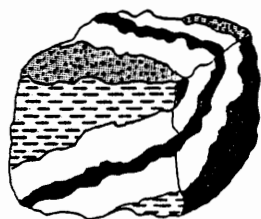


THE ORE MAGAZINE



Newsletter of the Mineral Deposits Division

Geological Association of Canada

No. 10

June 1981

DON SANGSTER WINS 1981 DUNCAN DERRY MEDAL

Donald F. Sangster, well known for his work in base metal deposits with the Geological Survey of Canada, was awarded the 1981 Duncan Derry Medal at Calgary '81 (photo at left). Don has been an active supporter and executive member of the Mineral Deposits Division since its founding, and recently formed a committee to examine the role that the MDD might play in mineral deposits research. The citation, as read by Chairman S.D. Scott at the GAC Luncheon, University of Calgary, May 12, 1981, follows:

Mr. President, Ladies & Gentlemen:

The Duncan R. Derry Medal was established in 1980 as a means of publicly recognizing outstanding contributions to the science of economic geology in Canada. The second recipient is Donald F. Sangster of the Geological Survey of Canada.



Don was born and raised in Sherbrooke, Quebec. He received his first degree in chemistry from nearby Bishops University but somewhere along the line he must have received a divine revelation for he went on to obtain a second Bachelor's and a Master's degree, this time in geology from McGill. Fortunately for geology and ore deposits in particular, Don liked his new career path and went to U.B.C. where he received his Ph.D. for a study of iron skarns on Vancouver Island. His thesis project was supported by the GSC who has been Don's employer ever since.

Don is an economic geologist of the best type who makes perceptive first-hand field observations, interprets his data against a strong background of other geological and geochemical information and follows through with enthusiastic communication of his results. His main interest is in base metal sulphide deposits. Through tireless efforts he has done work on or at least visited just about every copper-lead-zinc sulphide deposit in Canada and a large number in Europe, Japan and Australia, besides. His scientific forte is in broadly-based syntheses that place mineral deposits within the wider spectrum of geological knowledge. As a measure of Don's scientific breadth, he has published key papers on such diverse topics as sulphur isotopes, lead isotopes and, most recently, predictive metallogeny. Don first attracted international attention through his research on relationships between sulphur isotopic compositions in stratabound mineral deposits and ancient sea water. However, his most famous work which is the bible world-wide for massive sulphide deposits is his GSC Paper 72-22 on Precambrian volcanogenic massive sulphides of Canada. In characteristic fashion, Don took it upon himself to write the paper in response to a comment by Academician Smirnov of the U.S.S.R. that, based on the published record, there did not appear to be significant Precambrian massive sulphide deposits in Canada! Don's resulting paper is a review in the best sense of the term, a critically analytical synthesis of facts and inferences that identified key features for a deposit model and pointed the way to further research. As an indication of the impact of his work, Paper 72-22 has been reprinted four times.

Those who know Don have learned to accept and maybe even to appreciate the infectious brand of humour that pervades his science. To give but one example, it was Don who invented the term "mill rock" to describe coarse felsic volcanic breccias that are so commonly associated with volcanogenic massive sulphide deposits. Why mill rock? Because when you are standing on such an outcrop you must be so near to ore that you ought to be able to see or hear a mine mill.

Mr. President, it is my great pleasure to present on behalf of the Mineral Deposits Division of GAC the Duncan R. Derry Medal for outstanding contributions to the science of economic geology in Canada to Donald F. Sangster, a superb scientist, a gentleman and a friend to us all.

REPORT OF THE CHAIRMAN

We have completed our second full year as an organization, a busy year which saw activity on a number of fronts. Our membership exceeds 660 which makes us by far the largest division in GAC, accounting for almost one quarter of the total membership. And we are continuing to grow as more and more of our colleagues realize the benefits of belonging for such little cost. A lot of the initiatives taken in 1978-1980 have now come to fruition, particularly in the area of publications. Too, 1980-81 saw the beginnings of several new projects which will take hold in years to come.

Publications

The June 1980 issue of Geoscience Canada carried the first paper of what will be a continuous series on "Ore Deposits Models" intended for the nonspecialist in ore deposits and fashioned after the highly successful "Facies Models". Jim Allen (COMINCO) was responsible for getting the series going and has now relinquished the task of editing to Gwilym Roberts (University of Waterloo). So far, three papers have appeared: McMillan and Panteleyev on porphyry coppers (June 1980) and the first two of three by Tilsley on uranium (December 1980 and March 1981). Two more papers will appear in the next (June) issue. Gwilym has lined up an interesting group of papers which will carry the series through 1982. Ultimately, a reprint volume is anticipated.

