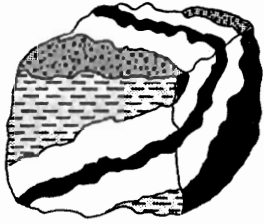


THE OMINOUS



Newsletter of the Mineral Deposits Division

Geological Association of Canada

No. 9

1981

WELCOME TO THE GAC/MAC/CGU CALGARY '81 ANNUAL MEETING!

The Organizing Committee of Calgary '81 has prepared an outstanding program of technical sessions, field trips and special events for the Joint Annual Meeting May 10-13, 1981. Two symposia, three Economic Geology sessions and four field trips are of direct interest to economic geologists and Mineral Deposits Division members. On-site registration starts 12:00 noon Sunday, May 10, at the University of Calgary Dining Centre. Technical sessions run from May 11 through May 13.

The MDD luncheon will be held Wednesday May 13 at the Dining Centre, and will be followed by the MDD Annual Meeting in MacEwan Hall Ballroom at 1:15 p.m. The meeting will feature reports by the outgoing executive on the Division's activities in 1980-81, an address by the incoming Chairman, and provide time for members to raise items of new business from the floor.

The Duncan Derry Medal, together with the Logan and Past-President's Medals, will be presented at the GAC Annual luncheon, May 12 at the Dining Centre. Delegates will have the opportunity to sample Calgary's famous western hospitality at the Annual Dinner May 11 and the Western Barbeque May 12. Get your luncheon and dinner tickets early!

MDD SYMPOSIUM ON CORDILLERAN METALLOGENY AND TECTONICS 'GETS IT ALL TOGETHER!'

For the first time, exponents of new Cordilleran tectonic concepts from Alaska to Mexico have been brought together in one symposium to relate tectonics and metallogenesis throughout the length of the North American Cordillera. Dramatic changes in the interpretation of the tectonic framework of the Cordillera have evolved from application of plate tectonic models in the late 'sixties. Stabilitic concepts of geosynclinal evolution and accretion have been largely abandoned in favour of a mobilistic 'collage' composed of allochthonous terranes of diverse and exotic origin. Symposium organizers Ken Dawson and Jim Monger of the G.S.C. recognized the timeliness of a regional overview of current Cordilleran tectonic theories and the desirability of an integration of the new ideas with restructured metallogenic concepts by bringing together twelve papers by authors who can speak with regional authority on both disciplines.

MDD SYMPOSIUM ON EXPLORATION GUIDES FOR KUROKO-TYPE DEPOSITS: A SUCCESSFUL INTERNATIONAL JOINT RESEARCH PROGRAM

A symposium organized by Steve Scott of the University of Toronto and Hiroshi Ohmoto of Penn State entitled 'New exploration Guides for Kuroko-type Massive Sulphide Deposits' reports on a large and successful joint Canada-Japan-United States research program.

For the past three years a large group of American, Japanese and Canadian geologists, geophysicists and geochemists have been studying in detail the massive copper-lead-zinc-silver sulphide deposits of the Hokuroku district in northern Honshu, Japan, for the purpose of better understanding their genesis and developing new exploration guides. The symposium in Calgary addresses the latter purpose. Interest in the Japanese deposits stems from the fact that these are the "type" volcanogenic massive sulfide deposits for the world and, although of relatively small size, are of considerable interest to us in Canada because many of our massive sulfide deposits are of this well-known or similar type. Examples include Buchans, Bathurst, Noranda, Mattagami, Kidd Creek, Mattabi, South Bay, Flin Flon-Snow Lake and Seneca just to name a few mines and districts. The particular attraction of the Japanese Kuroko deposits is their comparative youth (13 million years) compared to our Canadian deposits and their superb exposure both of which make them ideal for study. The symposium will present some truly new ideas for Canadians and others to consider in exploration even though we have not developed them beyond the research stage. Speakers come from Japan, United States and Canada, and blend a wide range of technical expertise and practical experience.

MDD COMMITTEE ON RESEARCH IN MINERAL DEPOSITS

This is the third article examining the status of Canadian research in mineral deposits (see the "Gangue", nos. 7 and 8). My term as MDD Councillor expires at the May, 1981 GAC Calgary meeting and with it, my term as Chairman, Mineral Deposits Research Committee. This will, therefore, be the last article in the series.

