Pembroke-Renfrew

Mineral Resource Assessment

Ontario

Ministry of Natural Resources

Ministry of Treasury and Economics

Government of Canada

Regional Economic Expansion

5102

Introduction

Declining economic activity in the mid-1970's prompted the Ontario Government to formulate a development program centred on the Pembroke-Renfrew area. There were several components to this program, one being the Mineral Resource Assessment. This pamphlet deals with the 4-year program designed by the Ontario Geological Survey to assess the mineral resources of the Pembroke-Renfrew area. The program started in 1976 with a budget of $491,000.

The Pembroke-Renfrew region is part of the Grenville Province of the Canadian Shield, and is characterized by a unique geology favourable to the occurrence of deposits of uranium, base metals (chiefly lead and zinc but also copper, molybdenum and iron), industrial minerals and rocks (dolomite, marble, graphite, abrasive materials), and construction aggregates (sand and gravel). The region was prospected in the late 1800's and early 1900's, and was mapped geologically in a reconnaissance fashion by the Geological Survey of Canada in 1905.

In recent years, however, except for a second reconnaissance geological survey by the Ontario Department of Mines in 1943, and production of graphite at Calabogie and of dolomite at Haley, the area has received little attention. This paradox of high potential, coupled with a low level of exploration activity, is a reflection of the poor quality of the available geoscience data base vis-a-vis present-day technology. This new program of the Ontario Geological Survey was designed to provide not only an up-dated, comprehensive and reliable body of geoscience data but also to generate new concepts on mineralisation in the area.

How is the work financed?

Under the Community and Rural Resources Development Subsidiary Agreement (Phase 1 — Upper Ottawa Valley), the Federal Department of Regional Economic Expansion (DREE) and the Ontario Ministry of Treasury and Economics agreed in 1976 to finance jointly the Pembroke-Renfrew Mineral Resource Assessment, the details of which were planned and executed by the Ontario Geological Survey. Field studies were completed in 1978. Interim reports and maps are currently available with final editions expected to be released in 1981.

What work has been done?

(a) Compilation survey

In a compilation survey, results accumulated over the years are blended together for an up-to-date synthesis. Gaps in previous mapping coverage are filled in, older work is re-examined, and inadequately mapped areas are remapped. The final product is a map (and explanatory report) showing the nature of the underlying rocks, their distribution and relationships. It is well known that ore deposits tend to be related to certain associations of rocks. Areas underlain by favourable rocks can then be selected for closer attention. Localisation of mineralisation within these areas is controlled by folds and/or fractures, and these are presented on compilation maps.

The compilation survey covered the southern part of Renfrew County, and the northern parts of Lennox and Addington, Frontenac, Hastings and Lanark counties. With the selection of favourable areas, closer definition of target areas normally requires more detailed mapping.

(b) Detailed surveys

The area selected for detailed mapping lies in the central portion of Renfrew County. The northern half, designated as the Clontarf area and covering about 250 km^2, was mapped in 1977. The southern half, designated as the Khartum area, was mapped in 1978. These surveys covered all or parts of Grattan, Sebastopol, South Algoma, Griffith, Lyndoch and Brougham townships. The detailed mapping was done at a scale of 1:15 840 (1 inch to 1/4 mile).

(c) Mineral deposit studies

A variety of mineral deposits was studied. The objective was to identify common features such as mineralogy, structural setting and geological environment. Such features are of course, invaluable in the search for new deposits. The study included base and precious metals such as iron, copper, lead, zinc, nickel, gold and silver. The non-metallic industrial minerals investigated were graphite,

garnet, talc, barite, apatite, and marble (which was the subject of a special study). Uranium and thorium were also investigated. In all, about 300 mineral occurrences were examined. The examination of an occurrence involves extensive library research to collect the available information, a visit to the property to map and sample the mineralisation, and preparation of a map and a report to document the results and interpret the data.

What were the results?

The surveys disclosed several areas having potential in industrial minerals, uranium and base metals. They also led to a number of conclusions concerning the relationship of mineralisation to specific geological situations. By locating, cataloguing, describing individual mineral occurrences and mapping areas of mineral concentration, the Ontario Geological Survey has outlined mineral trends and belts and made recommendations concerning the prospection for particular commodities.

How is the information presented?

Results of the geological surveys of the Clontarf and Khartum areas, and Renfrew county are published in individual reports with accompanying maps. Mineral deposit studies are divided into base and precious metals, uranium and thorium, and industrial minerals. Separate reports and maps have been prepared on each of these mineral groups.