Another publishing venture which has occupied us for about two years is the textbook on ore deposits edited by Alex Brown (Ecole Polytechnique). In contrast to the Geoscience Canada series, this is aimed at specialists in ore deposits and is intended to be the most authoritative such book available. Each chapter will be written by one or more experts within an editorial framework prepared by Alex. This project has recently received the backing of GAC Council and is proceeding with funding from the GAC's Robinson Fund, The Canadian Geological Foundation and MERI.

Guidebooks of highest quality and uniform format to important mining districts in Canada is a new initiative under the leadership of Dave Strong (Memorial University). A draft of our proposal has been discussed with GAC's Editorial Committee to whom we will look for funding. Once negotiations are concluded, we expect that the first guidebook of the lengthy series will be written on the Noranda district by Leopold Gelinis, Jean Lajoie (both of University of Montreal) and a mining company representative. We anticipate a good integration of regional and mine geology in all of the guidebooks.

The GSC is planning to publish a new and much expanded edition of Geology and Economic Minerals of Canada as a contribution to the centennial of the Geological Society of America. Ralph Thorpe who is co-ordinating the mineral deposits section has asked for MDD's help in the area of industrial minerals and we have responded.

The Gangue, under the editorship of Ken Dawson (GSC, Vancouver), continues to inform us of happenings within MDD and other matters of mutual interest. This is your newsletter and you are invited to make use of it to communicate with your colleagues across Canada and, indeed, around the world.

Meetings

Because of the lead time that is necessary to plan and organize major symposia, the Calgary GAC/MAC/CGU meetings was the first one at which symposia were presented that had been originally conceived by MDD. Previously, we had lent our name and help to symposia that had been organized under other auspices. Our 1981 symposia were on "Metallogeny and Tectonics of the North American Cordillera" organized by Ken Dawson and Jim Monger (both GSC Vancouver) and on "New Exploration Guides for Kuroko-type Massive Sulphide Deposits" organized by Steve Scott (University of Toronto) and Hiroshi Ohmoto (Penn State University). Both had a good representation of speakers from outside of Canada and, judging from the attendance and discussions, were very successful. The participation of the Japanese in the latter symposium was supported in part by grants from the GAC's Robinson Fund and the U.S. National Science Foundation. Now that we are in a position of forward planning there is no reason why we cannot have a first class topical symposia at all of our annual meetings.

Our next annual meeting is in Winnipeg May 17-19, 1982. Two symposia are in advanced stages of planning: (1) "Mineral Deposits and Metallogeny of the Proterozoic" under the care of George Gale and Dave McRitchie (both of the Manitoba Minerals Resources Division) and (2) a joint symposium on "Methods for Predictive Metallogeny" being prepared by Geoff Leech (GSC Ottawa) for MDD and Athol Sutherland Brown (B.C. Ministry of Energy, Mines and Petroleum Resources) for the Subcommittee of Provincial Geologists.

Your MDD has also been negotiating participation in joint meetings with other organizations. Next May we will sponsor a session on litho geochemistry being organized by Alan Coope (Newmont) for the Ninth International Geochemical Exploration Symposium of the Association of Exploration Geochemists. The AEG is holding their meeting in Saskatoon a week before the GAC/MAC meeting with the expectation that their large number of foreign participants from all over the world will stay on for our own national meeting. We have also agreed in principle to hold a joint meeting/field trip with the CIM in the Yukon and/or Northwest Territories in 1983. There are lots of exciting meetings coming up for economic geologists.

MAY 17 1982

Duncan R. Derry Medal

Our division's medal is given annually to a person who, in the opinion of a committee of MDD which reviews nominations, has made outstanding contributions to the science of economic geology in Canada. This year's recipient is Don Sangster (GSC Ottawa). The citation is given in the preceding item. The prestige of the medal will be enhanced yearly by the calibre of people who are its recipient. The first two, Tony Naldrett (1980) and Don, have given us an excellent start.

