central Ellesmere Island, District of Franklin, 1972-.
- See Surficial geology, geomorphology and terrain disturbance, central Ellesmere Island, District of Franklin (parts of 49D, E, G, H, 340B); Geol. Surv. Can., Paper 74-1, pt. A, p. 247-248, 1974.
147. Hudec, P. P., Univ. Windsor:
Effect of pore water in sedimentary carbonate rocks on their weathering characteristics and their engineering properties - soundness as aggregate, and compressive strength, 1972-75.
- "Frost action" is not the principal agent of physical weathering of fine grained, argillaceous rocks. Water absorbed in such rocks is unfreezable, and by itself exerts positive forces in the rock pores that cause anomalous expansion and contraction of the rock with temperature and saturation differences.
148. Isaacs, R. M., Geol. Surv. Can. :
Engineering geology, Mackenzie Valley transportation corridor, 1970-.
149. Johnston, G. H., National Research Council:
Anchorage in permafrost, 1965-73.

Evaluation of time-deformation characteristics and long term strengths of various types of anchors in permafrost; field testing completed; analysis of results in progress.

Structures in permafrost, 1950-.

See Engineering design and construction in permafrost regions: a review; Proc. Second Internat. Conf. on Permafrost (North American papers), p. 553-575, 1973.

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- To develop design criteria for foundations in permafrost with studies proceeding on performance of structures at: Inuvik, N. W. T. ; Thompson, Manitoba; Nelson River, Manitoba (performance of dykes on permafrost); and Churchill, Manitoba.
150. Johnston, G. H. , Slusarchuk, W. A. , National Research Council:
Deformation and strength of frozen and thawing soil, 1971-.
- See Evaluation of in-situ creep properties of frozen soils with the pressuremeter; Proc. Second Internat. Conf. on Permafrost (North American papers), p. 310-318, 1973.
- To gain knowledge concerning deformation characteristics and strength properties of frozen and thawing soils with particular reference to thawing permafrost under structures such as pipelines, dykes, airstrips and roads, and to develop test methods for determining the properties.
151. Karrow, P. F. , White, O. L. , Univ. Waterloo:
Shore erosion, southeastern shore of Lake Huron, 1973-75.
152. King, M. S. , Bamford, T. S. , Univ. Saskatchewan (Saskatoon):
Static and dynamic elastic properties of rocks, 1967-76; Ph. D. thesis (Bamford).
- See Static and dynamic elastic properties of two sandstones at permafrost temperatures; Trans. A. I. M. E. , vol. 253, p. 495-504, 1972.
153. King, M. S. , Leuschen, A. A. , Univ. Saskatchewan (Saskatoon):
Mechanical state of rock approaching failure, 1967-76; M. Sc. thesis (Leuschen).
154. Langford, F. F. , Univ. Saskatchewan (Saskatoon):
Tunnel valleys in Saskatchewan, 1971-75.
- Tunnel valleys are the major type of feature produced by meltwater drainage beneath the Wisconsin ice sheet. When filled with stratified drift, they are difficult to detect but may constitute significant sources of gravel or groundwater.
155. Lawrence, D. E. , Geol. Surv. Can. :
Engineering properties of geological materials, 1973-.
- See Geological review of geotechnical data: Mackenzie Valley; Geol. Surv. Can. , Paper 74-1, pt. A, p. 281, 1974.
- To identify and assess the geological factors affecting the engineering properties and performance of significance in Canadian engineering construction.
156. Locker, J. G. , Alberta Research:
Engineering properties of Upper Cretaceous-Tertiary shales in central Alberta, 1967-73.
157. Matyas, E. L. , Lelievre, B. , White, O. L. , Univ. Waterloo:
Shoreline erosion on the Great Lakes, 1973-.
158. McPherson, R. A. , Kathol, C. P. , Alberta Research:
Urban geology of the greater Edmonton area, 1971-73.
- Engineering properties of the surface and near surface materials have been used to prepare suggested land use maps.
159. Monroe, R. L. , Geol. Surv. Can. :
Preliminary terrain classification and sensitivity rating, Mackenzie Valley, 1972-.
160. Morris, P. G. , Menarian, H. , Univ. Waterloo:
Study of the Power Glen rock slide, Niagara Falls, Canada, 1973-75; M. Sc. thesis (Menarian).
- Investigation of the geotechnical features which contributed to the rock failure with the objective of gaining a better understanding of the stability of rock masses in general and the stability of the rim of the Niagara Gorge in particular.
161. Parry, J. T. , Granberg, H. , Grey, B. , Beswick, J. , McGill Univ. :
Terrain analysis project, 1973-.
- See The application of morphometric terrain classification systems using air photo interpretation methods; Photogrammetria, vol. 29:6, 1973.
- Evaluation of x-band radar in terrain studies; analysis of snow accumulation and melt patterns using ESSA 9 and ERTS A imagery - Labrador Ungava; densitometry and discrimination procedures for terrain types on infrared imagery 8 - 14 microns; and terrain evaluation from high altitude air photos 1:70,000 Lac Saffray.
162. Penner, E. , National Research Council:
Frost action in soils, 1956-.
- To establish mechanism of ice growth and propagation in freezing soils; to establish a simple method of determining frost susceptibility; to determine the heaving and adfreezing forces that

can develop in freezing soils and to establish design practice in frost susceptible soils.

163. Penner, E., Eden, W. J., National Research Council:
Expansion of pyritic shale in Ottawa area, 1969-.
- See Floor heave due to biochemical weathering of shale; Proc. Eighth Internat. Conf. on Soil Mech. and Found. Eng., vol. 2, pt. 2, p. 151-159, 1973.
- Expansion has been traced to a complex weathering process which takes place in the presence of autotrophic bacteria. Studies are directed to defining the precise conditions under which the weathering takes place and to its possible control.
164. Rampton, V. N., Geol. Surv. Can.:
Environmental geology of northern settlements Mackenzie Valley - western Arctic (Tuktoyaktuk), 1971-.
- See Gravity profiles across ice-cored topography; Can. J. Earth Sci., vol. 11, no. 1, p. 110-122, 1974.
165. Root, J. D., Alberta Research:
Strip mine revegetation study, Cadomin area, 1971-73.

166. Scott, J. S., Geol. Surv. Can.:
Environmental geology prototype study - Ottawa-Hull region, Ontario-Quebec, 1970-.
- See Environmental geology prototype study: Ottawa-Hull area; Geol. Surv. Can., Paper 74-1, pt. A, p. 215, 1974.
- Stability of natural slopes, 1971-.
167. St-Onge, D. A., Geol. Surv. Can.:
Erosion studies in an area of intensive petroleum exploration and development, 1970-.
- Environmental geology of the New Montreal International airport region (NMIAP), 1971-.
168. Skinner, R. G., Geol. Surv. Can.:
Terrain studies, James Bay Power Development area, 1973-.
- See Terrain studies in the James Bay hydroelectric project area; Geol. Surv. Can., Paper 74-1, pt. A, p. 257-258, 1974.
169. White, O. L., Karrow, P. F., MacDonald, J. R., Univ. Waterloo:
Residual stress relief phenomena in southern Ontario, 1973-74.

GEOCHEMISTRY

Analytical Methods and Analysis

170. Abbey, S., Geol. Surv. Can.:
Analysis of international reference samples, 1969-.
- Studies in "standard samples" of silicate rocks and minerals: a growing inventory is being maintained of available compositional data on samples prepared as potential reference materials, originating in many different countries. Such samples are useful in calibrating instrumental techniques, in testing new methods and in comparing performances of different laboratories. "Usable" compositional values have been assigned to a number of those samples. In collaboration with the Canadian Standard Reference Materials Project, samples of two Canadian syenites and a gabbro have been distributed to laboratories in many countries for collaborative analysis, with a view to their establishment as reference materials.
- See Studies of "standard samples" of silicate rocks and minerals, Part 3: 1973 extension and revision of "usable" values; Geol. Surv. Can., Paper 73-36, 1973.
- Development of methods for the analysis of geological materials, 1969-.
1. Improvements in x-ray fluorescence analysis for major and minor elements in rocks: an investigation of sources of error in fusion and non-fusion analytical systems, and the application of an improved instrument, expected to extend the present coverage of Si, Al, Fe, Mg, Ca, K, Ti and Mn to include Na, P, S and a number of possible additional elements.
 2. Increased use of a mini-computer in the control of the operation of a direct-reading optical emission spectrometer and in the processing of data thus produced.
 3. Application of a Karl Fischer titration to the determination of water in rocks: water, expelled from a rock sample by heating in a high-frequency

induction furnace or in a conventional Penfield tube, can be determined by direct titration. The new method is not only faster, but it also eliminates the determination of a small quantity by the difference between two relatively large weights.

4. Installation and application of additional channels in a direct reading optical emission spectrometer: to increase the number of elements determinable in the direct-reading system and to improve the sensitivity for the more volatile elements.

5. Determination of the rare earths: a possible analytical scheme for low percentages of individual rare-earth elements in minerals, using chemical pre-concentration and a combination of atomic absorption, flame emission and/or X-ray fluorescence spectrometry.

See The determination of gold, platinum-group metals and some common metals in native silver by atomic absorption spectrometry; *Anal. Chim. Acta*, vol. 63, p. 19-28, 1973.

A review of the methods for the determination of the platinum-group metals, silver and gold by atomic absorption spectroscopy; *Miner. Sci. Engng.*, vol. 5, p. 207-218, 1973.

171. Appleyard, E. C., Univ. Waterloo:
Studies of metasomatic rocks, 1974-77.

The problems of manipulating geochemical data for varying conditions of metasomatism are being studied. A close study of the geological criteria which can be used to control geochemical calculations is a central aspect of this project.

172. Barkley, D. J., Zimmerman, J. B., Ingles, J. C., Mines Branch, Energy, Mines and Resources:
Development of improved analytical methods for evaluating the economic minerals in ores.
2. Chemical concentration/X-ray methods for rare earths in ores.

Involves the separations of rare earths from non-rare earth elements, and their concentration, using macro-reticular ion-exchange resins and various complexing anions in solution.

173. Boyd, M. L., Blanchard, S., Mines Branch, Energy, Mines and Resources:
Thermal volatilization analysis of oil shales and similar naturally occurring organic materials, 1972-74.

174. Brooks, C., Gélinas, L., Univ. Montréal:
Origin and nature of Archean volcanic rocks of eastern Canada, 1971-75.

See Archean quench-texture tholeiites; *Can. J. Earth Sci.*, vol. 11, no. 2, p. 324-340, 1974.

Major and trace element analyses of numerous metavolcanics from Michipicoten and the Rouyn-Noranda have been effectively used in comparing the ancient volcanics with possible modern equivalents. Allied fields of study currently under investigation include high magnesian basalts and liquid immiscibility in Archean magmatism.

175. Brooks, C., Hart, S. R., Univ. Montréal and Carnegie Instit. Washington:
Relict Archean pyroxenes. Implication of trace element composition, 1971-74.

Ten primary pyroxenes have been separated from Archean mafic intrusives and extrusives from the Abitibi metavolcanic belt. Analysis of additional samples is continuing in order to establish reliable trace element contents and ($\text{Sr}^{87}/\text{Sr}^{86}$) initial compositions of the Archean magmas (hence mantle).

176. Brooks, C., James, D., Univ. Montréal and Carnegie Instit. Washington:
Andean geochemical studies, 1971-74.

See The geochemical evolution of the Andes; *Carnegie Yearbook* 72, 1973.

To date approximately 250 rocks from traverses in Peru and Bolivia (along seismic traverses previously used to document the subducting plate and crustal thickness) have been analyzed for 10 major elements and 5 trace elements. Over 40 selected samples have been analysed for $\text{Sr}^{87}/\text{Sr}^{86}$. The analysis supported by Rb/Sr and zircon ages will be used to investigate possible element-concentration to depth correlations (concerning the subducting plate) in space as well as time.

177. Dalton, J. L., Churchill, T. R., Mines Branch, Energy, Mines and Resources:
On-line analysis using radioisotope gamma-ray attenuation to determine lead in ore flotation plant slurries, 1973-74.

178. Guest, R. J., MacPherson, D. R., Hunt, G. A., Ingles, J. C., Mines Branch, Energy, Mines and Resources:

Development of improved analytical methods for evaluating the economic minerals in ores. 3. Atomic absorption flame emission methods for base metal and gangue constituents.

- Involves methods for improving precision of flame methods by improved background correction techniques and various double-beam two-line compensation methods.
179. Hitchen, A., Zechanowitsch, G., Ingles, J. C., Mines Branch, Energy, Mines and Resources:
Development of improved analytical methods for evaluating the economic minerals in ores. 4. Rapid precise volumetric methods for base metal ore constituents.
- See Methods for the analysis of ilmenite, titanium-bearing slags, and other electric furnace slags - Part IVB; The determination of aluminium in other types of ores and slags; Mines Branch Rept. TB 169, 1973.
- Involves the development of an improved volumetric method for zinc in zinc sulphide minerals and concentrates.
180. Mason, G. L., Palombo, D. P., Mines Branch, Energy, Mines and Resources:
Comprehensive spectrographic analysis of sulphide ore specimens from the Sturgeon lake deposits, northwestern Ontario, 1973-75.
181. Parslow, G. R., Univ Saskatchewan (Regina):
Trace element characterisation of rocks in Saskatchewan Shield, 1970-76.
- Trace metals in Flin Flon volcanics and certain diorites near Pelican Narrows.
- Preliminary study of the alkali and alkaline earth elements in Saskatchewan Potash, 1973-75.
182. Plant, A. G., Lachance, G. R., Geol. Surv. Can.:
Electron probe microanalysis, 1962-.
183. Reed, D. J., Dalton, J. L., Churchill, T. R., Mines Branch, Energy, Mines and Resources:
Application of X-ray fluorescence analysis by conventional X-ray tube plus spectrometer and radioisotopic X-ray sources plus electronic energy discrimination to on-line analysis of sulphide and iron-ore slurries, and to total sulphur determinations in coal beneficiation, 1973-74.
184. Sawatzky, H., George, A. E., Mines Branch, Energy, Mines and Resources:
Study of the types of organic sulphur compound and hydrocarbons in some Cretaceous crude oil of western Canada, 1971-74.
- Thermal maturation studies have been initiated.
185. Smith, D. G. W., Cameron-Schimann, M., Univ. Alberta:
Chemical composition of some Canadian uranium and thorium bearing minerals, 1974-76; Ph. D. thesis (Cameron-Schimann).
- To overcome the extreme difficulties associated with the quantitative analysis of U and Th-bearing minerals, using the electron microprobe.
186. Smith, D. G. W., Schimann, K., Gold, C., Univ. Alberta:
Whole-rock silicate analysis using the electron microprobe, 1974-75; theses.
- To develop suitable fusion and analytical techniques which will permit the rapid major and minor element analysis of whole rock samples using an energy dispersive spectrometer fitted to an A. R. L. "EMX" electron microprobe. The computer software which will allow the handling, processing and correction for matrix effects of large amounts of analytical data from this type of spectrometer is being developed simultaneously.
187. Traill, R. J., Bonardi, M., Delabio, R. M., Pringle, G. J., Geol. Surv. Can.:
X-ray diffraction and laser microprobe analyses, and mineralogical studies, 1968-.
188. Webber, G. R., McGill Univ.:
Application of instrumental methods of analysis to geological materials, 1959-.
- See Nature of Mercury anomalies at the New Calumet Mines area, Quebec, Canada; Proc. Fourth Internat. Geochemical Exploration Symp., Instit. Mining Metallurgy, p. 71-80, 1973.
189. Zimmerman, J. B., Ingles, J. C., Mines Branch, Energy, Mines and Resources:
Development of improved analytical methods for evaluating the economic minerals in ores. 1. Correction methods for X-ray spectrophotometric analysis of base metals.
- See The determination of high concentrations of elements in multi-element solutions by X-ray fluorescence spectrometry using a spiking-mathematical correction technique; Can. J. Spectroscopy, vol. 17, no. 5, 1972.
- Investigation includes the study of applications of various modifications of the double-dilution method of matrix correction and development of an internal standard-mathematical correction method similar in principle to the spiking mathematical correction method.

GEOCHEMISTRY

Chemical Oceanography and Limnology

190. Bowlby, J., Gorman, W. A., Queen's Univ.:
Geolimnology of the Kingston Basin, 1972-74;
M. Sc. thesis (Bowlby).
191. Johnston, L. M., Gorman, W. A., Queen's Univ.:
Geochemistry of sediments in the Upper St.
Lawrence River, 1973-76; Ph. D. thesis (Johnston).

Core and Echo Profiling are being used to study the physical and chemical characteristics of the sediments and to derive a geochronological sequence for events in the Kingston Basin.

192. Frape, S. K., Gorman, W. A., Queen's Univ.:
Geolimnology of Collins Lake, Ontario, 1973-74;
M. Sc. thesis (Frape).

The physical and chemical parameter of the Collins Lake waters and sediments are being investigated prior to the installation of a garbage dump within the lakes drainage basin.

193. Nichol, I., Jackson, R., Queen's Univ.:
Lake sediment geochemistry in the Yellowknife area, Northwest Territories, 1972-74; M. Sc. thesis (Jackson).

To establish the factors affecting metal dispersion in lake sediments in the Yellowknife area as a preliminary to interpreting geochemical patterns revealed in a reconnaissance over some 1000 sq. miles. Lake waters have been monitored and lake sediments collected from selected lakes, representative of different bedrock, overburden and lake environments.

Exploration Geochemistry

194. Allan, R. J., Geol. Surv. Can.:
Bear-Slave geochemical reconnaissance, District of Mackenzie, 1972-.
195. Armstrong, R. C., Nichol, I., Queen's Univ.:
The geochemistry of mercury and its role in geochemical exploration in British Columbia, 1971-74; Ph. D. thesis (Armstrong).
196. Azzaria, L. M., Univ. Laval:
Mercury in soil, rocks and air from the vicinity of ore deposits, 1965-.

Mode of occurrence of mercury in soil and rock from the vicinity of ore deposits, 1965-.

Distribution of metals in sediments in the vicinity of the Noranda mining area, Quebec, 1973-.

See Mercury in soil and air as a guide to mineralization in four areas of Québec; Quebec Dept. Natural Res., Publ. S-136, 1973.

197. Barbier, M. J., Ministère des Richesses Naturelles du Québec:
Echantillonnage des minéraux lourds, comtés de Matane, Matapédia et Bonaventure, Province de Québec, 1973-74.
198. Boyle, R. W., Geol. Surv. Can.:
Primary halos as an aid in the location of ore-bodies, 1973-.
199. Bright, E. G., Ontario Division of Mines:
Mineralized float and heavy mineral tracing and exploration guide in the Abitibi Belt, northeastern Ontario, 1971-73.
200. Bristow, Q., Geol. Surv. Can.:
Airborne geochemistry, 1970-.

See Geochemical instrumentation; Geol. Surv. Can., Paper 74-1, pt. A, p. 51, 1974.

201. Closs, L. G., Nichol, I., Queen's Univ.:
An evaluation of selected multivariate mathematical techniques as aids in interpretation of the reconnaissance geochemical stream sediment data of the Halls Bay Concession, Newfoundland, 1970-73; Ph. D. thesis (Closs).

See The interpretation of regional geochemical reconnaissance data from Notre Dame Bay District of Newfoundland (Abstract); Mining Engineering, vol. 25, no. 8, p. 29, 1973.

202. Closs, L. G., and Sado, E. V., Ontario Division of Mines:

Exploration geochemistry-Quaternary geology research into geochemical and biogeochemical dispersion patterns near mineralization in the Precambrian Shield, 1973-.

Processes of metal dispersion in rocks, soils, glacial sediments, waters, lake sediments, and vegetation will be investigated near a variety of ore deposit types in the Precambrian Shield area of Ontario. Emphasis is placed on the establishment of viable means of applying geochemistry to mineral exploration within areas blanketed by Quaternary deposits.

Reconnaissance exploration geochemistry-Quaternary geology research within felsic centres of the Abitibi 'greenstone' belt, 1973-75.

See Reconnaissance exploration geochemistry-Quaternary geology research within felsic

- centres of the Abitibi 'greenstone' belt, Districts of Sudbury and Timiskaming; Ontario Division of Mines, Misc. Paper 56, p. 168-171, 1973.
203. Cockburn, G., Ministère des Richesses Naturelles du Québec:
Levé géochimique dans le bassin de la rivière Grande, Nouveau-Québec, Province de Québec, 1973-74.
204. Coker, W. B., Nichol, I., Queen's Univ. :
The application of lake bottom sampling in geochemical reconnaissance of the Canadian Shield, 1971-74; Ph. D. thesis (Coker).
- Detailed monitoring of lake water and lake sediments in selected lakes in the Sturgeon Lake has indicated the presence of a number of distinctive lake environments. Variations in the lake environments have a marked effect on the lake sediment - overburden and bedrock geochemistry relationship. Criteria have been recognized for identifying metal dispersion related to mineralization from that attributable to other causes.
205. Coleman, L. C., Univ. Saskatchewan (Saskatoon):
Geochemistry and petrology of Tertiary igneous rocks of the Sweet Grass Hills, Montana, 1970-76.
206. Darling, R., Ecole Polytechnique:
The petrography and geochemistry of the volcanic host rocks around the Manitou-Barvue Ag-Zn-Cu deposit, Val d'Or, Quebec, 1972-74.
- The geochemistry of the marble host rocks surrounding the Lynx Canada zinc deposit, Frontenac County, Ontario, 1973-74.
- To search for trace element haloes around the ore.
207. Darling, R., Campiglio, C., Ecole Polytechnique:
La pétrologie et la géochimie du batholithe Bourlamaque, Québec, 1969-74; thèse de doctorat (Campiglio).
- See Progresses in R- and Q-mode analysis: correspondence analysis and its application to the study of geological processes; Can. J. Earth Sci., vol. 11, no. 1, p. 131-146, 1974.
- To learn the magmatic and post-magmatic events which gave the batholith its present petrography and geochemistry and to relate these events to the formation of the post-magmatic ore deposits that are spatially related to the batholith.
208. Darling, R., Spitz, G., Ecole Polytechnique:
La géochimie des roches autour du gisement cuprifère de Louvem, Val d'Or, Québec, 1969-74; thèse de maîtrise (Spitz).
209. Davenport, P. H., Hornbrook, E. H. W., Butler, A. J., Newfoundland Dept. Energy and Mines and Geol. Surv. Can. :
The use of lake sediments in a reconnaissance geochemical survey for zinc mineralization in western Newfoundland, 1973-74.
- Centre-lake-bottom sediment samples were collected over the 2500 square mile region in western Newfoundland which is underlain by Cambro-Ordovician carbonate rocks known to contain zinc and zinc-lead mineralization. Samples were collected at a density of approximately one per square mile, and Zn, Pb, Mn, Fe and L. O. I. were determined on the minus 80 mesh (177) fraction. The results should allow an assessment to be made of the zinc and lead mineral potential of the belt.
210. Foster, J. R., Nichol, I., Queen's Univ. :
The application of partial extraction techniques in geochemical exploration, 1969-74.
211. Gélinas, L., Ministère des Richesses Naturelles du Québec and Ecole Polytechnique:
Etude géochimique et pétrographique de l'empilement volcanique de la région de Noranda, 1972-74.
212. Govett, G. J. S., Univ. New Brunswick:
Mechanism of dispersion processes in post-mineralization rocks and soils overlying sulphide deposits, 1968-.
- See Differential secondary dispersion in transported soils and post-mineralization rocks; an electrochemical interpretation; in Geochemical Exploration 1972, Proc. Fourth Internat. Geochem. Exploration Symp., p. 81-91, 1973.
- Laboratory experiments are being conducted which suggest that dispersion may be influenced by electrochemical reactions associated with sulphides.
- Use of soil conductivities as an electrogeochemical exploration technique, 1972-.
- The conductivity of an aqueous slurry of soil samples from the vicinity of underlying sulphide deposits shows a characteristic pattern of short wavelength, high amplitude peaks and troughs. The cause of this feature is being investigated and its application to exploration is being assessed.

GEOCHEMISTRY

213. Govett, G. J. S. , Lahti, H. R. , Univ. New Brunswick: Reconnaissance and detailed rock geochemical exploration techniques, Mykonos, Greece, 1972-75; Ph. D. thesis (Lahti).
214. Govett, G. J. S. , Wahl, J. L. , Univ. New Brunswick: Comparison of the chemical variation in rocks surrounding Key Anacon and Heath Steele Mines, New Brunswick, 1973-76; Ph. D. thesis (Wahl).
215. Govett, G. J. S. , Whitehead, R. E. S. , Univ. New Brunswick:
 Rock geochemical exploration for deeply buried sulphide deposits, 1968-.
- See Interpretation of a detailed rock geochemistry survey around Mathiati Mine, Cyprus; J. Geochem. Explor. , vol. 2, p. 25-36, 1973. Exploration Geochemistry in New Brunswick; Can. Instit. Mining Metal. Bull. , vol. 67, no. 741, p. 76-84, 1974.
- Measurable anomalous trace element halos in post-mineralization rocks at Heath Steele Mines have been detected extending 1,000 feet above and 4,000 feet laterally from the sulphide deposit. The anomalies are recognized through discriminant analysis.
216. Gunton, J. E. , Nichol, I. , Queen's Univ. : Geochemical dispersion associated with the Copper Mountain mineralization, 1970-74; Ph. D. thesis (Gunton).
- See Delineation and interpretation of metal dispersion patterns related to mineralization in the Whipsaw Creek area; Can. Inst. Mining Metal. Bull. , vol. 67, no. 741, p. 66-75, 1974.
- Studies of metal dispersion in the Whipsaw Creek area have indicated the possibility of identifying anomalous metal patterns in deep glacial till related to local mineralization within extensive areas of anomalous metal content in surficial swamps.
217. Haughton, D. R. , Arnold, R. G. , Smith, J. W. , Saskatchewan Research Council:
 Geochemistry of bedrock, overburden, lake and stream sediments in Saskatchewan, 1970-.
- See Geochemistry of bedrock, overburden, lake and stream sediments in the Mudjatik area, Saskatchewan; Saskatchewan Res. Council, Geol. Division Rept. 12, 1973.
- To provide information which is relevant to mineral exploration and to develop improved methods of geochemical prospecting, analysis and presentation of geochemical data.
218. Hornbrook, E. H. W. , Davenport, P. H. , Grant, D. R. , Newfoundland Dept. Mines and Energy and Geol. Surv. Can. :
 Regional and detailed geochemical exploration studies in glaciated terrain in Newfoundland, 1972-74.
- See Canada-Newfoundland mineral development program, project 6; geochemical-glacial-geological survey (geochemical phase); Geol. Surv. Can. , Paper 73-1, pt. B, p. 25-26, 1973.
219. Jonasson, I. R. , Geol. Surv. Can. :
 Mercury in soil gas applied to exploration for sulphide ores, 1969-.
220. Klassen, R. A. , Nichol, I. , Queen's Univ. :
 Lake sediment geochemistry as a source of information for mineral exploration and environmental studies in the Kaminak Lake area, Northwest Territories, 1973-75.
221. Lalonde, J-P. , Ministère des Richesses Naturelles du Québec:
 Levé géochimique dans les régions de l'Abitibi-Ouest et du Témiscamingue, Province de Québec, 1973-74.
222. Lambert, R. St J. , Hodgson, G. , Univ. Alberta:
 Au in Rossland and Ymir Groups, British Columbia, 1973-75; M. Sc. thesis (Hodgson).
223. Laurent, R. , Univ. Laval:
 Etude géochronométrique et géochimique des complexes ophiolitiques des cantons de l'est et de Gaspésie, Québec, 1973-76.
- See The Thetford-Mines ophiolite, Paleozoic "flake" of oceanic lithosphere in the Northern Appalachians of Quebec; Geol. Soc. Amer. , Northeast Sec. Mtg. Program, p. 188, 1973. Lithosphère océanique à Thetford-Mines; Résumés des communications, ACFAS, 41e Congrès, Montréal, p. 77, 1973.
- Utilisation de la méthode géochronométrique du potassium-argon combinée avec l'utilisation de la microsonde afin d'établir un modèle théorique de l'évolution thermique et géochimique des complexes ophiolitiques de la "Zone de la Serpentine".
224. Mawer, M. , Morton, R. D. , Univ. Alberta:
 Fluid inclusion studies on the porphyry copper deposits of the Highland Valley, British Columbia, 1973-75; M. Sc. thesis (Mawer).
- An investigation of the nature and composition of the fluid phases accompanying ore deposition and

the various phases of alteration in the Loruex, Bethlehem, Valley Copper and Highmont deposits.

225. Morse, R. H., Consultant, Toronto:
Geochemical prospecting for uranium - development of new techniques, 1968-.

See Variety of geochemical methods in use for uranium prospecting; Northern Miner, March 7, p. 47, 1974.

226. Morton, R. D., Ramsay, C. R., Univ. Alberta and Univ. Zambia:

Fluid inclusion studies on the Archean metasediments and auriferous deposits of the Yellowknife district, Northwest Territories, 1973-75.

The nature and compositions of the fluid phases accompanying the regional metamorphism and the deposition of auriferous ores are being documented. Heating-freezing experiments are being augmented by chemical- and gas chromatographic-analyses.

227. Nichol, I., Sopuck, V. J., Hall, R. D., Lavin, O. P., McConnell, J. W., Queen's Univ. :
Bedrock composition as a guide to areas of base metal potential in the greenstone belts of the Canadian Shield, 1973-75; theses.

To establish the nature of the geochemistry of greenstone belts in the Canadian Shield.

228. Smith, T. E., Univ. Windsor:
A study of the structural, petrological and geochemical characteristics of Canadian granitic rocks and their associated ore deposits, 1974-76.
229. Stephenson, J. F., Manitoba Mines Branch:
Mineral spring sampling - west-central Manitoba, 1973.

See Geochemical studies; Manitoba Mines Branch, Geol. Paper 2/73, 1973.

Brines and precipitates from 50 saline mineral springs discharging from the Devonian outcrop belt of west-central Manitoba will be analysed primarily for Cu, Pb and Zn in order to evaluate the base metal potential of the Paleozoic carbonates and especially the middle Devonian Winnipegosis and Dawson Bay Formations.

Pluton sampling - Veal-Wolk Lakes area, northern Manitoba, 1972-75.

Two fluorite-bearing biotite-quartz monzonite plugs were sampled in order to determine whether elemental abundances, trends and correlations that may exist within these bodies could

be of economic significance. These late-stage, volatile-rich intrusions may be genetically related to Sn, W, Ag, Pb, Zn, Cu and Mo deposits.

Esker sampling - Veal-Wolk Lakes area, northern Manitoba, 1972-75.

To test the concept of limited down-ice transport of esker material, and its application to mineral exploration through heavy mineral analysis.

Lake sampling - Veal Lake area, northern Manitoba, 1972-75.

To test the concept of secondary elemental dispersion through glacial overburden, and the degree to which the chemistry of lake waters and inorganic sediments reflect the composition of the underlying bedrock.

230. Tremblay, R. L., Ministère des Richesses Naturelles du Québec:
Levés géochimiques dans la région de Matane, Gaspésie, Province de Québec, 1973-74.
231. Wolfe, W. J., Ontario Division of Mines:
Geochemistry of ultramafic rocks in the Abitibi greenstone belt, 1972-74.
- See Geochemistry of ultramafic rocks in the Abitibi greenstone belt, Districts of Cochrane and Timiskaming; Ontario Division of Mines, Misc. Paper 56, p. 172-173, 1973.

Isotope Geochemistry

232. Baadsgaard, H., Burnie, S., Univ. Alberta:
C and S isotopic variations in oil maturation processes, 1972-75.
233. Baadsgaard, H., Day, L. W., Univ. Alberta:
Zircon-U-Th-Pb systematics in a high-grade metamorphic area, 1971-73; M. Sc. thesis (Day).
234. Baadsgaard, H., Van Kessel, S., Univ. Alberta:
The kinetics of thermal migration of Rb, K, Ca and Sr below silicate melting temperatures, 1972-75; M. Sc. thesis (Van Kessel).
235. Burwash, R. A., Univ. Alberta:
Radioactivity of Precambrian basement rocks, 1972-74.

Core samples of Precambrian basement rocks from approximately 200 wells from western Canada have been analyzed for U, Th, and K to define regional averages and anomalous areas.

GEOCHEMISTRY

236. Coomer, P., Schwarcz, H. P., McMaster Univ.: Sulfur isotopic variations in massive, volcanogenic ore deposits, 1973-75.
- Detailed studies of the variation in S-34/S-32 ratios in ore deposits of the Noranda camp are being undertaken, in order to assist in the development of a model for the source of sulfur in this deposit.
237. Dyck, W., Geol. Surv. Can.: The use of simple volatile compounds and their isotope ratios in natural emanations for evaluating mineral potential, 1972-.
- See The use of simple volatile compounds in mineral exploration; Geol. Surv. Can., Paper 73-1, pt. B, p. 23-24, 1973.
- Gases and their relevance to mineral exploration; Geol. Surv. Can., Paper 74-1, pt. A, p. 61, 1974.
238. Folinsbee, R. E., Haverslew, R., Univ. Alberta: Isotopic and geochemical study of the Ruttan Lake deposit, Manitoba; M.Sc. thesis (Haverslew).
239. Folinsbee, R. E., Heal, G., Univ. Alberta: Isotopic and geochemical study of the Bankeno Pb-Zn deposit, Cornwallis Island; M.Sc. thesis (Heal).
240. Folinsbee, R. E., Hoiles, H., Univ. Alberta: Isotopic and geochemical study of the Afton copper deposit, British Columbia; M.Sc. thesis (Hoiles).
241. Folinsbee, R. E., Kuo, Say Lee, Univ. Alberta: Isotopic and geochemical study of Pb deposits in the Yukon; Ph.D. thesis (Kuo).
242. Forester, R. W., Univ. Saskatchewan (Saskatoon): Oxygen and carbon isotope studies of igneous and metamorphic rocks, 1973-75.
243. Fritz, P., Kemp, A. L. W., Drimmie, R., Univ. Waterloo: ¹³C in organic matter from the Great Lakes, 1973-74.
244. Herrick, D. C., Univ. Alberta: An isotopic study of the magnetite-chalcopyrite deposit at Cornwall, Pennsylvania, U. S. A., 1973-74.
- Oxygen and carbon isotopic studies of the magnetite-chalcopyrite ore deposit at Cornwall, Pennsylvania, U. S. A. have shown that the oxygen system present during ore deposition consisting of ore, diabase and host limestone was unusually O¹⁸-rich. A diffusion mechanism of ore emplacement has been proposed to account for the O¹⁸-rich enrichment. This study is being continued to include sulfur isotope measurements on the Cornwall ore as well as additional oxygen isotope data from other Cornwall-type deposits.
- Sulfur isotope variations in oil and reservoir systems and their relationship to base-metal deposits, 1974-77.
- A study of sulfur from the Rainbow-Zama oil field is proposed to determine the relative amounts and isotopic composition of the various chemical forms of sulfur in an oil-reservoir system. A biogenic origin versus an inorganic thermal origin for reduced sulfur (H₂S, S, organic sulfides, inorganic sulfides) will be examined in terms of the isotopic composition of sulfur in these species.
245. Kissin, S., Schwarcz, H. P., Scott, S. D., McMaster Univ. and Univ. Toronto: Sulfur isotopic fractionation between sulfide minerals: experimental studies, 1973-74.
- Isotopic fractionation of sulfur between sphalerite, pyrite and galena is being studied by use of hydrothermal synthesis methods, at elevated temperatures and pressure.
246. Longstaffe, F., McNutt, R. H., McMaster Univ.: Strontium and oxygen isotopic studies on Archean metamorphic terrains, 1973-77; M.Sc. thesis (Longstaffe).
247. McNutt, R. H., Crocket, J. H., McMaster Univ.: Initial Sr⁸⁷/Sr⁸⁶ ratio of Chilean plutonic and volcanic rocks, 1971-75.
248. Morton, R. D., Sassano, G. P., Univ. Alberta: Studies of uraniferous deposits in northern Saskatchewan, 1969-.
- The parageneses and chemistry of the uraniferous deposits associated with the Tazin metamorphic suite are being documented with objectives of (a) defining possible genetic processes, and (b) outlining sectors for future exploration. Gamma spectrometric analyses of the members of the metamorphic complex will provide data on potential 'source' lithologies and will augment a study of U and Th behaviour in this type of metamorphic regime.
249. Olson, E., Schwarcz, H. P., McMaster Univ.: Oxygen and sulfur isotopic geochemistry of marine evaporites, 1971-76; Ph.D. thesis (Olson).
- Sulfate oxygen and sulfur-isotopic ratio variations within individual evaporite basins. Frac-

tionation of sulfate ions between brine and crystals in nature and in synthetic experiments. Isotopic distributions in a modern sabkha environment.