The reports and maps produced comprise the following publications: –

Pembroke-Renfrew Publications

Maps:

P. 1560 - Clontarf Area, Southern Ontario. Scale 1:15 840 or 1 inch to 1/4 mile.

P. 1838 - Renfrew Area, Eastern Part, Southern Ontario Scale. 1:63 360 or 1 inch to 1 mile.

P. 1980 - Marbles of the Pembroke-Renfrew Area, Southern Ontario, by M. A. Vos and C. C. Storey. Scale 1:126 720 or 1 inch to 2 miles.

P. 2209 - Industrial Minerals of the Pembroke-Renfrew Area, Southern Ontario. Scale 1:126 720 or 1 inch to 2 miles.

P. 2210 - Radioactive Mineral Deposits of the Pembroke-Renfrew Area, Southern Ontario. Scale 1:126 720 or 1 inch to 2 miles.

P. 2211 - Base metal, Precious metal, Iron and Molybdenum Deposits of the Pembroke-Renfrew Area, Southern Ontario. Scale 1:126 720 or 1 inch to 2 miles.

P. 2240 - Khartum Area, Southern Ontario. Scale 1:15 840 or 1 inch to 1/4 mile.

P. 2355 - Pembroke Area, Western Part, Southern Ontario. Scale 1:63 360 or 1 inch to 1 mile.

P. 2356 - Pembroke Area, Eastern Part, Southern Ontario. Scale 1:63 360 or 1 inch to 1 mile.

P. 2357 - Renfrew Area, Western Part, Southern Ontario. Scale 1:63 360 or 1 inch to 1 mile.

Reports:

M.P. 80 - Marbles of the Pembroke-Renfrew Area, 17 p. Accompanied by Map P. 1980. Scale 1:126 720 or 1 inch to 2 miles.

Report 209 - Geology of the Clontarf Area, Renfrew County by Themistocleous S. G., 1981. 63 p. Accompanied by Map 2433. Scale 1:31 680

Report 211 - Geology of the Khartum Area, Renfrew County by Themistocleous S. G., 1981. 60 p. Accompanied by Map 2454. Scale 1:31 680

Report 212 - Geology of the Renfrew County Area by S. B. Lumbers, 1981. Accompanied by Maps 2459, 2460, 2461, 2462. Scale 1:100 000

MDC 20 - Base Metal, Precious Metal, Iron and Molybdenum Deposits of the Pembroke-Renfrew Area, 192 p. and Preliminary Map P. 2211. Scale 1:12 720 or 1 inch to 2 miles.

MDC 21 - Industrial Minerals of the Pembroke-Renfrew Area, Part 1, Marble, by M. A. Vos and C. C. Storey. Accompanied by Preliminary Map P. 1980. Scale 1 inch to 2 miles.

MDC 22 - Industrial Minerals of the Pembroke-Renfrew Area, Part 2, by M. A. Vos and C. C. Storey. Accompanied by Preliminary Map P. 2210. Scale 1 inch to 2 miles.

MDC 23 - Radioactive Mineral Deposits of the Pembroke-Renfrew Area, by S. L. Masson and J. B. Gordon. Accompanied by Preliminary Map P. 2210. Scale 1 inch to 2 miles.

In addition, summary accounts of the field work have appeared to the Ontario Geological Survey publications M. P. 75 (Summary of Field Work 1977), and M. P. 82 (Summary of Field Work 1978).

Who uses the information?

The more accessible parts of Ontario have been extensively explored and further discoveries are expected to result only from intensive programs concentrated on carefully selected areas. New results and conclusions emanating from an established and reliable source will encourage exploration companies to carry out fresh appraisals of the area. Taken in conjunction with the other factors such as infrastructure, availability of skilled labour, accessibility of markets etc., the new data provides the missing element to identify the Pembroke-Renfrew area as an attractive target region. It is expected that this will lead to exploration programs and, these in turn, to mining operations.

Prospectors also require the new data. They must know not only the locations of likely prospects, but what work has already been accomplished in the area. Even local land-owners would be well advised to examine these maps and reports. They may discover, for example, that their property (or the adjoining one) contains mineral commodities, thus increasing the value of their holdings.

How to use the maps and reports

1) Identify the appropriate map or report using the Index Map provided in this pamphlet
2) Examine the map or report
3) Check the locality to see if a mineral occurrence is marked there
4) Check the report for a description of the occurrence
5) Follow-up by visiting the occurrences and collecting samples
6) If necessary consult the Mines Co-ordinator, Regional or Field Geologist (see below).

As most of the land in the Pembroke-Renfrew area is privately owned, it is necessary to determine ownership for permission to visit mineral occurrences. Ownership of mineral rights is indicated in Township Claim Maps. The maps reveal the disposition of mineral rights for the township by indicating whether claims are held, patented, leased, or staked on open crown land. Ownership of patented or leased land can be determined at the local Registry office. Information concerning ownership of staked claims is available from the office of the Mining Recorder.