Field Trips

Our Vancouver-based brethren, flushed with the success of their Highland Valley trip in May 1980, ran another very successful trip, this time to the Meager Creek geothermal area (jointly with GAC's Cordilleran Section) led by Bill Mathews (UBC). I took 14 members of the Kuroko Research Group to Noranda and Timmins where with the help of Leopold Gelinis, (Ecole Polytechnique), Dave Watkins (Falconbridge Copper), Ian Atkinson (Noranda), Paul Coad (Texasgulf) and their colleagues, we were indoctrinated on Archean massive sulphides in preparation for our Calgary symposium. The rationale for the trip was explained in an earlier newsletter. It was a highly successful experiment and might be a model for future international symposia. The speakers were far better prepared for a Canadian audience, in some cases were able to slant their talks to specific Canadian needs and handled questions from the floor with greater confidence.

MDD is looking into the possibility of holding ore deposits trips in foreign countries perhaps with the help of various other national societies. Negotiations are presently underway with people in Japan with the intent of ten or so MDD members visiting skarn, gold, Besshi-type and Kuroko deposits there within the next couple of years. The Gangue will keep you informed.

Research

Don Sangster (GSC Ottawa) formed a committee of one looking into the roles that MDD might play in addressing the needs of industry in the area of research on mineral deposits. Could, for example, MDD act as a catalyst to bring researchers and industry together on significant, broad problems? Don prepared two reports for earlier issues of The Gangue and is seeking your comments. On a related matter, Don, as a private citizen, has proposed the creation of a Mineral Deposits Research Centre to which MDD along with several other organizations will make a formal reply.

Sundry Matters

A perpetual complaint of ore deposits people has been the quality and size of meeting space for general sessions and symposia on economic geology which tend to attract very large audiences. Thanks to local organizing committees and GAC Council this problem appears to have been solved.

An oversight in our original constitution has been corrected by balloted vote with the creation of the executive office of Past Chairman. Its first occupant was, however briefly, Hugh Morris (Geomex) who had been MDD's founding Chairman and our representative on GAC Council. MDD is well represented on Council by several new members including Nean Allman (Hudson Bay) who is the new President of our parent organization.

Retirements

Roy Beavon, our hard working Secretary, was forced to resign because of changing employment. The secretary is the glue, so to speak, which holds our organization together so we were all sorry to see Roy go. However, he has been most ably replaced by Ian Paterson (COMINCO). Your directors serve on a rotating term. This year Lloyd Clark (SMDC), Don Sangster (GSC Ottawa) and Mousseau Tremblay (consultant) have retired. We all owe them a vote of thanks for their efforts.

I now retire to the relative obscurity of Past Chairman with a secure feeling that things are in good order in MDD and with full confidence in your new executive. The year has been a busy one but I can honestly say that I have enjoyed the experience. I trust that you will give the same support to your new Chairman Vic Hollister, his officers and directors as you have to me. Remember, this is your division within GAC. Make use of it. Participate.

Steven Scott
Toronto
May 1981

REPORT OF THE INCOMING CHAIRMAN

Mineral Deposits Division Program for 1981-82

The GAC's Mineral Deposits Division has had such a successful program since its organization in 1978 that anything less than a multispectral approach would be a let-down for the membership. This brief summary will introduce the new Chairman and let all members and friends know what our current plans and hopes are for 1981-82.

Actually the new Chairman is known to most of the members as the General Chairman of the Geological Association of Canada's 1977 Annual Meeting. No further introduction is therefore needed.

Field Trips

Field trips to Japan and Mexico have been in the discussion stage for some time. The problem lies in obtaining economic geology expertise in the desired areas of the country to be visited.

Should the problems of lining up field trip guides be solved, the field trips will proceed, and complete data will be forthcoming in The Gangue. However, the prospect of quick action is not bright.

A coal field trip for the fall of 1981 is being investigated at this time. It will be a joint effort of the Edmonton Geological Society and the MDD. Another field trip for the fall of 1981 is also being investigated for gold deposits of southern B.C. This would be a joint effort between the MDD and the Cordilleran Section. The investigation involves permission to trespass as well as arrangements. If either or both trips are feasible, further notices will be found in The Gangue.

