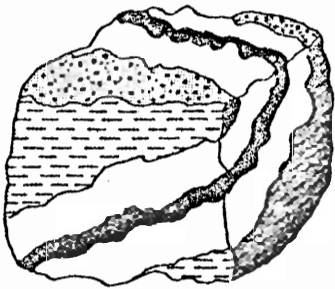


THE GANGUE



Newsletter of the Mineral Deposits Division

Geological Association of Canada

No. 1

July 1979

This inaugural issue of the Mineral Deposits Division newsletter has been circulated to the G.A.C. membership at large both to announce the division's founding and to distribute application forms for new members (page 4). In the future The Gangue will convey items of interest to division members on a continuing, if perhaps informal basis. This edition carries information on the organization of the MDD, its executive and membership as well as its affairs including the sponsorship of field trips, symposia and publications.

We hope that the enthusiastic response by G.A.C. members in support of the division will be expressed by contributions to The Gangue. Any items of general interest to our group of mineral deposits geologists can be sent to the editor at the address below.

Division Executive and Directors

The executive committee is elected annually by vote of the division members; nine directors will be elected to three-year terms with one-third retiring in each calendar year. Although no specific regional or functional representation on the executive is required, officers and directors shall include representatives of government, university and industry as well as national regions and geological sub-disciplines as far as is practical.

Executive Committee

Chairman: H.C. Morris, Cominco, Vancouver
Vice-Chairman: S.D. Scott, University of Toronto
Secretary: V.F. Hollister, Duval, Vancouver
Treasurer: A.J. Sinclair, U.B.C.
Publications Chairman: J.M. Allen, Cominco, Vancouver
Program Chairman: D.F. Sangster, G.S.C., Ottawa

Directors

1979-81: L.A. Clark, SMDC, Saskatoon
J.A. Coope, Newmont, Toronto
~~R.D. Morton, University of Alberta~~
R.R. Potter, NBDNR, Fredricton

1979-80: D.F. Strong, Memorial University
M. Tremblay, consultant, Beaconsfield
R. D. Morton, Univ Alberta
1979: P.M. Kavanagh, Riocanex, Toronto
W.J. McMillan, MEMPR, Victoria
M.J. Vallee, SOQUEM, Ste. Foy

Newsletter Editor: K.M. Dawson, G.S.C., 100 West Pender Street
Vancouver, B.C. V6B 1R8

Chairman's Report, May 24, 1979

The Mineral Deposition Division was officially and properly launched at the Annual Meeting of the G.A.C. at Toronto in October, 1978. At that time the proposed slate of officers was endorsed by the body of the meeting, together with five directors.

The turnout for the founding meeting was most gratifying to the organizing committee. Despite many encouraging remarks from friends and colleagues, we were all somewhat apprehensive that "the day" in Toronto would be an anti-climax. Our thanks to all who came, for your support.

After this bright beginning, it is slightly embarrassing to have to report several delays in getting the division into full stride. The problems have been readily resolved, and indeed, probably are no more than the usual teething troubles but they have been frustrating to your executive, and I am sure must have led some of you to wonder when anything was going to happen!

For example, we were able to get the MDD listed on the 1979 dues statement. However, the first printout listing of the MDD members who had signed up was not available until March! So we have had no mailing list until quite recently.

Now that more systems are in place, you should all be getting a more frequent flow of news and gossip. Ken Dawson from the G.S.C. Vancouver Office has accepted the task of Newsletter Editor and hopes to be reaching you regularly. Please let Ken know of any items of interest, and if you have a comment, opinion or complaint, do not hesitate to send them along.

However, we have managed to get some things done. Firstly - on technical programs. The timing of our birth was such that it was almost too late to do anything relating to the Quebec City Program. In spite of this, some deft and effective co-operation between MDD Program Chairman Don Sangster and Jules Cimon of the Quebec Committee and Rod Kirkham of G.S.C. led to considerable expansion of the scope and content of the porphyry copper session. This should be an excellent collection of papers and may provide us all with some more insight into the origins and limitations of this type of pre-Mesozoic minerals genesis. Unfortunately, we were not able to persuade Jean Chagnon to amend the conflict between this session and the General Economic Geology session.

Hopefully MDD will be on or ahead of schedule for future G.A.C. meetings at Halifax, Winnipeg, Banff and Victoria. Here again, please write in with ideas and interest for symposia, papers, field trips and/or short courses.

We will naturally be working with the Program Committees at each meeting, attempting to set up joint sessions and field trips. At the moment, topics being considered are - at Halifax, a symposium on the mineral deposits of the Maritime Carboniferous basin, and at Banff, a symposium on Recent Developments in the Geological knowledge of Kuroko deposits. In addition, discussions are underway about joint sessions with the Association of Exploration Geochemists at Saskatoon in 1982, with I.A.N.D. in Yellowknife in December, 1979 and possibly with the Prospectors and Developers Association in Toronto in 1980.