Where can information be obtained?

Maps and reports may be purchased from:

Map Unit
Public Service Centre
Queen's Park
Toronto, Ontario
M7A 1W3

Examination of maps and reports and professional advice may be obtained from:

Regional Mines Co-ordinator
South Boundary Road
Kemptville, Ontario (613) 258-3413

Resident Geologist
Metcalf Street
Tweed, Ontario (613) 478-2330

Mineral Resources Co-ordinator
Box 9000
Huntsville, Ontario (705) 789-9611

L'index Cartographique
Echelle 1:1 584 000

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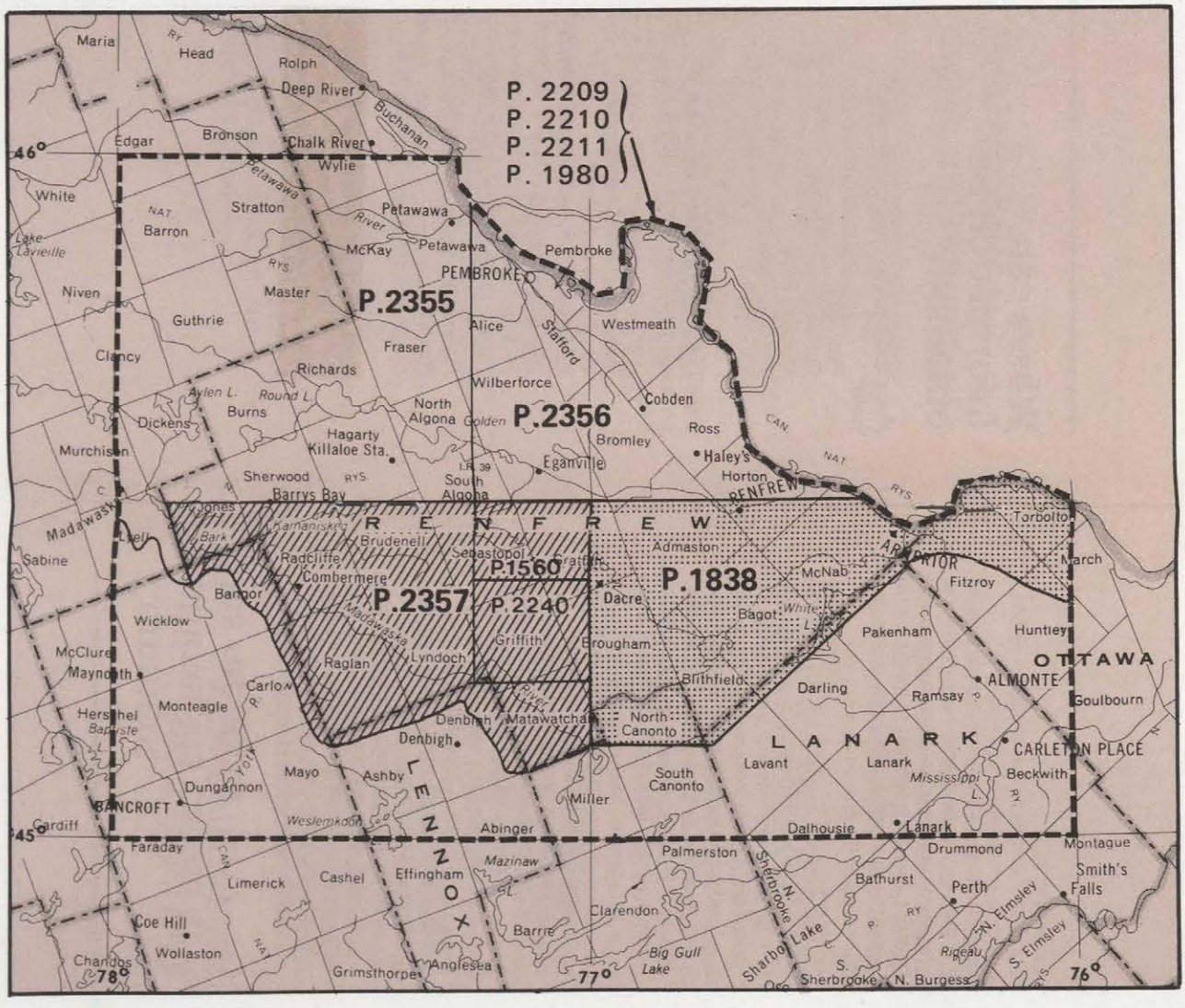

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