250. Schwarcz, H. P., McMaster Univ.:

Oxygen isotopic exchange during biological processes, 1973-76.

Oxygen isotopic exchange between sulfate and the water in which it is dissolved is very slow under purely inorganic conditions. Various organisms, including all photosynthetic plants, can reduce sulfate to form a variety of sulfur-bearing compounds. As these are reoxidized, either organically or inorganically, exchange can occur between intermediate-oxidation-state species (e.g., sulfite) to permit the final sulfate to respond to the isotopic composition of the water, as well as the molecular oxygen utilized in re-oxidation. This process is being studied in laboratory cultures of *Euglena* and in natural pond waters.

251. Schwarcz, H. P., Longstaffe, F., McNutt, R. H., McMaster Univ.:

Oxygen and strontium isotope variations in granites and gneisses, 1973-77; M.Sc. thesis (Longstaffe).

See Oxygen isotope studies of granite and migmatite, Grenville Province of Ontario, Canada; *Geochim. et Cosmochim. Acta*, vol. 38, no. 1, p. 21-45, 1974.

During migmatization of metasedimentary rocks, there appears to be a large-scale exchange between the rocks and a deep, isotopically light reservoir of oxygen. Such an exchange process should also permit exchange in strontium isotopes. An area in the Archean of western Ontario is being studied to see if correlated changes in these parameters occur, and to relate them to crustal growth and granite petrogenesis.

252. Thompson, P., Harmon, R., Ford, D., Schwarcz, H. P., McMaster Univ.:

Stable isotope geochemistry of speleothem and paleoclimates, 1968-; Ph. D. theses.

Variations in the O-18/O-16 ratio in calcium carbonate deposited in limestone caves can, under suitable conditions, be used to estimate the temperature at which the carbonate was deposited, if the isotopic composition of the water is known. The latter can be estimated from the D/H ratio of fluid inclusions in the calcite. This method is being applied to cave deposits in Canada, the U.S., Mexico and several oceanic islands, to determine the variation in temperature during the late Pleistocene. Dates for the specimens are obtained by Th-230/U-234 methods.

253. Thompson, P., Schwarcz, H. P., Ford, D. C., McMaster Univ. :
Radioactive dating of cave deposits, 1968-73; Ph. D. thesis (Thompson).

Mineralogical Phase Chemistry

254. Ahmed, S. M., Bartels, K., Mines Branch, Energy, Mines and Resources:
Electrochemical studies of the sulphide-solution interface, 1973-.

To study electrode polarization and the anodic dissolution of sulphides.

255. Andrews, A., Fyfe, W. S., Univ. Western Ontario:
Sulphur geochemistry in ocean systems, 1973-; Ph. D. thesis (Andrews).

See Sub-sea-floor metamorphism, heat and mass transfer; *Cont. Min. Pet.*, vol. 42, p. 287-304, 1973.

A study of marine sulphate-basalt interactions in convecting systems.

256. Crocco, P., Fyfe, W. S., Gupta, A., Univ. Western Ontario:
Copper geochemistry in marine sediments, 1973-; Ph. D. thesis (Crocco).

257. Deville, G. C., Edgar, A. D., Univ. Western Ontario:
Flotation of plagioclase and other silicates as a mechanism of igneous differentiation, 1974-76; Ph. D. thesis (Deville).

258. Dutrizac, J. E., Ashbrook, A. W., Mines Branch, Energy, Mines and Resources:
High temperature phase equilibrium studies in the system Pb-Zn-Fe-S, 1973-75.

See Phase equilibria and matte solidification in the ternary system ZnS-FeS-PbS; Mines Branch Rept. IR-73-49, 1973.

259. Edgar, A. D., Univ. Western Ontario:
The system $KAlSi_2O_6$ - $NaAlSi_2O_6$ - H_2O up to 5 kb P_{H_2O} , 1973-75.

260. Farkas, A., Scott, S. D., Univ. Toronto:
Trace element partitioning of transition metals among sulfide minerals, 1973-77.

261. Farrell, D. M., Mines Branch, Energy, Mines and Resources:
Calculation of the Force-Constants of marcasite and cubanite from their infrared and raman spectra, 1973-74.

GEOCHEMISTRY

262. Fratta, M., Shaw, D. M., McMaster Univ.:
Thallium in basaltic rocks, 1971-74; Ph. D. thesis (Fratta).
- See Residence contamination of K, Rb, Li and Tl in diabase dikes; *Can. J. Earth Sci.*, vol. 11, no. 3, p. 422-429, 1974.
- The geochemistry of Tl shows that the coherence of this element with K, Rb, Ba and others depends on the classification of the basaltic rocks. The values of the K/Tl and Rb/Tl ratios may be used to discriminate between alkalic and subalkalic suites of basaltic rocks.
263. Fryer, B. J., Edgar, A. D., Univ. Western Ontario: Rare earth element distributions between co-existing minerals in alkaline rocks, 1973-74.
264. Fyfe, W. S., Gupta, A. K., Univ. Western Ontario: Geochemistry of ore transport, 1972-.
- See Some thoughts on chemical transport processes with particular reference to gold; *Miner. Sci. Eng.*, vol. 5, p. 295-303, 1973.
- Studies of the molecular chemistry of high-T solutions.
265. Fung, P. C., Shaw, D. M., McMaster Univ.: Partitioning of Tl-Rb-K in major rock-forming minerals, 1972-76; Ph. D. thesis (Fung).
266. Garrett, R. G., Geol. Surv. Can.: Bear granites, District of Mackenzie, 1973-.
- See Bear Province lithogeochemical survey; *Geol. Surv. Can.*, Paper 74-1, pt. A, p. 63, 1974.
- To determine the interrelationship between the high-level granitoid rocks and the Bear metallogenetic province in order to ascertain the regional mineral potential.
 - To group the high-level granitoid rocks into distinct geochemical sets in order to aid the interpretation of the geological history of the area.
 - To establish if systematic geochemical relationships exist in the proposed laccolithic co-magmatic complex of volcano-plutonic rocks of the Bear batholith.
267. Grove, E. W., Johnson, W. M., McMillan, W. J., British Columbia Dept. Mines Petrol. Resources: Petrochemistry of the Guichon Creek Batholith, 1970-76.
- Trace element, silicate analysis, i. e., whole rock geochemistry of the Guichon Creek Batholith with reference to pluton evolution and ore forming processes.
268. Gupta, A. K., Edgar, A. D., Univ. Western Ontario: Phase relations at high P_{H₂O} bearing on the origin of K-rich ultrabasic lavas, 1972-74.
- The system albite-anorthite-leucite, 1973-74.
269. Gupta, A., Fyfe, W. S., Univ. Western Ontario: Silver geochemistry at high temperatures, 1973-.
- A study of silver-halogen molecules at high temperatures.
270. Harmon, K. A., Shaw, D. M., McMaster Univ.: Tungsten in Precambrian iron formations and carbonaceous shales, 1972-74; M. Sc. thesis (Harmon).
- Neutron activation analysis for tungsten in Precambrian iron formations and carbonaceous shales of northwestern Ontario, the Kirkland Lake area of central Ontario, and Melville Peninsula.
271. Helsen, J. N., Shaw, D. M., McMaster Univ.: Tungsten in basalts and andesites, 1971-74; Ph. D. thesis (Helsen).
272. Jongejan, A., Rolko, V. E. H., Wilkins, A. L., Mines Branch, Energy, Mines and Resources: An experimental study of the weathering of mill tailings in connection with water pollution, 1971-.
- See An experimental study of the weathering of mill tailings in connection with water pollution, Parts 2-4; Mines Branch Rept. IR-73-54, IR-73-14, IR-73-55, 1973. An experimental study of the weathering of mill tailings in connection with water pollution. Physical aspects of the weathering of tailings ponds; Mines Branch Rept. IR-73-56, 1973.
- A laboratory investigation, supplemented by field studies, is being conducted on the chemical, physical and microbiological factors that contribute to the dissolution of the minerals in tailings.
273. Kissin, S. A., Scott, S. D., Univ. Toronto: Low temperature phase relations involving pyrrhotite in the Fe-S system, 1969-74.
274. Kretz, R., Univ. Ottawa: Study of granite plutons near Yellowknife, Northwest Territories, 1971-75.
- North-east of Yellowknife, in an area 30 mi. x 30 mi., twelve granite plutons (predominantly muscovite granite) of Kenoran age intrude graywacke and argillite and metamorphosed equivalents of the Yellowknife Group. The largest of these, the Duncan Lake pluton has an exposed area of about 40 sq. miles. A preliminary study

- is under way to determine variation in the chemical composition and texture of granite within the study-area, while at the same time one of the smaller plutons with an exposed area of about 6 sq. mi. and the surrounding rocks are being studied in detail.
275. Kuo, H. Y. , Crocket, J. H. , McMaster Univ. :
Geochemistry of rare earths in the Sudbury Nickel irruptive, 1968-74; Ph. D. thesis (Kuo).
276. Kwong, Y. T. J. , Crocket, J. H. , McMaster Univ. :
Gold in an Archean greenstone belt in the Kakagi Lake area, northwestern Ontario, 1972-75; M. Sc. thesis (Kwong).
- Activation analyses for gold in mafic and felsic volcanics from Kakagi Lake show little if any statistical difference in gold content or dispersion. Certain preferentially mineralized structures and rock types are currently being studied.
277. Mitchell, R. H. , Lakehead Univ. :
Petrology and geochemistry of Kimberlite and alkaline rocks, 1970-.
- Includes rare earth geochemistry of a) Fen alkaline complex, Norway, b) potassic lavas of central Africa, and c) kimberlites; mineralogy and petrology of a) Somerset Island kimberlites, b) Lesotho kimberlites, and c) the Poohbah Lake complex, Ontario.
278. Mitchell, R. H. , Krouse, H. R. , Lakehead Univ. , and Univ. Calgary:
Sulphur isotope geochemistry of carbonatites, evaporites and ore deposits, 1970-.
- See Isotopic composition of lead in galena from the Mountain Pass carbonatite, California; Nature Phys. Sci. , vol. 241, p. 17-18, 1973.
- Sulphur isotopic studies of Mountain Pass, Oka and Palabota; evaporites - recent (Trucial coast) and Devonian (Alberta) sabkhas; ore deposits - Pb-Zn deposits of western Alberta and northwestern Ontario.
279. Peach, P. A. , Gombos, F. , Brock Univ. :
The role of montmorillonite in the potassium deficiency of grapevines in the Niagara Peninsula, Ontario, 1973-74.
- The study seeks to discover the extent to which fixation by montmorillonite in the till derived from the Queenston-Georgian Bay formation is significant.
280. Shaw, D. M. , McMaster Univ. :
Ti in Precambrian and other sedimentary rocks, 1972-.
281. Shaw, D. M. , Vatin-Perignon, N. , McMaster Univ. :
Li in spilites, 1972-.
282. Stanton, M. S. , Chevron Standard Ltd. :
Organic and petroleum chemistry, 1967-.
- Geotectonics, 1967-.
283. Steger, H. F. , Mines Branch, Energy, Mines and Resources:
Adsorption of trace amounts of metal ions by open-lattice silicates, 1971-73.
- Stability of comminuted sulphide minerals and ores during storage, 1973-.
- The stability of sulphide minerals and ores to oxidation will be determined for the ranges in temperature and humidity of 10-75°C and 50-90% respectively.
284. Turek, A. , Univ. Windsor:
Primary metal distribution - Sherritt Gordon Mines, 1972-73.
- Primary metal distribution in carbonate rocks of southwestern Ontario, 1974-77.
- Evaluation of argon plasma jet in analytical geochemistry, 1974-76.
- General
285. Brooks, C. , Gélinas, L. , Leger, G. , Univ. Montréal:
Origin and nature of Archean ultramafics, 1971-75.
- See On the significance of komatiite; Geology, vol. 2, no. 2, p. 107-110, 1974.
286. Coish, R. , Church, W. R. , Fyfe, W. S. , Univ. Western Ontario:
Submarine metamorphism, 1973-; M. Sc. thesis (Coish).
- A study of metamorphism of a sheeted dyke complex, Newfoundland.
287. Crosby, K. S. , New Brunswick Dept. Natural Resources:
Trace elements in the salt core of the Windsor Formation, southeastern New Brunswick, 1973-75.

GEOCHEMISTRY

288. Fortescue, J. A. C. , Brock Univ. :
Landscape geochemistry, 1970-.
- Landscape geochemistry is a holistic approach to the study of geochemistry of volume units of country. Our research involves preliminary investigation of fundamental principles of the subject as well as its potential practical applications in epidemiology forestry and exploration geochemistry.
289. Govett, G. J. S. , Chork, C. Y. , Univ. New Brunswick:
Evaluation of climatic and physico-chemical factors on dispersion of elements in drainage systems of northern New Brunswick-Maine, 1973-75.
290. Hitchon, B. , Alberta Research:
Geochemistry of formation waters, crude oils and natural gases in western Canada sedimentary basin.
- See Geochemistry of trace elements in crude oil, Alberta, Canada; Preprints Amer. Chem. Soc. Symp. , Chicago, April 26-31, 1973.
- Special studies are underway on inorganic, organic and stable isotope characteristics of (1) Devonian fluids, (2) Lower Cretaceous heavy oil deposits, and (3) Alberta crude oils and condensates. In addition, a special investigation of formation waters is being carried out with respect to their use in geochemical exploration for crude oil and natural gas.
291. Hoag, R. B. , McGill Univ. :
Hydrogeochemistry of springs near the Eustis Mine, Quebec, 1971-74; Ph. D. thesis.
292. Jen, Lo-Sun, Univ. Ottawa:
Spatial distribution of crystals and phase equilibrium in charnockitic granulites from the Adirondack Mountains, New York, 1969-73; Ph. D. thesis.
- Data were obtained on the chemical composition and texture of the rocks, on the chemical composition of the contained orthopyroxene, calcic pyroxene, amphibole, garnet, magnetite, and ilmenite, and on the distribution of cations between non-equivalent sites in orthopyroxene and calcic pyroxene. The data are interpreted in relation to the attainment of chemical equilibrium during metamorphism.
293. Larson, L. R. , McGill Univ. :
Geochemical subdivision, stratigraphic correlation, and genesis of rhyolitic volcanic rocks, northwestern Quebec, 1967-74; M. Sc. thesis.
294. Liberty, B. A. , Brock Univ. :
Trace element study of carbonates (Paleozoic) of southwestern Ontario, 1967-77.
295. Scarfe, C. M. , Lambert, R. St J. , Jacobs, J. A. , Univ. Alberta:
Geochemical and geophysical properties of the crust and upper mantle, 1974-.
296. Scott, S. D. , Univ. Toronto:
Experimental studies on refractory sulfide systems, 1969-.
- See Experimental calibration of the sphalerite geobarometer; Econ. Geol. , vol. 68, p. 466-474, 1973.
- Studying systems Zn-Fe-S, Cu-Fe-S, Fe-Ni-S, Fe-As-S at 200-900°C and 0-10 kb.
297. Smith, T. E. , Univ. Windsor:
The geochemistry of the White Rock Formation and of the pre-granitic gabbros of southwestern Nova Scotia, 1974-76.
- Geochemistry of the granitic rocks of southwestern Nova Scotia, 1970-74.
- See Radiometric ages of granitic rocks, southwestern Nova Scotia; Can. J. Earth Sci. , vol. 8, p. 1201-1210, 1973.
298. Warren, B. , Ministère des Richesses Naturelles du Québec:
Prospection alluvionnaire en Abitibi, Québec, 1972-74.
299. Wolfe, W. J. , Ontario Division of Mines:
Statistical metal distributions in Early Pre-Cambrian volcanic rocks, 1972-75.
- See Geochemical distributions of zinc, copper and nickel in volcanic rocks, Ben Nevis Township; Ontario Division of Mines, Prel. Maps 915, 916, 917, 1974.
300. Zimmermann, R. C. , Moore, T. R. , McGill Univ. :
Vegetation of asbestos mine wastes, Eastern Townships, Quebec, 1973-74.
- Although the project is primarily concerned with the establishment of vegetation on asbestos mine wastes, it also includes comprehensive chemical analyses of asbestos tailings from the principal mines of the asbestos belt of Quebec.

GEOCHRONOLOGY

301. Baadsgaard, H., Godfrey, J. D., Univ. Alberta: Geochronology of the Canadian Shield in north-eastern Alberta, 1958-.
302. Baadsgaard, H., Koster, F., Univ. Alberta: Geochronology of the Tazin Lake area, Saskatchewan, 1966-.
303. Birk, D., McNutt, R. H., McMaster Univ.: Geochronology and geochemistry of some Archean granitic rocks, 1973-77; Ph. D. thesis (Birk).
304. Cormier, R. F., St. Francis Xavier Univ.: Rubidium-strontium whole-rock isochron dating of the granitic rocks of the Appalachian district in Canada, 1970-76.
- See Radiometric ages of granitic rocks, Cape Breton Island, Nova Scotia; Can. J. Earth Sci., vol. 9, no. 7, p. 1074-1086, 1973.
- Radiometric ages of granitic rocks, southwestern Nova Scotia; Can. J. Earth Sci., vol. 10, no. 8, p. 1201-1210, 1973.
- Investigation of granitic rocks from the older (?) granites of southern New Brunswick, the Cobequid and Antigonish highlands in northern Nova Scotia and the Central Mobile Belt and Avalon Peninsula of Newfoundland.
305. Doig, R., Fowler, A., Frith, R., Barton, E., McGill Univ.: Rb-Sr and K-Ar geochronology, 1964-; theses.
- See Rb-Sr isotopic ages and petrologic studies of the rocks in the Lac St. Jean area, Quebec; Can. J. Earth Sci., vol. 10, no. 6, p. 881-899, 1973.
1. Grenville project: Rb-Sr results on a regional scale have been completed. More detailed work is required in the Mont Laurier-Val d'Or section to precisely outline the areas of Kenoran and Aphebian influence that have been discovered.
 2. Bear-Slave provinces, N.W.T.: A mapping and Rb-Sr study of a large area 150 miles north of Yellowknife is about half-completed. The project is a cooperative venture with the Geological Survey of Canada, and will be the first comprehensive geochronological study of the complex boundary between these structural provinces.
 3. Petrologic and Rb-Sr study of the Granulite-Facies Terrain West of the Labrador Trough: This is the only extensive area of high-grade metamorphic rocks in the Superior province. Preliminary mapping and sampling was begun in August 1973.
306. Farrar, E., McBride, Sandra, Archibald, D., Queen's Univ.: K-Ar geochronology; theses.
- See The Bolivian tin province: notes on available geochronological data; Econ. Geol., vol. 68, p. 102, 1973.
- The orifice correction for K-Ar dating; Can. J. Earth Sci., vol. 10, no. 9, p. 1410-1414, 1973.
- Several geochronological investigations are currently underway: (1) a study of the temporal relationships between granitic intrusion and mineralization in the Andes of Bolivia; (2) an attempt is being made to establish a temporal framework, by which mineralized zones may be classified, in the southwestern Yukon; (3) a K-Ar geochronological study of the Bay of Islands complex (western Newfoundland) is being carried out to establish the age and time of emplacement of the body; and (4) a continuing investigation into the problems of initial argon in amphiboles of the Tulameen complex in southern British Columbia through the use of the Ar⁴⁰-Ar³⁹ incremental heating technique.
307. Frisch, T., Sinha, A. K., Geol. Surv. Can., and Virginia Polytechnic Institute: Geochronology of metamorphic rocks from the north coast of Ellesmere Island, N.W.T., 1973-.
308. Gibbins, W. A., McNutt, R. H., McMaster Univ.: Rb-Sr geochronologic studies at Sudbury, Ontario, 1968-73.
309. Lambert, R. St J., Hogarth, D., Univ. Alberta: Rb-Sr geochronology of the Wakefield syenite and related rocks, Ontario, 1968-74.
310. Lambert, R. St J., Holland, J. G., Univ. Alberta: Geochemistry and geochronology of the Lewisian, Scotland and shield composition and structure in general, 1962-.
- Petrochemistry and age of the Malvernian, England, 1966-74.
- Petrochemistry of the Leven Schists and related rocks, Scotland, 1970-75.
311. Lowdon, J. A., Geol. Surv. Can.: Radiocarbon laboratory development and operation, 1959-.
- See Seasonal variations in the isotope ratios of carbon in maple leaves and other plants; Can. J. Earth Sci., vol. 11, no. 1, p. 79-88, 1974.

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312. Marchand, M., Crocket, J. H., McMaster Univ.: Rb/Sr geochronology studies of the Onaping Formation, Sudbury, and the Mistasin Lake district, Labrador, 1969-74; Ph. D. thesis (Marchand).
- An age of 1346 m. y. was found for the Mistasin Lake Pluton.
313. McNutt, R. H., Crocket, J. H., McMaster Univ.: Initial $\text{Sr}^{87}/\text{Sr}^{86}$ ratio of Chilean plutonic and volcanic rocks, 1971-75.
314. Russell, R. D., Slawson, W. F., West, K. E., LeCouteur, P., Meldrum, R. D., Loskot, V., Tunstall, C., Ahern, T. K., Athaide, D., Birnie, D. J., Univ. British Columbia: Isotopic geophysics and geochronology, 1958-; M. Sc. theses.
- Some research projects include the exploration of the characteristics of two-reservoir evolutionary models for radiogenic isotopes thus extending the studies in 1972 of Russell to the case of bi-directional transport; it is based on the hypothesis that the characteristic lead isotope patterns of oceanic basalts and conformable ores betray the existence of at least two major geochemical systems of global extent and great age. The lead-207 deficiency of the oceanic basalt leads is considered to be a fundamental characteristic of the systems.
- Rb/Sr measurements have been made on a sizeable number of ultramafic samples collected from the Cordillera; samples of metamorphosed Purcell Supergroup sediments (Aldridge Formation) collected from several places in the East Kootenay district, British Columbia have been subjected to Rb/Sr and K/Ar analyses to determine the age(s) of metamorphism; and fission track dating of a few samples of epidote from East Kootenay mineral deposits containing lead with Precambrian model ages (1.2-1.4 by.) is being attempted to determine whether the model ages actually correspond with ages of mineralization.
315. Sassano, G., Univ. Alberta: Stratigraphy of the Tazin Group (Uranium City, Saskatchewan), 1973-76.
316. Stauffer, M. R., MacQuarrie, R., Univ. Saskatchewan (Saskatoon): Age of the Precambrian rocks near Flin Flon, Manitoba, 1971-77; M. Sc. thesis (MacQuarrie).
317. Steiner, J., Univ. Alberta: Geological periodicities, 1969-.
- and eastern European cratons; Geology, vol. 1, no. 2, p. 89-92, 1973.
318. Stockwell, C. H., Geol. Surv. Can.: Geochronology of the Canadian Shield, 1969-.
319. Terasmae, J., Brock Univ.: Quaternary geochronology, paleoecology and dendroclimatology in Ontario, 1969-.
- See Notes on late Wisconsin and early Holocene history of vegetation in Canada; Arctic and Alpine Research, vol. 5, no. 3, pt. 1, p. 201-222, 1973.
- The primary objective is to establish a chronological framework for geological events (retreat of the continental ice-sheet, history of glacial lakes, and dating of the development of landscape features), climatic changes and history of vegetation since the last glaciation by making palynological, paleobotanical and sedimentological studies of selected peat and lake deposits which contain a biological and physical record that allows the reconstruction of past environmental changes.
320. Thompson, P., Schwarcz, H. P., Ford, D. C., McMaster Univ.: Radioactive dating of cave deposits, 1968-73; Ph. D. thesis (Thompson).
- The Th-230/U-234 method is being applied to the dating of calcium carbonate deposits in caves. The feasibility of using the U-234/U-238 method is tested in a variety of deposits, and found to be only rarely applicable.
321. Van Schmus, R. W., Card, K. D., Kansas Univ., and Ontario Division of Mines: Petrographic and radiometric age studies of Precambrian basement beneath the Paleozoic cover rocks of Manitoulin Island, Ontario, 1972-75.
- Samples of Precambrian basement beneath the Paleozoic cover of Manitoulin Island recovered by drilling are granitic (quartz monzonite) and yield a whole-rock Rb-Sr isochron age of about 1700 m. y.
322. Wanless, R. K., Geol. Surv. Can.: Isotopic study of mica-bearing rocks yielding anomalous K-Ar 'ages', 1965-.

See Possible galactic causes for synchronous sedimentation sequences of the North American

GEOMORPHOLOGY AND GLACIOLOGY

323. Arnold, K. C. , Inland Waters Directorate, Dept. Environment:
Mass balance measurements on Queen Elizabeth Islands' glaciers, 1971-76.
324. Barnett, D. M. , Geol. Surv. Can. :
Proglacial geomorphology, Generator Lake, Baffin Island, District of Franklin, 1968-.
- Surficial geology and geomorphology of Melville Island, District of Franklin, 1971-.
- See Radiocarbon dates from Melville Island; Geol. Surv. Can. , Paper 73-1, pt. B, p. 137-140, 1973.
- Surficial geology and geomorphology of Melville Island, District of Franklin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 239, 1974.
325. Dickie, G. J. , Cape, D. , Univ. Windsor:
Effect of winter ice buildup on Point Pelee beaches, 1974.
- The amount of sand moved by the ice buildup on both east and west sides of Pt. Pelee is being measured by detailed beach profiles during the winter. Ice movement patterns are being monitored by air photography and dye patterns on the ice surface. Textural analysis of the beach sands will show which size ranges are most affected by ice buildup.
326. Elson, J. A. , McGill Univ. :
Photogeology, 1971-.
- Design of a cataloguing system that is non-exclusive, application to the study of bedrock in glaciated terrain in various tectonic regions; use of ERTS imagery in geology; ground-level multi-band photography of geological materials in bands ranging from ultra-violet to near infrared.
327. Elson, J. A. , and Pearce, A. J. , McGill Univ. :
Denudation processes in temperate frost climates; Paleoclimatic significance of talus, 1966-.
- See Postglacial rates of denudation by soil movement, free face retreat, and fluvial erosion, Mont. St. Hilaire, Quebec; Can. J. Earth Sci. , vol. 10, p. 91-101, 1973.
- Long term measurements of movement on slopes; study of freeze-thaw induced slope movement, current talus production from a small cliff, related to freeze-thaw cycles; production of talus from various rock types at different altitudes along an extended north-south transect; geomorphic activity of the snow pack, are studied as opportunity arises. Sequential photography of selected landforms, especially in the defoliated areas near Sudbury, Ontario.
328. Gold, L. W. , National Research Council:
Deformation and failure of ice, 1960-.
- To establish the dependence of the deformation and failure of ice on stress, temperature and time.
329. Grove, E. W. , British Columbia Dept. Mines Petrol. Resources:
Continuing glaciological studies in the northern Boundary Ranges of British Columbia, 1964-.
330. Hodgson, D. A. , Geol. Surv. Can. :
Surficial geology and geomorphology of central Ellesmere Island, District of Franklin, 1972-.
- See Landscape, and late-glacial history, head of Vandom Fiord, Ellesmere Island; Geol. Surv. Can. , Paper 73-1, pt. B, p. 129-136, 1973.
- Surficial geology, geomorphology and terrain disturbance, central Ellesmere Island, District of Franklin (parts of 49D, E, G, H, 340B); Geol. Surv. Can. , Paper 74-1, pt. A, p. 247-248, 1974.
331. Jones, S. J. , Johari, G. P. , Parameswaren, V. R. , Chen, E. C. , Barnett, G. , Inland Waters Directorate, Dept. Environment:
Mechanical, electrical, and physical properties of pure and impure ice including the effects of oil in ice infested waters, 1968-.
- A continuing series of laboratory studies to study the properties of single crystal and polycrystalline ice, pure and impure, and examine the effects of ice on boundary conditions. Present studies include the diffusion and solubility of various substances in ice, the effect of stress on dislocations, dielectric properties of D₂O, and the kinematics and mechanism of oil spreading on an ice surface, and the mechanical properties of ice under hydrostatic pressure.
332. Jones, S. J. , O'Neil, R. A. , Inland Waters Directorate, Dept. Environment:
Radio-echo depth sounding of glaciers, 1972-.
- Plans are being made to use a 620 MHz, a 440 MHz and a 35 MHz SPRI radio-echo sounding unit on the Barnes Ice Cap, Baffin Island in April 1974 to measure depths in an area of a postulated "surge" and to measure attenuation on the ice.

GEOMORPHOLOGY AND GLACIOLOGY

333. Lewis, C. F. M. , Geol. Surv. Can. :
Surficial geology and geomorphology, Hudson Bay,
1971-.
334. MacKay, D. K. , et al.
Hydrologic - geomorphic studies in Mackenzie
Basin, related to a proposed pipeline, 1972-.
- See Hydrologic aspects of northern Pipeline
Development; Environmental-Social Committee
Northern Pipeline, Task Force on Northern Oil
Development, Rept. No. 73-3, p. 664, 1973.
335. McDonald, B. C. , Geol. Surv. Can. :
Sedimentary and geomorphic processes, Yukon
coastal plain, 1972-.
- See Position of frost table in the near-shore zone,
Tuktoyaktuk Peninsula, District of Mackenzie;
Geol. Surv. Can. , Paper 73-1, pt. B, p. 165-
168, 1973.
336. Mokievsky-Zubok, O. , Beck, T. M. H. , Stanley,
A. D. , Inland Waters Directorate, Dept.
Environment:
Mass and water balance measurements on select-
ed glaciers in Canada: Place, Sentinel, Woosley,
Peyto, Ram, Berendon, Decade and Per Ardua
glaciers, 1965-.
337. Moore, T. R. , McGill Univ. :
Soil development in Arctic and Subarctic Quebec,
1972-74
338. Narod, B. , Clarke, G. K. C. , Goodman, R. H. ,
Univ. British Columbia:
High-resolution radio echo sounder for glaciology,
1973-75; M. Sc. thesis (Narod).
- An 840 MHz high-resolution field portable radio
echo sounder is being designed and assembled at
the University of British Columbia. The final
system should enable remote sensing of glacier
ice thickness as well as detection of englacial
water and possibly measurement of the roughness
spectrum of the glacier bed.
339. Ommaney, C. S. L. , Inland Waters Directorate,
Dept. Environment:
An inventory of perennial snow and ice masses in
Canada, 1968-.
- A bibliography of Canadian glacier studies is part
of this project.
340. Ommaney, C. S. L. , Holdsworth, G. , Arnold, K. C. ,
Inland Waters Directorate, Dept. Environment:
Calving glacier studies, 1970-.
341. Rousell, D. H. , Gray, J. T. , Laurentian Univ. :
The origin of foliation and lineation in the Onaping
Formation and the deformation of the Sudbury
Basin, 1972-74.
- Fluvial geomorphology of the Vermilion River,
Sudbury Basin, Ontario, 1972-74.
342. Schaerer, P. A. , National Research Council:
Snow and avalanches, 1960-.
- To obtain information required for making deci-
sions concerning avalanche control projects and
for design of avalanche defence structures in
deep snow areas.
343. Shearer, J. M. , Geol. Surv. Can. :
Surficial geology and geomorphology Mackenzie
Bay-Continental Shelf, 1970-.
344. Thakur, T. , Inland Waters Directorate, Dept.
Environment:
Regional hydrologic characteristics of Mackenzie
River Basin and morphometric analysis of
Mackenzie drainage basin networks, 1970-.
- See Geomorphic and hydrologic characteristics
of Mackenzie River tributary basins; Environ-
mental-Social Committee Northern Pipelines,
Task Force on Northern Oil Development, Rept.
No. 73-3, p. 571-644, 1973.
345. Young, H. R. , Welsted, J. E. , Brandon Univ. :
Glacial geology and geomorphology of the east-
ern end of the Brandon Hills, Manitoba, 1972-75.

GEOPHYSICS

Electrical

346. Becker, A., Bazinet, R., Ecole Polytechnique:
Electrical conductivity measurements, 1973-74.

Laboratory measurement of electrical conductivity of core samples with conventional methods occasionally yields different estimates of this parameter from those obtained from the interpretation of electromagnetic field data. To investigate this problem, an instrument for measurements on core samples by a purely inductive method has been designed.

347. Becker, A., Bolduc, P. M., Ecole Polytechnique:
Electromagnetic reflectometer, 1971-75.

348. Becker, A., Faessler, C. W., Bertin-Mahieux, J. M., Ecole Polytechnique:
Geophysical prospecting in diamond drill holes, 1970-.

349. Becker, A., Faessler, C. W., St-Hilaire, C., Hubert, J. M., Ecole Polytechnique:
Multi-frequency EM mapping, 1973-74.

The interpretation of three frequency airborne EM data could result in detailed mapping of overburden layers. This hypothesis is to be confirmed by the analysis of records obtained over an area previously mapped with the d. c. resistivity method and which will be further investigated with shallow seismic surveys.

350. Duckworth, K., Univ. Calgary:
Development of electromagnetic, induced polarization and radiometric instrumentation and techniques in metallic mineral prospecting, 1968; theses.

EM: development of a new mode of depth sounding; IP: studies of relative performance of electrode arrays; Radiometric: studies of geochemical sorting of uranium daughter products.

351. Katsube, T. J., Geol. Surv. Can. :
Electrical rock properties, 1963-.

See Radar sounding and electrical rock properties; Geol. Surv. Can., Paper 74-1, pt. A, p. 79-82, 1974.

Electrical characteristic differentiation of sulphide minerals; *ibid.*, p. 83, 1974.

352. Scott, W. J., Geol. Surv. Can. :
VLF mapping, 1967-75.

See Geophysical study of permafrost: Mackenzie Valley; Geol. Surv. Can., Paper 74-1, pt. A, p. 99, 1974.

To assess the capabilities and limitations of using VLF radio waves as a means of providing geological information to delineate fault and shear zones, and for mapping permafrost.

Geomagnetic and Paleomagnetic

353. Ade-Hall, J. M., Ryall, P. J. C., Johnson, P., Abdel-Aal, O., Rice, P., Dalhousie Univ. :
The magnetic properties of oceanic rocks. The structure of oceanic volcanic islands and oceanic crustal layer 2, 1970-.

See The mid-Atlantic ridge near 45°N, XXI, magnetic results from basalt drill cores from the median valley; Can. J. Earth Sci., vol. 10, no. 5, p. 679-696, 1973.

354. Ball, D., Burke, K. B. S., Bachinski, D. J., Univ. New Brunswick:

Magnetic transformations in thermally metamorphosed rocks, 1971-74; M. Sc. thesis (Ball).

355. Barlow, R., Ontario Division of Mines:
A magnetic survey of Bell Lake - Sturgeon Lake area, Ontario, 1972-74.

A magnetic survey of the northern part of the Sturgeon Lake area, Ontario 1973-.