Some of the most rewarding of all Geological experience come from field trips. Your executive and directors believe that good mineral deposit field trips are a most desirable aspect of MDD activity. Several have been proposed and we hope to have more definitive suggestions on these in the near future, when we will be inviting your thoughts too.

Probably the toughest task of all is in the publications area. Jim Allen, MDD Publications Chairman has been canvassing thoughts and suggestions on ways to increase the flow of Canadian papers on economic geology and mineral deposits. It is not an easy task. If most of us are honest with ourselves; it has to be admitted that industry geologists tend not to take initiatives in publishing. There are many reasons cited for this - not all of them valid, I suspect, but all perceived as major road-blocks.

Clearly, if we as a fraternity are to see an increase in the number of types of articles we like to read, then we ourselves have to change some procedures and attitudes - both of our own and of those around us.

MDD Membership

Following Hugh Morris' clarion call to organize a division last year, a large and vocal group assembled at Toronto '78, appropriately in the British Columbia Room. Interest focussed upon opinions expressed by unofficial spokesmen for the 'rival' economic geology organizations, the MAC and CIM. The majority concurred, however, with chairman Morris' contention that although overlap existed, each organization represented a coherent group with specific functions within the earth science community.

The enthusiasm apparently carried over to January, when 296 members signed up for the MDD on the dues statement. A geographic breakdown of the membership is:

British Columbia	60	Quebec	22	N.W.T.	4
Alberta	23	New Brunswick	8	U.S.A.	15
Saskatchewan	12	Nova Scotia	6	Australia	3
Manitoba	4	New foundland	2	Others	4
Ontario	130	Yukon	3		

At the May 23rd executive meeting at Quebec '79, Treasurer Al Sinclair announced that a total of 304 members had paid dues to date, giving a balance in the treasury of \$1340.00.

Although it resulted in the largest division or section of the G.A.C., the first mail-out doubtlessly failed to reach many potential MDD members. To join the division, and receive subsequent copies of The Ganguer, fill out and submit the coupon below, along with four dollars, to:

Dr. A.J. Sinclair, Treasurer,
G.A.C. Mineral Deposits Division,
Department of Geological Sciences,
University of British Columbia
Vancouver, B.C. V6T 1W5

Field Trips

Important functions of the MDD will be the organization of field trips to mineral deposits both within Canada and abroad, and the publications of good quality mineral deposit - oriented guidebooks and maps for the trips. The executive encourages members to forward suggestions for field trips and, of course, to volunteer as tour organizers and guides. Suggestions to date have initiated plans for the following proposed trips:

1. B.C. porphyry Cu-Mo deposits: Fall 1979
2. Noranda District massive sulphides: October 1980
3. Selwyn Basin stratiform PbZn: 1981(?)
4. Kuroko deposits, Japan: indefinite

As a member in good standing of the Geological Association of Canada, I enclose \$CAN 4.00 (cheque or money order) in payment of 1979 dues for the Mineral Deposits Division.

Name _____
Address _____
City _____ Province (State) _____
Country _____ Postal Code _____

Please make cheque payable to Geological Association of Canada.

The B.C. porphyry trip is in its early organizational stages, but probably will emphasize current geological exposures in the Highland Valley - Kamloops - Princeton areas. Interested parties should contact W.J. (Bill) McMillan at: B.C. Ministry of Mines and Petroleum Resources, Geological Division, Parliament Buildings, Victoria, B.C. V8V 1X4. Tel. (604) 387-5068.

The Noranda trip, also in its formative period, will feature a new guidebook, published by the MDD, that emphasizes mineral deposits. Those interested should contact Mousseau Tremblay, 74 Charnwood, Beaconsfield, P.Q. H9W 4Y9.

The feasibility of a tour of Selwyn Basin stratiform PbZn deposits is being studied, but final plans won't be made until late 1980.

Steve Scott has examined in some detail the possibility of a Kuroko tour, and feels that complications render the trip unlikely at this time.

In addition to organizing G.A.C. field trips, the MDD will publicize data on other field trips of interest to economic geologists. Program Chairman Don Sangster is compiling and dispensing information on international symposia, and referring people to the field trip organizers. Enquiries on the two symposia below and subsequent items should be directed to Don at: Geological Survey of Canada, 601 Booth Street, Ottawa, Canada K1A 0E8.

IGCP Project 60 - "Correlation of Stratabound Sulphides" (CCSS) Symposium on Caledonian-Appalachian Stratabound Sulphides, Trondheim, Norway

September 2 - 9 Presymposium field trip
September 10 - 12 Symposium
September 13 - 22 Post-symposium field trip

Registration: \$30.00 (U.S.)

Society for Geology Applied to Mineral Deposits (SGA) International Symposium "The European Copper Deposits", Bor, Yugoslavia

September 18 - 22, 1979

Registration: \$50.00 (U.S.)