Publications

The MDD has various degrees of involvement in a number of forthcoming publications:

1. Steve Scott was successful in involving the Division in the Monograph Series on Ore Deposits edited by Alex Brown. It is called the MERI series for short, and it is anticipated that an explanatory letter will appear in The Gangue authored by Dr. Brown.
2. Steve Scott and R.G. Roberts have also pushed the State-of-the-art papers on ore deposits that are appearing in Geoscience. The Geoscience series will be complete in 1983.
3. Dave Strong is seeking to complete a "Guidebook Series on Canadian Mining Districts". Many important districts are inadequately described. Dr. Strong would appreciate your comments on priorities by area.

Distinguished Lecturer

At the present time inquiries are being made into the feasibility of sponsoring a Distinguished Lecturer in Economic Geology. Should this activity result in establishment of Distinguished Lecturer in Economic Geology, complete details will be available in a forthcoming Gangue.

Symposia

George Gale and Dave McRitchie are organizing symposia for the Winnipeg 1982 GAC Annual Meeting. One is on predictive metallogeny and the other is on mineral deposits and metallogeny of the Proterozoic. Further details on these symposia will be found in future Gangues.

Andre Panteleyev is organizing a symposium on gold deposits of western Canada for the Victoria, 1983, GAC Annual Meeting. Contributors are welcome.

General

Don Sangster has provided the MDD with a proposal to create a Mineral Deposits Research Centre. The MDD executive is supporting Don in this undertaking.

The MDD has had an excellent start under Hugh Morris and Steve Scott. We must maintain the momentum. The members are asked to help in the suggestion and implementation of activities. Please send me your ideas. They will be gratefully received.

V.F. Hollister
Vancouver

REPORT OF THE SECRETARY

At the end of the 1980-81 reporting period the Division had over 675 members as compared with 540 in May 1980.

Three Executive meetings and four 'ad hoc' regional committee meetings were held. Two field trips were convened in the West, one in conjunction with Cordilleran Section.

The 'Gangue' was published in June and October 1980, and in March 1981.

One constitutional amendment was passed by postal ballot, creating a sixth member of the Executive Committee: namely Past Chairman.

The slate of officers proposed for 1981-82 is appended.

The new Secretary of the Division will commence his duties at the Calgary A.G.M.

R.V. Beavon
April 30, 1981

REPORT OF THE TREASURER

Financial Statement Mineral Deposits Division, Geological Association of Canada for Fiscal Year ending December 31, 1980

Cash on hand, January 1, 1980	230.31
1980 Income	
Membership dues, net*	1,131.74
Field Trips	
Highland Valley, net**	800.00
Meager Mt.	<u>805.55</u>
	<u>\$2,967.60</u>



1980 Expenditures		
J.A. Coope	16.00	
Sudden Graphics, Letterhead	293.19	
Meager Mt. field trip	770.00	
The Gangue, mailing charges	116.00	
Bank charges	6.00	<u>\$1,201.19</u>
Cash on hand December 31, 1980		\$1,766.41

A.J. Sinclair, Treasurer
April 30, 1981***

- * Membership dues are net from G.A.C. after final installment to International Mint for medal was paid.
- ** Highland Valley field trip accounting handled independently by W.J. McMillan and net profit forwarded to treasurer.
- *** Expenses exceed income in the interval January 1, 1981 to March 31, 1981 by \$512.14 leaving about \$1,253.27 with no allowance for undeclared expenses.

REPORT OF THE NOMINATING COMMITTEE

Mineral Deposit Division Executive, 1981-82

Executive

Chairman

Victor F. Hollister
6071 Madrona Crescent
Richmond, B.C. V7C 2T3
Off. 604-669-7614
Home 604-274-3527

Past Chairman

Steven D. Scott
Department of Geology
University of Toronto
Toronto, Ontario M5S 1A1
Off. 416-978-5425
Home 416-483-5431

Vice Chairman

J. Alan Coope
Newmont Exploration of Canada
Ste. 2840 Commerce Court West
Toronto, Ontario M5L 1E3

Secretary

Ian A. Paterson
Cominco Ltd.
200 Granville Square
Vancouver, B.C. V6C 2N3
604-682-0611

Treasurer

A.J. Sinclair
Dept. of Geological Sciences
University of British Columbia
Vancouver, B.C. V6T 2B4

Program Chairman

Andre Panteleyev
B.C. Ministry of Energy, Mines and
Petroleum Resources
Parliament Buildings
Victoria, B.C.