See A magnetic survey of the northern part of the Sturgeon Lake area, District of Thunder Bay; Ontario Division of Mines, Misc. Paper 56, p. 153-157, 1973.

356. Burke, K. B. S., Gupta, V., Tejriran, H., Univ. New Brunswick:

Geophysical investigations of tectonic problems in New Brunswick, 1971-74; Ph. D. thesis (Gupta), M. Sc. thesis (Tejriran).

See The Caraquet dike: its tectonic significance; Can. J. Earth Sci., vol. 10, no. 12, p. 1760-1768, 1973.

357. Christie, K. W., Geol. Surv. Can. :
Paleomagnetism and rock magnetism instrumentation and technological development, 1970-.

Paleomagnetism of the Hopedale diabase dykes, Newfoundland, 1972-.

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358. Dunlop, D. J. , Univ. Toronto:
Paleomagnetic and rock magnetic study of Grenville and Superior Province rocks in Ontario, 1972-.
359. Fahrig, W. F. , Geol. Surv. Can. :
Paleomagnetism of the Lac St. Jean anorthosite, Quebec, 1972-.
- Paleomagnetism of the diabase dykes of West Greenland, 1972-.
360. Foster, J. H. , Geol. Surv. Can. :
Paleomagnetic reversals in Paleozoic of the St. Lawrence Platform, Ontario and Quebec, 1972-.
361. Greenhouse, J. P. , Edwards, R. N. , Univ. Waterloo and Univ. Toronto:
Geomagnetic variation study of eastern U. S. Continental margin - Clarksburg, W. Va. , to Locustville, Va. , 1973-74.
- Three component recording magnetometers have been placed at a spacing of 50 km along a line crossing the Appalachians and the coast approximately at right angles. Two to three weeks of data were recorded at each station. The data are expected to yield information on the crustal and upper mantle electrical conductivity structure beneath the Appalachian belt and the continental margin.
362. Gravenor, C. P. , Stupavsky, M. , Symons, D. T. A. , Univ. Windsor:
Magnetic properties of till, 1971-75.
- See Paleomagnetism and its relationship to till deposition; Can. J. Earth Sci. , vol. 10, no. 7, p. 1068-1078, 1973.
- Paleomagnetism of the Port Stanley Till, Ontario; Geol. Soc. Amer. Bull. , vol. 85, no. 1, p. 141-144, 1974.
- Paleomagnetic techniques also have been applied to determine the water content of till when it was deposited from the base of active glaciers. Other magnetic properties of till - such as magnetic susceptibility - have been extensively studied in the region of the Great Lakes and it is apparent that the technique can be used to differentiate till sheets and determine their source area.
- 362a. Holroyd, M. T. , Geol. Surv. Can. :
High-resolution aeromagnetic data, 1968-.
363. Hood, P. J. , Geol. Surv. Can. :
Magnetic gradient techniques, 1963-.
- To assess the usefulness of measuring the vertical gradient in magnetic surveys and to develop the necessary theory for the interpretation of the results.
- Queen Air high resolution aeromagnetics, 1968-.
- See Experimental high-resolution aeromagnetic surveys, 1973; Geol. Surv. Can. , Paper 74-1, pt. A, p. 95-98, 1974.
364. Kornik, L. J. , Geol. Surv. Can. :
Interpretation of high resolution aeromagnetic surveys, 1972-.
- See Magnetic test range near Timmins, Ontario; Geol. Surv. Can. , Paper 73-1, pt. B, p. 69-70, 1973.
365. McCance, J. A. , Wadge, D. R. , Ontario Division of Mines:
Magnetic survey of McCart and Calvert townships, Ontario, 1973-74.
- See Magnetic survey of McCart and Calvert townships; Ontario Division of Mines, Misc. Paper 56, p. 164-167, 1973.
- Pace and compass surveys having stations spaced 100 feet apart and line spacings ranging from 400 to 880 feet have been completed for Dundonald, Clergue, Calvert and McCart Townships.
- The magnetic information has four main applications: 1) to map lithological units, i. e. , geological mapping on the basis of distinguishable magnetization; 2) to locate structural features such as faults which are apparent by dislocation or termination of magnetized zones; 3) to map basement depths and to determine possible shapes for the mafic and ultramafic intrusions throughout the area; 4) to identify magnetized zones that could be associated with anomalously high concentrations of magnetite or pyrrhotite.
366. McGlynn, J. C. , Geol. Surv. Can. :
Paleomagnetic study of Proterozoic red beds of the Western Canadian Shield, 1968-.
- See Paleomagnetism and age of Nonacho Group sandstones and associated Sparrow dikes, District of Mackenzie; Can. J. Earth Sci. , vol. 11, no. 1, p. 30-42, 1974.
367. McGrath, P. H. , Geol. Surv. Can. :
Aeromagnetic interpretation - Appalachia, 1968-.

368. Nadeau, A. , Ministère des Richesses Naturelles du Québec:
 Levé aéromagnétique - Région du Fort McKenzie, Nouveau-Québec, 1973-74.
- Travail fait par des firmes contractantes.
- Levé Input dans les régions de Senneterre et Bartouille, Abitibi-Est, Province de Québec, 1973-74.
- Levés Input dans la Gaspésie, District électoral de Matane, Province de Québec, 1973-74.
- Les cantons survolés par ce levé Input furent Cap-Chat, Tourelle, Courcelette, La Potardière, Boisbuisson et Duchesnay.
369. Schwartz, E. J. , Geol. Surv. Can. :
 Thermomagnetism of single minerals and rocks, 1970-.
- See Fabric from magnetic anisotropy: sulphide deposits near Sudbury, Ontario; Geol. Surv. Can. , Paper 73-1, pt. B, p. 211-212, 1973.
- Magnetic characteristics of massive sulfide ore bodies near Sudbury, Canada; Can. J. Earth Sci. , vol. 10, no. 12, p. 1735-1743, 1973.
370. Seguin, M. K. , Univ. Laval:
 Paleomagnetisme des roches de la fosse du Labrador, 1972-74
- See The magnetic properties of the diabase dikes of the central part of the Labrador Trough; Nat. Can. , vol. 99, p. 635-655, 1972.
- Etude et application du magnétisme rémanent naturel à la découverte de gisements de taconite magnétique; Pure and Applied Geophys. , vol. 97, p. 156-175, 1972.
- Interprétation quantitative de données obtenues à partir d'un système électromagnétique et magnétique héliporté dans la recherche de taconites magnétiques rentables; Geoexploration, vol. 11, p. 107-129, 1973.
371. Symons, D. T. A. , Univ. Windsor:
 Paleomagnetism of radiometrically dated igneous rocks in the Cordillera, 1969-77.
- See Unit correlations and tectonic rotation from paleomagnetism in the Triassic Copper Mountain intrusions, B. C. ; Geol. Surv. Can. , Paper 73-19, p. 11-28, 1973.
- Paleomagnetic results from the Jurassic Topley Intrusions near Endako, British Columbia; Can. J. Earth Sci. , vol. 10, no. 7, p. 1099-1108, 1973; *ibid.* , vol. 11, no. 2, p. 350-352, 1974.
- Work is now in progress on the Aiyasha lava flow and more Cenozoic and some Mesozoic plutons in the Prince Rupert area.
- Paleomagnetism of carbonatites in northern Ontario, 1971-75.
- Study in the Nemogosenda carbonatite is completed. Other units collected and measured include the Seabrook Lake carbonatite, Lackner Lake carbonatite, Thessalon volcanics, Mongowin pluton, and Nipissing diabase in the Gowganda area.
372. Symons, D. T. A. , Londry, J. W. , Univ. Windsor:
 Paleomagnetism of rock units in the Noranda area, Quebec, 1973-75; M. Sc. thesis (Londry).
- Acid and basic volcanic and plutonic units as well as mineralized and associated alteration zones are being tested paleomagnetically to test certain geotectonic and ore genesis hypotheses.
373. Tiffin, D. L. , Geol. Surv. Can. :
 Geological and geophysical studies in the Beaufort Sea, 1971-.
374. Watanabe, T. , Ueda, H. , Univ. British Columbia:
 Design and calibration of induction magnetometers, 1971-74; M. Sc. thesis (Ueda).

Geothermal

375. Silvester, P. , Telford, W. M. , Univ. Montréal:
 Multiple-frequency telluric and magnetotelluric response over resistivity anomalies and topographic affects, 1972-.
376. Waugh, D. C. E. , New Brunswick Dept. Natural Resources:
 Delineation of shallow salt domes and surface faults using airborne infrared sensing, 1973-74.

Gravity

377. Barlow, R. , Moon, W. , Ontario Division of Mines:
 East Quetico Belt gravity survey, 1972-74.
- Gravity control stations were established at 60 locations and these control stations are tied to the primary gravity control stations established by the Earth Physics Branch of the Department of

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Energy, Mines and Resources, Ottawa. After the control stations were established, about 1,500 gravity measurements were made in the survey area with station intervals of 5 to 10 miles in areas of better accessibility.

378. Chiasson, T. C. , New Brunswick Dept. Natural Resources:
Gravimetric surveying over possible salt domes in southwestern New Brunswick, 1971-74.
- Anomalous areas have been mapped, in the Windsor Group, to the west of Sussex and to the south of Moncton, New Brunswick, and in the Albert Formation, to the northwest of Petitcodiac.

379. Howells, K. , Zwicker, D. , Nova Scotia Research Foundation:
Gravity surveys and interpretation in the Bras d'Or Lake area of Cape Breton Island, Nova Scotia, 1972-75

380. McCance, J. A. , Toth, L. , Adams, C. R. , Ontario Division of Mines:
Gravity survey of the Lake Temiskaming-Englehart region, Ontario, 1973-74.

See Gravity survey of the Lake Temiskaming-Englehart Region; Ontario Division of Mines, Misc. Paper 56, p. 174-177, 1973.

The primary objective of the survey was to map the regional features of the Bouguer gravity field and to correlate these results with the larger geological units and structures of the area.

Seismic

381. Burke, K. B. S. , Univ. New Brunswick:
Shallow seismic investigations - development of optimum techniques, 1973-.

382. Clowes, R. M. , Knize, S. , Melacek, S. , Bennett, G. T. , Univ. British Columbia:
Explosion seismology, 1971-; theses.

Two explosion seismology studies, one at sea and one land-based, are in progress. The former involves a study of the structure and characteristics of the oceanic crust and upper mantle by utilizing near-vertical incidence and wide-angle reflections and refraction arrivals recorded on a marine seismic system. This information about deep structure in the area off the West Coast is important for furthering our understanding of the complex tectonic development in the region. Three profiles were recorded on a successful cruise in June 1973. Data processing techniques will be

used for signal enhancement and interpretation will be aided by the use of synthetic seismograms. Additional cruises are planned.

On land, refraction profiles using large mine blasts as sources are being run to provide additional information about the structure and characteristics of the crust and upper mantle in B. C. One such profile has been interpreted, giving a velocity/depth structure beneath the Rocky Mountain Trench and suggesting a crustal fault crossing the Trench. A reversed profile extending across southern B. C. has been started and will be continued.

383. Collett, L. S. , Geol. Surv. Can. :
AFMAG surveys, Saskatchewan, Manitoba and Ontario, 1968-.

To assess the value of airborne AFMAG surveys as aids to geological mapping of faults, shear zones and ultramafic dykes; to develop and improve present instrumentation for measuring natural EM fields.

384. DuBerger, R. , Univ. du Québec à Chicoutimi:
Seismic studies in the Haut-Saguenay and Chibougamau areas, 1972-.

In the Haut-Saguenay area a few measurements of P velocities have been made that show great variations over quite a small area. In Chibougamau, the seismic velocities will also be investigated in order to compare their behaviour within the shear zones and the unshattered parts.

385. Fitzpatrick, M. M. , Cooper, H. , Queen's Univ. :
Seismic and resistivity investigations in permafrost areas, 1973-74; M. Sc. thesis (Cooper).

Seismic and resistivity surveys were employed to determine the depth to bedrock along part of the Mackenzie Highway. An attempt will be made to correlate depth to permafrost with various factors including topography.

386. Fitzpatrick, M. M. , Woods, D. , Queen's Univ. :
Model pulsed EM drill hole logging, 1973-74; M. Sc. thesis (Woods).

A model drill hole is being constructed to obtain typical responses for the crone pulsed EM logging device for different types of conductors in different attitudes.

387. Geophysical Sciences Department, Mobil Oil Canada, Ltd. :
Application of Mini-computers in seismic data processing, 1973-.

Application of computer graphics in Petroleum Exploration, 1969-.

388. Hajnal, Z. , Univ. Saskatchewan (Saskatoon):
Seismic investigation of deep-seated structures in Saskatchewan, 1970-76.

See Deep seismic crustal studies in Manitoba; Bull. Seis. Soc. Surv. , vol. 63, no. 3, p. 885, 1973.

389. Hajnal, Z. , Stauffer, M. R. , Univ. Saskatchewan (Saskatoon):
Seismic investigation of Precambrian contact zones, 1971-75.

Seismic reflection studies in the Precambrian shield, 1972-75.

390. Hobson, G. D. , Geol. Surv. Can. :
Seismic-Rocky Mountain Trench, 1966-.

To investigate structure beneath the west edge of Rocky Mountains to determine presence of discontinuities and identify formations. If possible to prove or disprove whether the Rocky Mountain front and adjacent part of the Trench floor may be "unrooted".

Seismic-Flin Flon, Manitoba, 1966-.

To determine whether seismic reflection and refraction seismic techniques can detect interfaces between Precambrian rock units utilizing data from the deep bore-hole at Flin Flon.

Marine seismic-Great Lakes, 1966-.

Seismic refraction-Sverdrup Basin, District of Franklin, 1972-.

See Seismic refraction-Sverdrup Basin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 71, 1974.

391. King, M. S. , Leuschen, A. A. , Univ. Saskatchewan (Saskatoon):
Field studies of microseismic energy emission, 1970-75.

To relate the results of microseismic energy emission experiments on rocks approaching failure in the laboratory to the prediction of roof failure underground in several Saskatchewan potash mines.

392. Pliva, G. L. , Wong, J. , Ontario Ministry of the Environment:
Geophysical surveys and investigations and well-logging for hydrogeologic studies, 1965-.

General

393. Davis, A. R. , Gross, H. , Kruus, J. , O'Neil, R. , Inland Waters Directorate, Dept. Environment:
Development of a laser fluorometer, 1971-.

394. Geophysical Sciences Department, Mobil Oil Canada, Ltd. :
Elastic properties of porous sedimentary rocks, 1970-.

395. Haworth, R. T. , Geol. Surv. Can. :
Geophysical investigation of the Laurentian Channel and southern Grand Banks of Newfoundland, 1972-.

See Geophysical investigation of the Laurentian Channel and the southern Grand Banks of Newfoundland; Geol. Surv. Can. , Paper 74-1, pt. A, p. 113, 1974.

396. Keen, C. E. , Geol. Surv. Can. :
Geophysical studies of the continental slope and rise off the Canadian eastern seaboard, 1972-.

See Continental margin of eastern Canada; Geol. Surv. Can. , Paper 74-1, pt. A, p. 375, 1974.

397. King, M. S. , Pobran, V. S. , Univ. Saskatchewan (Saskatoon):
Underground acoustic measurements, 1970-76;
M.Sc. thesis (Pobran).

398. Loijens, H. S. , Grasty, R. L. , Inland Waters Directorate, Dept. Environment and Geol. Surv. Can. :
Airborne measurement of snow-water equivalent, 1972-.

To determine the conditions and limitations of obtaining snow-water equivalents over large areas using techniques of remote sensing. Total radioactivity, potassium and thorium recorded on magnetic tape are obtained using a sodium iodide detector assembly.

399. Ostry, R. C. , Ontario Ministry of the Environment:
Remote sensing in Ontario, 1970-.

To assess the application of remote-sensing techniques and the interpretation of remotely-sensed imagery to hydrology and hydrogeology in Ontario.

400. Richardson, K. A. , Geol. Surv. Can. :
Gamma-ray spectrometry (experimental surveys), 1972-.

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- Application of new developments in gamma-ray spectrometry techniques to geologic mapping and exploration by making cross country reconnaissance surveys and detailed area surveys.
- See Airborne gamma-ray spectrometry as an aid to geological mapping Township 155 Elliot Lake area, Ontario; Geol. Surv. Can., Paper 73-1, pt. B, p. 39-47, 1973.
- Gamma-ray spectrometry investigations, 1973; Geol. Surv. Can., Paper 74-1, pt. A, p. 371-372, 1974.
401. Scarfe, C. M., Lambert, R. St. J., Jacobs, J. A., Univ. Alberta:
Geochemical and geophysical properties of the crust and upper mantle, 1974-.
402. Schwarcz, H. P., Scott, S. D., Kissin, S., McMaster Univ. and Univ. Toronto:
Pressures inside a meteorite parent object, 1973-74.
- Pressures of formation of sphalerite formed in equilibrium with troilite in iron meteorites can be estimated from the Fe content of the sphalerite.
403. Tanguay, M. G., Dolam, Sinh, Dufresne, R., Faucher, G., Ecole Polytechnique:
Etude de la réflectance spectrale des matériaux terrestres, 1969-75;
- Optical processing of aerial photo patterns by coherent light, 1969-75;
- Utilisation des images infrarouges dans les problèmes que les Forces Armées peuvent rencontrer dans les régions nordiques, 1970-75.
404. Tiffin, D. L., Geol. Surv. Can.:
Geological and geophysical studies of the Pacific Continental Margin, 1971-.
- See Marine geophysical and geological studies of the Pacific margin; Geol. Surv. Can., Paper 74-1, pt. A, p. 127, 1974.
- To establish the geological framework of the Pacific Continental Margin; determine the hydrocarbon potential of its contained sedimentary basins, and to determine the tectonic development of the Pacific Continental Margin especially its interaction with the Pacific ocean floor.

HYDROGEOLOGY

405. Akiti, T., Farvolden, R. N., Toth, J., Univ. Waterloo and Alberta Research:
Hydrogeology and groundwater resources of the Beverly bedrock valley near Edmonton, 1973-74; thesis (Akiti).
406. Benoit, E. G., Farvolden, R. N., Univ. Waterloo:
Hydrostratigraphic studies of the Mid Grand River Basin for digital models, 1971-74; M. Sc. thesis (Benoit).
- To find the most suitable way of evaluating aquifer parameters from available information and use these values properly in digital analysis of groundwater flow problems.
407. Betcher, R. N., Greenhouse, J. P., Univ. Waterloo:
Thermal studies in aquifers, 1974-75.
408. Bibby, R., Alberta Research:
Development of methods and techniques of aquifer evaluation for lenticular, continental sediments, 1972-75.
409. Borneuf, D., Brulotte, M., Alberta Research:
Alberta hydrogeological reconnaissance map series, NTS 72M, Oyen, 1972-74.
- Detailed computer drawn hydrochemical maps of the Oyen and Wainwright areas will be published in the near future.
410. Borneuf, D., Hackbarth, D. A., Beerwald, A., Alberta Research:
Alberta hydrogeological reconnaissance map series, NTS 83M, N and 84F, Grande Prairie, Winagami and Peace River, 1973-74.
411. Brown, Nancy, Univ. Alberta:
Paleohydrology and geochronology at north end of Kluane Lake, Yukon Territory, 1973-74; M. Sc. thesis.
- To determine geologic controls acting at the north end of Kluane Lake which have acted to regulate water levels within the lake.

412. Bruce, D. L. , Roy, A. C. , Lammers, W. , Wang, K. T. , Ontario Ministry of the Environment: Northern Ontario water resources studies, 1966-74.
413. Bryck, L. G. , Viirland, J. , Small, E. , Dennis, P. , Miller, J. , Ontario Ministry of the Environment: Investigation of well-interference problems caused by ground-water takings.
414. Christiansen, E. A. , Saskatchewan Research Council: Groundwater geology, 1955-75.
- To locate fresh water bearing gravels and sands in the settled area of Saskatchewan. Test drilling to delineate major subsurface aquifers was completed in 1970; mapping of the surficial geology and stratigraphic studies of the drift are scheduled for completion in 1975.
415. Currie, D. V. , Alberta Research: An evaluation of the groundwater budget for the Tri-Creek watershed, Alberta, 1967-73.
416. Currie, D. V. , Zacharko, N. , Alberta Research: Alberta hydrogeological reconnaissance map series, NTS 73E, Vermilion, 1971-73.
417. Dakin, R. A. , Farvolden, R. N. , Univ. Waterloo: Isotopic composition of groundwater in the Saanich Peninsula and Mayne Island, British Columbia, 1974-75.
- To apply isotope hydrology to a problem of salt water intrusions in British Columbia.
418. Fitzpatrick, M. M. , Debie, L. , Queen's Univ. : Groundwater investigations in Prince Edward County, Ontario, 1972-74; M. Sc. thesis (Debie).
- The area has been flown with infrared scan equipment in an attempt to delineate areas of water inflow and hence potential aquifers. These data are presently being analysed.
419. Foweraker, J. C. , Heisterman, J. , Moncur, M. C. , Water Investigations Branch, British Columbia Dept. Lands, Forests and Water: Groundwater investigations on Mayne Island, British Columbia, 1971-74.
- To investigate the groundwater potential, distribution, quantity and quality of groundwater in the Gulf islands in order to determine if licencing and regulation of groundwater is necessary for the future management of the resource.
420. Fritz, P. , Cherry, J. A. , Univ. Waterloo: Stable isotopes in groundwater and stormrunoff, 1973-.
- Primarily interested in the distribution of D, ^{18}O and ^{13}C , ^{34}S , several projects are underway: 1) The Winnipeg aquifers: ^{18}O , D and ^{13}C are used as natural tracers. 2) Groundwater contribution to stormrunoff in the Kenora and Wilson Creek watersheds: ^{18}O is used as tracer and label. 3) The Kitchener Aquifers: ^{18}O and ^{34}S provide a tool to distinguish different aquifer and to obtain information about recharge areas.
421. Gabert, G. M. , Alberta Research: Feasibility of dewatering buried valley sands to aid sewer-tunnel excavations, Edmonton, Alberta, 1973.
422. Hackbarth, D. A. , Alberta Research: Effects of strip mining on the groundwater regime, Grande Cache, Alberta, 1972-.
- Long-term monitoring of surface water and groundwater chemistry is being undertaken.
423. Hackbarth, D. A. , Beerwald, A. , Alberta Research: Alberta hydrogeological reconnaissance map series, NTS 73D, Wainwright, 1972-73.
424. Hore, R. C. , Fleischer, F. C. , Logan, L. A. , Singer, S. , Funk, G. , Ontario Ministry of the Environment: International hydrological decade (IHD) representative basin studies, 1965-75.
425. Hore, R. C. , Fleischer, F. C. , Singer, S. , Coward, J. , Ontario Ministry of the Environment: Application of hydrologic and hydrogeologic modelling routines to ministry projects, 1972-.
426. Lebedin, J. , Farvolden, R. N. , Meneley, W. A. , Univ. Waterloo and Saskatchewan Research Council: Response of the Simpson water table aquifer to natural hydrologic stresses, 1973-74.
- The Saskatchewan Research Council has monitored a shallow water table aquifer near Simpson, Saskatchewan for twelve years. The data are being analysed to determine the recharge characteristics of this aquifer.
427. Le Breton, E. G. , Water Investigations Branch, British Columbia Dept. Lands, Forests and Water: A hydrogeological study of the Kalamalka - Wood Lake Basin, British Columbia, 1971-74.
- To investigate the role of groundwater as a source of nutrient input into Wood, Ellison and parts of Kalamalka Lakes.

HYDROGEOLOGY

428. Mellary, A. A. , Ontario Ministry of the Environment:
Evaluation of characteristics of selected overburden and bedrock aquifers in southern Ontario, 1966-75.
- Aquifer characteristics i. e. , transmissibility, storage coefficient, permeability rate and direction of groundwater flow, chemical water quality, have been studied for the following aquifers in southern Ontario: shallow overburden - Township of Colchester South, Essex county; Guelph-Amabel Formations - Township of Sullivan, Grey County; deep overburden, Salina Formation - Township of Wainfleet, Region of Niagara; overburden and upper part of bedrock - Township of Albion, Peel County; overburden - Township of Pickering, Ontario County; and Detroit River Group - Township of Morris, Huron County.
429. Mellary, A. A. , Aaltonen, R. A. , Ontario Ministry of the Environment:
Groundwater probability of the County of Haldimand, 1972-74.
430. Mellary, A. A. , Jackman, W. , Ontario Ministry of the Environment:
Groundwater probability for the County of Middlesex, 1972-74.
431. Mellary, A. A. , Novakovic, B. , Ontario Ministry of the Environment:
Groundwater probability for the County of Brant, 1972-74.
432. Niemela, V. , Pearce, G. , Dennis, P. , Goff, K. , Choo-Ying, A. V. , Singer, S. , Creighton, W. , Fleischer, F. C. , Coward, J. , Pirie, D. , Ontario Ministry of the Environment:
Thames River basin study, 1972-74.
433. Ostry, R. C. , Singer, S. , Ontario Ministry of the Environment:
International field year for the Great Lakes (IFYGL) groundwater inflow into Lake Ontario, 1968-74.
434. Ozoray, G. F. , Lytviak, A. T. , Alberta Research:
Alberta hydrogeological reconnaissance map series, NTS 82N, O, Golden and Calgary, 1972-74.
- Alberta hydrogeological reconnaissance map series, NTS 74E and 84H, Bitumount and Namur Lake, 1973-74.
435. Pirie, D. , Slaughter, R. , Viirland, J. , Ontario Ministry of the Environment:
Environmental assessment.
- Assessments of the anticipated effect of proposed projects, such as pits and quarries, road construction, etc. , on surface and groundwater supplies.
436. Pliva, G. L. , Wong, J. , Ontario Ministry of the Environment:
Geophysical surveys and investigations and well-logging for hydrogeologic studies, 1965-.
- Seismic, electrical resistivity and well-logging methods and techniques are used primarily to assist in determining geologic and hydrogeologic conditions for purposes of groundwater exploration, groundwater development, artificial groundwater recharge for examining groundwater pollution and as input to river basin studies.
437. Poulin, M. , Farvolden, R. N. , Univ. Waterloo:
Migration of petroleum contaminants from a disposal lagoon at Ville Mercier, Quebec, 1973-75.
- The Quebec Hydro Geology Service has been investigating a rather severe case of groundwater contamination from a petroleum disposal lagoon for several years. A considerable number of observation wells and sampling points have been installed. In this project the monitoring network will be completed during the summer of 1974 and an analysis of the migration patterns will then be made.
438. Schwartz, F. W. , Univ. Alberta:
Investigation of regional water quality, 1973-76.
- The development and application of digital models to describe patterns of chemical evolution in a combined groundwater-surface water system; hydrogeologic studies are underway in the vicinity of Lake Wabamun, 64 km west of Edmonton, Alberta.
- Exogenous fluid migration in groundwater systems, 1973-76.
- The development of digital simulation models capable of describing mathematically the subsurface migration and the chemical reaction of contaminants introduced to a natural system. The generality of the mathematical approach enables the model to be applied to a variety of practical problems that differ essentially in the physical and chemical characteristics of the contaminant and the groundwater system.

439. Sibul, U. , Choo-Ying, A. V. , Goff, K. , Ontario Ministry of the Environment:
Water resources of the Moira River drainage basin, 1969-74.
440. Sibul, U. , Yakutchik, T. J. , Steltner, I. , Ontario Ministry of the Environment:
Groundwater recharge possibilities in the Middle Grand River basin, 1973-74.
441. Sinclair, R. , Farvolden, R. N. , Univ. Waterloo:
Analysis of long term pumping effects, 1972-74; M. Sc. thesis (Sinclair).
- The aquifer system in the region of the Welland Canal has been heavily pumped for dewatering for a number of years. Considerable work has been done on monitoring the response of the system to the pumping; there are only a few areas in Canada where this sort of information is available.
442. Sklash, M. , Farvolden, R. N. , Univ. Waterloo:
Isotope studies to identify the groundwater component of streamflow, 1974.
- To establish the isotope composition of low flow discharge and storm flow discharge of a number of streams in Southern Ontario for which considerable information relating to the hydrogeology is already available in order to establish whether or not groundwater is an important component of storm runoff.
443. Stein, R. , Akiti, T. , Bibby, R. , Carlson, V. A. , Gabert, G. M. , Alberta Research:
Project Edmonton: A regional and detailed hydrogeological study of the Edmonton map area (NTS 83H), 1972-75.
444. Stein, R. , Bibby, R. , Carlson, V. A. , Gabert, G. M. , Alberta Research:
Alberta hydrogeological reconnaissance map series, NTS 83H, Edmonton, 1972-75.
445. Stevenson, D. R. , Alberta Research:
An evaluation of the groundwater budget and its significance within the hydrologic balance for the Marmot Creek, Streeter, and Deer Creek basins, Alberta, 1964-75.
- An evaluation of the groundwater budget of the Cache Percotte and Whiskeyjack basins, Alberta, 1965-75.
446. Stevenson, D. R. , Borneuf, D. , Alberta Research:
Alberta hydrogeological reconnaissance map series, NTS 72L, Medicine Hat, 1970-75.
447. Thomas, B. L. , Fritz, P. , Farvolden, R. N. , Univ. Waterloo:
Field investigation of contaminated groundwater near Wolfville, Nova Scotia, 1972-74.
- To determine the sorts of the nitrate, whether it is natural or not.
448. Tokarsky, O. , Alberta Research:
Hydrogeology of the Butte Springs, Alberta, 1971-73.
449. Tóth, J. , Alberta Research:
Relation between groundwater movement and hydrocarbon accumulation, 1973-75.
450. Tóth, J. , Hackbarth, D. A. , Alberta Research:
The application of regional hydrogeological studies to open pit operations, 1972-73.
451. Tremblay, P. , Farvolden, R. N. , Univ. Waterloo:
Management strategy of the aquifer at Cap-de-la-Madeleine, Quebec, 1972-74.
- A digital program is being used to attempt to determine the most efficient way of developing the total groundwater resource of this shallow aquifer underlying the area of Cap-de-la-Madeline City.
452. Yakutchik, T. J. , Sobanski, A. A. , Campbell, F. R. , Phimister, J. P. , McArthur, R. E. , Patterson, R. J. , Ramanauskas, J. , Ontario Ministry of the Environment:
Investigations of groundwater pollution and quality protection.
453. Yakutchik, T. J. , Sobanski, A. A. , Andrijew, D. J. , McKenna, P. F. , Whitehead, B. R. , Ontario Ministry of the Environment:
Groundwater surveys, test drilling and well construction for municipal supplies.

MINERAL DEPOSITS

Base Metals

454. Appleyard, E. C., Univ. Waterloo:
Alteration zones around volcanogenic sulphide deposits in the Roberts Arm Group, central Newfoundland, 1973-76.
455. Asbury, B., Scott, S. D., Schwerdtner, W. M., Univ. Toronto:
Deformation and metamorphism of massive sulfide ore bodies, 1973-75; M. Sc. thesis (Asbury).

Measurement of strain indicators in and around orebodies and application of the sphalerite geobarometer at South Bay, Manitouwadge, Flin Flon-Snow Lake, and Broken Hill.
456. Bachinski, D. J., Univ. New Brunswick:
Metamorphism of sulphide deposits, 1970-75.
457. Bristol, C. C., Brandon Univ. :
Compositions of sphalerites from some orebodies in the Flin Flon and Snow Lake districts, Manitoba, 1970-74.
458. Brown, A. C., Ecole Polytechnique:
Mineralogy and fluid inclusion study of the Icon copper deposit, Chibougamau, Quebec, 1970-.

Mineralogy of the Long Lake zinc deposit, eastern Ontario, 1972-.
459. Burwash, R. A., Chipperfield, J., Univ. Alberta:
Lead-zinc mineralization, upper Coal River, Yukon Territory, 1972-74; M. Sc. thesis (Copperfield).

A contact metasomatic deposit of galena and sphalerite in Lower Paleozoic carbonate rocks is being studied in relation to the Cretaceous batholith and its metamorphic aureole.
460. Collins, J. A., Queen's Univ. :
Copper mineralization in North American clastic sediments, 1971-74; Ph. D. thesis.
461. Davies, J. F., Luhta, L. E., Laurentian Univ. :
Mineralogy and wall-rock alteration of the McIntyre disseminated copper deposit, 1971-73; M. Sc. thesis (Luhta).

The Pearl Lake pseudo-porphyry consists of several concentrically arranged alteration zones. A disseminated porphyry-type copper deposit occurs within massive central albitized assemblages which in turn are surrounded by an intermediate schistose quartz-sericite assemblage and an outer propylitic assemblage. Although the pseudo-porphyry has been regarded as an intrusion, mineralogical, textural, and structural features indicate that it originated by widespread metasomatism of previously deformed schists. The central feldspathic metasomatism, which was accompanied by deposition of carbonate, anhydrite, quartz, and copper sulphides, resulted from late-stage throttling. The resemblance to true porphyry copper deposits in intermediate intrusions is ascribed to similarities in the chemical processes responsible for alteration and sulphide deposition.
462. DeGrace, J. R., Kean, B. F., Hsu, E., Newfoundland Dept. Mines and Energy:
Metallogenic analysis, 1973-75.

Involves the examination of base metal deposits on the Island of Newfoundland, from the point of view of their regional and detailed tectonic and stratigraphic settings.
463. Govett, G. J. S., Goodfellow, W. D., Univ. New Brunswick:
Major, minor and trace element distribution at Brunswick No. 12 sulphide deposit, New Brunswick, Canada, 1972-; Ph. D. thesis (Goodfellow).
464. Govett, G. J. S., Whitehead, R. E. S., Goodfellow, W. D., Univ. New Brunswick and Laurentian Univ. :
Origin and environment of deposition of stratiform massive sulphide deposits, 1968-.

See Geology, geochemistry and genesis of Cyprus sulfide deposits; Econ. Geol., vol. 68, p. 843-858, 1973.

Environment of stratiform sulphide deposition; variation in Mn:Fe ratio in host rocks at Heath Steele Mine, New Brunswick, Canada; Mineral. Deposita (Berl.), vol. 8, p. 148-160, 1973.

Evidence is accumulating to suggest that stratiform massive sulphide deposits owe much of their present features to penecontemporaneous diagenetic aqueous reaction which may, in part, be electrochemical.
465. Grove, E. W., British Columbia Dept. Mines Petrol. Resources:
Massive sulphide deposits in the western Canadian Cordillera, 1968-.
466. Guha, J., Univ. du Québec à Chicoutimi:
Etude de la minéralisation Pb-Zn dans le bassin de Mistassini, 1973-.
467. Guha, J., Koo, J., Leroy, J., Univ. du Québec à Chicoutimi:
Les caractères de la minéralisation et la mise en place du corps minéralisé des Mines Henderson et Portage, Chibougamau, Québec, 1972-.