Publications

One of the principal objectives of the MDD is to encourage publication on Canadian mineral deposits, either in G.A.C. publications or other journals. At the Quebec '79 MDD executive meeting, the disturbing decline in publication of papers on Canadian economic geology was discussed, and the encouragement of geologists and their employers to publish was urged. Ward Neale is seeking good papers to expand the economic geology content of CJES. Similarly Geoscience Canada welcomes mineral deposits papers of general interest.

Publications Chairman Jim Allen has ambitiously undertaken the preparation of a series of mineral deposits model papers to be published in Geoscience Canada over a period of several years. Jim may concede to having received some inspiration from the successful facies models series. Mineral deposit types proposed for treatment in the series are (1) volcanogenic massive sulphides (2) porphyry Cu-Mo (3) shale-hosted PbZn (4) uranium (5) carbonate-hosted PbZn (6) nickel sulphides (7) tungsten skarns (8) gold. Jim would welcome suggestions for other deposit types and suitable authors.

MDD Medal

At the Quebec '79 first annual meeting of the MDD, a motion to strike a divisional medal was carried unanimously. The directors will be empowered to bestow an annual medal upon a geologist for achievement in the science of economic geology. The award, which commences in 1980, will be named after a prominent economic geologist.

In foregoing executive committee discussions, the desirability of a mineral deposits medal was debated. When all pros and cons were considered, two salient points emerged: the two G.A.C. medals have been awarded infrequently to economic geologists; and the Paleontology Division has established a precedent for divisional awards with their Elkanah Billings medal. All agreed that a specific award for the large and active group of economic geologists is both timely and appropriate. A keen competition is anticipated.

Conference Report: SEG Field Conference on Tucson-area Porphyry Copper Deposits

The conference was held April 3 - 6 in and around sunny Tucson by arrangement of the University of Arizona Department of Geosciences, ASARCO Inc., Duval Corp., Minerals Exploration Co. and others. The roster of 198 attendees was predominantly from the southwestern United States, but included 11 Canadian visitors plus several expatriates. A small but keen group who arranged pre-conference tours of Cyprus Pima and Twin Buttes on April 2 were rewarded with good examples of porphyry mineralization in a lithologically diverse and structurally complex setting.

The program started with six informal familiarization lectures, the keynote talk being given by John Guilbert (U of A) on definitions, characteristics, problems and progress in porphyry copper deposits. The conference emphasis on hydrothermal systems and related field and experimental studies was evident in Guilbert's presentation and subsequent papers by Spence Titley, Denis Norton and Richard Beane, all of the University of Arizona. Structure and regional structural control of porphyries, another major topic of the conference, was discussed by Tom Heidrick of Gulf. Stan Keith (Ariz. Bureau of Geol.) related the regional metallogeny of porphyry copper and other deposits to the chemistry and inferred distance from a paleotrench of their associated plutons.

The introductory lectures were followed that evening by an excellent series of papers on the first deposit to be visited, Silver Bell, by the ASARCO staff. The tour of Silver Bell the following morning was well organized, guided and illustrated in the accompanying guidebook. The sawn slabs located at strategic points and referenced in the guidebook were a photographer's delight. Visitors were shown the different alteration assemblages derived from the same hydrothermal fluid acting on a carbonate vs. a granitic host. Late stage sericitic alteration, i.e. 'phyllic overprinting', was well documented, and contrasted to earlier hypogene and later supergene sericitic assemblages.

That evening the Sierrita-Esperanza deposit was well described in a series of papers by University of Arizona and Duval-Sierrita staff. Notable were papers by Richard Preece and Richard Beane on the evolution of alteration minerals at Sierrita by variations in temperature and salinity of the hydrothermal fluid. The tour of the pit the following day again was a model of organization. Visitors were shown alteration and sulphide mineral paragenesis in five types of host rock, and encouraged to map fracture data using a 50 cm - square frame.

The morning after a gala Mexican banquet, a slightly unsteady group worked off the Margaritas on a hot two-mile traverse around the North Silver Bell prospect under the expert guidance of John Guilbert and Steve Davis (ASARCO). This extension of Silver Bell well exemplifies epizonal breccias and the interaction of hypogene and supergene alteration.

The die-hards who signed up for a post-conference tour of the Morenci-Metcalf deposits in eastern Arizona were treated to a large and spectacular example of multiple intrusion and brecciation accompanied by hypogene, and successively, supergene mineralization. Pressed for time on the one-day round trip, the Phelps Dodge staff nevertheless provided a lucid description and interesting tour of the big deposit.

For this Cordilleran geologist who has been inactive in porphyry coppers for several years (who hasn't?) several state-of-the-art aspects were evident at the Tucson conference: the role of phyllic overprinting as a late hypogene, biotite-destructive and possibly sulphide-destructive alteration stage; the emerging importance of late-stage low temperature sulphide deposition; and the necessity of integrating fluid - inclusion geothermometry with studies of alteration and mineralization paragenesis.