Since the last article was written, an important Canadian Geoscience Council Report, presenting an analytical review of geology and geophysics in Canadian universities, has been published as G.S.C. Paper 80-6, Part 1. The report contains many interesting revelations and recommendations and I commend it to MDD readers. A few examples from the report follow:

1. In a list of speciality fields in the Geological Sciences, listed against average size of NSERC grant for 1979-80, economic geology ranked 22nd out of a list of 26 (p. 88). Average economic geology grant that year was \$10,399. Highest was soil mechanics (\$16,567).
2. Of 25 "highest NSERC awards in geosciences", only two projects had any economic geology component; one was tied for fourth place, the other placed eighth (p. 90). These awards were \$45,457 and \$38,639 respectively. Highest award was \$54,900 for research on fluid flow in the crust as it applies to geothermal gradients.
3. In a questionnaire circulated to 150 exploration and mining companies, asked what areas or topics of research required better quality of work at universities, the most common reply was "economic geology": (p. 74).

A somewhat similar review of the Geological Survey of Canada was published as GSC Paper 79-6. It, however, contained little or no reference to the role of economic geology in that organization.

Article 3: Possible role(s) of MDD in influencing the nature and direction of Canadian mineral deposits research

No response was received following Article 2, perhaps indicating all MDD members except myself are not concerned about the topic in question. Unfortunately, therefore, the following suggestions are entirely my own and not, as hoped, those of concerned MDD members.

I strongly believe that, in spite of not being (nor wishing to be) a research funding body, the MDD, because it contains within it representatives from the three principals involved in mineral deposits research (government, industry, university), has the potential to significantly influence Canadian mineral deposits research. Examples follow in random order:

1. Exchange programs

MDD could seek ways to promote exchange among its members such that they spend some time in each others' institutions. Perhaps through the "Gangue", MDD could find out which companies, universities, and governments would be willing to participate in such an exchange. They could be a year (e.g. a professor spends his sabbatical with a company) or less (a company geologist spends the time-equivalent of a field season at a university or government survey). Such exchanges are important to establish understanding, communication, and, hopefully, joint research. The latter cannot come about until the first two are effected.

2. Industry involvement in research

Several mineral industry companies expressed willingness to sponsor research at Canadian universities (GSC Paper 80-6, Part 1, p. 137). Presumably this could be extended to government as well. Industry sponsorship could take the form of direct grants to university personnel (e.g. the Rio Tinto Canadian Exploration Ltd. program) or as joint research projects (e.g. the GSC-Esso Minerals Joint Research Project). MDD's role here would be to create a forum whereby interested parties could get together (see below).

3. Workshops

MDD could circulate a questionnaire among its members asking for guidance and opinions on the topic of mineral deposits research. This could be followed by a workshop on the same topic at an annual GAC meeting. Forums such as these might help align university and government research efforts with industry's needs. Following a general discussion on the results of the questionnaire, other workshop activities could include:

- (a) a discussion of possible exchange programs with identification of individuals or institutions willing to participate in such programs;
- (b) simple poster displays by companies seeking graduate students to carry out thesis research on company properties. An outline of the problem(s) of concern to the company could be displayed in poster form. Graduate students could then discuss possible lines of approach to the problem with industry representatives. From such discussions industry could select what it considers the best student for the problem at hand;
- (c) an MDD committee could report on the status of Canadian mineral deposits research in

terms of funding, types of research, deposit-types, geographic distribution, etc. Such reviews could serve as early detectors of, for example, under- or over-emphasis of certain deposit-types, unfavourable "fad" trends, new funding sources, etc.

4. Mineral Deposits Research Centre

The last article in this series (Gangue, vol. 8) pointed out that relatively little Canadian effort is being directed toward what was termed "Type I Research" - research which is "problem- or "process-oriented" rather than "deposit-oriented". To effect a better balance to Canadian mineral deposits research efforts, a MDD member is proposing, elsewhere in this issue of the "Gangue", the creation of a Mineral Deposits Research Centre for Canada. With a proper mandate a Mineral Deposits Research Centre could augment the current economic geology research infrastructure in much the same manner as the National Research Council augments Canadian research in biology, chemistry, physics, electrical and mechanical engineering, among others. We are on the threshold of a quantum jump forward in mineral deposits research and a centre such as that proposed may be the vehicle by which this jump is made. The proposal, presently before the MDD Executive, is one of the most obvious and direct ways in which MDD could influence mineral deposits research. How do you want your Division to react to the proposal?

Summary

Unless MDD members are perfectly content with the nature, quality and direction of Canadian mineral deposits research, they should be giving some thought as to how they can improve it. Our members include potential (and practising) research funders, researchers, and users of research results. Cannot MDD serve to somehow organize our common efforts and interests so that we can, to some degree, not leave all research to random choice?