468. Harron, G. , Ministère des Richesses naturelles du Québec:
Métallogénèse des dépôts sulfurés des cantons de l'Est, Province de Québec, 1973-75.
- Etude du contrôle de la minéralisation des cantons de l'Est, particulièrement dans les zones de roches volcaniques où les gisements métallifères sont surtout concentrés.
469. Hodder, R. W. , MacIntyre, D. G. , Winfield, W. B. , Meade, H. , Kerswill, J. , Atkinson, D. , Lamarre, A. , Univ. Western Ontario:
- Determination of economic potential in copper occurrences using volcanic-plutonic relationships of host rocks, 1970-75; Ph.D. and M.Sc. theses.
- To document the inferred metallogenic relationship and to conclude as to its significance in determining economic potential of copper occurrences, partially during the early stages of exploration.
470. Johnson, A. E. , Mines Branch, Energy, Mines and Resources:
Study of the massive sulphide deposits of the Sturgeon Lake area, northwestern Ontario, 1972-74.
- Preliminary results indicate strong grain-size zoning which appears to be a function of recrystallization but varies according to the original mineral assemblage.
471. Jost, M. , Ontario Division of Mines:
Copper-nickel potential of ultramafic rocks and serpentinites in Ontario, 1973-.
- Metallogenetic map of Cu-Ni deposits of Ontario, 1973-74.
472. Langford, F. F. , Harper, C. , Univ. Saskatchewan (Saskatoon):
Geology of the Sito Lake lead-zinc deposits, Saskatchewan, 1972-74; M. Sc. thesis (Harper).
473. Lefebvre, D. , Brown, A. C. , Ecole Polytechnique:
Geology and mineralogy of a base metal sulfide showing, Cape Smith belt, Ungava, 1973-74.
474. McBride, D. E. , Univ. New Brunswick:
Structural development of the Heath Steele Mines B-zone ore deposit, 1970-74; Ph. D. thesis.
475. McBride, D. E. , McAllister, A. L. , Univ. New Brunswick:
Stratigraphy and structural geology of the Heath-Steele ore zones, 1970-77; Ph. D. thesis (McBride).
- To establish facies changes in Bathurst stratoform sulphide deposits, but necessitates prior study of the geometry of polyphase deformed ore zones.
476. Mossman, D. J. , Randall, J. A. , Univ. Saskatchewan (Saskatoon):
Metallization in the Anglo-Rouyn and Sulphide Lake belts, Lac La Ronge, Saskatchewan, 1971-75; Ph. D. thesis (Randall).
- See Silver-gold ratios related to copper mineralization at the Anglo-Rouyn Mine, Saskatchewan; Can. Mineral. , vol. 12, pt. 2, p. 147, 1973.
477. Petruk, W. , Mines Branch, Energy, Mines and Resources:
Mineralogy and geochemistry of the porphyry copper-molybdenite deposits in the Highland Valley area in British Columbia, 1969-74.
478. Roberts, R. G. , Troup, W. R. , Univ. Waterloo:
Magnesium metasomatism of acid vitroclastic tuffs associated with Zn-Cu massive sulphide deposits, 1972-74.
479. Robinson, P. C. , Suffel, G. G. , Univ. Western Ontario:
The environment of deposition of the base metal massive sulphides at Manitouwadge, Northern Ontario: the nature and metamorphism of the host rocks, 1971-75; Ph. D. thesis (Robinson).
480. Saif, S. I. , McAllister, A. L. , Univ. New Brunswick:
Stratigraphic position of Key Anacon Mine, 1974-75.
- The Ken Anacon ore body lies in rocks that may be either much older than other ore zones in the Bathurst, or it may lie in deep water equivalents.
481. Sangster, D. F. , Geol. Surv. Can. :
Geology of lead and zinc deposits in Canada, 1965-.
- See Geology of Canadian lead and zinc deposits; Geol. Surv. Can. , Paper 74-1, pt. A, p. 141-142, 1974.
- A study of certain accessory elements in Canadian sulphide assemblages and minerals, 1973-.
- To determine the concentration ranges and averages of certain elements in selected Canadian sulphide ores and sub-ores.
482. Stevenson, J. S. , McGill Univ. :
Strontium isotope abundances, electron probe and chemical studies bearing on the petrogenesis of the granophyre (micropegmatite) and the Onaping Ash-flow sheet, Sudbury, Ontario, 1970-76.

MINERAL DEPOSITS

483. Teruta, Y., Crocket, J. H., McMaster Univ.:
Noble metals in oxide, sulfide and silicate minerals of the Merensky Reef Horizon, Bushveld Igneous Complex, 1972-75; M. Sc. thesis (Teruta).

Coal and Peat

484. Cameron, A. R., Geol. Surv. Can.:
Petrographic examination of coking coals from the Crowsnest coalfield, Alberta and British Columbia, 1961-.

Petrographic analysis of Saskatchewan lignites, 1972-.

485. Campbell, J. D., Bosman, A., Alberta Research:
Strip coal co-op survey, 1961-.

486. Campbell, J. D., Fryer, J. F., Alberta Research:
Coal systematics, 1969-.

487. Hacquebard, P. A., Geol. Surv. Can.:
Rank studies of coal and carbonaceous matter, 1968-.

Petrography of coal seams in the Rocky Mountain Foothills Belt north of the Crowsnest area, Alberta, 1968-.

488. Snowdon, L. R., Geol. Surv. Can.:
Correlation and coal rank and hydrocarbon properties in Mesozoic rocks of western Canada, 1968-.

489. Whitaker, S. H., McLean, J. R., Saskatchewan Research Council:
Inventory of lignite coal reserves in Saskatchewan, 1972-75.

490. Yurko, J. R., Kramers, J. W., Alberta Research:
Deep coal project, 1973-74.

Regional investigation of the deep subsurface coal horizons (in general below 700 feet depth) throughout the province of Alberta. Seams are being mapped using well-logs, with one well per township being investigated.

Ferrous Metals

500. Meyn, H. D., Ontario Division of Mines:
Iron deposits of Ontario, 1973-.

501. Shegelski, R. J., Scott, S. D., Univ. Toronto:
Archean iron formation, 1973-76.

502. Zodrow, E. L., St. Francis Xavier Univ. (Sydney):
Classification, study and comparison of distribution (statistical) or iron ore minerals, 1972-76.

Industrial Minerals

503. Brady, J. G., Bell, K. E., Zengals, L. K., Mines Branch, Energy, Mines and Resources:
The composition and properties of Canadian clays and shales, 1958-78.

504. Burwasser, G. J., Gwyn, Q. H. J., Ontario Division of Mines:
Gravel inventory, southern Ontario, 1972-.

A computer file is being created, based on the SAFRAS system, to store and retrieve data collected during 1972 field studies: petrographic, mineralogic and granulometric analyses, geologic descriptions of deposits, and locations of gravel pits by county, township, lot, concession, NTS map number and UTM grid coordinate.

505. Butler, A. J., Greene, B. A., Newfoundland Dept. Mines and Energy:
Evaluation of silica resources of Newfoundland, 1972-74.

To reassess available data on silica in the province, to locate and evaluate new deposit, and to conduct a regional stratigraphic study of the Random Formation. Field work was completed in 1973.

506. Davis, D. D., Boyle, R. S., New Brunswick Dept. Natural Resources:
Inventory of industrial mineral resources of New Brunswick and review of markets for establishment of priorities and approach to encourage utilization in line with Provincial development goals. Evaluation of Potash Corporation of America drill results at Plumweseep potash property, 1973-74.

In addition studies of the granite construction and monument business, the limestone resources of northern New Brunswick, silica and dolomite on the Lorneville Peninsula and cement raw material resources were or are being undertaken.

507. DeGrace, J. R., Newfoundland Dept. Mines and Energy:
Limestone evaluation, 1971-74.

508. Godfrey, J. D., Alberta Research:
Fort Chipewyan red granite buildingstone project, 1971-.

509. Govett, G. J. S. , Govett, M. H. , Univ. New Brunswick: Supplies of mineral resources, 1971-.
- See Mineral resources and Canadian-American trade -- double-edged vulnerability; Bull. Can. Instit. Mining Metal. , vol. 66, p. 66-71, 1973.
510. Hamilton, J. B. , New Brunswick Dept. Natural Resources: Sand and gravel in New Brunswick, 1969-74.
511. Hamilton, W. N. , Alberta Research: Quartzite, 1970-.
- Preliminary results indicate little potential for the quartzites as a source of silica.
- Clay and shale resources of Alberta, 1970-73.
512. Hamilton, W. N. , McLaws, I. J. , Alberta Research: Economic minerals map of Alberta, 1970-.
- The mineral resources are classified into categories based on industrial use, relative size of the deposit, and potential areas for future exploration and development.
513. Hamilton, W. N. , Mellon, G. B. , Alberta Research: Mineral resources of the Fort McMurray area, 1973.
- See Industrial mineral resources of the Fort McMurray area; Alberta Research Inform. Ser. 65, p. 123-161, 1973.
514. Holter, M. E. , Alberta Research: Limestones of Alberta, 1970-73.
- Sand and gravel resources of the Grande Prairie area, 1972-73.
- Gravel resources of the Red Deer area, 1973-74.
- Marl resources of Alberta, 1973-74.
- Phosphate reserves of Alberta, 1974-75.
515. Kent, D. M. , Univ. Saskatchewan (Regina): Evaporites and related carbonate environments in Phanerozoic rocks of the Interior Plains, 1972-75.
516. Kingston, P. W. , New Brunswick Dept. Natural Resources: Aggregate resource potential of southeastern New Brunswick, 1973-75.
- Detailed petrographic studies of selected samples will complement the field study and will relate aggregate type to bedrock lithology.
517. McLaws, I. J. , Alberta Research: Silica sand in the Fort McMurray area, 1973-.
- Enormous quantities of tailings sand are being produced in the Fort McMurray region as a waste byproduct of the oil sands extraction process. Early research had indicated these sands to be high in silica and this project was initiated to evaluate their industrial potential and at the same time compare them with other sources of silica such as alluvial sand deposits in an old channel in the Clearwater River valley, McMurray Formation sands not impregnated with oil, and various dune sands.
518. McPherson, R. A. , Kathol, C. P. , Alberta Research: Sand and gravel resources of the Edmonton area, 1971-73.
519. Scafe, D. , Alberta Research: Alberta bentonite studies, 1968-74.
- Additional testing of samples from along the outcrop of the "Dorothy" bentonite confirms previous high sand and silt concentrations and low viscosities. A bentonite that outcrops north and south of the Red Deer River at Drumheller gives widely variable viscosities, high sand and silt contents, and is found under thick overburden. Bentonite above the coal mined at Sheerness could be mined during removal of overburden; however, viscosities are very low. Hope is dim for economic development of bentonite deposits in Alberta other than those that presently are being mined or that have been stockpiled.
520. Scafe, D. W. , Hamilton, W. N. , Alberta Research: Potential industrial clays of Alberta, 1973-.
- To investigate more thoroughly those clays in Alberta which are superior to the common brick clays.
521. Trusler, J. R. , Ontario Division of Mines: Granular resources inventory (Toronto-centred region); central Ontario region, 1973-.
522. Vos, M. A. , Ontario Division of Mines: Kaolin, fireclay, silica sand and lignite deposits of the Moose River Basin, Ontario, 1972-74.
523. Wardlaw, N. C. , Univ. Calgary: Evaporites and associated strata, Queen Elizabeth Islands, Arctic Archipelago, 1973-.

MINERAL DEPOSITS

Other Metals

524. Bannatyne, B. B. , Manitoba Mines Branch:
Pegmatites of Manitoba, 1972-75.
- See Pegmatite project; Manitoba Mines Branch, Geol. Paper 3/72, 1973.
- Description of those pegmatites containing rare element minerals.
525. Breakey, A. , McGill Univ. :
Variation of gold distribution with mineral zoning, Con Gold Mine, Yellowknife, Northwest Territories, 1973-75.
526. Cabri, L. J. , Laflamme, J. H. G. , Mines Branch, Energy, Mines and Resources:
The mineralogy of the Tulameen River sands, 1971-74.
527. Casey, J. , Ministère des Richesses naturelles du Québec:
Géologie de la région de la mine Eastern Metals Corporation, Comtés de Montmagny, L'Islet et Bellechasse, Province de Québec, 1973-74.
- Cartographie géologique détaillée d'une partie des cantons Rolette et Panet servant à déterminer le contexte géologique du gisement de cuivre-nickel de la mine Eastern Metals.
528. Davies, J. F. , Laporte, B. P. , Laurentian Univ. :
A study of carbonate alteration assemblages in chlorite schist surrounding Gold-bearing quartz veins, McIntyre Mine, 1973-74.
- The carbonate-chlorite alteration of volcanic rocks around the Pearl Lake pseudo-porphyry is important in that with it are associated numerous gold-bearing quartz veins. This assemblage is regarded as the outermost propylitic stage of the various assemblages (feldspathic, sericitic and propylitic surrounding the core of the pseudo-porphyry). The distribution of ankerite and calcite, Ca/Mg + Fe ratios, CO₂, trace amounts of Au and Cu is being determined, as well as whole rock analysis in order to establish the kinds of diffusion gradients around the pseudo-porphyry and gold-bearing veins. The purpose is to test the hypothesis that gold was scavenged from the original volcanic rock during widespread metasomatism.
529. Dawson, K. R. , Geol. Surv. Can. :
Geology of barium, fluorine and strontium deposits in Canada, 1972-.
- See Barium, fluorine and strontium deposits; Geol. Surv. Can. , Paper 73-1, pt. B, p. 107, 1973.
- The barite, fluorite and celestite deposits and occurrences of Canada; Geol. Surv. Can. , Paper 74-1, pt. A, p. 131-132, 1974.
530. Eckstrand, O. R. , Geol. Surv. Can. :
Geology of Canadian nickel and platinum group deposits, 1963-.
531. Ferguson, S. A. , Freeman, E. B. , Wahl, W. G. , Ontario Division of Mines:
Ontario occurrences of float, placer gold and other heavy minerals, 1972-74.
- See Tracing float and mineral fragments; Ontario Division of Mines, Misc. Paper 55, p. 43, 1973.
532. Lovell, H. , de Grijs, J. , Sibthorpe, R. , Ontario Division of Mines:
Gold deposits of Ontario, Part 2, 1973-74.
- Compilation of gold deposits in the Districts of Sudbury, Timiskaming and Nipissing and southern Ontario.
533. Gordon, J. B. , Ontario Division of Mines:
Gold deposits of Ontario - distribution and metallogenetic maps, 1974.
534. Kirkham, R. V. , Geol. Surv. Can. :
Geology of copper and molybdenum deposits of Canada, 1970-.
- See Disseminated base metal mineralization along the Wollaston fold belt, Saskatchewan; Geol. Surv. Can. , Paper 74-1, pt. A, p. 143-144, 1974.
- A study of copper mineralization in Mississippian rocks of Nova Scotia; *ibid.* , p. 129-130, 1974.
- Geology of copper and molybdenum deposits in Canada; *ibid.* , p. 377-379, 1974.
535. McArthur, J. G. , Newfoundland Dept. Mines and Energy:
Barite-celestite evaluation, 1972-74.
- The 1973 work concentrated mainly on testing several geochemical and geophysical techniques attempting to define which are most applicable for exploration of shallow barite-celestite deposits on the Port-au-Port Peninsula.
- Mineral potential of the Newfoundland Carboniferous basins, 1973-75.

536. Mercer, W., Crocket, J. H., McMaster Univ.:
Geochemistry of gold and palladium in stratiform base metal deposits of northern New Brunswick, 1968-74; Ph. D. thesis (Mercer).
537. Mulligan, R., Geol. Surv. Can.:
Geology of Canadian lithophile metals (Li, Be, Sn, W), 1953-.
- Metallogenic study of the beryllium-tin province of Cassiar batholith, Yukon-British Columbia, 1965-.
538. Petruk, W., Mines Branch, Energy, Mines and Resources:
Some mineralogical characteristics of the silver deposits in the Guanajuato area, Mexico, 1973-74.
- The mineralogical characteristics of three different ore types occurring at three different elevations in the Guanajuato area, Mexico were studied. It was found that the mineralogy of each ore type is different and that the selenium content in silver sulphides from different ore types is different.
- Mineralogy of the Zgounder silver deposit in Morocco, 1973-74.
- To define the mineralogical characteristics of a sedimentary silver deposit which has a complex mineralogy and occurs close to a diabase sill-like body.
539. Pratt, E. G., Univ. Alberta:
A petrologic and economic evaluation of Blanchet Island, Northwest Territories, 1973-74; M.Sc. thesis.
- Local deposits of high-grade Ni-Co ore are associated with the base of a diorite sill intruded into the Great Slave Supergroup.
540. Roberts, R. G., Morris, J. H., Univ. Waterloo:
The structural geology of the Upper Beaver Mine: a volcanogenic copper-gold iron sulfide deposit in Archean mafic volcanics, 1970-74.
541. Rose, E. R., Geol. Surv. Can.:
Geology of titanium and titaniferous deposits in Canada, 1958-.
- Geology of rare earth deposits of Canada, 1967-.
542. Thorpe, R. I., Geol. Surv. Can.:
Geology of silver and gold deposits in Canada, 1968-.
543. Tihor, L., Crocket, J. H., McMaster Univ.:
Gold in exhalites from the Kirkland-Larder Lake area, Ontario, 1973-77; M.Sc. thesis (Tihor).
- The significance of exhalites in gold deposition in the Kirkland-Larder Lake camp will be investigated by activation analysis of minerals and various whole rock facies.
544. Traoré, M., Brown, A. C., Ecole Polytechnique:
Mineralogy of the Sigma gold deposit, Val d'Or, Quebec, 1972-74.
- Petroleum
545. Carrigy, M. A., Alberta Research:
Potential metallic mineral by-products of the Athabasca deposit, 1972-75.
546. Carrigy, M. A., McLaws, I. J., Alberta Research:
Athabasca Tar Sands study: the environmental impact of in situ technology, 1972.
547. Hodgson, G. W., Univ. Calgary:
The potential of Arctic sediments: interaction of organic matter, water, and mineral matrix in petroleum genesis and migration, 1973-.
548. Hoodless, I. M., Lakehead Univ.:
Adsorption and diffusion of hydrocarbons in shales, 1973-.
549. McCrossan, R. G., Geol. Surv. Can.:
The environment of oil and gas in western Canada, 1968-.
- Origin and migration of petroleum in western Canada, 1971-.
- Evaluation of Canada's petroleum potential, 1972-.
550. North, F. K., Carleton Univ.:
Life expectancy of Canada's oil and gas resources: conventional and unconventional, discovered and undiscovered, 1971-74.
- See Characteristics of oil provinces by age; 24th Internat. Geol. Congr., sec. 5, p. 172-176, 1972.
- The future of Canada's fossil fuels; Physics in Canada, vol. 29, no. 6, p. 90-95, 1973.
- Canada's oil and gas resources; Geoscience Canada, vol. 1, no. 1, p. 24-30, 1974.
551. Snowdon, L. R., Geol. Surv. Can.:
Regional distribution of gaseous hydrocarbons in the Northwest Territories, 1968-.

MINERAL DEPOSITS

Radioactive Deposits

552. Kish, L. , Ministère des Richesses naturelles du Québec:
Etude des gîtes d'uranium et de thorium dans la province de Québec, 1972-75.
- Etude des dépôts radioactifs des régions de Mont-Laurier, du réservoir Cabonga et du lac Lecointre.
553. Little, H. W. , Geol. Surv. Can. :
Geology of uranium and thorium deposits of Canada, 1967-.
- See Uranium deposits in Canada - their exploration, reserves and potential; Can. Instit. Mining Metal. Bull. , vol. 67, no. 743, p. 155-163, 1974.
554. Morton, R. D. , Smith, D. G. W. , Schimann, M. , Univ. Alberta:
The sandstone-type uraniferous deposits of the East Arm of Great Slave Lake, Northwest Territories, 1971-75; Ph.D. thesis (Schimann).
555. Robertson, J. A. , Ontario Division of Mines:
Metallogenic map: uranium deposits of Ontario, 1973-74.
556. Sassano, G. , Morton, R. D. , Univ. Alberta:
Economic studies on the uraniferous deposits occurring in the Crackingstone Peninsula (Beaverlodge, Saskatchewan). Gamma spectrometric analysis on samples collected in the same area, 1973-76.
- Detailed mapping and study of the uranium deposits occurring in the Fold Lake area and in the Gunnar Mine environs.
559. Christmann, P. B. , Ministère des Richesses naturelles du Québec:
Levé cartographique de la moitié sud du canton de Scott, Abitibi-Est, Province de Québec, 1973-74.
560. Church, B. N. , British Columbia Dept. Mines Petrol. Resources:
Investigation of mineralization in and around the Sibola stock, central British Columbia, 1971-73.
561. Durocher, M. , Ministère des Richesses naturelles du Québec:
Levé géologique du quart nord-est du canton d'Opémisca, Abitibi-Est, Province de Québec, 1973-74.
562. Eakins, P. R. , Ministère des Richesses naturelles du Québec:
Levé géologique du canton de Privat, Abitibi-Ouest Province de Québec, 1973-74.
563. Germain, M. , Ministère des Richesses naturelles du Québec:
Levé géologique du quart nord-ouest du canton de Pershing, Comté d'Abitibi-Est, Province de Québec, 1973-74.
564. Gobeil, A. , Ministère des Richesses naturelles du Québec:
Levé géologique de la moitié sud du Canton de Cuvier, Abitibi-Est, Province de Québec, 1973-74.
565. Groen, H. A. , Pauk, T. , Ontario Division of Mines:
Mineral deposits of Ontario, 1970-.
566. Guha, J. , Univ. du Québec à Chicoutimi:
Etude de l'indice de la minéralisation dans la région du Haut-Saguenay, 1972-.

General

557. Allard, G. O. , Ministère des Richesses naturelles du Québec et Univ. Georgia:
Etude du complexe du lac Doré, Chibougamau, Province de Québec, 1966-74.
- See Some speculations regarding the lower hidden zone of the Doré Lake Complex and its potential mineral resources; Bull. Geol. Soc. Amer. , vol. 84, p. 717-724, 1973.
558. Brown, A. C. , Ecole Polytechnique:
Simulation of base metal zoning in sediments using chromatographic columns, 1970-.
- Zonation of strictly conformable base metal concentrations may be explained in part by pulsations of ore solutions through suitable sediments.
567. Hamilton, J. B. , New Brunswick Dept. Natural Resources:
Mineral deposits of the Miramichi Zone (South), 1973-74.
568. Jackson, E. V. , Winsby, J. A. , James, G. L. , British Columbia Dept. Mines Petrol. Resources:
Mineral inventory of British Columbia. Mineral potential maps of British Columbia, 1969-.
569. Lachance, S. , Ministère des Richesses naturelles du Québec:
Levé géologique de la région du lac à Claude, Matane, Province de Québec, 1973-74.
570. Maybin, A. , Ministère des Richesses naturelles du Québec:
Levé géologique du quart sud-ouest du canton de Guercheville, Abitibi-Est, Province de Québec, 1973-74.

571. McCartney, W. D. , Matheson, A. H. , British Columbia Dept. Mines Petrol Resources and E. M. R. : Mineral deposit - land use maps, 1:250,000 scale, 1972-75.
- Areas covered to date comprise all northwestern British Columbia north of latitude 54° and west of the Rocky Mountain Trench, plus the Queen Charlotte Islands.
572. McMillan, W. J. , British Columbia Dept. Mines Petrol. Resources:
Geology and mineral deposits of the Guichon Creek Batholith, 1969-75.
- See Gravity model for the Guichon Creek Batholith, south-central British Columbia; Can. J. Earth Sci. , vol. 10, p. 920-935, 1973.
- Highland Valley ore deposits are being studied by outcrop mapping and diamond drill core examination. Alteration, mineralogy, geology and ore controls are the primary concerns. Fossils found in Triassic rocks cut by the Batholith, prior extensive K-Ar dating of rocks of the Batholith and fossils found in post-Batholith Jurassic rocks are helping to refine the time of emplacement and subsequent unroofing of the Batholith.
573. Mossman, D. J. , Hefferman, K. , Univ. Saskatchewan (Saskatoon):
Experimental recrystallization of metal-rich sediments, 1973-75.
- Recrystallization of metal-rich muds from the Red Sea is being carried out to learn the response of base metal deposits to various metamorphic changes.
574. Northcote, K. E. , British Columbia Dept. Mines Petrol. Resources:
Geology and mineral deposits of Rupert Inlet - Cape Scott map-area, Vancouver Island, 1968-74.
575. Panteleyev, A. , British Columbia Dept. Mines Petrol. Resources:
Geologic setting of the Galore Creek area and the Stikine Copper Limited deposits, Stikine River area, British Columbia, 1972-75.
- Stratigraphy, lithology, petrography, and geochemistry are being studied and the petrogenetic relationship of the mineralizing syenite bodies to the volcanic pile that they intrude is being investigated.
576. Procyshyn, E. , Price, R. A. , Queen's Univ. :
Metallogeny of south-central British Columbia, 1967-74.
577. Robertson, J. A. , Ontario Division of Mines:
Mineral map of Ontario, 1973-74.
- Mineral potential studies, 1972-.
- Examination and classification of geological environments leading to determination of mineral reserves and estimation of potential.
578. Robertson, J. A. , Card, K. D. , Ontario Division of Mines:
Economic geology of Southern Province, Ontario, 1970-73.
579. Smith, T. E. , Univ. Windsor:
A study of the structural, petrological and geochemical characteristics of Canadian granitic rocks and their associated ore deposits, 1974-76.
580. Sutherland Brown, A. , British Columbia Dept. Mines Petrol. Resources:
Metallogeny of Canadian cordillera, 1968-74.
- See Aspects of metal abundance and mineral deposits in the Canadian Cordillera; Can. Instit. Mining Metal. Bull. , vol. 67, no. 741, p. 48-55, 1974.
- Morphology and classification of porphyry deposits of the Canadian Cordillera, 1968-74.
- Gibraltar Mine, origin of stockwork and deformation, 1973-74.
581. Thorpe, R. I. , Geol. Surv. Can. :
Geology of mineral deposits of Bear-Slave Provinces, Northwest Territories, 1971-.
582. Touchette, R. , Brown, A. C. , Ecole Polytechnique:
Construction, test and application of a portable field ore microscope, 1973-74.
583. Van de Walle, M. , Ministère des Richesses naturelles du Québec:
Levé géologique du quart sud-est du canton de Dufresnoy, Rouyn-Noranda, Province de Québec, 1973-74.
584. Vogel, D. , Ministère des Richesses naturelles du Québec:
Levé géologique de la demi ouest du canton de Trécesson, Abitibi-Ouest, Province de Québec, 1973-74.
585. Wynne-Edwards, H. R. , Univ. British Columbia:
Mineral exploration research, western Canada, 1973-.

MINERALOGY

Specific Minerals

586. Abbott, D. , Watson, D. , New Brunswick Research and Productivity Council:
Mineralogical observations on pyrite leached from coal, 1973-74.
- Microscope and chemical analysis of pyrite and coal to elucidate the mechanism of pyrite leaching by microbiological and chemical means as part of a continuing study on coal desulphurization.
587. Arnold, R. G. , Malik, O. P. , Saskatchewan Research Council:
Experimental investigation of the Fe-Ni-S system, 1969-75; Ph. D. thesis (Malik).
- To date the phase relations in the NiS-S binary system have been revised, a previously unidentified ternary invariant reaction at 1005°C has been discovered; and the partitioning of Ni and Co between pyrrhotite and pentlandite has been studied.
588. Bayliss, P. , Schooley, V. J. , Cauffman, L. B. , Univ. Calgary:
Mineralogical and crystallographic investigations, 1970-; M. Sc. thesis (Schooley, Cauffman).
- Clay mineralogy studies of: Athabasca Tar Sands; Imperial River, N. W. T. , Devonian; Melville Island, N. W. T. ; and Alwinal Sarcee and S. W. P. Bredenbury from southern Saskatchewan are being undertaken to indicate stratigraphic correlation and environments of deposition.
589. Berry, L. G. , Scott, J. D. , Queen's Univ. :
Re-definition and crystal structure of miserite, 1966-74.
- The occurrence of this mineral at Kipawa Lake area provides unusually fine material for a new chemical analysis and a crystallographic study on a mineral previously found only in Arkansas (intimately intergrown with wollastonite) and in the USSR.
590. Boorman, R. S. , New Brunswick Research and Productivity Council:
Chemistry of oxidation processes in pyrite tailings, 1973-75.
- To study the chemical changes that occur within a pyrite tailings dump as a function of time. Implications are for pollution abatement, reclamation and possible utilization of tailings.
591. Burley, B. J. , Douglas, G. B. , Herdman, D. , McMaster Univ. :
Research on parageneses containing scapolite. Research at Pt. Coldwell alkaline intrusion, north shore of Lake Superior, 1971-74; M. Sc. theses (Douglas, Herdman).
- See Crystal structure of NaCl scapolite; Acta. Cryst. , vol. 29B, p. 1272-1278, 1973.
- Nature of weak reflections violating body-centred symmetry in scapolites; Tsch. Min und Petr. Mitt. , vol. 29, pt. 1, p. 28-44, 1973.
- Crystal structure of Meionite; Acta. Cryst. , vol. 29B, p. 2024-2026, 1973.
592. Cabri, L. J. , Mines Branch, Energy Mines and Resources:
Compositions and stability relations of copper-iron sulphides, 1965-73.
- See On the transformation of cubanite; Can. Mineralogist, vol. 12, pt. 1, p. 33-38, 1973.
- New data on phase relations in the Cu-Fe-S system; Econ. Geol. , vol. 68, p. 443-454, 1973.
593. Cabri, L. J. , Harris, D. C. , Mines Branch, Energy Mines and Resources:
Mineralogical study of the platinum group elements, 1971-75.
- See The nomenclature of the natural alloys of osmium, iridium, and ruthenium based on new compositional data of alloys from world-wide occurrences; Can. Mineralogist, vol. 12, p. 104-112, 1973.
- Temagamite, a new palladium-mercury telluride from the Temagami copper deposit, Temagami, Canada; Can. Mineralogist, vol. 12, pt. 3, p. 193-198, 1973.
- Sudburyite, a new palladium-antimony mineral from Sudbury, Ontario; Can. Mineralogist, vol. 12, pt. 4, p. 275-279, 1974.
594. Corlett, M. I. , Clark, T. , Queen's Univ. :
Chemical variations in sulphosalts, 1969-74; Ph. D. thesis (Clark).
- Current work on this project is concentrated on a small, apparently stratiform copper prospect near Clyde Forks, Ontario. Preliminary work (1972) showed systematic variations in As/Sb and Fe/Zn ratios in drill cores transecting the mineralized zone; analyses will be completed by early this summer.

595. Corlett, M. I., McDonald, M., Queen's Univ.:
Energy dispersive spectrometry: sulphosalts,
1973-74.
- Two aspects are being considered: 1) the acquisition of analytical data by energy-dispersive X-ray (MIC), and 2) computer processing of the acquired data, using a small dedicated computer (MIC, MM).
596. Corlett, M. I., McIlreath, I., Queen's Univ.:
An authigenic quartz-calcite-rutile assemblage in Ordovician limestone, 1971-74; Ph. D. thesis (McIlreath).
597. Fleet, M. E., Misra, K. C., Univ. Western Ontario:
Electron microprobe studies on nickel-bearing assemblages, 1969-.
- See The chemical compositions of synthetic and natural pentlandite assemblages; *Econ. Geol.*, vol. 68, p. 518-539, 1973.
598. Foscolos, A. E., *Geol. Surv. Can.*:
Identification of unknown minerals by X-ray and chemical methods, 1968-.
- Clay mineral investigation, 1968-.
599. Grundy, H. D., Hawthorne, F. C., McMaster Univ.:
Crystal chemistry of the clino-amphiboles, 1968-74.
- See Crystal chemistry of the amphiboles II. Refinement of the crystal structure of oxykaersutite; *Mineral. Mag.*, vol. 39, p. 390-400, 1973.
600. Grundy, H. D., Ito, J., McMaster Univ.:
Crystal chemistry of the quaternary system $\text{NaAlSi}_3\text{O}_8\text{-Ca}_2\text{Si}_2\text{Al}_2\text{O}_8\text{-Sr}_2\text{Al}_2\text{Si}_2\text{O}_8\text{-SiO}_2$, 1973-75.
- The crystal structures of Sr-feldspars with vacancies on the alkali cation positions.
601. Grundy, H. D., Sivenas, P., McMaster Univ.:
The silicate mineralogy of a porphyry copper deposit, 1973-76; M. Sc. thesis (Sivenas).
602. Hall, S. R., Rowland, J. F., Stewart, J. M., Mines Branch, Energy, Mines and Resources:
The X-ray study of chalcopyrite-like crystal structures, 1969-74.
- See the crystal structure of synthetic mooihoe-kite, $\text{Cu}_9\text{Fe}_9\text{S}_{16}$; *Acta. Crystallographica*, vol. B29, 1973.
603. Hall, S. R., Stewart, J. M., Mines Branch, Energy, Mines and Resources:
The X-ray study of pentlandite-like crystal structures, 1972-73.
604. Hall, S. R., Stewart, J. M., Rowland, J. F., Szymanski, J. T., Mines Branch, Energy, Mines and Resources:
The X-ray study of stannite-like crystal structures, 1973-75.
605. Harris, D. C., Cabri, L. J., Petruk, W., Mines Branch, Energy, Mines and Resources:
Characterization of new minerals and unusual mineral variants, 1970-.
- See Mattagamite and tellurantimony, two new telluride minerals from Mattagami Lake Mine, Matagami area, Quebec; *Can. Mineralogist*, vol. 12, pt. 1, p. 55-60, 1973.
- Tapolite, stibiotantalite and antimonian micro-lite from the Odd West pegmatite, southeastern Manitoba; *Can. Mineralogist*, vol. 12, pt. 1, p. 76-78, 1973.
606. Herd, R. K., Morton, P., Ferguson, L., Scott, W., Moore, J. M., Leong, K., Carleton Univ.:
Sapphirine-bearing and associated rocks, 1972-.
- See Sapphirine-bearing rocks from Wilson Lake, Labrador; *Can. Mineralogist*, vol. 11, p. 777-790, 1972.
- Sapphirine and kornepurine occurrences within the Fiskenaeset complex; *Rapp. Grønlands geol. Unders.*, vol. 51, p. 65-71, 1973.
607. Hogarth, D. D., Amyott, J., Univ. Ottawa:
Investigation of metamict minerals by Mössbauer resonance, optical absorption and chemical analysis, 1972-75.
- Iron-rich varieties of betafite and euxenite will be studied.
608. Hogarth, D. D., Chao, G. Y., Steacy, H. R., Univ. Ottawa, Carleton Univ., and *Geol. Surv. Can.*:
Mineralogy of the Evans-Lou pegmatite, Portland-West township, Quebec, 1970-74.
- Detailed examination of minerals of a complex pegmatite containing Y, Nb, Bi, V minerals.
609. Hughson, M. R., Mines Branch, Energy, Mines and Resources:
The application of alpha track counting in the investigation of radioactive minerals, 1973-74.

MINERALOGY

The alpha track density determined from an autoradiograph can be used to calculate the uranium content of a specimen in a polished section. It may also be useful in confirming the identity of very finely disseminated radioactive minerals which cannot be identified by other methods.

Synthesis of brannerite at relatively low temperatures - 800°C, 1973-74.

A compound analogous to brannerite has been synthesized at temperatures over 1200°C; in the present work brannerite was synthesized as low as 800°C.

610. Jambor, J. L., Geol. Surv. Can.:
Mineralogy of porphyry deposits of Cu and Mo in Canada, 1970-.

See Mineralogy, zonal relationships and economic significance of hydrothermal alteration at porphyry copper deposits, Babine Lake area, British Columbia; CIM Bull., vol. 67, no. 742, p. 110-133, 1974.

611. Johnson, A. E., Mines Branch, Energy, Mines and Resources:

The systematic determination of minor elements in pyrite from Canadian ores, 1972-.

612. Johnson, A. E., Petruk, W., Mines Branch, Energy, Mines and Resources:

Mineralogy and geochemistry of copper-molybdenum stockwork deposits in British Columbia, 1972-74.

613. Kaiman, S., Mines Branch, Energy, Mines and Resources:

X-ray diffraction analysis of synthetic jarosite compounds, 1973-74.

614. Mandziuk, Z., Scott, S. D., Univ. Toronto:
Synthesis and stability of argentian pentlandite (Fe, Ni)₈AgS₈, 1973-75; M. Sc. thesis (Mandziuk).