Publication Chairman

R.G. Roberts
Dept. of Earth Sciences
University of Waterloo
Waterloo, Ontario N2L 3G1
519-885-1211, Ext. 3379

Newsletter Editor

K.M. Dawson
Geological Survey of Canada
100 West Pender Street
Vancouver, B.C. V6B 1R8
604-666-1260

Directors

J.R. Assad
2016 Timmony Street
Sillery, P.Q. G1T 1K8

A.L. Barker
Lacana Mining Corporation
Box 354, Ste. 3701
Royal Trust Tower
Toronto Dominion Centre
M5K 1K7
416-367-0840

Jules Cimon
Ministere de L'Energie et des
Resources
1620 Boul. de l'Entente
Quebec, P.Q. G1S 4N6

J.M. Franklin
24 Comanche Drive
Ottawa, Ontario
K2E 6E9

J.A. Garnett
Nova Scotia Dept. of Mines and Energy
Joseph Howe Building
1690 Hollis Street, Box 1087
Halifax, Nova Scotia B3J 2X1
902-424-4162

W.D. McRitchie
Mineral Resources Division
Department of Mines
993 Century Street
Winnipeg, Manitoba R3H 0W4
204-633-9543, Ext. 311

R.R. Potter
N.B. Dept. of Natural Resources
P.O. Box 6000
Fredericton, N.B. E3B 5H1
506-453-2206

A.L. Sangster
75 Spruce Drive
Truro, Nova Scotia B2N 4X6

Directors, Retiring 1982

J. Alan Coope
Newmont Exploration of Canada
Ste. 2840 Commerce Court West
Toronto, Ontario M5L 1E3

Jules Cimon
Ministere de L'Energie et des
Resources
1620 Boul. de l'Entente
Quebec, P.Q. G1S 4N6

R.R. Potter
New Brunswick Dept. of Natural Resources
P.O. Box 6000
Fredericton, N.B. E3B 5H1
506-453-2206

Directors, Retiring 1983

A.L. Barker
Lacana Mining Corporation
Box 354, Ste. 3701
Royal Trust Tower
Toronto Dominion Centre
M5K 1K7
416-367-0840

J.A. Garnett
Nova Scotia Dept. of Mines and Energy
Joseph Howe Building
1690 Hollis Street, Box 1087
Halifax, Nova Scotia B3J 2X1
902-424-4162

W.D. McRitchie
Mineral Resources Division
Department of Mines
993 Century Street
Winnipeg, Manitoba R3H 0W4
204-633-9543, Ext. 311

Directors, Retiring 1984

A.L. Sangster
75 Spruce Drive
Truro, Nova Scotia
B2N 4X6

J.M. Franklin
24 Commanche Drive
Ottawa, Ontario
K2E 6E9

J.R. Assad
2016 Timmony Street
Sillery P.Q.
G1T 1K8

Nominating Committee

R.R. Potter, Chairman
New Brunswick Dept. of Natural
Resources
P.O. Box 6000
Fredericton, N.B. E3B 5H1
506-453-2206

K.M. Dawson
Geological Survey of Canada
100 West Pender Street
Vancouver, B.C. V6B 1R8
604-666-1260

Steven D. Scott
Department of Geology
University of Toronto
Toronto, Ontario M5S 1A1
Off. 416-97805425
Home 416-483-5431

CONSTITUTIONAL AMENDMENT: Nomination Procedure

At the Second Annual Meeting of the Mineral Deposits Division of the Geological Association of Canada in Calgary, May 13, 1981, a motion to amend Article IV, Section 4 of the Constitution: 'Nomination of Officers' was introduced by K.M. Dawson and seconded by V.F. Hollister, as follows:

'Given that misunderstandings of the nomination procedure has resulted in missed deadlines in the previous two executive elections;

and that the initial list of nominees may be misinterpreted as an official slate when received by members, and thus tend to discourage rather than encourage subsequent nominations from Division members;

and that the mailing of the initial list of nominees is redundant and an unnecessary expense;

and that an announcement and call for nominations in 'The Ganque' would serve to encourage nominations from the membership before the nominating committee draws up the slate;

be it resolved that: Article IV, Section 4 'Nomination of Officers' which now reads:

'At least sixty days before the Annual Meeting the nominating committee shall mail to members a list of nominations for all elective offices that will become vacant at the time of the Annual Meeting. Any three members may provide additional nominations for one or more of the elective offices by mailing the names together with the names of the nominating members to the Secretary. All nominations that have been legally filed with the Secretary at least forty days before the Annual Meeting shall be mailed to members, together with a ballot, at least twenty-five days before the Annual Meeting',

be amended, in the first sentence only, to read:

'At least sixty days before the Annual Meeting members will receive a call for nominations for all elective offices that will become vacant at the time of the Annual Meeting'.

the rest of Article IV, Section 4 shall remain unchanged.