D.F. Sangster
Chairman
MDD Mineral Deposits Research Committee

Geological Survey of Canada
601 Booth Street
OTTAWA, Ontario K1A 0E8

A PROPOSAL TO CREATE A MINERAL DEPOSITS RESEARCH CENTRE FOR CANADA

For several years this MDD member has been deeply concerned that Canadian effort in fundamental research in mineral deposits geology has fallen to a level far below that which is required for the future health of our mineral industry. This low level of effort manifests itself in (a) insufficient funding and (b) a high degree of dispersal across the country. Some would argue that the dispersal approach (i.e. independent) is the best in that the resulting competition sharpens the conceptualizing process necessary for imaginative research. While not totally disagreeing with this approach, I feel that it is unwise to put all our research eggs into a basket of this nature.

Canadian mineral deposits research has traditionally emphasized two main types: 1. compiler and synthesis leading to general deposit-type or metallogenic models; 2. case-history, short term documentation of individual deposits in a small group of deposits. Both these lines of research focus on the deposit(s) as the object of study (i.e. they are deposit-oriented) with the result that very little "problem-oriented" or "process-oriented" research is being done.

A core program of fundamental research is required to study the varied processes leading to formation of mineral deposits and to develop new technology by which to study them. Moreover, the large number and variety of Canadian mineral deposits, together with their relatively easy accessibility (thanks to the Canadian mineral industry) provides an unexcelled opportunity and foundation on which to base a coordinated program of strategic mineral deposits research.

To best fulfill these research requirements and to take maximum advantage of the opportunities, the proposal is herein made to create a Mineral Deposits Research Centre (MDRC) in Canada. The objectives of the research centre would be broadly two-fold:

1. to conduct and promote fundamental geological research on Canadian mineral deposits and the processes by which they are formed;
2. to develop new and improved research methods, techniques and technology as applied to mineral deposits.

The proposed MDRC would align its program of fundamental research, arising from solidly-based field studies, to complement and augment the research infrastructure presently existing in Canada.

To promote the concept of a MDRC for Canada among geoscientists, and to benefit from their comments, a 20-page brochure outlining the MDRC proposal has been prepared and sent to 8 geoscience and mineral institutions and 25 university geology departments. Some of you may have already seen the brochure. The proposal has been generally well received judging by the responses to date (about 12) and several very constructive comments have been received.

Suggestions on how the proposed objectives might be attained, possible activities of the proposed MDRC, types of research to be emphasized, and the means by which MDRC might be funded will be briefly presented at the Monday afternoon Economic Geology session at the GAC Calgary Annual Meeting, May 11, 1981

D.F. Sangster

ANNOUNCEMENTS:

NINTH INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM, SASKATOON, SASKATCHEWAN, CANADA,
May 12-14, 1982

The 9th International Geochemical Exploration Symposium will be co-sponsored by the Association of Exploration Geochemists and Mineral Deposits Division of the Geological Association of Canada. A three day technical session will be devoted to all aspects of exploration geochemistry with emphasis upon energy sources and lithogeochemistry. Field trips to many classic localities in Central Canada and the U.S.A. will take place before and after the meeting: Unconformity-type uranium deposits of Athabaska Basin, northern Saskatchewan; Pine Point PbZn and Yellowknife Au deposits; Precambrian massive sulphides of Flin Flon-Snow Lake area, Thompson Nickel Belt; Stillwater Complex, Saskatchewan potash mines; and Fort McMurray tar sands

CALL FOR PAPERS

Six half-day sessions of papers plus poster sessions are planned. Papers are invited on any aspect of geochemical exploration. One session will be devoted to lithogeochemistry, and two or three to the geochemical exploration for uranium, petroleum, natural gas, coal and geothermal energy. The remaining general sessions will deal with topical and innovative geochemical exploration techniques, particularly those of widespread application.

Potential participants are requested to submit titles (for advance planning) as soon as possible and extended abstracts of about 1000 words no later than November 30, 1981. The abstracts may be supplemented by one page of figures and/or tables. Abstracts will be forwarded to the paper selection committee for their attention. Write to:

Organizing Committee,
9th International Geochemical Exploration
Symposium,
Box 432, Sub P.O. 6,
SASKATOON, Saskatchewan,
S7N 0W0

Acknowledgement:

The Gangue gratefully acknowledges assistance in copying and mailing issues 8 and 9 by Riocanex and Cominco Ltd.