See Argentian pentlandite (Fe, Ni)₈AgS₈, from Bird River, Manitoba; Can. Mineralogist, vol. 12, pt. 3, p. 165-168, 1973.

615. Michaud, M., Berry, L. G., Queen's Univ.:
Mineralogical study of the occurrence of scorzavite in northern Yukon Territory, 1973-74.

616. Morton, R. D., Smith, D. G. W., Schimann, M., Univ. Alberta:
The sandstone-type uraniferous deposits of the East Arm of Great Slave Lake, Northwest Territories, 1971-75; Ph. D. thesis (Schimann).

The mineralogy and geochemistry of the sandstone-type uraniferous deposits occurring within the Great Slave Supergroup are being investigated (electron microprobe analyses of the constituent uranium minerals; geochronology of the deposits; gamma-spectrometric and X-ray fluorescence analysis of the deposits and associated strata) in order to better define the potential of the East Arm of Great Slave Lake as a productive uranium province.

617. Nagy, A., Univ. Québec à Chicoutimi:
Etude des minéralisateurs fluorés dans les pyrosynthèses des silicates bi et tricalciques, 1966-.
618. Perrault, G., Pertsowsky, R., Ecole Polytechnique:
Recherche sur la cristallographie du niobium, 1973-78.

Nous travaillons actuellement sur un affinement de la structure cristalline de la niocalite, (Ca, Nb)₁₆Si₈O₃₆, une définition de la structure atomique de Ca₃Nb₂O₈, un affinement de NbO₂F, et la synthèse et la définition du groupe d'espace et de la structure de NbO₂C1.

619. Perrault, G., Pertsowsky, R., Harvey, Y., Ecole Polytechnique:
Structure cristalline de l'hydrate de néphéline, NaAlSiO₄. $\frac{1}{2}$ H₂O, 1973-74.

Ce programme a pour objet la définition de la structure atomique de ce composé synthétique dont la situation dans le système Na₂O-Al₂O₃-SiO₂ en présence d'excès d'eau est connue. Le groupe d'espace de ce composé et les dimensions de sa maille cristalline sont déjà connus: Pmnb, a = 5.25, b = 16.45, et c = 15.05.

620. Petruk, W., Owens, D. R., Mines Branch, Energy, Mines and Resources:
Composition of acanthite, aguilareite and naumannite.

The minerals naumannite (Ag₂Se), aguilareite (Ag₄SeS), and acanthite (Ag₂S) are members of the Ag₂Se-Ag₂S series. Naumannite and aguilareite are isostructural (orthorhombic) and acanthite is monoclinic. The compositions and structural varieties of minerals with intermediate compositions will be determined to define the boundary between acanthite and aguilareite, and to determine the aguilareite-naumannite solid solution field.

621. Rimsaite, J. Y. H., Geol. Surv. Can.:
Mica group minerals and related silicates in Canadian mineral deposits, 1970-.

See Mica group minerals and related silicates in Canadian mineral deposits; Geol. Surv. Can., Paper 73-1, pt. B, p. 205-209, 1973.

622. Roberts, A. C., Berry, L. G., Queen's Univ.: Crystallographic, chemical and optical study of alstonite, 1972-74; M. Sc. thesis (Roberts).
623. Rush, P. J., McGill Univ.: A study of the variation in composition of olivine from the ultramafic rocks of the Thompson mine and a comparison with ultramafics from the Birchtree mine, 1972-75; M. Sc. thesis.
624. Rucklidge, J. C., Patterson, G., Univ. Toronto: Alteration of olivine rich rocks, 1971-; M. Sc. thesis (Patterson).
625. Schwarcz, H. P., Scott, S. D., Kissin, S. A., Univ. Toronto: Sulfide mineralogy of meteorites, 1973-74.
626. Scott, S. D., Univ. Toronto: Stoichiometry and defect chemistry of sulfide minerals, 1969-.
627. Scott, S. D., Shegelski, R. J., Univ. Toronto: Geology and mineralogy of Ag-Co-Ni-Fe-As ores, 1970-74.
628. Smith, D. G. W., Cameron-Schimann, M., Univ. Alberta: Chemical composition of some Canadian uranium and thorium bearing minerals, 1974-76; Ph. D. thesis (Cameron-Schimann).
629. Starkey, J., Univ. Western Ontario: Crystal structures of plagioclase feldspars, 1967-.
630. Szymanski, J. T., Mines Branch, Energy, Mines and Resources: The X-ray study of $\text{Cu Fe}_2\text{S}_3$ crystal structures, 1973.
- See The crystal structure refinement of cubanite, $\text{Cu Fe}_2\text{S}_3$; Ziets. Krist., 1973.
631. Szymanski, J. T., Hall, S. R., Mines Branch, Energy, Mines and Resources: The neutron study of Cu-Fe-S mineral structures, 1972-74.
632. Theis, N. J., Berry, L. G., Queen's Univ.: Mineralogical study of uranium-bearing minerals from Elliot Lake-Blind River area, Ontario, 1970-75; Ph. D. thesis (Theis).

To complete a detailed study of uranium-bearing minerals to quantify variations in their distribution and chemical composition and in their spatial relations within the quartz-pebble conglomerates; to establish more accurately the true nature of "brannerite" as well as the chemical reactions, antecedent minerals and the conditions of its formation.

633. Townsend, M. G., Horwood, J. L., Tremblay, R. J., Mines Branch, Energy, Mines and Resources: Electrical and magnetic studies of sulphide minerals, 1969-.
634. Townsend, M. G., Tremblay, R. J., Gosselin, J. R., Mines Branch, Energy, Mines and Resources: Mössbauer investigation of sulphide minerals, 1970-.

See On the weak ferromagnetism of orthorhombic CuFe_2S_3 ; Can. J. Physics, vol. 51, p. 2162, 1973.

Mössbauer investigation of the metal non-metal transition in hexagonal NiS; Physics C: Solid State Physics, vol. 6, p. 1661, 1973.

Mössbauer investigation of the defect structure in monoclinic Fe_7S_8 ; Internal. Rept. MS 73-17, 1973.

An investigation of Jamaican bauxites has been done in collaboration with Alcan (Arvida, Que.), and one on soil samples is in progress in collaboration with the Department of Agriculture.

General

635. Ahmed, S. M., Bartels, K., Mines Branch, Energy, Mines and Resources: Studies of the double layer at oxide and sulphide surfaces, 1966-.

See Distribution of charge and potential at the oxide-solution interface, Parts I and II; in oxide-electrolyte interfaces, p. 1-30, The Electrochemical Society Inc., 1973.

The electrical double layer at the surfaces of minerals immersed in aqueous solutions is being studied by potentiometric titration and by measurement of electrophoretic mobility. Investigations of oxide minerals have been completed, sulphide minerals are underway.

636. Coleman, L. C., Univ. Saskatchewan (Saskatoon): Mineralogy, petrology and geochemistry of Catherwood and Kinley, 1971-75.

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637. Dean, R. S. , Mines Branch, Energy, Mines and Resources:
Mineralogy of clays and shales of Canada, 1970-74.

Considerable advance in clay mineral identification techniques and mineralogical criteria for the sub-division of the Upper Paleozoic strata of this region has been made; three groups of surface clays have been identified.
638. Fleet, M. E. , Univ. Western Ontario:
Crystal structure and crystal chemical studies on ore minerals, 1968-.

See The crystal structure of maucherite ($Ni_{11}As_8$); Amer. Mineralogist, vol. 58, p. 203-210, 1973.

Solid solution phenomena, 1973-.
639. Hung, W. S. Y. , McGill Univ. :
Mineralogical studies of the Onaping Formation, Sudbury, Ontario, 1972-75; M. Sc. thesis.
640. Kaiman, S. , Hughson, M. R. , Mines Branch, Energy, Mines and Resources:
Mineralogical investigation of ores and process products, a continuing project.
641. Lerbekmo, J. F. , Smith, D. G. W. , Westgate, J. A. , Denton, G. H. , Univ. Alberta:
Compositional and stratigraphic studies of the White River Ash, Yukon Territory, 1973-74.
642. Mitchell, R. H. , Lakehead Univ. :
Petrology and geochemistry of Kimberlite and alkaline rocks, 1970-.
643. Nagy, A. , Univ. du Québec à Chicoutimi:
Etude de l'altération des épontes dans les mines Henderson et Portage à Chibougamau, 1972-.
644. Nuffield, E. W. , Univ. Toronto:
Crystal chemistry of the ore minerals, 1942-.

See Crystal structure of hauecornite; Earth Research, vol. 1, p. 16, 1973.

Investigation of bismuth-bearing sulphosalts: classification of these relatively poorly-known minerals and the nature of the coordination and bonding of the constituent elements.
645. Perrault, G. , Ecole Polytechnique:
Minéralogie et pétrologie du Mont St-Hilaire, Québec, Canada, 1964-78.

Voit Structure cristalline du nenadkevichite; Acta. Cryst. , vol. B29, pt. 7, p. 1432-1439, 1973.
- Nous nous proposons de préparer pour bientôt une monographie sur le Mont St-Hilaire. De plus, des travaux sont en cours dans nos laboratoires pour la définition de la structure cristalline de l'eudialyte.
646. Petruk, W. , Mines Branch, Energy, Mines and Resources:
To quantitatively define the mineralogical characteristics of base metal ore deposits, 1973-75.

The relative proportions of ore minerals in samples from different varieties of base metal deposits will be accurately determined with image analysis equipment and the data correlated to chemical analyses.
647. Plant, A. G. , Lachance, G. R. , Geol. Surv. Can. :
Electron probe microanalysis, 1962-.

See Quantitative electron microprobe analysis using an energy dispersive spectrometer; Geol. Surv. Can. , Paper 73-1, pt. B, p. 6-7, 1973.

Operation of an electron probe microanalysis laboratory to study the distribution of various elements in minerals and mineral assemblages. The project involves analytical support for Branch research, direct micromineralogical research, and development of new methods and concepts of electron probe microanalysis.
648. Ripley, L. G. , Webster, A. H. , Mines Branch, Energy, Mines and Resources:
Growth of single crystals of base-metal sulphides and related compounds, 1964-.

See Crystal growth, Part IV: the arsenides and sulpharsenides of cobalt, iron and nickel; Mines Branch Rept. R-238, 1972.

Synthetic crystals corresponding to certain sulphide and related minerals are being prepared to provide material for investigations of their physical properties. The techniques employed include chemical vapour transport, sublimation, growth from a melt (Bridgman method), hydrothermal growth, and growth from a flux.
649. Sinkin, D. , Walsh, D. , Muir, D. B. , Donnay, G. , McGill Univ. :
Physics and chemistry of minerals. Crystallography of minerals, 1971-.

See Bond-balance summation for borates; Acta. Cryst. , B-29, pt. 7, p. 1417-1425, 1973.
650. Smith, D. G. W. , Univ. Alberta:
Stability of carbonate minerals beneath the electron beam, 1972-74.

651. Smith, D. G. W. , Jones, J. B. , Milne, A. , Univ. Alberta and Univ. Adelaide:
Mineralogy of the Moorabie (Australia) meteorite, 1972-74.
652. Smith, D. G. W. , O'Nions, R. K. , Univ. Alberta:
Applications of soft X-ray spectroscopy in mineralogy, 1970-.
653. Starkey, J. , Univ. Western Ontario:
The study of the preferred orientation in deformed rocks by X-ray diffraction, 1960-.
654. Traill, R. J. , Bonardi, M. , Delabio, R. N. , Pringle, G. J. , Geol. Surv. Can. :
X-ray diffraction and laser microprobe analyses, and mineralogical studies, 1968-.
655. Traill, R. J. , Maxwell, J. A. , Plant, A. G. , Geol. Surv. Can. , Dence, M. R. , Grieve, R. A. F. , Earth Physics Branch:
Mineralogical, petrological and chemical studies of lunar rocks from the Apollo missions.

PALEONTOLOGY

Invertebrate

656. Apon, F. , Univ. Alberta:
Upper Devonian conodont biostratigraphy and systematics in the Hay River-Fort Simpson area, Northwest Territories, 1973-76; M. Sc. thesis.
657. Barnes, C. R. , Sass, D. B. , Telford, P. G. , Univ. Waterloo, Alfred Univ. , Ontario Division of Mines:
Conodont ultrastructure, 1966-.
- See Ultrastructure of some Ordovician conodonts; Geol. Soc. Amer. , Sp. Paper 141, p. 1-30, 1973.
- Conodont ultrastructure: The Family Pandero-dontidae; Royal Ontario Mus. , Life Sciences Contrib. 90, 1973.
658. Bartlett, G. A. , Edwards, A. , Gilchrist, L. , Curtis, B. , Jones, P. , Walker, R. , Queen's Univ. :
Ecology and distribution of marginal marine Foraminifera in Atlantic Canada and the Canadian Arctic, 1962-; theses.
- Foraminiferal biotopes are related to physical, chemical and biological parameters associated with watermass circulation patterns which vary seasonally because of changing river flow and tidal flux.
659. Bender, K. P. , Geol. Surv. Can. :
Pennsylvanian and Permian conodonts of Arctic Canada, 1971-.
660. Bolton, T. E. , Geol. Surv. Can. :
Stromatoporoid, coral, echinoderm and trilobite faunas of the Ordovician and Silurian rocks of Anticosti Island, Quebec, 1957-.
661. Brice, D. , Geol. Surv. Can. :
Middle Devonian brachiopods of Arctic Islands, 1971-.
662. Cameron, W. , Carleton Univ. :
Studies in the Cretaceous microfauna of southern Portugal, 1974-76; M. Sc. thesis.
663. Chatterton, B. D. E. , Univ. Alberta:
Conodont biostratigraphy and trilobite systematics in Paleozoic rocks of western and northwestern Canada, 1971-.
- Biostratigraphic research involves conodont Devonian faunas of the Harrogate Formation, southeastern B. C. , Headless and Nahanni Formations of Northwest Territories and Palliser Formation of Alberta and B. C. Systematic research involves Middle Devonian trilobites from the Northwest Territories and northeastern B. C. , Ordovician trilobites from the Northwest Territories (Mackenzie Mts.) and Cambrian trilobites from the Northwest Territories (Franklin Mts.).
664. Copeland, M. J. , Geol. Surv. Can. :
Paleozoic micropaleontology of eastern Canada, 1972-.
665. Dixon, O. A. , Univ. Ottawa:
Tabulate and rugose corals from the Silurian Read Bay Formation of Somerset Island, Northwest Territories, and the Ordovician-Silurian rocks of Anticosti Island, P. Q. , 1969-.
666. Ferguson, Laing, Mount Allison Univ. :
A biometrical study of the Scottish Carboniferous ostracod genera Bairdia and Paraparchites, 1969-75.

PALEONTOLOGY

667. Gishler, C. D., Univ. Western Ontario:
Chitinozoan fauna of the Upper Ordovician of southern Ontario, 1972-75; M. Sc. thesis.
668. Greiner, H. R., Univ. New Brunswick:
Taxonomy and stratigraphic zonation of Cyrtospirifer, Cyrtiopsis and related genera, 1970-75.

See Upper Devonian Cyrtospirifer and related genera of the Canadian west and a provisional comparison with those from the Appalachians; Palaeoclimatology, Palaeoecology, vol. 13, p. 129-141, 1973.
669. Greggs, R., Hoyt, C., Queen's Univ.:
Upper Cambrian conodont faunas, Bison Creek Formation of southwestern Alberta, 1973-74.
670. Hooper, K., Carleton Univ.:
Microfauna of the Atlantic continental margins: Mesozoic and Cainozoic, 1973-.
671. Jeletzky, J. A., Geol. Surv. Can.:
Monograph of the Canadian belemnites, 1959-.
672. Karrow, P. F., Morgan, A., Poplawski, S., Sreenivasa, B. A., Univ. Waterloo:
Paleontology of Toronto Interglacial, 1957-.
673. McGugan, A., Scott, J., Univ. Calgary:
Cretaceous Foraminifera, Vancouver Island, British Columbia. Paleozoic conodont reconnaissance, Rocky Mountains; Ph. D. thesis (Scott).
674. McNally, K., Carleton Univ.:
Microfaunal ecology of the Nova Scotia continental slope, 1972-74; M. Sc. thesis.
675. Poulton, T. P., Geol. Surv. Can.:
Jurassic Trigoniidae of western British Columbia, 1971-.

See Lower Jurassic sedimentary and volcanic rocks, Bait Range, Hazelton map-area (93M E $\frac{1}{2}$); Geol. Surv. Can., Paper 74-1, pt. A, p. 31-33, 1974.
676. Smith, R. E., Geol. Surv. Can.:
Lower Devonian brachiopods, Prince of Wales and Bathurst Islands, 1973-.

See Upper Silurian and Lower Devonian (Gedinnian) biostratigraphy and brachiopod faunas, Baillie-Hamilton, Prince of Wales and Bathurst Islands, District of Franklin; Geol. Surv. Can., Paper 74-1, pt. A, p. 355, 1974.
677. Stearn, C. W., McGill Univ.:
Paleoecology of stromatoporoids at south margin of Ancient Wall Carbonate Complex, Mt. Haultain, Alberta, 1964-74.
678. Tan, T., Carleton Univ.:
Studies in Cainozoic microfauna of the Indo-Pacific, 1974-76; M. Sc. thesis.
679. Tipnis, R., Univ. Alberta:
Ordovician conodont systematics and biostratigraphy in the Mackenzie Mountains, 1973-77; Ph. D. thesis.
680. Tipper, H. W., Geol. Surv. Can.:
Investigation of Lower Jurassic genus Weyla as a guide fossil in the Lower Jurassic successions of British Columbia, 1969-.
681. Tozer, E. T., Geol. Surv. Can.:
Canadian Triassic Ammonoidea and Bivalvia, 1969-.
682. Vilks, G., Geol. Surv. Can.:
Comparative ecology of Recent planktonic Foraminifera in the surface waters of Arctic, Atlantic and Pacific Oceans, 1972-.

Foraminiferal, molluscan and lithologic study of sediment cores from the Beaufort Sea and Northwest Passage, 1972-.
683. Wagner, F. J. E., Geol. Surv. Can.:
Recent benthonic foraminiferida and mollusca from the Continental Shelf, southeastern Beaufort Sea, 1972-.
684. Wall, J. H., Anan-Yorke, R., Rosene, R., Alberta Research:
Bearpaw Formation microfaunal studies, 1966-; M. Sc. theses (Anan-Yorke, Rosene).
685. Wall, J. H., Singh, C., Alberta Research:
Buffalo Head Hills microfaunal-paleogeographic study, 1971-.

Radiolarians and dinoflagellates provide evidence in support of the theory that the Arctic and Western Interior seaways were connected during the Campanian stage of the Late Cretaceous.
686. Westermann, G. E. G., Hall, R. L., McMaster Univ.:
Taxonomic and biostratigraphic revision of Canadian Stephanocerataceae, 1972-75; Ph. D. thesis (Hall).

The work is based on 1972 field work in Alberta and British Columbia, particularly Queen Charlotte Islands. Dimorphic "biologic" species

evolving in time hopefully will replace the old "morphospecies" presently in use in the taxa being studied (Stephanoceratidae and Chondroceras). The Canadian occurrences will be supplemented by Andean collections made in Chile, 1965 and by plastotypes from Alaska and the U. S. A. Ontogenetic and biostatistic studies show unexpected dimorphic relations, e. g., Zemistephanus ♀ -- Kanastephanus ♂, even at the specific level. The three major ammonite localities on the Queen Charlotte Islands, however, yield differ assemblages and cannot be correlated.

687. Westermann, G. E. G., Riccardi, A. C., McMaster Univ. :
Middle Jurassic ammonite faunas of the Argentine-Chilean Andes; part II, 1972-76.

Includes the ammonoid superfamilies Stephanocerataceae, Perisphinctaceae, Haplocerataceae as well as Phylloceratina and Lytoceratina, followed up by palaeobiogeographic, palaeogeographic and biostratigraphic conclusions.

688. Westermann, G. E. G., Ward, P., McMaster Univ. :
Shape, structure, isotopic composition and function of cephalopod shells, 1973-; Ph. D. thesis (Ward).

See Strength of concave septa and depth limits of fossil Cephalopods; *Lethaia*, vol. 6, 1973.

Paleobotany

689. Brideaux, W. W., Geol. Surv. Can. :
Taxonomy, biostratigraphy, and paleoecology of Mesozoic miospore and microplankton assemblages from the District of Mackenzie, north-western Canada; utilization of computer techniques, 1971-.

Monograph of miospore assemblages from the Lower Colorado Group, central Alberta, and comparative studies of assemblages from south-western Alberta and adjacent British Columbia, 1972-.

690. Campbell, J. D., Untergasser, B., Alberta Research:
Upper Cretaceous megaspore studies, 1969-.

See Two new megaspore species from the continental Upper Cretaceous (Campanian-Maestrichtian) of the Alberta plains; *Can. J. Botany*, vol. 50, no. 12, p. 2553-2557, 1972.

691. Davies, E., Univ. Toronto:
Palynologic correlation and paleoecology of Jurassic-lowest Cretaceous of the Sverdrup Basin, Northwest Territories, 1972-75; Ph. D. thesis.

692. Hills, L. V., Univ. Calgary:
Beaufort Formation, stratigraphy, mineralogy, paleogeography, macropaleobotany and palynology, Arctic Canada, 1972-.

693. Jarzem, D. M., National Museum of Canada:
Palynological studies on angiosperm evolution through Cretaceous and basal Tertiary time. Studies on modern tropical botany, 1974-.

694. Mamet, B., Roux, A., Univ. Montréal:
Algues du Carbonifère, 1970-.

Voir Microfaciès viséens du Boulonnais (France, Nord); *Revue de Micropaléontologie*, vol. 16, no. 2, 1973.

695. McGregor, D. C., Geol. Surv. Can. :
Devonian plant microfossils of eastern Canada, 1960-.

See Lower and Middle Devonian spores of eastern Gaspé, Canada; *Palaeontographica*, Abt. B, vol. 142, p. 1-77, 1973.

696. McIntyre, D. J., Chevron Standard Ltd. :
Mesozoic and Tertiary palynology, 1966-.

See Lunatadinium dissolutum gen. et sp. nov., a dinoflagellate cyst from Lower Cretaceous rocks, Yukon Territory and Northern District of Mackenzie; *Bull. Can. Petrol. Geol.*, vol. 21, no. 3, p. 395-402, 1973.

697. Norris, G., Univ. Toronto:
Mesozoic stratigraphic palynology, paleoecology, and floral provincialism, 1971-.

698. Van Helden, B. G. T., Chevron Standard Ltd. :
Mesozoic palynology, 1971-.

699. Walton, H. S., Chevron Standard Ltd. :
Paleozoic palynology, 1960-.

Vertebrate

700. Bernacsek, G. M., Univ. Bristol:
Devonian osteichthyes of northern Canada, 1972-75; Ph. D. thesis.

Material under study includes: 1) Devonian lungfish - Northern Alberta; 2) Lower Devonian acanthodians - Delorme Formation, Northwest Territories; and 3) Lower Devonian Porolepis sp. - Prince of Wales Island.

PALEONTOLOGY

701. Churcher, C. S., Karrow, P. F., Univ. Waterloo and Univ. Toronto:
The Hamilton Bay vertebrate fauna, 1958-74.
702. Dineley, D. L., Univ. Bristol:
Silurian and Devonian vertebrates, stratigraphy and Paleocology, Northwest Territories, 1964-.
- See *Torpedaspis*, a new Upper Silurian and Lower Devonian genus of Cyathaspididae (Ostracodermi) from Arctic Canada; Geol. Surv. Can., Bull. 222, p. 53-82, 1973.
- A new, large collection of agnatha and other vertebrates from Somerset and Prince of Wales Island was made during the summer of 1973.
703. Forey, P. L., Univ. Alberta:
Evolutionary relationships among primitive teleost fishes, 1971-.
704. Fox, R. C., Univ. Alberta:
Cretaceous and Early Tertiary vertebrates from western Canada, 1965-.
705. Greiner, H. R., Univ. New Brunswick:
Fossil fishes of the Maritime Provinces: their biologic and environmental implications, 1971-75.
- Fossil fish material collected from the Albert Formation, besides numerous palaeoniscoids, has been identified as belonging to the genus *Latvius*, recognized in Europe as of Upper Devonian age. Crossopterygian scales, probably of the same genus, and hence age, well-preserved ostracods (perhaps the first from the Albert Formation) and trace fossils, possibly from fresh-water shrimps, are among other palaeontological material collected.
706. Harington, C. R., National Museum of Canada:
1. Pleistocene vertebrates of the Yukon Territory.
2. Pleistocene mammals of central Saskatchewan.
3. Pleistocene vertebrates of the Champlain Sea.
4. Catalogue of Canadian ice age vertebrates.
- See Pleistocene mammals from Gold Run Creek, Yukon Territory; Can. J. Earth Sci., vol. 10, no. 5, p. 697-759, 1973.
- Pleistocene mammals of the Floral Formation near Saskatoon, Saskatchewan; Geol. Assoc. Can. Meetings (Saskatoon), Program and Abstracts, p. 62, 1973.
- Pleistocene ringed seal skeleton from Champlain Sea deposits near Hull, Quebec: a reidentification; Can. J. Earth Sci., vol. 9, no. 8, p. 1039-1051, 1972.
- Ice age mammals in Canada; Arctic Circular, vol. 22, no. 2, p. 66-89, 1971.
- Mammoth from Babine Lake, British Columbia; Can. J. Earth Sci., vol. 11, no. 2, p. 285-303, 1974.
707. Krause, D. W., Univ. Alberta:
Fossil vertebrates from the Paleocene of Saskatchewan; M.Sc. thesis.
708. Loeffler, E. J., Univ. Bristol:
Ostracoderms from the Siluro-Devonian of Northwest Territories, 1971-74; Ph.D. thesis.
- Ostracoderm fish from the Delorme Formation of the District of Mackenzie and similar material from Somerset Island will be described.
709. Naylor, B. G., Univ. Alberta:
Evolutionary relationships among fossil and recent salamanders, 1972-76; Ph.D. thesis.
710. Russell, D. A., National Museum of Canada:
Studies on the larger Cretaceous reptiles of western Canada. The extinction of the dinosaurs.
- See Ostrich dinosaurs from the late Cretaceous of western Canada; Can. J. Earth Sci., vol. 9, no. 4, p. 375-402, 1972.
- A pterosaur from the Oldman Formation (Cretaceous) of Alberta; Can. J. Earth Sci., vol. 10, p. 1338-1340, 1972.
711. Sarjeant, W. A. S., Univ. Saskatchewan (Saskatoon):
Fossil vertebrate footprints in the Permian and Triassic of England and of Texas, U.S.A., and the Carboniferous of Oklahoma, U.S.A., 1968-74.

General

712. Hofmann, H. J., Univ. Montréal:
Lower Paleozoic organo sedimentary structures and stratigraphy; 1970-.
713. Johnston, P. F., Chevron Standard Ltd.:
Micropaleontology - Tertiary and Mesozoic, 1971-.
714. Karrow, P. F., Anderson, T. W., Miller, B., Univ. Waterloo, Geol. Surv. Can., and Kent State Univ.:
Paleontology of glacial lake sediments, 1957-.
715. Lewis, W. J., Chevron Standard Ltd.:
Micropaleontology - Tertiary and Mesozoic, 1972-.

716. Risk, M. J., Kobluk, D., Hein, F., McMaster Univ.: Bioerosion of carbonates, 1972-; Ph. D. thesis (Kobluk), M. Sc. thesis (Hein).

Recent coral reefs are internally eroded by several phyla of organisms, the most important of which are probably worms, sponges and boring bivalves. Fungi and algae also invade recent carbonates, and have been isolated from Paleozoic reefs. Their boring activities seem to be accompanied by alteration zones and micritization.

717. Risk, M. J., Yeo, C., McMaster Univ.: Paleozoic trace fossils, 1971-.

See Silurian echiuroids: possible feeding traces in the Thorold Sandstone; Science, vol. 180, p. 1285-1287, 1973.

Detailed comparison of modern organisms with "enigmatic" trace fossils often allows probable identification of the marker of the trace fossil. These organisms are believed to have modified the surrounding sediments, and in some cases may even have responded to high sedimentation rates.

PETROLOGY AND PETROGRAPHY

Alberta

718. Culbert, R. R., Burwash, R. A., Univ. Alberta: Factor analysis of rock and mineral data from the western Canadian Precambrian basement, 1971-74.

R-mode factor analysis applied to all available petrologic variables has indicated certain "factors" which may be related to geologic processes (specifically regional metamorphism). Where these have strong regional patterns, maps have been prepared by trend-surface techniques.

define chemically equivalent assemblages in the different metamorphic facies and to estimate the role of fluid composition, P load and T in the metamorphism; and electron microprobe studies of minerals, including piemontites from a wide variety of localities and chloritoid and associated minerals from the Canadian Cordillera are continuing.

British Columbia

719. Church, B. N., British Columbia Dept. Mines Petrol. Resources: Petrology and mineralization of the early Tertiary volcanic and plutonic rocks of south-central British Columbia, 1969-73.

See Geology of the White Lake Basin; British Columbia Dept. Mines, Bull. 61, p. 120, 1973.

720. Ghent, E. D., Cruickshank, D., Moell, C., Univ. Calgary: Petrologic and geochemical studies in the Cordillera and electron microprobe study of minerals, 1973-76; theses.

A study of burial metamorphism in the Lower Cretaceous rocks in the Alberta Foothills and in British Columbia; an electron microprobe study of carbonate diagenesis; a petrologic, mineralogic and geochemical study of metamorphism of basalts from the Mica Creek area, to precisely

721. Lambert, R. St J., Campbell, A., Univ. Alberta: Petrology, structure and geochronology of the Malton Gneiss, British Columbia, 1973-75; M. Sc. thesis (Campbell).

722. Lambert, R. St J., Hall-Beyer, B., Hall-Beyer, M., Univ. Alberta: Petrology and structure of Slide Mountain Group, British Columbia, 1972-75; M. Sc. theses.

An investigation of an area where Upper Paleozoic rocks are believed to be in thrust contact with the Precambrian near the west margin of the Shuswap Complex.

723. Lambert, R. St J., Holland, J. G., Nielsen, P., Univ. Alberta: Petrochemistry of Rossland, Ymir and Fennell Groups, British Columbia, 1973-75; Ph. D. thesis (Nielsen).

724. Morton, R., Moore, J. M., Jr., Herd, R. K., Carleton Univ.: Nicola Group, British Columbia, 1973-75; Ph. D. thesis (Morton).

Petrogenetic, stratigraphic, and structural studies on the Nicola Group, to determine the relationship between volcanism and mineral deposits.

PETROLOGY AND PETROGRAPHY

725. Nicholls, J., Fiesinger, D., Nicoll, L., Stout, M., Univ. Calgary:
Petrology of Recent volcanic rocks in the Cordillera, 1970-74; theses.
726. Smith, T. E., Univ. Windsor:
The Westcoast Complex, Vancouver Island, British Columbia, 1974-76.
727. Souther, J. G., Geol. Surv. Can. :
Geology of the Mount Edziza volcano, British Columbia, 1965-.

A detailed investigation of the geology, petrology and petrochemistry to determine the history and processes of evolution and relationship to contemporaneous plutons in the Stikine region.

Manitoba

728. Bristol, C. C., Brandon Univ. :
Non-silicate mineralogy of the Garner Lake ultramafic body, southeastern Manitoba, 1973-75.
729. Bristol, C. C., Bailes, A. H., Brandon Univ. :
Petrology of amphibolites from Wimapedi Lake, Manitoba, 1970-75.
730. Froese, E., Geol. Surv. Can. :
Petrological studies in the vicinity of the Kesseynew Front, Manitoba, 1970-.
731. Scoates, R. F. J., Macek, J. J., Manitoba Mines Branch:
Ultramafic rocks project, Manitoba, 1969-.
- See Ultramafic rocks project; Manitoba Mines Branch, Geol. Paper 2/73, 1973.
- Investigations of the structure and major petrographic and mineralogical features of the Fox River intrusion in northeastern Manitoba.
732. Springer, R. K., Brandon Univ. :
Ultramafic rocks in southeast Manitoba, 1973-75.

New Brunswick

733. Bachinski, S. L. W., Univ. New Brunswick:
Subgreenschist facies metamorphism in New Brunswick, 1972-74.

Petrographic examination of nearly two hundred thin sections of mafic to intermediate volcanic rocks from the Siluro-Devonian fold belt of northern New Brunswick and elsewhere in the province seem to indicate that mineral assemblages appropriate to either the zeolite or prehnite-pumpellyite facies have not developed on a regional scale but do occur in a few localities (e. g., analcime + quartz near Dalhousie).

734. Bostock, H. H., Geol. Surv. Can. :
Volcanic rocks of the Appalachian Orogen, 1973-.
- To determine the physical volcanology, petrology, chemistry, environment, age and tectonic relations of the volcanic rocks of the Appalachian Orogen in order to relate them to the evolution of the orogen and to the formation of associated mineral deposits.
735. Pajari, G. E., Stirling, J. A., Dingee, C., Univ. New Brunswick:
Textures of devitrified and recrystallized silicic igneous rocks, 1971-75; theses.
736. Pajari, G. E., Trembath, L. T., Cherry, M., Butt, K. A., Univ. New Brunswick:
The post-Acadian plutonic igneous rocks of southwestern New Brunswick, 1966-76; Ph. D. theses (Cherry, Butt).
737. Pajari, G. E., Trembath, L. T., Gemmell, D., Univ. New Brunswick:
The Missippian volcanic rocks of central New Brunswick, 1970-74; M. Sc. thesis (Gemmell).

Newfoundland and Labrador

738. Appleyard, E. C., Univ. Waterloo:
Alteration zones around volcanogenic sulphide deposits in the Roberts Arm Group, central Newfoundland, 1973-76.
739. Baragar, W. R. A., Geol. Surv. Can. :
Studies in the Seal Lake volcanic province, Newfoundland, 1968-.
740. Emslie, R. F., Geol. Surv. Can. :
Anorthosite study, 1967-.
- See Anorthosite study; Geol. Surv. Can., Paper 74-1, pt. A, p. 147, 1974.
741. Gittins, J., Curtis, L. W., Currie, K. L., Univ. Toronto and Geol. Surv. Can. :
The Red Wine River alkalic rock complexes, Labrador, 1971-75; Ph. D. thesis (Curtis).

Northwest Territories

742. Baragar, W. R. A. , Geol. Surv. Can. :
Geochemical and petrological study of Yellowknife volcanic rocks, 1962-.
743. Frisch, T. , Geol. Surv. Can. :
Gneisses of the Prince Albert belt, Districts of Franklin and Keewatin, 1972-.
- See Geological studies in the Prince Albert Hills, western Melville Peninsula, District of Franklin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 163-164, 1974.
744. Gordon, T. M. , Geol. Surv. Can. :
Petrology and structure of the Daly Bay Complex and environs, District of Keewatin, 1970-.
745. Hogarth, D. D. , Univ. Ottawa:
Lapis lazuli near Lake Harbour, Baffin Island, 1969-74.
746. Lambert, M. B. , Geol. Surv. Can. :
Archean volcanic studies in the Slave-Bear Province, District of Mackenzie, 1973-.
- See Archean volcanic studies in the Slave-Bear Province; Geol. Surv. Can. , Paper 74-1, pt. A, p. 177-179, 1974.
- To determine: 1) the stratigraphic and structural relations in each belt; 2) the location of volcanic centres; 3) the sequence and types of volcanic eruptions and their environment of deposition; 4) the relationship of mineral deposits to volcanic stratigraphy and volcanic processes.
747. Lambert, R. St J. , Martineau, M. P. , Hoffman, G. , Univ. Alberta:
Big Spruce Lake Complex, Northwest Territories, 1967-74.
748. Lambert, R. St J. , Nielsen, P. , Univ. Alberta:
Petrochemistry of Arseno Lake region, Northwest Territories, 1972-76; Ph.D. thesis (Nielsen).
- A petrochemical investigation of the regional metamorphism, geochronology and shield structure at and near the boundary of the Bear-Slave provinces.
749. Mitchell, R. H. , Clarke, D. B. , Lakehead Univ. and Dalhousie Univ. :
Kimberlites from Somerset Islands, Northwest Territories, 1973-.