Chairman S.D. Scott called for a vote and received unanimous approval for the amendment from a quorum of 150 Mineral Deposit Division members present.

Kenneth M. Dawson
May 19, 1981

FIELD TRIP TO B.C. GOLD MINES, OCT. 8-10, 1981

A field trip is now being organized to visit Carolin, Bralorne and Northair gold mines in southwestern British Columbia during October 8 to 10, 1981. Sponsored jointly by the Mineral Deposits Division and Cordilleran Section of the GAC, the trip will cost \$Can. 78.00, payable in advance to field trip organizer:

Robert Hewton
Riocanex
520-800 West Pender Street
Vancouver, B.C. V6C 2V6

Further details will be included in the next Gangue.

MDD-CIM FIELD TRIP TO YUKON MINES, OCT. 12-13, 1981

A field trip involving underground tours of three Yukon and N.W.T. mines will be held prior to the Northern Resources Conference in Whitehorse, October 14, 1981. The field trip is sponsored jointly by the Mineral Deposits Division of the GAC and the CIM, and currently being organized by Dutch Van Tassell. A maximum of 30 participants will fly in two Twin Otter aircraft to the Cantung W skarn deposit, the Tom stratiform PbZnAgBa deposit at Macmillan Pass, and the Howard's Pass stratiform PbZn deposit. Full cost of the trip is \$200.00.

Reservations will be made on a first-come basis to those who forward a deposit of \$100.00 to R.E. Van Tassell, United Keno Hill Mines Ltd., 409 Black St., Whitehorse, Yukon Y1A 2N2.

ANNOUNCEMENTS

MDD Symposium: 'Mineral Deposits and Metallogeny of the Proterozoic' at Winnipeg '82

A symposium on mineral deposits and metallogeny of the Proterozoic sponsored by the Mineral Deposits Division of the GAC and organized by G.H. Gale and W.D. McRitchie will be held during the GAC/MAC meeting in Winnipeg, May 17-19, 1982.

The symposium will examine the mineral deposits and metallogeny of four principal and assorted other regions in Canada underlain by Proterozoic rocks.

The first four sessions will be organized as follows: An invited paper introducing the geology of the region; a number of papers (depending on contributions) on the mineral deposits of the region emphasizing the setting and genesis of the deposits; one or more papers on the metallogeny of the region. A fifth session could provide a forum for contributions on Proterozoic metallogeny of other areas in the world which would facilitate comparisons and contrasts with those in Canada.

The time allocated for oral presentation of papers on regional geology and metallogeny will be 25 minutes. Papers on mineral deposits will be allocated 10, 15 or 20 minutes depending on their scope and the number of contributions received.

The format for the mineral deposit descriptions should include, where possible:

1. Brief statement on regional geology.
2. Nature and form of mineralization present.
3. Geological setting.
4. Geochemistry.
5. Features supporting the proposed genetic model.
6. Problems, if any.
7. Other known examples of this deposit type in the same area.

There are no definite plans for publication of the proceedings of this symposium at this time. If authors indicate a willingness to publish their articles, then we may try for publication as a volume in a journal such as CJES. Where possible, mineral deposit descriptions will be included in the guidebooks for the accompanying field trips.

Sessions:

1. Labrador and Ungava Trough.
2. Northern Manitoba, Saskatchewan and southern district of Keewatin.
3. Southern Province.
4. Cordillera or Grenville Supergroup?
5. Other areas.

(One paper on metallogeny for each area).

Anyone interested in contributing to this symposium or knowing of persons who can contribute should contact the organizer immediately.

Tel: 633-9543 - Ext. 311 (McRitchie)
" " " 190 (Gale)

Manitoba Department of Mines
993 Century Street
Winnipeg, Man. R3H 0W4

May 1981

GOLD '82 at Salisbury Zimbabwe, May 24-28, 1982

A symposium devoted to the geology, geochemistry and genesis of gold deposits to be held at the University of Zimbabwe with field excursions before and after, organized by the Geological Society of Zimbabwe with the support of the Geology, Metallurgy and Mining Sub-Committee of the Scientific Council of Zimbabwe.