750. Page, R. O. , Clifford, P. M. , McMaster Univ. :
Volcanic stratigraphy at Quartzite Lake, Northwest Territories, 1974-; Ph. D. thesis (Page).
751. Reesor, J. E. , Geol. Surv. Can. :
Penrhyn Group metamorphic complex, Melville Peninsula, District of Franklin, 1971-.
- See Penrhyn Group metamorphic complex, Melville Peninsula, District of Franklin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 153, 1974.
752. Ridler, R. H. , Geol. Surv. Can. :
Volcanic study in the Ennadai Belt, District of Keewatin, 1970-.
- See Volcanic stratigraphy and metallogeny of the Kaminak Group, Spi Lake area, District of Keewatin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 181-185, 1974.
- Exploration for Archean polymetallic sulfide deposits in permafrost terrains: an integrated geological/geochemical technique, District of Keewatin, Kaminak Lake area; Geol. Surv. Can. , Paper 73-4, 1973.
753. Schau, M. , Geol. Surv. Can. :
Volcanic rocks of the Prince Albert belt, Districts of Franklin and Keewatin, 1972-.
- See Volcanic rocks of the Prince Albert Group, District of Keewatin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 187-188, 1974.
754. Tremblay, L. P. , Geol. Surv. Can. :
Yellowknife and Goulburn rocks in the Contwoyto Lake area, Northwest Territories, 1964-.

Nova Scotia

755. Clarke, D. B. , McKenzie, C. B. , Jamieson, R. A. , Charest, M. H. , Dalhousie Univ. :
Nova Scotia granites, 1972-; M. Sc. theses (McKenzie, Charest).
- Includes reconnaissance studies of the South Mountain batholith including its petrology, geochemistry and petrogenesis; a study of progressive assimilation of country rock at the contact of the granite; and a petrological and geochemical study of the late-stage formation of Sn-W-Mo-Cu-Mn mineralization in the granites.

Ontario

756. Birkett, T. C., Pearce, T. H., Queen's Univ.:
Metamorphic rocks, Thackeray Township, Ontario,
1973-74; M. Sc. thesis (Birkett).

The differentiation of thick basaltic flows, and their low-grade metamorphism are being studied in detail.

757. Davies, J. F., Laurentian Univ.:
Petrology and geochemistry of rocks enclosing the McIntyre disseminated copper deposit,
1971-74.

The Pearl Lake pseudo-porphry represents a pervasively sericitized zone of originally chloritic schists which experienced late-stage throttling and dumping of copper-sulphides along with secondary albite, carbonate, anhydrite and quartz in the form of metacrysts. Geochemical studies including whole rock and trace element analysis are in progress in order to document the gains and losses across the various alteration assemblages and to test the concept that metals were scavenged from the extensive pervasively altered zones and deposited at the site of throttling.

758. Duke, N., Edgar, A. D., Univ. Western Ontario:
The petrology and major element chemistry of minerals of the Bigwood and Blue Mountain nepheline syenite deposits, 1971-74; M. Sc. thesis (Duke).

759. Fawcett, J. J., Fisher, T., Univ. Toronto:
Variations in metamorphism of the Quetico and Wabigoon belts, Midwest Superior Geotraverse,
1972-75.

760. Francoeur, D., Univ. Ottawa:
Structural and petrographic study of granites and gneisses in Monmouth and Glamorgan Townships, Ontario, 1972-74; M. Sc. thesis.

761. Jolly, W. T., Brock Univ.:
Metamorphic and igneous petrology of Abitibi Archean lavas, Ontario and Quebec, 1973-75.

Economic, petrologic, petrographic, and structural geology of the Abitibi region included.

762. Jost, M., Ontario Division of Mines:
Review of the conceptual models of the Sudbury Irruptive and associated ore deposits, 1973-75.

763. Lumbers, S. B., Royal Ontario Museum:
Anorthosite suite intrusions of the Grenville Province in Ontario, 1964-.

764. Mitchell, S. L., Appleyard, E. C., Univ. Waterloo:
Structural and petrologic history of the Bentley-Siddon Lake area, Bancroft, Ontario, Canada, with special reference to rocks of alkaline affinity, 1972-74; M. Sc. thesis (Mitchell).

Detailed field study has revealed six fold episodes; various alkaline rocks show intrusive aspects and their position in the deformation sequence has been determined; textural and petrologic study of the alkaline rocks is in progress.

765. Muir, T. L., Pearce, T. H., Queen's Univ.:
A petrological and geochemical study of the ultramafic rocks of the Shaw Dome, southeast of Timmins, Ontario, 1972-74; M. Sc. thesis (Muir).

Intrusive and extrusive ultramafic rocks were mapped and delineated in the field with respect to the general stratigraphy of the area. Petrological, and to a lesser extent, geochemical data are being applied along with the field information to understand the history of the ultramafic rocks during the formation of this part of the Precambrian crust. The effects of serpentinization and carbonatization on the ultramafic rocks are being studied on a large scale. Cross sections of three nickel sulphide deposits at the southeast end of the dome, including the Langmuir Property Mine, were made from detailed drill core logging. This mineralization study will be treated briefly and applied to the dome as a whole.

766. Stevenson, J. S., McGill Univ.:
Strontium isotope abundances, electron probe and chemical studies bearing on the petrogenesis of the granophyre (micropegmatite) and the Onaping Ash-flow sheet, Sudbury, Ontario, 1970-76.

Quebec

767. Baer, A. J., Univ. Ottawa:
Relationships between anorthosites and granulite facies, 1972-.

768. Baragar, W. R. A., Geol. Surv. Can.:
Volcanic stratigraphy and geochemistry of the Cape Smith belt, New Quebec, 1973-.

See Volcanic studies in the Cape Smith-Wakeham Bay belt, New Quebec; Geol. Surv. Can., Paper 74-1, pt. A, p. 155-157, 1974.

To determine the characteristic composition, variation in composition, and stratigraphy of the volcanic succession of the Cape Smith-Wakeham Bay belt with a view to elucidating the character of volcanism and the history of the belt.

769. Darling, R., Ecole Polytechnique:
The petrography and geochemistry of the volcanic host rocks around the Manitou-Barvue Ag-Zn-Cu deposit, Val d'Or, Quebec, 1972-74.
770. Darling, R., Campiglio, C., Ecole Polytechnique:
La pétrologie et la géochimie du batholithe Bourlamaque, Québec, 1969-74; thèse de doctorat (Campiglio).
771. Eakins, P. R., McGill Univ. :
Significance of Ni-rich pillowed basalts in north-western Quebec, 1968-79.
- In 1968 pillowed olivine basalt lava flows with high MgO (6-19%) and nickel contents (150-170 ppm) were discovered across a belt of Archean greenstone 8 miles wide. Small bodies of apparently genetically related serpentized dunite and peridotite with sub-economic asbestos stringer zones occur with the olivine basalts. These occurrences lie on trend between the nickel-asbestos deposits of the Timmins area 40 miles to the west and the nickel deposit (Marbridge) in the Val d'Or area 50 miles to the west.
772. Gélinas, L., Ministère des Richesses naturelles du Québec et Ecole Polytechnique:
Etude géochimique et pétrographique de l'empilement volcanique de la région de Noranda, 1972-74.
773. Gittins, J., Univ. Toronto:
The Kipawa alkalic rock complex, Québec, 1965-.
- See The occurrence of vlasovite in Canada; Can. Mineralogist, vol. 12, pt. 3, p. 211-214, 1973.
- Hiortdahlite from Kipawa River, Villedieu Township, Temiscaming County, Quebec; Can. Mineralogist, vol. 12, pt. 4, p. 241-247, 1974.
774. Goldie, R. J., Queen's Univ. :
Petrology of the Flaurian tonalite, Noranda, Quebec, 1972-76; Ph. D. thesis.
775. Gorman, B. E., Pearce, T. H., Queen's Univ. :
Petrology, geochemistry, and mode of emplacement of rhyolites in the Rouyn-Noranda area, Quebec, 1973-75; M. Sc. thesis (Gorman).
- Involves detailed mapping and petrographic examination of a 2,000-foot sequence of extrusive felsic flow-units, together with associated mafic intrusive rocks, for evidence of mineralogy, deformation, alteration, and metasomatism. Approximately 100 samples will be analysed for major and trace elements in order to suggest a mechanism of petrogenesis and emplacement.
776. Hogarth, D. D., Durocher, M., Univ. Ottawa:
Petrology of the Castor-blanc syenite pluton near Gracefield, Quebec, 1972-74; M. Sc. thesis (Durocher).
- Petrological-mineralogical study of a small syenite stock intruding Grenville marble and biotite gneiss. An interpretation of differentiation trends and metasomatic effects in the surrounding rocks will be offered.
777. Hogarth, D. D., Lapointe, P., Univ. Ottawa:
Fenite near the Haycock Iron Mine, Hull Township, Quebec, 1972-74.
- Petrological-mineralogical study of fenites surrounding hematite and hematite-magnetite veins.
778. Imreh, L., Ministère des Richesses naturelles du Québec:
Etude des roches ultramafiques du complexe Preissac-Malartic, Rouyn-Noranda, Province de Québec, 1973-78.
- Etude stratigraphique et géochimique des roches ultramafiques du complexe Preissac-Malartic en vue de déterminer les contrôles géologiques de la minéralisation nickelifère.
779. Kretz, R., Univ. Ottawa:
Petrology of marbles of the Otter Lake area, Quebec.
- The marbles, which lie within the Grenville province, 70 miles north-west of Ottawa may be divided into groups based on field occurrence and general mineral content, and further into groups based on temperature of crystallization, deduced from experimental data. Chemical analyses are in progress for calcite, dolomite, olivine, calcic pyroxene, calcic amphibole, humite group minerals, phlogopite, garnet spinel, sphene, and potash feldspar from these rocks.
780. Raynal, M., Univ. Ottawa:
Structure and petrology of part of Calumet Island, Province of Quebec, 1973-; Ph. D. thesis.
781. Schimann, K., Univ. Alberta:
Petrology of the Cape Smith-Wakeham Bay belt (eastern portion), Quebec, 1971-75; Ph. D. thesis.
782. Trzcienski, W. E., Jr., Savard, R., Poulin, R., Ecole Polytechnique:
Metamorphism in the Eastern Townships of Quebec, 1972-; M. Sc. theses (Savard, Poulin).
783. Woussen, G., Univ. du Québec à Chicoutimi:
Etude de l'altération des épontes de la mine Henderson No. 2, Chibougamau, Québec, 1972-.

PETROLOGY AND PETROGRAPHY

Saskatchewan

784. Forester, R. W., Syme, E. C., Univ. Saskatchewan (Saskatoon):
Petrology of the Boundary Intrusions, Saskatchewan, 1973-75; M.Sc. thesis (Syme).

General

785. Bachinski, S. L. W., Univ. New Brunswick:
Subsolidus behavior of alkali feldspars, particularly in granitic pegmatites, 1972-.
786. Clarke, D. B., McGraw, P. A., Dalhousie Univ.:
Basic rocks from accreting plate margins, 1970-; M.Sc. thesis (McGraw).

Petrological and geochemical studies on a site of dredged basalts from Baffin Bay as well as a suite of related Tertiary lamprophyres from west Greenland; on the core from a 3,000 foot drill hole on the Azores.

787. Clifford, P. M., Wood, C. A., McMaster Univ.:
Volcanic studies in the Ethiopian Rift, Addis Ababia area, 1973-.
- Mapping will be supplemented by ground geophysical work (gravity and magnetic studies). Materials collected will be analyzed both geochemically and in terms of fabric variations of clastic rocks.

788. Currie, K. L., Geol. Surv. Can.:
Alkaline rocks in Canada, 1968-.
- See Red Wine alkaline province, Labrador; Geol. Surv. Can., Paper 74-1, pt. A, p. 145-146, 1974.

789. Edgar, A. D., Univ. Western Ontario:
The geochemistry of undersaturated peralkaline rocks, 1968-73.

790. Fawcett, J. J., Fleming, P. D., Downes, M. J., Univ. Toronto:
Stability of mineral assemblages related to low and medium grade regional metamorphism.

See Stability relations of Mg-Chlorite-muscovite and quartz between 5 and 10 kb water pressure; J. Petrology, vol. 14, no. 3, p. 415-428, 1973.

791. Frisch, T., Geol. Surv. Can.:
Petrology of Archean anorthosites and gneisses, Fiskenaasset area, West Greenland, 1970-.

- 791a. Frisch, T., Geol. Surv. Can.:
Petrology of the Miocene ignimbrite sequence on Gran Canaria, Canary Islands, 1968-.

792. Gittins, J., Univ. Toronto:
Petrogenesis of carbonatite complexes, 1965-.

793. Gittins, J., Cooper, A. F., Univ. Toronto:
Phase equilibrium studies in carbonate systems and their bearing on carbonatite genesis, 1970-.

794. Kliske, A. E., Chevron Standard Ltd.:
Clastic rock petrography, 1965-.

795. Krupicka, J., Univ. Alberta:
Petrology of reworked crystalline rocks, 1972-76.

Comparative study of strained, cataclastic, mylonitic and ultramylonitic crystalline rocks: a) with deformation outlasting recrystallization, and b) with recrystallization outlasting deformation (blastocataclasites, blastomylonites etc.).

796. Lambert, R. St J., Holland, J. G., Owen, P. F., Nielsen, P., Univ. Alberta:
Petrology of Mount Ararat, Turkey, 1966-74.

797. Pearce, T. H., Queen's Univ.:
Petrology of Archean igneous rocks, 1972-78.

Research is in progress on the petrology and chemistry of well preserved volcanic and related rocks in various greenstone belts in the Superior province on the Canadian Shield. Rocks from the Abitibi, Michipicoten, and Pickle Crow are being studied at the present time.

798. Scarfe, C. M., Univ. Alberta:
Stability of serpentine with comments on equilibrium problems in the system MgO-SiO₂-H₂O, 1966-.

Viscosity and related properties of magmas, 1968-.

See Viscosity of basic magmas at varying pressure; Nature Phys. Sci., vol. 241, p. 101-102, 1973.

Experimental determinations of the viscosity of magmas at one atmosphere and at high water pressures have led to the construction of a viscosity-temperature-composition grid which may be used to predict magma viscosities. Supporting work is being carried out on the structure and properties of silicate melts.

799. Scarfe, C. M. , McReath, I. , Univ. Alberta:
Plagioclase solidus paths in natural systems:
studies using partition geothermometers, 1973-.
800. Schwarcz, H. P. , Weeks, R. A. , McMaster Univ. :
Electron-spin resonance studies of quartz from
metamorphic rocks, 1972-74.
- During thermal metamorphism of rocks, isotopic exchange of oxygen occurs in part through diffusion of oxygen ions through crystal lattices. This process is not quenched at the maximum temperature of metamorphism; instead, it tends to retrograde during cooling. In order to estimate the temperature at which oxygen diffusion quenches by an independent method, we are studying the abundance of oxygen deficiencies in quartz, which result in the formation of E' centres, due to trapping of electron at the vacancy. The abundance of E' centres should be a function of the temperature at which diffusion of oxygen ceases. Preliminary data confirm this relation; further studies on quartz from a variety of metamorphic terrains are in progress.
801. Sempels, J-M, Univ. Ottawa:
Textural simulation in igneous rocks, 1972-74;
M. Sc. thesis.
802. Smith, D. G. W. , Morton, R. D. , Clarke, D. B. ,
Univ. Alberta and Dalhousie Univ. :
Investigations of rocks from the spillite-keratophyre association, 1969-.
803. Traill, R. J. , Maxwell, J. A. , Plant, A. G. , Geol.
Surv. Can. , Dence, M. R. , Grieve, R. A. F. ,
Earth Physics Branch:
Mineralogical, petrological and chemical studies
of lunar rocks from the Apollo missions.

QUATERNARY GEOLOGY

Alberta

804. Carlson, V. A. , Alberta Research:
Bedrock topography and drift thickness of southern Alberta, 1972-74.
805. McPherson, R. A. , Kathol, C. P. , Alberta Research:
Surficial mapping and erosion potential study in a portion of the Slave Lake area, NTS 83O, 1973.
- Due to the extensive erosion in the Swan Hills area of Alberta due to widespread oil exploration, a study of a portion of the Slave Lake map sheet immediately north of the Swan Hills was conducted.
806. Osborn, G. , Matt, C. D. , Univ. Calgary:
Episodic Holocene alluviation, Big Hill Spring Valley, Alberta, 1973-; M. Sc. thesis (Matt).
- Neoglacial history of Banff N. P. area, Alberta, 1974.
- To amplify knowledge of Neoglacial history of the Rockies by means of lichenometry, dendrochronology, and soil stratigraphy.
807. Root, J. D. , Kathol, C. P. , Lobb, G. , Alberta Research:
Wabamun area, NTS Sheet 83G (east half), 1973-74.
808. Rutter, N. W. , Geol. Surv. Can. :
Quaternary geology, Bow River Valley, Alberta, 1967-.

809. Stalker, A. M. , Geol. Surv. Can. :
Quaternary of southern Alberta, 1965-.

British Columbia

810. Fulton, R. J. , Geol. Surv. Can. :
Terrain mapping in mountainous areas, British Columbia, 1972-.
811. Rutter, N. W. , Geol. Surv. Can. :
Quaternary geology of Peace River Reservoir area, British Columbia, 1966-.
- Quaternary geology, Pine Pass-Jasper, British Columbia-Alberta, 1969-.
812. Ryder, J. M. , Aylsworth, J. , Howes, D. , Univ. British Columbia:
The quaternary geomorphology and stratigraphy of parts of south-central British Columbia, 1971-; M. A. theses (Aylsworth, Howes).
- See Paraglacial sedimentation: a consideration of fluvial processes conditioned by glaciation; Bull. Geol. Soc. Amer., vol. 83, p. 3059-3072, 1972.
- Investigation of Quaternary valley sediments and the development of a Quaternary chronology for glacier fluctuations and sedimentation (field area parts of Fraser and Thompson River valleys); and glacial geomorphology and late-Quaternary history of alpine regions in southern Coast and Cascade Mountains, British Columbia.

QUATERNARY GEOLOGY

Manitoba

813. Elson, J. A., McGill Univ. :
Glacial Lake Agassiz, 1964-75.
- At present main concern is with the characteristics of individual beaches enabling identification across gaps and estimates of the duration of the water planes. Also examination of ERTS imagery for evidence of the lake as shown by seasonal changes in the imagery.
814. Fenton, M. M., Univ. Western Ontario and Geol. Surv. Can. :
Quaternary geology, Winnipeg (east half), Manitoba, 1970-74; Ph. D. thesis.
815. Klassen, R. W., Geol. Surv. Can. :
Quaternary geology and bedrock topography of the Riding Mountain area, Manitoba-Saskatchewan, 1961-.
- Quaternary geology, Duck Mountain, Manitoba-Saskatchewan, 1964-.
- Quaternary geology inventory, lower Nelson River basin, Manitoba, 1971-.
- See Quaternary geology inventory, lower Nelson River basin; Geol. Surv. Can., Paper 74-1, pt. A, p. 249, 1974.

Newfoundland and Labrador

816. O'Donnell, N. D., Univ. Western Ontario:
Investigation of an indicator train of sulphide ore at Gull Pond, Newfoundland, 1967-73; M. Sc. thesis.

Northwest Territories

817. Blake, W., Jr., Geol. Surv. Can. :
Quaternary reconnaissance, northeastern District of Mackenzie, 1962-.
- Quaternary chronology and stratigraphy, southern Ellesmere Island, District of Franklin, 1967-.
- Pumice on raised beaches, eastern Arctic Canada, 1968-.
- See Age of pumice on raised beaches, eastern Arctic Canada; Geol. Surv. Can., Paper 73-1, pt. B, p. 141-142, 1973.
818. Fyles, J. G., Geol. Surv. Can. :
Quaternary reconnaissance, western Arctic Islands, 1964-.

Glaciation and emergence, Archer Fiord, District of Franklin, 1971-.

819. Hughes, O. L., Geol. Surv. Can. :
Surficial geology and land classification, Mackenzie Valley transportation corridor, 1971-.
- See Surficial geology and land classification, Mackenzie Valley transportation corridor; Geol. Surv. Can., Paper 74-1, pt. A, p. 275-278, 1974.
820. Rampton, V., Geol. Surv. Can. :
Quaternary geology, Beaufort Mackenzie, 1969-.
- See Position of frost table in the near shore zone, Tuktoyaktuk Peninsula, District of Mackenzie; Geol. Surv. Can., Paper 73-1, pt. B, p. 165-168, 1973.
- Quaternary stratigraphy and geomorphic processes on the Arctic Coastal Plain and adjacent areas, Demarcation Point, Yukon Territory, to Mallock Hill, District of Mackenzie; Geol. Surv. Can., Paper 74-1, pt. A, p. 283, 1974.
821. Rutter, N. W., Geol. Surv. Can. :
Surficial geology and land classification, Mackenzie Valley transportation corridor (southern part), 1971-.
- See Surficial geology and land classification, Mackenzie Valley transportation corridor (85D, E, 95A, B, G, H, I, J, K, N, O); Geol. Surv. Can., Paper 74-1, pt. A, p. 285, 1974.
822. Wagner, F. J. E., Geol. Surv. Can. :
Recent benthonic foraminiferida and mollusca from the Continental Shelf, southeastern Beaufort Sea, 1972-.

Nova Scotia

823. Grant, D. R., Geol. Surv. Can. :
Surficial geology, southern Cape Breton Island, Nova Scotia, 1970-.
- See Terrain studies of Cape Breton Island, Nova Scotia and of the Northern Peninsula, Newfoundland; Geol. Surv. Can., Paper 74-1, pt. A, p. 241-246, 1974.
824. MacNeill, R. H., Nova Scotia Research Foundation:
Pleistocene geology of mainland Nova Scotia, 1951-74.
825. Prest, V. K., Geol. Surv. Can. :
Geology of Prince Edward Island, 1953-.

Ontario

826. Aaltonen, R. A. , Univ. Western Ontario:
Geology of the City of London, Ontario, 1970-74;
Ph. D. thesis.
827. Barnett, P. , Univ. Waterloo:
Tills of the Niagara Peninsula, Ontario, 1973-74;
M. Sc. thesis.
- Tills correlative with the Halton and Wentworth
Tills of the Hamilton area are believed to extend
through the Niagara Peninsula. This study will
attempt correlation by texture, pebble lithology,
heavy minerals, carbonates, and trace elements.
828. Burwasser, G. J. , Ontario Division of Mines:
Quaternary geology and industrial mineral re-
sources of the Sudbury area, Ontario, 1970-74.
- Quaternary geology and industrial mineral re-
sources of the city of Thunder Bay, Ontario,
1971-74.
- Quaternary geology and industrial minerals of the
Collingwood area, Ontario, 1973-74.
- See Quaternary geology of the Collingwood and
Nottawasaga area, southern Ontario; Ontario
Division of Mines, Misc. Paper 56, p. 185-187,
1973.
829. Cooper, A. C. , Univ. Waterloo:
Pre-Catfish Creek tills of the Waterloo region,
Ontario, 1972-74; M. Sc. thesis.
- Till fabrics, texture, carbonates, pebble lithol-
ogy, heavy minerals and trace elements are being
used to determine provenance and correlation of
the tills.
830. Cowan, W. R. , Ontario Division of Mines:
Wisconsinan tills of the Brantford-Woodstock
area, southern Ontario, 1970-74.
- Quaternary geology of the Orangeville area,
southern Ontario, 1970-74.
- See Quaternary geology of the Orangeville area,
southern Ontario; Ontario Division of Mines,
Prel. Map P848, 1973.
- Quaternary geology of the Wingham-Lucknow area,
southern Ontario, 1973-75.
- Quaternary geology of the Palmerston area,
southern Ontario, 1972-74.
- See Quaternary geology, Palmerston (40P/15) and
Wingham (40P/14 east) area, southern Ontario;
Ontario Division of Mines, Misc. Paper 56,
p. 192-195, 1973.
831. Dreimanis, A. , Raukas, A. , Mörner, N. -A. ,
Goldthwait, R. P. , Univ. Western Ontario, Estonian
Academy Sci. , Univ. Stockholm, Ohio State Univ. :
Stratigraphy of the last ice age in the eastern
Great Lakes region, 1958-.
- See Wisconsin glaciation in the Huron, Erie, and
Ontario lobes; Geol. Soc. Amer. , Mem. 136,
p. 71-106, 1973.
- The Erie Interstade; Geol. Soc. Amer. , Mem.
136, p. 107-134, 1973.
832. Feenstra, B. H. , Univ. Western Ontario and
Ontario Division of Mines:
Late Wisconsin stratigraphy between the Milver-
ton and Elmira moraines, southwestern Ontario,
1967-74; M. Sc. thesis.
- Quaternary geology Niagara-Welland area,
Ontario, 1969-74.
- Quaternary geology Dunnville area, Ontario,
1973-74.
- See Quaternary geology of the Dunnville area,
southern Ontario; Ontario Division of Mines,
Misc. Paper 56, p. 199-201, 1973.
833. Frey, E. , Univ. Waterloo:
Precambrian clast lithology as provenance indi-
cators in tills of southwestern Ontario, 1973-74;
M. Sc. thesis.
834. Gravenor, C. P. , Stupavsky, M. , Symons, D. T. A. ,
Univ. Windsor:
Magnetic properties of till, 1972-75.
835. Gwyn, Q. H. J. , Ontario Division of Mines:
Quaternary geology of the Dundalk area, southern
Ontario, 1971-74.
- Quaternary geology of the Alexandria-Hawkes-
bury area, Ontario, 1973-75.
- See Quaternary geology of the Alexandria area,
southern Ontario; Ontario Division of Mines,
Misc. Paper 56, p. 181-184, 1973.
- Geological and engineering properties of the sen-
sitive clays of the Champlain Sea, southern
Ontario, 1973-75.

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Involves the surficial geology, bedrock topography, drift thickness, texture, mineralogy, geochemistry, Atterberg Limits and Shear strength of the sensitive clays.

Quebec

836. Gwyn, Q. H. J. , DiLabio, R. N. W. , Ontario Division of Mines:
Quaternary geology of the Alliston-Newmarket area, southern Ontario, 1972-74.
837. Henderson, E. P. , Geol. Surv. Can. :
Quaternary geology, Kingston N¹/₂, Ontario, 1968-.

Pleistocene geology, Lake Ontario Basin, 1970-.
838. Karrow, P. F. , Univ. Waterloo:
Quaternary geology of St. Mary's area, Ontario, 1973-74.

Quaternary geology of the Stratford-Conestogo area, Ontario, 1965-74.
839. Karrow, P. F. , White, O. L. , Univ. Waterloo:
Urban geology of Kitchener-Waterloo, Ontario, 1958-.
840. Lewis, C. F. M. , Geol. Surv. Can. :
Quaternary geology, Great Lakes, 1968-.
841. McAndrews, J. H. , Royal Ontario Museum:
Pollen analysis in Ontario, 1967-.

See Palynology of the Great Lakes: The surface sediments of Lake Ontario; Can. J. Earth Sci. , vol. 10, no. 5, p. 777-792, 1973.
842. Vagners, U. J. , Ontario Division of Mines:
Quaternary geology of the Windsor-Essex area, Ontario, 1970-.

Quaternary geology of the Lucan area, Ontario, 1971-.
843. Wolfe, W. J. , Lee, H. A. , Hicks, W. D. , Ontario Division of Mines and Lee Geo-Indicators Ltd. :
Heavy mineral indicators in alluvial and esker gravels of the Moose River basin, James Bay Lowlands, 1973-74.

See Heavy mineral indicators in alluvial and esker gravels of the Moose River Basin, James Bay Lowlands, District of Cochrane; Ontario Division of Mines, Misc. Paper 56, p. 158-163, 1973.
844. Craig, B. G. , Geol. Surv. Can. :
Surficial geology, Sept-Iles-Cap Chat area, Quebec, 1971-.
845. DiLabio, R. , Univ. Western Ontario:
Indicator tracing in the Lac-Mistassini-Lac Waconichi area, Quebec, 1971-74; Ph. D. thesis.
846. Dredge, L. , Univ. Waterloo:
Quaternary geology of the St. Lawrence North Shore west of Sept. Isles, Quebec, 1971-74; Ph. D. thesis.
847. Gadd, N. R. , Geol. Surv. Can. :
Distribution of marine deposits, Ottawa-St. Lawrence Basin, 1971-.

See Landslides in Quebec; Geol. Surv. Can. , Paper 74-1, pt. A, p. 217-218, 1974.
848. Locat, J. , Univ. Waterloo:
Quaternary geology, Matane, Quebec, 1973-74; M. Sc. thesis.
849. LaSalle, P. , Ministère des Richesses naturelles du Québec:
Cartographie des dépôts meubles de Québec et des Cantons de l'Est, 1972-74.
850. Lebuis, J. , Ministère des Richesses naturelles du Québec:
Etude des dépôts meubles de Matane à Cap-Chat, 1973-74.
851. Occhiette, S. , Univ. du Québec à Trois-Rivières:
Dépôts et faits quaternaires du bas St-Maurice, 1973-.
852. Simard, A. , Ministère des Richesses naturelles du Québec:
Cartographie des tourbières du Québec, 1965-83.

L'évaluation et la cartographie systématiques des tourbières du Québec s'est continué en 1973 dans la région comprise entre le Richelieu et l'extrémité ouest de la province au sud du fleuve et le 46ième parallèle au nord du fleuve, soit une superficie d'environ, 4,000 milles carrés.
853. Terasmae, J. , Brock Univ. :
Late quaternary history of the Magdalen Islands, Quatern, 1972-75.

To determine whether the Magdalen Islands were, or were not glaciated during late Quaternary time, especially during the last (Wisconsin) glaciation, and to study late Pleistocene and Holocene geochronology and environmental

changes on the islands, with special reference to changes in climate and vegetation but including the physical environment (geomorphology) and man's impact on the terrain.

854. Tremblay, G., Ministère des Richesses naturelles du Québec:
Cartographie des dépôts meubles de l'Abitibi, Québec, 1972-74.

Saskatchewan

855. Hendry, H. E., Stauffer, M. R., Univ. Saskatchewan (Saskatoon):
Origin of recumbently folded deformed cross-stratification in Pleistocene sands, near Saskatoon, Saskatchewan, 1972-74.

Yukon Territory

856. Rampton, V., Geol. Surv. Can.:
Quaternary geology, Snag-Kluane Lake, Yukon, 1965-.
857. Rutter, N. W., Geol. Surv. Can.:
Soils in glaciated and unglaciated terrain, Yukon, 1969-.

SEDIMENTOLOGY AND SEDIMENTARY PETROLOGY

Sedimentary Rocks

862. Bell, R. T., Brock Univ.:
Survey of Archean sediments in the Midwest Superior Geotraverse, 1972-76.
- Stratigraphy and sedimentology of early Proterozoic sediments of the Belcher Islands, Northwest Territories, 1972-77.
- Preliminary investigations of the stratigraphy commenced with a comprehensive study of the stratigraphy, sedimentology and volcanology of the central and eastern part of the islands. Preliminary paleocurrent measurements have been established and a new synthesis of the development of the stratigraphic pile is being developed.
- Stratigraphy and sedimentology of Early Proterozoic sediments, with particular emphasis on the Hurwitz Group, 1967-74.

General

858. Craft, J. L., Univ. Western Ontario:
Late Wisconsin glaciation in the Adirondack Mountains, New York, 1965-75; Ph.D. thesis.
859. Dreimanis, A., Univ. Western Ontario:
Waterlaid tills in southwestern Ontario, 1971-75.
860. Dreimanis, A., May, R. W., Stankowski, W., Univ. Western Ontario, Wilfrid Laurier Univ., A. Mickiewicz Univ.:
Lithologic, granulometric and fabric investigations of tills, aimed at establishing general rules on their formation, 1962-.
- See Differentiations of glacial tills in southern Ontario, Canada, based on their Cu, Zn, Cr and Ni geochemistry; Geol. Soc. Amer., Mem. 136, p. 221-228, 1973.
861. Shilts, W. W., Geol. Surv. Can.:
Properties and provenance of till, 1969-.

863. Belyea, H. R., Geol. Surv. Can.:
Devonian of Alberta, British Columbia and southern District of Mackenzie, 1950-.
- Diagenesis of Sulphur Point Formation, southern District of Mackenzie: this work is concerned with diagenesis of reef and associated carbonates and comparison with bedded carbonates. It attempts to relate diagenesis to depositional environment and post-depositional alteration, including coarsely crystalline calcite and dolomite replacement and veining.
864. Campbell, F. H. A., Geol. Surv. Can.:
Sedimentary rocks of the Prince Albert belt, Districts of Franklin and Keewatin, 1972-.
- See Paragenesis of the Prince Albert Group; Geol. Surv. Can., Paper 74-1, pt. A, p. 159-160, 1974.

SEDIMENTOLOGY AND SEDIMENTARY PETROLOGY

865. Cant, D., Walker, R. G., McMaster Univ. :
Devonian braided stream deposits, Battery Point Formation, Gaspé, Québec, 1972-74.
- See Devonian braided stream deposits in the Battery Point Formation, Gaspé Est, Québec; Maritime Sediments, vol. 9, no. 1, p. 13-20, 1973.
- The study emphasizes the vertical relationships between facies in a sandy braided system, and demonstrates that fining-upward sequences can be formed.
866. Chevalier, J., Lajoie, J., Univ. Montréal:
Sandstone diagenesis; flysch sequences of northern Appalachians, 1972-74; M. Sc. thesis (Chevalier).
867. Davies, G. R., Geol. Surv. Can. :
Sedimentology of selected Upper Paleozoic carbonates and evaporites, Queen Elizabeth Islands, Arctic Archipelago, 1972-.
868. Davies, G. R., Schmidt, V., Geol. Surv. Can., and Mobil Oil Canada, Ltd. :
Displaced shallow-water carbonate sediments in Pennsylvanian-Permian basinal facies, Ellesmere Island, Arctic Archipelago, 1972-74.
869. Davis, M. W., Bredwell, H. D., Univ. Windsor and Michigan State Univ. :
Carboniferous depositional environments of central Michigan, 1973-74.
- A re-examination in terms of present knowledge of deltaic and other shoreline depositional environments.
870. Donaldson, J. A., Cecile, M., Hews, P., Carleton Univ. :
Comparative studies of Proterozoic sedimentary rocks of Canada, 1963-; theses (Cecile, Hews).
- See Possible correlations between Proterozoic strata of the Canadian Shield and North American Cordillera; Belt Symp., Univ. Idaho - Idaho Bureau Mines, vol. 1, p. 61-75, 1973.
- Current studies are directed at the Hornby Bay, Dismal Lakes, Rae and Belcher Groups, Northwest Territories.
871. Donaldson, J. A., Peeling, G., Ojakangas, R. W., Carleton Univ. and Univ. Minnesota:
Archean conglomerates and sandstones, 1972-75; M. Sc. thesis (Peeling).
- A regional study of representative areas of Archean sedimentary rocks, emphasizing the relative importance of volcanic and granitoid provenance.
872. Gonzales-Bonorino, G., Middleton, G. V., McMaster Univ. :
A Devonian turbidite basin in Argentina, 1971-73; M. Sc. thesis (Gonzales-Bonorino).
- See The Precordillera of west central Argentina: evidence for an early Paleozoic continental margin; Geol. Soc. Amer. Abstracts with Programs, vol. 5, no. 7, p. 641, 1973.
873. Hendry, H. E., Univ. Saskatchewan (Saskatoon):
Sedimentology of conglomerates, 1970-.
- See Sedimentation of deep water conglomerates in Lower Ordovician rocks of Quebec: composite bedding produced by progressive liquefaction of sediment?; J. Sedimentary Petrol., vol. 43, p. 125-136, 1973.
874. Hendry, H. E., Misko, R. M., Univ. Saskatchewan (Saskatoon):
Sedimentological studies of Upper Cretaceous and Lower Tertiary sediments in southern Canada, 1972-; M. Sc. thesis (Misko).
- Investigation of the environment of deposition; relationship between grain size and composition; petrology and provenance, and patterns of cementation in the Frenchman and Ravenscrag sands; and the origin of 'log-like' concretions in Frenchman Formation.
875. Hubert, C., Beaudin, J., Univ. Montréal:
Etude sédimentologique et analyse tectonique d'un glissement pénécontemporain à la sédimentation du flysch Cambro-Ordovicien des Appalaches du Québec, 1974-76.
876. Hyde, R. S., Walker, R. G., McMaster Univ. :
Archean sedimentation, Kirkland Lake area, Ontario, 1972-75; Ph. D. thesis (Hyde).
- The relationship between subaerial alluvial fan formation and volcanic activity (flows, ash falls and ash flows) is emphasized.
877. Jansa, L. F., Geol. Surv. Can. :
Stratigraphy and sedimentology of the Mesozoic and Tertiary rocks of the Atlantic Shelf, 1971-.
- See Stratigraphy and sedimentology of the Mesozoic and Tertiary rocks of the Atlantic Shelf; Geol. Surv. Can., Paper 73-1, pt. B, p. 81-83, 1973.
878. Jefferson, C. W., Univ. Western Ontario:
Sedimentology and stromatolites of Hadrynian rocks, Victoria Island, Arctic Archipelago, 1973-75; thesis.

- To establish the relationship between stromatolites and environment of deposition, and to investigate the potential use of the stromatolites for stratigraphic correlation.
879. Johnson, B. A., Walker, R. G., McMaster Univ.: Depositional environment and process of emplacement of resedimented deep water conglomerates, Cap Enragé Formation, Cambro-Ordovician, Québec, 1972-74; M.Sc. thesis (Johnson).
880. Jones, B., Univ. Ottawa: Sedimentary and faunal facies in the Silurian Read Bay Formation of Northern Somerset Island, Northwest Territories, 1971-74; Ph.D. thesis.
881. Kent, D. M., Univ. Saskatchewan (Regina): Evaporites and related carbonate environments in Phanerozoic rocks of the Interior Plains, 1972-75.
882. Knight, I., Geol. Surv. Can.: The stratigraphy and sedimentology of the Ramah Group between Nachvak Fiord and Saglek, Newfoundland, 1972-.
883. Kramers, J. W., Alberta Research: Wabasca A oil sand deposit, Grand Rapids Formation study, 1972-75.
- A lithofacies and petrographic study of the heavy oil-bearing sandstones of the Grand Rapids Formation in the area of townships 75-90, range 15W4 to 5W5.
884. Lajoie, J., Dimroth, E., Tassé, N., Beaulieu, J., Univ. Montréal: Sedimentology of some volcanoclastic sandstones in the Archean of Noranda, Quebec, 1974-; M.Sc. theses (Tassé and Beaulieu).
885. Lerand, M. M., Gulf Oil Canada Ltd.: Stratigraphy and sedimentology of Tertiary and Mesozoic formations in the Mackenzie Delta, 1969-.
886. Liard, P., Ministère des Richesses naturelles du Québec: Etude des conglomérats cambro-ordoviciens dans la région de Matane, 1972-74; thèse de doctorat.
887. Long, D. G. F., Univ. Western Ontario: Sedimentology of the Huronian Mississagi and Serpent Formations, north shore of Lake Huron, 1972-75; thesis.
888. McCabe, H. R., Manitoba Mines Branch: Lithofacies and oil and gas potential of the Winnipeg Formation, Manitoba, 1972-74.
- Determination of the detailed distribution of sand beds in the Winnipeg Formation.
889. McIlreath, I. A., Geol. Surv. Can.: Stratigraphic relationships of the western edge of the Middle Cambrian facies carbonate belt, Field, British Columbia, 1972-.
- See Stratigraphic relationships at the western edge of the Middle Cambrian Carbonate facies belt, Field, British Columbia; Geol. Surv. Can., Paper 74-1, pt. A, p. 333-334, 1974.
890. Mukherji, K. K., Loyola College: X-ray thermoluminescence study and trace element-geochemistry of the Black River-Trenton limestones in southwestern Ontario, 1969-76.
- See Diagenesis of the Black River (Middle Ordovician) limestones in southern Ontario; Sed. Geol., vol. 9, 1973.
- To study the nature of Black River-Trenton transition using glow curve characteristics and trace element contents, and delineate the various depositional environments. Samples from Florida and Bermuda regions are used as standards.
891. Oliver, T. A., Park, R., Swagor, N., Univ. Calgary: Petrology of sandstones from the Mackenzie Delta area, 1974-75; M.Sc. thesis (Park).
- Subsurface geology of Cardium Formation, Carrot Creek field, west central Alberta, 1974-75; M.Sc. thesis (Swagor).
892. Ollerenshaw, N. C., Geol. Surv. Can.: Cretaceous and Tertiary conglomerates and sandstones of the eastern Cordillera, 1969-.
893. Owens, E. H., Geol. Surv. Can.: Coastal geomorphology and littoral processes in the southern Gulf of St. Lawrence.
- The coastal geomorphology of Les-Iles-de-la-Madeleine, Quebec.
- Analysis of short-term variations in beach morphology and dynamic processes in the littoral zone of two barrier beaches on Les-Iles-de-la-Madeleine, Quebec.
- Sediment dispersal in the nearshore and offshore zones of Les-Iles-de-la-Madeleine, Quebec, 1972-77.
- The effects of ice in the littoral zone of a barrier beach near Richibucto Head, New Brunswick.

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- Coastal environments of Chedabucto Bay, Nova Scotia.
- Oil residues and the effects of sediment removal in the shore zone of Chedabucto Bay, Nova Scotia.
- See Environmental marine geology of a coastal inlet; Geol. Surv. Can., Paper 74-1, pt. A, p. 111-112, 1974.
- Changes in beach profiles at Chedabucto Bay, Nova Scotia, following large-scale removal of sediments; Can. J. Earth Sci., vol. 10, no. 8, p. 1226-1232, 1973.
894. Payette, F., Lajoie, J., Gunn, B., Univ. Montréal: Trace elements in red and green pelites of some northern Appalachians flysch claystones, 1972-74; M.Sc. thesis (Payette).
- See Origin of red beds in a Cambrian flysch sequence, Canadian Appalachians, Quebec; Sedimentology, vol. 20, p. 91-104, 1973.
895. Pounder, D. A., Chevron Standard Ltd.: Sedimentology, diagenesis and stratigraphy of carbonate rocks, 1959-.
896. Rocheleau, M., Univ. Montréal: Stratigraphie et sédimentologie de l'Archéen dans la région de Rouyn-Noranda, Abitibi, Québec, 1973-76; Ph.D. thesis.
897. Rosenstein, E. S., Clark, J. E., Hoskin, R. J. R., Queen's Univ.: Depositional environments, diagenesis and petrology of the Chazyan and Black Riveran near Cornwall, Ontario, 1971-74.
- A study of the Middle Ordovician Rockcliffe, St. Martin and Ottawa formations in the Cornwall area of southeasternmost Ontario, centering on the depositional and diagenetic history of these units which underlie major works of the St. Lawrence Seaway.
898. Rust, B. R., Gibling, M. R., Univ. Ottawa: Ancient alluvial sedimentation, Arctic and Gaspé, Québec, 1973-77; Ph. D. thesis (Gibling).
- To apply the information gained from studying modern alluvial deposits to ancient successions: Devonian Peel Sound Formation on Somerset Island, Arctic Canada, and several Paleozoic formations in the Gaspé Peninsula, Quebec. A special feature is the upward transition from marine through intermediate facies at the base of the Peel Sound Formation.
899. Savelle, J. M., Univ. Ottawa: Sedimentary and faunal studies of the Silurian Read Bay Formation near Creswell Bay, Somerset Island, Northwest Territories, 1973-75; M.Sc. thesis.
900. Schmidt, V., Klement, K. W., Mobil Oil Canada, Ltd., and Univ. Texas: Reef growth and diagenesis of the Permian Capitan Reef Complex, Guadalupe Mountains, Texas and New Mexico, 1970-74.
901. Smith, L., Collins, J. A., Bainbridge, T. W., Queen's Univ.: Sequence concept: applied to delineation of hydrocarbon traps and migration and to mineral concentrations formed by differential erosional processes, 1969-; Ph. D. thesis (Collins).
- Stratigraphic research has concentrated heavily on the depositional relationships of sedimentary rocks. Recent work by the applicant and others has shown the value of understanding both the regional and the local results of differential erosional processes as well. Particularly in carbonates, but also in terrigenous sediments, these processes lead to a significant degree of mineral resedimentation and porosity enhancement within the rock mass. To understand these results an appreciation of the original depositional environments and resulting sediments is still required. Thus, analysis is showing a critical relationship between the original depositional and later erosional environments and the resulting production of both base-metal concentrations by resedimentation and petroleum and gas traps by porosity enhancement and unconformity-related porosity seals.
902. Teal, P. R., Walker, R. G., McMaster Univ.: Archean sedimentation, Manitou Lake area, northwestern Ontario, 1971-75; Ph. D. thesis (Teal).
- See Sedimentology, stratigraphy and crustal evolution of the Archean greenstone belt near Sioux Lookout, Ontario; Can. J. Earth Sci., vol. 10, no. 6, p. 817-845, 1973.
- Volcaniclastic sedimentation is emphasized.
903. Tizzard, P., Lerbekmo, J. F., Univ. Alberta: Environmental analysis and age of the Bow Island-Viking succession in a portion of southeastern Alberta, 1973-74.
- Development of the sand bodies is being interpreted with the help of bentonites as time markers.

904. Trettin, H. P. , Geol. Surv. Can. :
Stratigraphy and sedimentology of lower Paleozoic clastic formations, Canon Fiord region, Ellesmere Island, District of Franklin, 1972-.
- See Stratigraphy and sedimentology of Silurian and Devonian clastic formations, central Ellesmere Island; Geol. Surv. Can. , Paper 74-1, pt. A, p. 357-360, 1974.
905. Vecsey, G. E. , Gulf Oil Canada Ltd. :
Porosity distribution in Swan Hills Member, Tony Creek area.
- Simonette-Windfall Upper Devonian Reef Complex.
- Berland River Reef Complex.
906. Wardlaw, N. C. , Univ. Calgary:
Reservoir properties of sedimentary rocks.
- To describe the three dimensional form of pore systems in selected sedimentary rocks and to relate differences of form to physical measurements of porosity, permeability and capillary pressure; and to explain the origin of different types of pore systems in terms of the environment of formation and subsequent diagenesis and metamorphism of the sedimentary host rock.
- Petrology and geochemistry of sedimentary rocks.
- To determine the spatial, time and diagenetic relationships of carbonates, anhydrites and halites in Devonian strata of northern Alberta.
907. Young, G. M. , Univ. Western Ontario:
Studies of Precambrian supracrustal rocks, 1966-.
- See Tillites and aluminous quartzites as possible time markers for middle Precambrian (Aphebian) rocks of North America; Geol. Assoc. Can. , Sp. Paper 12, p. 97-127, 1973.
- Topics under study include relationships between tillites and carbonate rocks, tillites and iron formations; Huronian and related formations; and Hadrynian rocks of the Arctic archipelago.
908. Young, H. R. , Brandon Univ. :
Petrology and diagenesis of Mississippian carbonates, southwestern Manitoba, 1965-74.
- General
909. Shilts, W. W. , Geol. Surv. Can. :
Mineral indicator tracing, southern Keewatin, 1970-.
- See Physical and chemical properties of unconsolidated sediments in permanently frozen terrain, District of Keewatin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 229-235, 1974.
- Drift prospecting in the Ennadai-Rankin Inlet greenstone belt, District of Keewatin; *ibid.* , p. 259-261, 1974.
910. Snowden, L. R. , Geol. Surv. Can. :
The organic content of sediments from the Beaufort Sea, 1971-.
911. Walker, R. G. , McMaster Univ. :
Basin analysis and facies models for turbidites, 1961-.
- See Turbidite facies and facies associations; in Turbidites and deep water sedimentation, Pacific Sec. , Soc. Econ. Pal. Min. , p. 119-157, 1973.
- Facies models of resedimented conglomerates, 1973-75.

STRATIGRAPHY AND PALEONTOLOGY

Precambrian

912. Aitken, J. D. , Balkwill, H. R. , Cook, D. G. , Klassen, R. W. , Yorath, C. J. , Geol. Surv. Can. :
Operation Norman, District of Mackenzie, 1967-.
913. Brown, R. , Geol. Surv. Can. :
Stratigraphy, structure and metamorphism in the Penrhyn Group rocks of Barrow River area, District of Franklin, 1973-.
914. Campbell, R. B. , Geol. Surv. Can. :
Stratigraphy and structure of the Mount Ida Group, southern British Columbia, 1972-.
915. Christie, R. L. , Geol. Surv. Can. :
Stratigraphy and age of Pre-cambrian sedimentary rocks and contained sills and dykes, east coast of Canadian Arctic Islands and north and northwest Greenland, 1967-.
916. Donaldson, J. A. , Carleton Univ. :
Proterozoic stromatolites and microfossils, 1970-.

STRATIGRAPHY AND PALEONTOLOGY

917. Franklin, J. M., Poulsen, K. H., McIlwaine, W. H., Lakehead Univ. and Ontario Division of Mines: Stratigraphy of the Sibley Group, 1970-74.
918. Hofmann, H. J., Univ. Montréal: Precambrian fossils and stratigraphy, 1969-.
919. McGlynn, J. C., Geol. Surv. Can.: Stratigraphy, sedimentology and correlation of Nonacho Group, Northwest Territories, 1965-.
- See Paleomagnetism and age of Nonacho Group sandstones and associated Sparrow dikes, District of Mackenzie; Can. J. Earth Sci., vol. 11, no. 1, p. 30-42, 1974.
920. Morgan, W. C., Geol. Surv. Can.: Study of the Ramah Group and of Proterozoic-Archean relationships in northern Labrador, 1971-.
921. Stauffer, M. R., Reynolds, J., Univ. Saskatchewan (Saskatoon): Stratigraphy of Missi Group, 1971-74; M. Sc. thesis (Reynolds).
922. Stott, G. M., Appleyard, E. C., Univ. Waterloo: A structural and petrological study to establish the base of the Grenville Supergroup within the migmatite terrain of the Radcliffe-Brudenell townships area of Renfrew county, 1974-75.
923. Young, F. G., Geol. Surv. Can.: Stratigraphy of Gog and Cariboo Groups near the Rocky Mountain Trench, McBride area, British Columbia, 1967-.
- Cambrian to Silurian
924. Aitken, J. D., Geol. Surv. Can.: Lower Paleozoic stratigraphy, southern Rocky Mountains, 1972-.
925. Barnes, C. R., Univ. Waterloo: Ordovician conodont biostratigraphy: Turkey and Morocco, 1970-76.
- Ordovician conodont biostratigraphy: southern Rocky Mountains, 1971-77.
- Lower Paleozoic conodont provinces and communities, 1965-.
- See Lower Paleozoic conodont provincialism; Geol. Soc. Amer., Sp. Paper 141, p. 156-190, 1973.
926. Barnes, C. R., Bergstrom, S. M., Univ. Waterloo and Ohio State Univ.: Ordovician conodont biostratigraphy: Spitzbergen, 1972-77.
927. Barnes, C. R., Munro, I., Uyeno, T. T., Univ. Waterloo and Geol. Surv. Can.: Ordovician conodont biostratigraphy: Hudson Bay, Canadian Shield and southern Manitoba outliers, 1971-75; M. Sc. thesis (Munro).
928. Barnes, C. R., Nowlan, G. S., Mayr, U., Univ. Waterloo: Lower Paleozoic conodont biostratigraphy: Arctic Canada and Greenland, 1970-; Ph. D. thesis (Nowlan).
- See Ordovician conodont biostratigraphy of the Canadian Arctic; Proc. Symp. Geol. Can. Arctic, Geol. Assoc. Can.-Can. Soc. Petrol. Geol., p. 221-240, 1974.
929. Barnes, C. R., Uyeno, T. T., Univ. Waterloo and Geol. Surv. Can.: Ordovician-Silurian conodont biostratigraphy: Anticosti Island, Quebec, 1974-77.
930. Barnes, C. R., von Bitter, P. H., Univ. Waterloo: Ordovician conodont biostratigraphy and paleoecology: southern Ontario and Quebec, 1966-.
- See Lower and Middle Ordovician conodonts from the Mystic Formation, Quebec, Canada; J. Paleontology, vol. 47, p. 760-790, 1973.
931. Bolton, T. E., Geol. Surv. Can.: Ordovician and Silurian biostratigraphy, Southampton Island, District of Keewatin, and eastern Melville Peninsula, District of Franklin, 1970-.
932. Bourque, P. A., Ministère des Richesses naturelles du Québec: Etude stratigraphique siluro-dévonienne dans la région de Chandler, 1972-74.
933. Brun, J., Ministère des Richesses naturelles du Québec: Etude des calcaires du Québec, 1972-75.
- Le programme d'étude pétrologique et géochimique systématique du Black River et du Trenton des Basses Terres du Saint-Laurent.
934. Christie, R. L., Geol. Surv. Can.: Operation Peel Sound: stratigraphy and structure of Prince of Wales Island and adjacent small islands, District of Franklin, 1970-.

935. Czurda, K., Univ. Western Ontario:
Stratigraphy and mineralogy of the Meaford-Dundas (Upper Ordovician) in Southern Ontario, 1972-74.
- See Sedimentology, mineral facies, and petrofabric of the Meaford-Dundas (Upper Ordovician) in Southern Ontario; Can. J. Earth Sci., vol. 10, no. 12, p. 1790-1804, 1974.
- The Meaford-Dundas shale in the Toronto area is principally illite and non-rich chlorite with up to 5% carbonate. In the Windsor area, dolomite constitutes as much as 20% whereas in the Meaford area, quarry becomes notably abundant. The clay platelets show a high degree of parallelism in the bedding planes.
936. Davis, M.W., Univ. Windsor:
Stratigraphy and depositional history of Black River and Trenton (Ordovician) sediments in Essex and Kent Counties, Ontario, 1973-.
937. Dean, W.T., Geol. Surv. Can.:
Lower and Middle Paleozoic biostratigraphy Gaspé, Quebec, and Maritime provinces, 1969-.
938. Fritz, W.H., Geol. Surv. Can.:
Cambrian biostratigraphy of the Canadian Cordillera, 1965-.
- See Cambrian biostratigraphy, northern Yukon Territory and adjacent areas; Geol. Surv. Can., Paper 74-1, pt. A, p. 309-313, 1974.
- Medial Lower Cambrian trilobites from the Mackenzie Mountains, northwestern Canada; Geol. Surv. Can., Paper 73-24, 1973.
939. Giles, P.S., Univ. Western Ontario:
Stratigraphy and geochemistry of the Beekmantown Group (Lower Ordovician) southeastern Ontario, 1968-75; Ph.D. thesis.
940. Greggs, R.G., Bond, I., Queen's Univ.:
Lower Ordovician conodont faunas and stratigraphy, southeastern Ontario and northern New York, 1970-74; Ph.D. thesis (Bond).
- See Revision of the March Formation (Tremadocian) in southeastern Ontario; Can. J. Earth Sci., vol. 10, no. 7, p. 1140-1155, 1973.
941. Ludvigsen, R., Univ. Western Ontario:
Trilobite faunas, and biostratigraphy of Sunblood Formation, central and southern Mackenzie Mountains, Northwest Territories, 1972-75; Ph.D. thesis.
942. Macqueen, R.W., Geol. Surv. Can.:
Lower Paleozoic stratigraphy and sedimentology of Operation Norman area, District of Mackenzie, 1968-.
- Lower Paleozoic rocks of the Interior Platform, Franklin Mountains and eastern Mackenzie Mountains, lower Mackenzie River area, with emphasis now on relationships between platform carbonates and laterally equivalent basinal shales of the Mackenzie Mountains and northern Yukon.
943. Norford, B.S., Geol. Surv. Can.:
Ordovician and Silurian biostratigraphy of British Columbia, Alberta, Yukon, Mackenzie and Franklin, 1961-.
- See Lower Silurian species of the trilobite Scotoharpes from Canada and northwestern Greenland; Geol. Surv. Can., Bull. 222, p. 9-25, 1973.
944. Perry, D.G., Univ. Western Ontario:
Late Silurian and Early Devonian faunas and biostratigraphy of central Mackenzie Mountains, Yukon, 1971-74; Ph.D. thesis.
945. Pugh, D.C., Geol. Surv. Can.:
Subsurface Cambrian stratigraphy in northeastern British Columbia, 1972-.
946. Riva, J., Univ. Laval:
Revision of middle and late Ordovician graptolites and Ordovician biostratigraphy in eastern North America, 1967-.
- See 24th Internat. Geological Congr., Field Guide C-52 and Guide B-19, 1972.
- Investigation of the age and stratigraphic position of the Stanbridge Slates, the Iberville and Utica Formation of southern Quebec; age and study of graptolite faunas from the Notre Dame Bay area in northern Newfoundland; and age and faunas of the Shale-Mélange belt at the mouth of the Mohawk River, New York.
947. Telford, P.G., von Bitter, P., Barnes, C.R., Ontario Division of Mines, Royal Ont. Mines, Univ. Waterloo:
Paleozoic stratigraphy of the Niagara Escarpment, 1973-74.
Conodont biostratigraphy (Silurian-Devonian) in southern Ontario, 1973-75.
- Ultrastructure of Cambrian and Silurian conodonts, 1972-74.
- See Paleozoic geology of the Niagara Escarpment, southern Ontario; Ontario Division of Mines, Misc. Paper 56, p. 188-191, 1973.

STRATIGRAPHY AND PALEONTOLOGY

948. Uyeno, T. T. , Geol. Surv. Can. :
Conodont biostratigraphy of Upper Ordovician to Devonian rocks of the Arctic Islands, 1968-.
949. Williams, S. R. , Univ. Ottawa:
Stratigraphy and invertebrate faunas of the Silurian Read Bay Formation, Somerset and Prince of Wales Islands, Northwest Territories, 1967-74; Ph. D. thesis.
950. Winder, C. G. , Univ. Western Ontario:
Paleozoic geology of southern Ontario, 1951-.
- See The kettles at Kettle Point; Univ. Western Ontario, Science Terrapin, vol. 1, no. 2, 1973.
- Devonian to Permian
951. Anan-Yorke, R. , Univ. Alberta:
Micropaleontology of the Ghana Shelf deposits, 1971-76.
- The spores of the Ghanaian shelf are under review.
952. Bamber, E. W. , Geol. Surv. Can. :
Carboniferous and Permian biostratigraphy and coral faunas, western and northern Canada, 1971-.
953. Barss, M. S. , Geol. Surv. Can. :
Palynological zonation of the Carboniferous and Permian rocks of the Atlantic Provinces, Gulf of St. Lawrence, 1968-.
954. Braun, W. K. , Univ. Saskatchewan (Saskatoon):
Devonian microfaunas and biostratigraphy of western Canada, 1964-.
955. Caldwell, W. G. E. , Lee, D. G. , Univ. Saskatchewan (Saskatoon):
Devonian biostratigraphy of the Mackenzie River Valley and adjacent regions, 1960-; M. Sc. thesis (Lee).
956. Ferguson, L. , Mount Allison Univ. :
A stratigraphic and faunal study of the Permian-Pennsylvanian of north-central Ellesmere Island, Northwest Territories, 1961-76.
957. Harrington, J. W. , Univ. Calgary:
Upper Devonian Rhynchonelloid brachiopod zonation.
- The taxonomic discrimination of these faunas and subsequent zonation of the sequence will be of considerable value in reinforcing and further discriminating the world-wide rhynchonelloid zonation. Critical correlations with Western Canada should be extended and refined. Ancillary to this work is the determination and explanation of evolutionary rates, migration and ecologic habitats. Paleocology is being considered both in terms of autecology and morphogenesis, and of community structure; studies are being carried out on colonies of living brachiopods (Terebratulina transversa) on the British Columbia coast.
958. Lenz, A. C. , Univ. Western Ontario:
Lower Paleozoic paleontology, biostratigraphy, paleocology and regional geology of northern Canadian Cordillera, 1967-75.
- See Nadiastrophia from the Headless Formation (Eifelian), Mackenzie Mountains, District of Mackenzie, Northwest Territories; Can. J. Earth Sci. , vol. 10, p. 1460-1464, 1973.
959. Mackenzie, W. S. , Geol. Surv. Can. :
Devonian and older Paleozoic rocks, southern and central District of Mackenzie, 1970-.
- See Devonian and older Paleozoic rocks, Northwest Territories; Geol. Surv. Can. , Paper 73-1, pt. B, p. 181, 1973.
960. Macqueen, R. W. , Geol. Surv. Can. :
Mississippian physical stratigraphy, sedimentology and correlation, British Columbia and Alberta, 1963-.
- See Lower Carboniferous stratigraphy and sedimentology of the southern Canadian Rocky Mountains; Int. Geol. Congr. , Guidebook to field exc. C-17, 1972.
961. Mamet, B. , Univ. Montréal:
Stratigraphie et microfaciès du Carbonifère, 1957-.
- Voir Algues carbonifères de la partie septentrionale de l'Amérique du Nord; Revue de Micropaléontologie, vol. 15, no. 3, p. 35-85, 1972.
962. McCabe, H. R. , Norris, A. W. , Uyeno, T. T. , Manitoba Mines Branch and Geol. Surv. Can. :
Devonian outcrop stratigraphy of southern Manitoba, 1970-74.
- See Stratigraphic mapping; Manitoba Mines Branch, Geol. Paper 2/73, 1973.
963. McGregor, D. C. , Geol. Surv. Can. :
Biostratigraphy study of Paleozoic palynomorphs of Arctic Islands, 1968-.
- See Early Devonian spores from central Ellesmere Island, Canadian Arctic; Can. J. Earth Sci. , vol. 11, no. 1, p. 70-78, 1974.

964. Monger, J. W. H. , Geol. Surv. Can. :
Atlin Horst project, Yukon and British Columbia,
1966-.
- Upper Paleozoic rocks of western Canadian Cor-
dillera, 1972-.
- See Upper Paleozoic and Lower Mesozoic rocks
of the Omineca Mountains; Geol. Surv. Can. ,
Paper 74-1, pt. A, p. 19-20, 1974.
965. Nassichuk, W. W. , Geol. Surv. Can. :
Permian biostratigraphy, northern British
Columbia and northern Yukon, 1968-.
- Stratigraphy and paleontology of Upper Paleozoic
rocks on parts of Ellesmere and Axel Heiberg
Islands, District of Franklin, 1968-.
966. Norris, A. W. , Geol. Surv. Can. :
Devonian biostratigraphy of Lake Manitoba-Lake
Winnipegosis region, 1964-.
- Devonian biostratigraphy of northern Yukon Ter-
ritory and adjacent District of Mackenzie, 1970-.
967. Pedder, A. E. H. , Geol. Surv. Can. :
Upper Silurian and Lower Devonian biostrati-
graphy and coral faunas, northern Yukon and
Ellesmere Island, 1973-.
968. Sweet, A. R. , Geol. Surv. Can. :
Palynological studies of Upper Jurassic and
Cretaceous coal measures in western Canada,
British Columbia and Alberta, 1971-.
969. Taylor, G. C. , Geol. Surv. Can. :
Operation Smoky, northeastern British Columbia,
1968-.
- See Devonian stratigraphy, facies changes, and
zinc-lead mineralization, southwestern Halfway
River area (94B), northeastern British Columbia;
Geol. Surv. Can. , Paper 74-1, pt. A, p. 327-
331, 1974.
- To study lower and middle Devonian stratigraphy
and facies changes, particularly the relationship
between platform carbonate to basinal shale
transitions, and zinc-lead mineralization, in
NTS 94B and 94G.
970. Trettin, H. P. , Geol. Surv. Can. :
Stratigraphy, structure, and carbonate petro-
graphy of the Marble Canyon Formation (Permian)
in the Marble Range, Cariboo District, British
Columbia, 1967-.
971. Uyeno, T. T. , Geol. Surv. Can. :
Conodont biostratigraphy of Lower and Middle
Devonian strata of southwestern Ontario, 1966-.
- Conodont biostratigraphy of Middle and Upper
Devonian strata of southern and central Manitoba,
1967-.
972. van de Poll, H. W. , Univ. New Brunswick:
Carboniferous stratigraphy, sedimentation and
economic geology of the Carboniferous basin of
Atlantic Canada, 1973-.
- See Carboniferous stratigraphy and sedimentology
of the Chignecto Bay area, southern New Bruns-
wick; Geology of New Brunswick, New England
Intercollegiate Geological Conference, p. 21-33,
1973.
- A tentative comparison with time equivalent strata
in western and southern Europe shall be made
during the course of this study in an attempt to
formulate a pre-rift circum-Atlantic basin model
of Carboniferous deposition.
973. Worth, J. K. , Waugh, D. C. E. , Crosby, K. S. ,
New Brunswick Dept. Natural Resources:
Stratigraphy and lithofacies of the Lower Carbon-
iferous Windsor Group in southeastern New
Brunswick, 1970-74.
- Mesozoic
974. Ascoli, P. , Geol. Surv. Can. :
Biostratigraphic zonation (Foraminifera) of the
Mesozoic and Cenozoic rocks of the Atlantic
Shelf, 1971-.
975. Braun, W. K. , Brooke, M. M. , Univ. Saskatchewan
(Saskatoon):
Jurassic microfaunas and biostratigraphy of
western Canada, 1967-.
- See Jurassic microfaunas and biostratigraphy of
Saskatchewan and north-central Montana;
Saskatchewan Dept. Mineral Resources, Rept.
161, 1973.
976. Caldwell, W. G. E. , North, B. R. , McNeil, D. H. ,
Barlow, D. L. , Lomenda, M. G. , Wright, E. ,
Univ. Saskatchewan (Saskatoon):
Stratigraphic studies in the Cretaceous system of
Saskatchewan, 1960-; Ph.D. thesis (McNeil),
M. Sc. theses (Barlow, Lomenda, Wright).
- Emphasis on (a) studies of the composition and
distribution of sand bodies in the Upper Cretaceous
Bearpaw Formation, and (b) the composition and
distribution of the foraminiferal faunas found
throughout the entire Cretaceous sequences.

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977. Chamney, T. P., Geol. Surv. Can.:
Lower Cretaceous (Albian) stratigraphy of Peel and Snake Rivers, Yukon Territory, 1963-.
- Foraminiferal zonation of the Mesozoic and lower Cenozoic rocks of the Mackenzie Delta and adjacent Arctic Coastal Plain, 1970-.
- See Tuktoyaktuk Peninsula Tertiary and Mesozoic biostratigraphy correlations; Geol. Surv. Can., Paper 73-1, pt. B, p. 171-178, 1973.
978. Gordon, W. A., Univ. Saskatchewan (Regina):
Mesozoic paleobiogeography, 1970-.
- See Marine life and ocean surface currents in the Cretaceous; J. Geology, vol. 81, p. 269-284, 1973.
- Areal and temporal distributions on the global scale of marine and land biota in relationship to changing physical conditions in the Mesozoic. Degrees of provincialism of both marine invertebrates and land vertebrates are being expressed quantitatively and the results are being synthesized into interpretations of global biogeography for each of the Mesozoic Periods.
979. Harland, R., Patterson, T., Anan-Yorke, R., Stelck, C. R., Univ. Alberta:
Palynology of western Canadian Cretaceous, 1959-; theses.
- See Dinoflagellate cysts and acritarchs from the Bearpaw Formation (Upper Campanian) of southern Alberta, Canada; Palaeontology, vol. 16, pt. 4, p. 665-706, 1973.
980. Hopkins, W. S., Jr., Geol. Surv. Can.:
Mesozoic palynology and biostratigraphy, Arctic Islands, 1968-.
- See Some preliminary palynological conclusions on the Albian and Upper Cretaceous strata of Amund and Ellef Ringnes Islands, District of Franklin; Geol. Surv. Can., Paper 73-1, pt. B, p. 179-180, 1973.
- Upper Cretaceous marine strata on Somerset Island, Northwest Territories; Can. J. Earth Sci., vol. 10, no. 8, p. 1337-1339, 1973.
981. Jeletzky, J. A., Geol. Surv. Can.:
Mesozoic and Tertiary on the west coast of Vancouver Island and in Quatsino Sound, British Columbia, 1949-.
- Cretaceous and Jurassic of Richardson Mountains, Porcupine Plains, and Eagle Plains, Yukon Territory and District of Mackenzie, 1955-.
- To study the stratigraphy and paleontology of Cretaceous and Jurassic formations of the region in order to understand the most essential features of the facies pattern, sequence, and lateral extent of lithological units, paleogeography and geological history.
- Cretaceous and uppermost Jurassic biostratigraphy of western Cordillera, 1967-.
982. Lerbekmo, J. F., Evans, M. E., Baadsgaard, H., Univ. Alberta:
Correlation of continental Upper Cretaceous and Paleocene sediments in central and western Alberta.
- To document paleomagnetic reversals and date them using radiometric ages of volcanic ashes.
983. Norris, D. K., Geol. Surv. Can.:
Non-marine Lower Cretaceous of the southeastern Canadian Cordillera, 1968-.
984. Pearson, D. E., British Columbia Dept. Mines Petrol. Resources:
Structure and stratigraphy of the Harrison Lake Formation, southwest British Columbia, 1973-74.
985. Price, L. L., Geol. Surv. Can.:
Studies of Cretaceous stratigraphy of the Plains of Saskatchewan, Manitoba, and eastern Alberta, 1964-.
- Cretaceous stratigraphy and surface mapping, northeastern British Columbia, 1973-.
986. Sarjeant, W. A. S., Univ. Saskatchewan (Saskatoon):
The palaeontology and stratigraphical distribution of dinoflagellate cysts and acritarchs in the Middle and Upper Jurassic and Cretaceous. The palaeoecological relationships of dinoflagellate cysts, 1956-.
- See Dinoflagellate cysts and acritarchs from the Kimmeridgian (Upper Jurassic) of England, Scotland and France; Bull. British Mus. (Nat. Hist.) Geol., vol. 21, no. 5, 1972.
- Involves the completion of an examination of material from European Upper Jurassic type localities and studies of assemblages from the Upper Jurassic to lowest Cretaceous of Algeria, Iran and Greenland.
987. Sarjeant, W. A. S., Bradford, M. R., Univ. Saskatchewan (Saskatoon):
The distribution and palaeoecology of Recent and Mesozoic dinoflagellate cysts from the Persian Gulf and Arabian Sea, 1971-75; Ph. D. thesis (Bradford).

See Quaternary polymorph distribution in the Persian Gulf and Arabian Sea: a preliminary report; Abstracts, IX INQUA Congress, New Zealand, December, 1973.

Ecology of dinoflagellate cysts and relation between cyst and thecae stages in the dinoflagellate life cycle.