The symposium is to be divided into the following five sections, although additional ones will be created where necessary: (1) abundance and distribution of gold in crustal rocks; (2) transport of gold in hydrothermal solutions; (3) stratabound gold deposits; (4) non-stratabound gold deposits; (5) exploration for gold deposits.

Abstracts to be submitted by Dec. 1, 1981. For the second circular contact, before July 31, '81: The Organizing Secretary, GOLD 82, Institute of Mining Research, PO Box MP 167, Mount Pleasant, Salisbury Zimbabwe.

Seminar: 'Geostatistics and Decision-Making in the Mining Industry' at Toronto Sept. 23-25, '81

The seminar, sponsored by David S. Robertson and Associates Ltd. and given by Professor A.G. Journel of Stanford University is designed for executives and managers in mining who wish to learn the benefits of geostatistics and how to apply it to their own projects as a decision-making tool.

The seminar will be held at the Chelsea Inn, 23 Gerrard St. West, Toronto. Cost is \$Can 575.00 or \$US 485.00. Registration is limited to 50 persons, and should be submitted by Aug. 1, 1981. For further information write: Prof. A.G. Journel, Dept. of Applied Earth Sciences, Mitchell Bldg., Stanford University, Stanford, California, 94305. Tel. (415) 497-0847.

Centre for Precambrian Studies: 1980 Annual Report

The 1980 Annual Report of the University of Manitoba Centre for Precambrian Studies is now available. Send \$3.00 per copy to:

Mr. M.R. Keys, Executive Secretary, Centre for Precambrian Studies, Department of Earth Sciences, University of Manitoba, Winnipeg, Manitoba R3T 2N2

TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Structure and aims of the Centre for Precambrian Studies	1
Geophysics Research Group - Papers No. 1 to 11:	
1. Detailed interpretation of Co-Crust 1977 refraction data-W. Moon and W. de Dandro	6
2. Co-Crust 1979 data - W. Moon and B. Mattock	11
3. Red Lake seismic project-B. Maxwell, J. Wenham, D.H. Hall, W. Moon (University of Manitoba); R. Barlow (Ontario Geological Survey)	12
4. Theoretical seismology - W. Moon and K. McLachlan	13
5. Reflection seismology in Precambrian terrain - W. Moon	13
6. Geodynamics - W. Moon	14
7. Interpretation of aeromagnetic surveys over the Nigerian Precambrian shield - D.E. Ajakaiye, T. Millar and D.H. Hall	15
8. Deep electromagnetic sounding using power lines - R. Vohra, D.H. Hall, L. Shafai, O. Abu-Atta and D. Woodbord	15
9. Interpretation of an aeromagnetic survey in the vicinity of Lynn Lake, Manitoba - D.H. Hall, T. Millar, W. Rose and D. Messfin	17
10. Surface magnetic properties in the English River subprovince of the Superior Province in the Canadian shield - D.H. Hall and S. Kahn	17
11. Aeromagnetic and MAGSAT interpretation-D.H. Hall, T. Millar and I. Noble	21
12. Rubidium-strontium geochronology of the major tectonic domains in the Churchill structural province, northern Manitoba, a preliminary report - G.S. Clark	22
13. Volcanology research - L.D. Ayres	29
14. Preliminary stratigraphic investigation of the upper felsic-intermediate component of the Early Proterozoic Amisk group, Amisk Lake, Saskatchewan-L.D. Ayres	36
15. An example of a volcanic subaerial and surf environment in the Middle Precambrian Amisk group at Amisk Lake, Saskatchewan - a progress report - W.S. Ferreira	47
16. Structural studies of bulk strain in the Winnetka Lake stock, Superior Province - W.C. Brisbin	60
17. Pegmatite studies - P. Cerny	63
18. Stratigraphy, structure and metamorphic petrology of the Archean greenstone belt at Bird River, Manitoba - D.L. Tureman	74
Publications of Centre for Precambrian Studies, University of Manitoba	76
M.Sc. theses completed 1980	81
Ph.D. theses completed 1980	81
M.Sc. theses in progress 1981	81
Ph.D. theses in progress 1981	82

Acknowledgment: 'The Ganque' gratefully acknowledges the help of Geomex Ltd. in copying and mailing this issue.