988. Sarjeant, W. A. S., Fensome, R. A., Univ. Saskatchewan (Saskatoon):
Palynology of Turonian sediments in the Anderson River area, Northwest Territories, and its comparison with approximately contemporaneous material from the Great Plains of Saskatchewan, 1973-77; M.Sc. thesis (Fensome).

989. Sarjeant, W. A. S., Harker, S. D., Univ. Saskatchewan (Saskatoon):
A comparison of Campanian dinoflagellate assemblages from the Interior Plains of Canada and the Gulf Coast of the United States, 1972-75; M.Sc. thesis (Harker).

990. Singh, C., Alberta Research:
Palynological study of the coal-bearing Late Cretaceous strata in the Red Deer River valley, 1973-.

To determine the distinguishing qualitative and quantitative microfloral characteristics of the prominent coal seams in the Edmonton Group and Scollard Member of the Paskapoo Formation which will facilitate their recognition and correlation in the subsurface and assist in the determination of coal reserves of south-central Alberta. Fieldwork involving the measuring and detailed sampling (658 samples were collected) of 27 sections exposed along the Red Deer River from East Coulee to Ardley has been completed.

Late Cretaceous-Tertiary microfloras, west-central Alberta, 1970-.

Cenomanian-Turonian microfloras of the Peace River district, Alberta, 1969-.

The sequence of evolutionary changes among early angiosperm pollen during middle Albian to Cenomanian time in the Western Interior of Canada and United States and outlines the regional nature and the stratigraphic significance of this evolutionary differentiation have been established.

991. Sliter, W. V., Geol. Surv. Can.:
Mesozoic Foraminifera of Arctic Islands, 1972-.

Upper Cretaceous benthic Foraminifera and biostratigraphy of JOIDES core samples from Rio Grande Rise, south Atlantic, 1972-.

992. Stelck, C. R., Anan-Yorke, R., Sutherland, G. D., Rosene, R., Ferguson, D., Univ. Alberta:
Foraminifera of western Canadian Cretaceous, 1946-; theses.
993. Stelck, C. R., Williams, G. D., Univ. Alberta:
Cretaceous stratigraphy, American Interior, 1941-.
994. Tozer, E. T., Geol. Surv. Can.:
Triassic rocks near boundary between eastern and western regions of Cordillera, 1973-.

995. Wade, J. A., Geol. Surv. Can.:
Regional subsurface geology of the Mesozoic and Cenozoic rocks of the Atlantic Continental Shelf, 1972-.

See Regional geology of the Mesozoic-Cenozoic sediments off Nova Scotia and Newfoundland; Geol. Surv. Can., Paper 73-1, pt. B, p. 99, 1973.

996. Westermann, G. E. G., McMaster Univ.:
Upper Jurassic ammonites of the "Spiti Shale" facies of eastern Tethys, 1972-.

New fossil collections were made and received in eastern and western parts of the island of New Guinea during 1973. Additional work is planned for Irian and possibly the "type area" of the Spiti Shales in the Himalayas in order to unravel the stratigraphy and taxonomy of this very important Tethyan fauna.

Revision of Bajocian (Middle Jurassic) ammonite faunas from coastal Kenya, 1972-73.

The revision of this poorly preserved fauna indicates only Middle and Upper Bajocian. The very high proportion of phylloceratids and lycoceratids among the cephalopods indicates free access to the deep Tethys, i. e., a "drift" model with the Indian subcontinent and Madagascar well removed from Gondwanaland providing for a "Proto-Indic".

997. Westermann, G. E. G., Verma, H., McMaster Univ.:
New Lower Tithonian (Upper Jurassic) ammonite faunas from coastal Kenya, 1972-73.

In 1972 the first Tithonian ammonite fauna was found in the famous Jurassic sequence of Mom-basa, including late Hybonoticerias, Physodoceras and aff. Nothostephanus hitherto known only from Iraq. In the underlying beds, aspidoceratid

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species can be shown to be dimorphic; the Katroliceras occurrences can be dated possibly improving on Cutch stratigraphy.

998. Williams, G. L. , Geol. Surv. Can. :
Biostratigraphic zonation (palynology) of the Mesozoic and Cenozoic rocks of the Atlantic Shelf, 1971-.

Cenozoic

999. Bartlett, G. A. , Molinsky, L. , Queen's Univ. :
Economic potential and ecological preservation of continental margins, 1965-; M.Sc. thesis (Molinsky).

See The Canadian Atlantic continental margin: paleogeography, paleoclimatology and seafloor spreading; Geol. Surv. Can. , Paper 71-23, p. 43-72, 1973.

1000. Cameron, B. E. B. , Geol. Surv. Can. :
Tertiary foraminiferal succession of Western Cordillera and Pacific Margin, 1969-.

1001. Langhus, B. G. , Gulf Oil Canada Ltd. :
Foraminiferal biostratigraphy and palaeoenvironments of the Mesozoic and Tertiary strata, Arctic Canada, 1970-.

Mesozoic and Tertiary calcareous nannoplankton, eastern offshore Canada, 1972-.

1002. Legault, J. A. , Univ. Saskatchewan (Saskatoon):
Palynology of the Turtle Mountain Formation, 1972-74.

1003. Mathews, J. V. , Jr. , Geol. Surv. Can. :
Quaternary fossil insects and paleoecology, 1973-.

See A preliminary list of insect fossils from the Beaufort Formation, Meighen Island, District of Franklin; Geol. Surv. Can. , Paper 74-1, pt. A, p. 203-206, 1974.

1004. Sarjeant, W. A. S. , Wilson, M. A. , Univ. Saskatchewan (Saskatoon):
The stratigraphy and palynology of some surface and subsurface Maestrichtian and Danian material taken from the Mackenzie Delta and the Great Plains, 1972-75; M.Sc. thesis (Wilson).

Problems in stratigraphical correlation at the Mesozoic/Tertiary boundary and an examination of the palaeoecology of dinoflagellate cysts, acritarchs, spores and pollen in these strata.

1005. Souaya, F. J. , Gulf Oil Canada Ltd. :
Biostratigraphy-Canadian eastcoast offshore, 1972.

Biostratigraphy-Linckens Island P-46 well (Arctic Islands), 1973.

Using mainly representatives of the Order Foraminiferida, a biostratigraphic framework is being worked out for the Tertiary-Mesozoic section in the eastcoast offshore wells and for the Mesozoic sections only in the Arctic Islands.

1006. Yorath, C. J. , Geol. Surv. Can. :
Sub-ocean bottom bedrock studies, Lancaster Sound - western Baffin Bay, Northwest Territories, 1973-.

To carry out marine geological investigations to determine the geological history of the "Northwest Passage Basin" (Lancaster Sound, Barrow Strait, Viscount Melville Sound, McClure Strait) including stratigraphic, biostratigraphic, geophysical and geochemical studies.

General

1007. Lespérance, P. , Ministère des Richesses naturelles du Québec:
Etude stratigraphique au N. E. de Gaspé, Québec, 1973-74.

1008. Stearn, C. W. , MacGeachy, J. R. , Hunter, I. , Scoffin, T. P. , Martindale, W. , McGill Univ. :
Carbonate budget of the Bellairs Reef, Barbados, 1973-; theses.

See Forms of the hydrozoan Millepora on a Recent coral reef; Lethaia, vol. 6, p. 187-200, 1973.

Stearn is working on growth rate studies of corals and hydrozoans; MacGeachy, on the boring organisms destructive effect on hard tissue; Hunter, on the dispersal of carbonate sands from the reef; Scoffin, on the reef fabric which results; and Martindale, on the role of encrusting organisms in building the reef fabric.

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Alberta

1009. Babcock, E. A., Univ. Alberta:
Regional jointing in Alberta, 1972-75.
- See Regional jointing in southern Alberta; Can. J. Earth Sci., vol. 10, no. 12, p. 1769-1781, 1973.
- Involves mapping joint patterns, relationships between joint patterns and structures; possible joint control of Cretaceous fluvial sedimentation; and correlations between joint orientations and photo lineaments.
- Fractures in tills, 1974-.
- An investigation of the nature and origin of planar anisotropics in tills.
- Relationships between borehole shape; resistivity anisotropy and lithology; subsurface fracture orientations, geographic position and residual stress utilizing 4-Arm dipmeter logs, 1974-76.
1010. Bielenstein, H. U., Mines Branch, Energy, Mines and Resources:
Structure of the Cascade coal basin, Alberta, 1970-74.
1011. Cruden, D. M., Ramsden, J., Univ. Alberta:
Fabric analysis in the Canadian Rockies, 1971-;
Ph. D. thesis (Ramsden).

British Columbia

1012. Benvenuto, G. L., Price, R. A., Queen's Univ.:
Structural evolution of the Hosmer Nappe, Fernie area, British Columbia, 1973-75.
- A mechanical and kinematic analysis of the Hosmer nappe based on studies of structural geometry and mesoscopic fabrics; an investigation of the role of Moyie-Dibble Creek fault and its antecedents on the deformation of the Hosmer Nappe.
1013. Bridwell, R. J., Price, R. A., Queen's Univ.:
Finite element modelling of progressive deformation in foreland fold and thrust belt of southern Canadian Rockies, 1973-74.
- Mathematical models will provide displacement fields, stress distributions, and failure patterns during: progressive loading; propagation of displacements on overthrust faults; and bending of the lithosphere due to supracrustal tectonic loading. Research procedure is: 1) continued

investigation of an earthquake simulation, 2) modeling of effects of gravitational instability between lithosphere and asthenosphere on migration of foredeeps due to imbrication and pileup of thrust plates, and 3) modeling of flexural-slip folds from prototype consisting of the deeply eroded Mt. Livingston range, Alberta, a concentric fold revealing undeformed-to-deformed geometry.

1014. Campbell, R. B., Geol. Surv. Can.:
Geology of the Cariboo Mountains, British Columbia, 1968-.
1015. Eisbacher, G., Geol. Surv. Can.:
Tectonic framework of Sustut and Sifton basins, British Columbia, 1969-.
1016. Lis, M., Price, R. A., Queen's Univ.:
Tectonic analysis of the Kootenay arc between Crawford Bay and Creston, British Columbia, 1972-74.
1017. Picklyk, D. D., Price, R. A., Queen's Univ.:
Mathematical models for the structural evolution of the southern Canadian Rockies, 1969-73;
Ph. D. thesis (Picklyk).
1018. Price, R. A., Kluyver, H. M., Queen's Univ.:
Tectonic evolution of the southeastern Canadian Cordillera and the nature and significance of variations in tectonic style, 1968-.
- See Large-scale gravitational flow of supracrustal rocks, southern Canadian Rockies; Gravity and Tectonics, Wiley-Interscience, p. 491-592, 1973.
- The mechanical paradox of large overthrusts; Geol. Soc. Amer., Ann. Mtg. Abstracts with Programs, vol. 5, no. 7, p. 772, 1973.
1019. Simony, P. S., Ghent, E. D., Univ. Calgary:
Southern Canoe River area - structure and metamorphic studies, 1973-76.
- Gneiss to volcanics relations in the Trail area, 1973-75.
- Geology to the Rocky Mountain Trench, 1969-74.
- See Lewisian sheets within the Moines around the "Saddle"; J. Geol. Soc. London, vol. 129, p. 191-204, 1973.
- Involves structural and metamorphic evolution of a portion of a major metamorphic culmination in the core zone of the Columbia Orogen; structure and evolution of Shuswap-like gneisses

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development of shear zones within the gneisses and stratigraphic relation of gneiss to Mesozoic sediments and volcanics of Eugeosynclinal type; and structural geometry and stratigraphy in a belt containing the Trench to arrive at conclusions concerning the origin of the Trench.

1020. Taylor, G. C. , Geol. Surv. Can. :
Operation Liard, 1963-.

1021. Zwanzig, H. V. , Price, R. A. , Queen's Univ. :
The Illecillewaet synform, 1970-73.

Manitoba

1022. Stauffer, M. R. , Burnett, A. , Univ. Saskatchewan (Saskatoon):
Strain studies in Missi Group, 1972-73; M. Sc. thesis (Burnett).

New Brunswick

1023. Donohoe, H. V. , Jr. , Univ. New Brunswick:
Structural analysis of the St. George area,
Charlotte County, New Brunswick, 1968-74.

The Acadian orogeny in the Northern Appalachians, 1973-.

1024. Helmstaedt, H. , McGill Univ. :
Structural studies in the Appalachian Region,
Bathurst area, New Brunswick, 1968-74.

1025. Rast, N. , Grant, R. H. , O'Brien, B. , Donohoe, H. V. , Jr. , Univ. New Brunswick:
Structural profiles across the Caledonian-
Appalachian inter-continental orogenic belt,
1971-74.

See Transatlantic correlation of the Variscan-
Appalachian orogeny; Am. J. Sci. , vol. 273,
p. 572-579, 1973.

To establish lateral correlations along the oro-
genic belt from the U. K. to Mexico and to de-
cipher the evolutionary history of the belt.

1026. Stringer, P. , Univ. New Brunswick:
Analysis of polyphase deformation and regional
correlation of deformation phases in selected
areas of New Brunswick, 1971-75.

See Post-Carboniferous and Post-Triassic
structures in southern New Brunswick; N. E. I.
G. C. 1973 Field Guide to Excursions, p. 88-
95, 1973.

Newfoundland and Labrador

1027. Poole, W. H. , Geol. Surv. Can. :
Hare Bay klippe, Newfoundland, 1972-.

Northwest Territories

1028. Balkwill, H. R. , Geol. Surv. Can. :
Structure and stratigraphy, Ringnes Island and
nearby smaller islands, District of Franklin,
1971-.

See Structure and stratigraphy, Ringnes Islands
and nearby smaller islands, District of Franklin;
Geol. Surv. Can. , Paper 74-1, pt. A, p. 287-
289, 1974.

Structure and tectonics of Cornwall Arch,
Amund Ringnes and Cornwall Islands, Arctic
Archipelago; Proc. Symp. Geol. Can. Arctic,
Geol. Assoc. Can. - Can. Soc. Petrol. Geol. ,
p. 39-62, 1974.

1029. Charlesworth, H. A. K. , Lambert, R. St J. ,
Hodgson, G. , Univ. Alberta:
Structure of the Giant Yellowknife ore body,
Northwest Territories, 1972-74; M. Sc. thesis
(Hodgson).

1030. Davies, G. R. , Geol. Surv. Can. :
Northern basin analysis program: Viscount
Melville Sound map-area, District of Franklin,
1971-.

Northern basin analysis program: Lancaster
Sound map-area, District of Franklin, 1971-.

Northern basin analysis program: Eureka Sound
map-area, District of Franklin, 1972-.

1031. Dyke, L. D. , Geol. Surv. Can. :
Comparative study of Campbell, Barn, White
and Romanzof uplifts, Yukon and District of
Mackenzie, 1973-.

See Structural investigations in Barn Mountains,
northern Yukon Territory; Geol. Surv. Can. ,
Paper 74-1, pt. A, p. 303-308, 1974.

To define Campbell, Barn, White and Romanzof
uplifts in terms of their stratigraphic frame-
work, structural style and evolutionary history.

1032. Eade, K. E. , Geol. Surv. Can. :
Structural and stratigraphic study of the Pre-
Cambrian rocks of southwestern Keewatin,
Northwest Territories, 1968-.

See Watterson Lake (65G, west half) and Ferguson Lake (65I, west half) map-areas, District of Keewatin; Geol. Surv. Can., Paper 74-1, pt. A, p. 161-162, 1974.

Northern basin analysis program: Ballantyne Strait map-area, District of Franklin, 1971-.

Northern basin analysis program: Jones Sound map-area, District of Franklin, 1971-.

1033. Fyson, W. K., Univ. Ottawa:
Structural studies in Archean rocks of the Slave Province, Ross Lake area, Northwest Territories, 1971-.

1041. Williams, G. K., Geol. Surv. Can.:
Northern basin analysis program: Slave River map-area, District of Mackenzie, 1971-.

1034. Helmstaedt, H., McGill Univ.:
Structural studies, Indin Lake area, District of Mackenzie, 1972-74.

1042. Yorath, C. J., Geol. Surv. Can.:
Northern basin analysis program: Horton River map-area, District of Mackenzie, 1971-.

See Geology of the Indin Lake area (86B), District of Mackenzie; Geol. Surv. Can., Paper 74-1, pt. A, p. 165-171, 1974.

Northern basin analysis program: Firth River map-area, District of Mackenzie and Yukon, 1971-.

1035. Lambert, R. St J., Univ. Alberta:
Geotectonics of the Canadian Arctic continental shelf, 1972-74.

1043. Young, F. G., Geol. Surv. Can.:
Basin analysis of exposed Mesozoic and Tertiary strata in northern Yukon Territory in relation to the subsurface stratigraphy of Mackenzie Delta-Beaufort Sea areas, 1970-.

See Global tectonics and the Canadian Arctic continental shelf; Proc. Symp. Geol. Can. Arctic, Geol. Assoc. Can. - Can. Soc. Petrol. Geol., p. 5-22, 1974.

Northern basin analysis program: Peel River map-area, District of Mackenzie and Yukon, 1971-.

1036. MacKenzie, W. S., Geol. Surv. Can.:
Northern basin analysis program: Great Bear River map-area (Paleozoic part), District of Mackenzie, 1971-.

Nova Scotia

See Radiolaria from the Carol Formation, Northwest Territories and Hare Indian Formation (spore-bearing member); Geol. Surv. Can., Paper 74-1, pt. A, p. 319, 321, 1974.

1044. Helmstaedt, H., McGill Univ.:
Structural studies in the Appalachian Region, Cape Breton Island, Nova Scotia, 1968-74.

1037. Meijer-Drees, N. C., Geol. Surv. Can.:
Northern basin analysis program: Redstone River map-area, District of Mackenzie, 1971-.

1045. McBride, D. E., St. Francis Xavier Univ.:
Structural development of eastern Nova Scotia, 1974-77.

1038. Norris, D. K., Geol. Surv. Can.:
Structural geology of northern Yukon Territory and northwestern District of Mackenzie, 1969-.

See Structural and stratigraphic studies in the northern Canadian Cordillera; Geol. Surv. Can., Paper 74-1, pt. A, p. 343-349, 1974.

Eastern Nova Scotia from a line south of New Glasgow to the Straits of Canso is to be investigated to determine the structural deformation and metamorphism in Ordovician to Triassic rocks. The basic data are to be used to determine the economic importance of the tectonic history, and the relationship between the structural history and the tectonic development of the Northern Appalachians.

1039. Rector, R. J., Gulf Oil Canada Ltd.:
Tectonic framework-Beaufort Sea, 1970-.

Ontario

1040. Roy, K. J., Geol. Surv. Can.:
Northern basin analysis program: Belcher Channel map-area, District of Franklin, 1971-.

See Transport directions in the Isachsen Formation (Lower Cretaceous) Sverdrup Islands, District of Franklin; Geol. Surv. Can., Paper 74-1, pt. A, p. 351-353, 1974.

1046. Appleyard, E. C., Univ. Waterloo:
The stratigraphic and tectonic setting of the alkaline gneisses of the Grenville Province of eastern Ontario, 1972-75.

See Basement/cover relationships within the Grenville Province in eastern Ontario; Can. J. Earth Sci., vol. 11, no. 3, p. 369-379, 1974.

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1047. Clifford, P. M. , McMaster Univ. :
Structural and volcanic history of Minnitaki Lake,
northwestern Ontario, 1974-.
1048. Cosgrove, J. W. , Clifford, P. M. , McMaster Univ. :
Variable strain states in sedimentary rocks of
Upper Manitou Lake, northwestern Ontario,
1972-74.
1049. Francoeur, D. , Univ. Ottawa:
Structural and petrographic study of granites and
gneisses in Monmouth and Glamorgan Townships,
Ontario, 1972-74; M. Sc. thesis.
1050. Gower, C. F. , Clifford, P. M. , McMaster Univ. :
Structural development of the English River
gneiss belt, 1974-78; Ph. D. thesis (Gower).
1051. Kehlenbeck, M. M. , Lakehead Univ. :
Tectonic evolution of parts of the Archean crust,
northwestern Ontario, 1972-.
1052. Mitchell, S. L. , Appleyard, E. C. , Univ. Waterloo:
Structural and petrologic history of the Bentley-
Siddon Lake area, Bancroft, Ontario, Canada,
with special reference to rocks of alkaline
affinity, 1972-74; M. Sc. thesis (Mitchell).
1053. Rivers, C. , Univ. Ottawa:
Structures and textures in metamorphic rocks of
the Grenville Province, Ompah area, Ontario,
1972-74; Ph. D. thesis.
1054. Rousell, D. H. , Gray, J. T. , Laurentian Univ. :
The origin of foliation and lineation in the Onap-
ing Formation and the deformation of the
Sudbury basin, 1972-74.
- Fluvial geomorphology of the Vermilion River,
Sudbury basin, Ontario, 1972-74.
- The study has recognized the presence of a pene-
trative foliation and lineation throughout the
whole of the south and east ranges. The pro-
posed origin of these features is not in accord
with the traditional view and, as a consequence
of this, a different mode of deformation of the
Sudbury basin is suggested.
1055. Schwerdtner, W. M. , Downing, B. , Bennett, P. J. ,
Jones, T. W. , Univ. Toronto:
Paleo-strain analysis in the Grenville Province
(Ontario), 1971-; M. Sc. theses.
- Investigation of the Glamorgan mafic complex
(Downing) and Brady Lake complex (Bennett and
Jones) near Bracebridge, Ontario.
1056. Schwerdtner, W. M. , Themistocleus, S. , Univ.
Toronto:
Strain distribution in major mylonitic belts on
the Canadian Shield, 1973-75.
- Mylonite zones under study includes: 1) Grenville
Front tectonic zone, north of North Bay, Ontario;
2) Bear Head fault zone, Setting Net Lake (north
of Red Lake), northwestern Ontario; and 3) Birch
Rapids fault zone, La Ronge region, Saskatchewan.
1057. Schwerdtner, W. M. , Vertolli, V. , Univ. Toronto:
Structural evolution of greenstone belts, 1972-.
- Two small belts, Phyllis Lake and Raleigh Lake,
near Ignace, northwestern Ontario are under
investigation, as part of the Midwest Superior
Geotraverse.
1058. Stott, G. M. , Appleyard, E. C. , Univ. Waterloo:
A structural and petrological study to establish
the base of the Grenville Supergroup within the
migmatite terrain of the Radcliffe-Brudenell
townships area of Renfrew county, Ontario,
1974-75; M. Sc. thesis (Stott).
1059. Wallace, P. I. , Clifford, P. M. , McMaster Univ. :
Strain states in the Archean volcanic rocks of
upper Manitou Lake, northwestern Ontario,
1972-74; M. Sc. thesis (Wallace).
- Pyroclastic and flow rocks of Archean age have
been mapped with special attention to strain
indicators.
1060. Westerman, C. J. , Clifford, P. M. , McMaster
Univ. :
Comparative studies of deformation states in the
English River gneiss belt, 1973-; Ph. D. thesis
(Westerman).
- To analyze the structural evolution of portions o
of the English River gneiss belt (centre and
marginal portions). To elucidate both the style
and the sequence of deformational events within
the belt and the relationship of those events to
the activity in the area to the south of the gneiss
belt. Structural analysis will be supported by
detailed mineralogical, chemical and geochrono-
logical studies.
- Quebec
1061. Dimroth, E. , Ministère des Richesses naturelles
du Québec:
Etude structurale dans la région de Rouyn-
Noranda, Québec, 1972-75.

1062. Fyson, W. K., Carrara, A., Univ. Ottawa:
Relationship of small-scale to large-scale structures in Paleozoic rocks, Nova Scotia, Gaspé Peninsula, and Eastern Townships, 1962-.
- See Taconic and Acadian folds in northern and western Gaspé Peninsula, Québec; Can. J. Earth Sci., vol. 10, p. 498-509, 1973.
- Morphological analysis of folded layers from Lower Paleozoic rocks, Mt. Albert area, Gaspé Peninsula, Québec; J. Geol., vol. 81, p. 510-516, 1973.
1063. Goulet, N., Ministère des Richesses naturelles du Québec:
Etude tectonique dans la région de Rouyn-Noranda, Québec, 1972-74; thèse de doctorat.
1064. Hubert, C., Beaupré, M., Univ. Montréal:
Stratigraphy and structure of the St-Germain complex and the frontal part of the Appalachians between Drummondville and Philipsburg, Québec, 1972-74; M. Sc. thesis (Beaupré).
- To establish the relationship of the St-Germain complex to the carbonate rocks of the platform on the west and the Cambro-Ordovician rocks of the Appalachians on the east.
1065. Raynal, M., Univ. Ottawa:
Structure and petrology of part of Calumet Island, P. Q., 1973-; Ph. D. thesis.
- Relationships between supracrustal rocks and plutonic rocks, examination of possible basement-cover relationships along the western edge of the belt of Grenville marbles.
1066. Robinson, S., Univ. Ottawa:
Structures in Paleozoic rocks, Stoke Mountain and vicinity, Eastern Townships, Quebec, 1971-74; M. Sc. thesis.
1067. Roy, D. W., Univ. du Québec à Chicoutimi:
Origin and evolution of the Charlevoix crypto-explosion structure, 1968-73.
- Etudes tectoniques dans la région du Haut-Saguenay, 1972-76.
- Around the Lake St. John anorthosite massif are several zones of paragneissic rocks. The folding history of these rocks is important to understand the emplacement of the anorthosite. The paragneissic sequence is enclosed in the charnockitic suite and is injected by small stocks of mangerite. The whole area is faulted by the Saguenay graben. A carbonatite intrusion also occurs; it appears to be surrounded by carbonatite dykes, lamprophyres and a few fenite zones.
1068. St-Julien, P., Univ. Laval:
Géologie intégrée des ceintures minéralisées des Appalaches du Québec, 1971-.
- See Appalachian structure and stratigraphy, Quebec; 24th Internat. Geological Congress, Field Excursion A56, C56, 1972.
- La tectonique Appalachienne dans les Cantons de l'Est de la Province de Québec; 24th Internat. Geological Congress, Excursion B21, 1972.
1069. Vallières, A., Ministère des Richesses naturelles du Québec:
Etude structurale dans la région de Rivière-du-Loup, Québec, 1973-74.
- Yukon Territory
1070. Templeman-Kluit, D. J., Geol. Surv. Can.:
Stratigraphy, structure and metallogeny of Pelly Mountains, Yukon, 1973-.
- See Stratigraphy and structure of Pelly Mountains; Geol. Surv. Can., Paper 74-1, pt. A, p. 43-44, 1974.
- General
1071. Fyfe, W. S., Univ. Western Ontario:
Archean tectonics, 1967-.
- See The granulite facies, partial melting and the Archean crust; Phil. Trans. Royal Soc. London, vol. 273, p. 457-461, 1973.
- A study of ancient rocks and their bearing on convective motions.
1072. Fyson, W. K., Univ. Ottawa:
Structural patterns in metamorphic rocks, 1970-.
- See Folds and strain in Grenville metamorphic rocks, Bancroft, Ontario, Canada; Bull. Geol. Soc. Amer., vol. 84, p. 1607-1618, 1973.
1073. Gretener, P. E., Univ. Calgary:
Mechanics of thrustfaulting. The nature and significance of singular events in geology.
- See Thoughts on overthrust faulting in a layered sequence; Bull. Can. Petrol. Geol., vol. 2013, p. 583-607, 1972.

STRUCTURAL GEOLOGY AND TECTONICS

1974. Helmstaedt, H. , McGill Univ. :
Petrofabrics of ultramafic nodules of kimberlites,
1968-.
1075. Helmstaedt, H. , Tella, S. , McGill Univ. :
Quartz fabrics, 1972-75; Ph. D. thesis (Tella).
1076. Lajtai, E. Z. , Univ. New Brunswick:
Mechanisms of deformation and fracture, 1970-.
- See The evaluation of brittle fracture in rocks;
J. Geol. Soc. , vol. 130, p. 1-18, 1974.
1077. Lambert, R. St J. , McKerrow, W. S. , Univ.
Alberta:
Deep earthquakes and surface subsidence in the
Tyrrhenian Sea, 1973-74.
- Comparison of Californian and Caledonian faults,
1972-74.
1078. Ranalli, G. , Carleton Univ. :
Global tectonics and the rheology of the earth,
1970-.
- See The seismic strength of the Earth; Pure
Appl. Geophys. , vol. 104, p. 507-512, 1973.
- Attention is focused on: i) occurrence of earth-
quakes in time and space, ii) global stress sys-
tems in the lithosphere, and iii) quantitative
modelling of geodynamic processes. A com-
bination of statistical, analytical, and numeri-
cal methods are being used.
1079. Rychener, L. M. , Price, R. A. , Queen's Univ. :
Structure and paleotectonic significance of roof
pendants in the south-central part of the Idaho
Batholith, U. S. A. , 1966-74.
- To establish the sedimentary facies, structural
geometry, and deformational and metamorphic
history of a series of roof pendants in the south-
central Idaho Batholith, their relationships to
the supracrustal rocks along the eastern margin
of the batholith, and their implications for
regional tectonic evolution.
1080. Schwerdtner, W. M. , Univ. Toronto:
Tectonic significance of schistosity and mineral
lineation in metamorphic rocks, 1970-.
- See Schistosity and penetrative mineral lineation
as indicators of paleostrain directions; Can. J.
Earth Sci. , vol. 10, no. 8, p. 1233-1243, 1973.
1081. Stauffer, M. R. , Univ. Saskatchewan (Saskatoon):
Geometry of folds, 1962-.
- See New method for mapping axial surfaces;
Bull. Geol. Soc. Amer. , vol. 84, p. 2307-2318,
1973.
1082. Stanton, M. S. , Chevron Standard Ltd. :
Organic and petroleum chemistry, 1967-.
- Geotectonics, 1967-.

SEDIMENTOLOGY AND SEDIMENTARY PETROLOGY

Recent and Unconsolidated Sediments

1083. Allan, R. J. , Geol. Surv. Can. :
Organic lake sediments, 1973-.
1. To establish the occurrence and uniformity
of sapropels in the southern part of the Canadian
Shield; 2. to establish the uniformity of trace
element content within lake sapropels in non-
mineralized areas; 3. to establish the ability of
sapropels to reflect mineralization both in detail
and regionally; and 4. to develop sapropels as
a media for regional prospecting in southern,
forested, non-permafrost areas of Canada's
shield by industry or at wider sample intervals
by the government.
1084. Bartlett, G. A. , Holmes, G. S. , Queen's Univ. :
Processes of sedimentation in the Atlantic
coastal zone, 1972-; M. Sc. thesis (Holmes).
- See Sediment source and processes associated
with transport and deposition in estuaries; Sp.
Publ. , N. R. C. Subcommittee on Hydrology,
1973.
- Sediment movement and deposition in much of
the coastal zone have been significantly altered
by man-induced processes. Remedial measures
have initiated recovery in some area, in others,
degradation has continued.

1085. Bartlett, G. A. , Travers, I. , Edwards, A. ,
Queen's Univ. :
Environmental analysis of the coastal zone in
Atlantic Canada, 1970-; M.Sc. thesis (Travers,
Edwards).

The most obvious direct and indirect effects of
geological setting, siltation, hydraulics, water
and sediment chemistry, microorganisms,
bacteria and engineering modifications are con-
sidered. Individually and combined, these fea-
tures enable the delineation of areas subject to
degradation and assist in distinguishing between
natural and man-induced processes.
1086. Cant, D. , Walker, R. G. , McMaster Univ. :
Sedimentology of a sandy braided river - the
South Saskatchewan below Outlook, Saskatchewan,
1973-76; Ph. D. thesis (Cant).

To determine the relationships between bar and
channel sedimentary facies, and hence the over-
all facies relationships between in-channel and
vertical accretion in a sandy system.
1087. Carson, M. A. , Clément, P. J. , McGill Univ. and
Univ. Sherbrooke:
Sediment transport in small Appalachian streams,
1969-76.

See Sediment production in a small Appalachian
watershed during spring runoff: the Eaton
basin, 1970-72; Can. J. Earth Sci. , vol. 10,
no. 12, p. 1707-1734, 1973.
1088. Dalrymple, R. W. , Knight, R. J. , Middleton,
G. V. , McMaster Univ. :
Intertidal sand bars, Bay of Fundy, 1971-76;
Ph. D. theses (Dalrymple, Knight).

See Cobequid Bay sedimentology project: a pro-
gress report; Maritime sediments, vol. 8,
p. 45-60, 1972.

Preliminary investigations of an intertidal sand
body, Cobequid Bay, Bay of Fundy; Maritime
Sediments, vol. 9, no. 1, p. 21-28, 1973.
1089. Frey, E. , Univ. Waterloo:
Precambrian clast lithology as provenance indi-
cators in tills of southwestern Ontario, 1973-
74; M.Sc. thesis.
1090. Hein, F. J. , Walker, R. G. , McMaster Univ. :
Sedimentology of braided river gravels, Kicking
Horse River, British Columbia, 1973-74;
M.Sc. thesis (Hein).
- To provide information on facies relationships
between channel and bar gravels, and to act as
the basis for a model of bar formation, evolution
and destruction.
1091. Hesse, R. , Chough, S. K. , McGill Univ. :
Deep-sea sediments of the Labrador Sea,
1973-77.
1092. McDonald, B. C. , Geol. Surv. Can. :
Sedimentology and morphology of eskers, 1966-.

Equilibrium bed forms and sedimentary struc-
tures in coarse glaciofluvial sand, 1971-.
1093. Mothersill, J. S. , Lakehead Univ. :
Sedimentological and geochemical studies of the
sediments of Lake Superior. The Quaternary
stratigraphy of Thunder Bay, Ontario, 1970-74.

See The formation of iron and manganese-rich
layers in the Holocene sediments of Thunder
Bay, Lake Superior; Can. J. Earth Sci. , vol.
10, no. 4, p. 571-576, 1973.
1094. Pelletier, B. R. , Geol. Surv. Can. :
Bottom studies of the Beaufort Sea, 1972-.

Marine science atlas of the Beaufort Sea, 1972-.
1095. Risk, M. J. , Craig, D. , Featherstone, R. ,
McMaster Univ. :
Animal-sediment relationships in the Bay of
Fundy, 1972-75; M.Sc. thesis (Craig).

The Bay of Fundy intertidal supports large
populations of clams, snails, worms and crus-
taceans. Population zonation is strongly sub-
strate - controlled. The organisms produce
characteristic sediment patterns through their
feeding activities, and may, depending on the
population, either stabilize or mobilize the
sediment-water interface.
1096. Rust, B. R. , Koster, E. H. , Univ. Ottawa:
Modern alluvial sedimentation, Donjek valley,
southwestern Yukon, 1969-74; Ph. D. thesis
(Koster).

Hydrology and sedimentology have been investi-
gated in proximal reaches of the glacially-fed
Donjek River, and on a tributary alluvial fan,
Spring Creek (field work is now completed) in an
attempt to correlate the hydrological and cli-
matic records, establish criteria for distin-
guishing sedimentary facies types, and deter-
mine the inter-relationship between the river
and the fan.

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1097. Rust, B. R. , Waslenchuk, D. , Univ. Ottawa:
Bed sediments of the Ottawa River, 1973-76;
M.Sc. thesis (Waslenchuk).

Under investigation are: sediment texture, mineralogy, bedform morphology and migration, and distribution of persistent pollutants (mercury and pesticides).

1098. Smith, L. , Peat, E. , Glen, P. , Queen's Univ. :
Origin and conservation of dune fields and related beaches in southern Ontario, 1972-75.

Essentially urban pressures are responsible for increasingly detrimental effects on the dune fields and their related beaches along the Great Lakes shorelines of southern Ontario and the marine shorelines of eastern New Brunswick and Prince Edward Island.

1099. Sonnenfeld, P. , Univ. Windsor:
Recent dolomites and evaporites, 1971-.

Investigation of replacement processes in recent carbonates.

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