



THE ASSOCIATION OF EXPLORATION GEOCHEMISTS

P.O. Box 523, (Metropolitan Toronto), Rexdale, Ontario, M9W 5L4 Canada

NEWSLETTER

NO. 53

October 1985

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A.J. Bjorklund

PERSONAL COLUMN

Information on Association Members is received from around the world. To keep your fellow members informed of your latest moves, send a brief summary to the Rexdale office and please indicate that this information is intended for the Newsletter.

Lynda Bloom has left Getty Mines and has joined X-Ray Assay Laboratories Ltd., Toronto as technical representative for the company. She may be contacted at X-Ray Assay Laboratories Ltd., 1885 Leslie Street, Don Mills, Toronto, Ontario, Canada M3B 3J4.

A MESSAGE FROM THE PRESIDENT

A glance through the last newsletter revealed just how vigorous our Association has become and how international in its activities. During 1986 members will be gathering together at regional meetings in Canada, Greece, South Africa and China. The international status of our Association is one of its strongest and most satisfying characteristics.

The time of year has arrived when the request for membership dues goes out. Payment of these dues is very difficult for some of our members. The world economy has floundered over the last few years and a number of countries have become financially isolated in the sense that residents of these countries cannot obtain dollars, pounds or other hard currencies with which to pay their dues. How to help these members stay within the Association is something that Council has been discussing.

In a limited number of instances members in North America, including myself have been paying the dues of friends and acquaintances in other countries that cannot obtain hard currency. In return we have received books and periodicals, purchased in the local currency by the friend or acquaintance, of a value equal to the AEG membership dues. I have developed quite a good international library in this way.

This is an ad hoc and entirely personal relationship which could be extended if other individuals are prepared to become involved. I would like to hear from people willing to participate in such a scheme and from anyone with comments or further suggestions on how this problem may be handled.

Ian Thomson

09:24:85

ADMISSIONS COMMITTEE REPORT

Names of the following candidates have been recommended by the Admissions Committee and have been approved by Council. According to the Association's by-laws the names of candidates are to be published for consideration by the membership. If you wish to comment on any candidate, please do so in writing to the secretary within 60 days.

VOTING MEMBERS

Beaumier, M.	Geochemist, Quebec Government, Ste-Foy, Quebec, Canada
Hosking, A.J.	Assistant Director, Northern Territory Geological Survey, Nakard, N.T. Australia
Magnusson, J.A.	Exploration Geochemist, Swedish Geological Co., Lulea, Sweden
Odegard, M.	Spectrochemist, Geological Survey of Norway, Trondheim, Norway
Ottesen, R.T.	Section Leader (Geochemistry), Geological Survey of Norway, Trondheim, Norway
Porritt, J. (transfer)	Exploration Geologist, Noranda Explorations, Noranda, Quebec, Canada
Prasad, E.A.V. (transfer)	Professor of Geology, Sri Venkateswara University, Tirupati, India

AFFILIATE MEMBERS

Finne, T.E.	Research Fellow, Norwegian Cancer Society, Trondheim, Norway
Nielsen, F.W.	Exploration Geologist, Geophysics G.P.R. International Inc., Gweru, Zimbabwe
Pirie, I.D.	Project Geologist, Falconbridge Copper, Delta, British Columbia, Canada

STUDENT MEMBERS

Cammarata, T.J.	M.Sc. student, Eastern Washington University, Spokane, WA., U.S.A.
Petersen, L.R.	Dept. of Geology, University of Copenhagen, Denmark

CALENDAR OF COMING EVENTS

The following calendar of forthcoming Symposia and Meetings on Topics directly or indirectly related to exploration geochemistry has been compiled to aid members in planning for these events. If you are aware of any meetings not listed in the Calendar please write the Association's office with information.

October 6 - 10, 1985

SOCIETY OF EXPLORATION GEOPHYSICISTS (5th Annual Meeting, Washington, D.C., U.S.A. Convention Assistant, SEG, P.O. Box 3098, Tulsa, OK. 74101 U.S.A.)

October 9 - 12, 1985

6TH LATIN AMERICAN GEOLOGICAL CONGRESS, Bogota, Colombia (Executive Committee, 6th LAGC, Diagonal 53, No. 34-53, Bogota, D.E. Colombia)

October 28 - 31, 1985

GEOLOGICAL SOCIETY OF AMERICA (Annual Meeting), Orlando, Fla., U.S.A. (S.S. Beggs, GSA, P.O. Box 9140, 330 Penrose Place, Boulder, CO. 80301, U.S.A.)

November, 1985

PETROLEUM GEOCHEMISTRY AND EXPLORATION IN AFRO-ASIAN REGION, Dehradun, India (Kuldeep Chandra, KDM Institute of Petroleum Exploration, Oil and Natural Gas Commission, 9, Kaulagash Road, Dehradun - 248195, India)

1986

January 14 - 15, 1986

COMPUTER APPLICATION IN MINERAL EXPLORATION (CAME '86) Toronto, Canada. (See Newsletter for further details)

March 5, 1986

SME-AIME Annual Meeting. (See Newsletter for details.)

March 20 - 21, 1986

FRONTIERS IN GEOLOGY AND ORE DEPOSITS OF ARIZONA AND THE SOUTHWEST, Tuscon, Arizona. (University of Arizona, Conference Department, 1717 E. Speedway Blvd., Room 3201, Tuscon, Arizona 85719, U.S.A. 602-621-1232)

May 12 - 14, 1986

REGIONAL MEETING OF THE ASSOCIATION OF EXPLORATION GEOCHEMISTS - EXPLORATION IN THE NORTH AMERICAN CORDILLERA. Vancouver, British Columbia, Canada. (See Newsletter for further details.)

May 17 - 19, 1986

SYMPOSIUM ON SEDIMENT HOSTED STRATIFORM COPPER DEPOSITS, Ottawa, Canada. (See Newsletter for further details)

July 7 - 11, 1986

REGIONAL MEETING OF THE ASSOCIATION OF EXPLORATION GEOCHEMISTS - GEOLOGICAL SOCIETY OF SOUTH AFRICA GEOCONGRESS. (The Symposium Secretariat, S. 339, CSIR, P.O. Box 395, Pretoria, Republic of South Africa 0001)

August 4 - 8, 1986

THIRD INTERNATIONAL HUMIC SUBSTANCES SOCIETY (IHSS) MEETING, Oslo, Norway. (See Newsletter for further details.)

August 11 - 15, 1986

FOURTH INTERNATIONAL KIMBERLITE CONFERENCE, PERTH, WESTERN AUSTRALIA. (J.D. Lewis - Secretary, 4th IKC, Geological Survey of Australia, Mineral House, 66 Adelaide Terrace, Perth, W.A. 6000)

September 1 - 5, 1986

PROSPECTING IN AREAS OF GLACIATED TERRAIN, 1986, Kuopio, Finland (Institution of Mining and Metallurgy, 44 Portland Place, London W1N 4BR, England)

September 8 - 10, 1986

SYMPOSIUM ON INNOVATIVE DIRECTIONS IN PETROLEUM EXPLORATION. (See Newsletter for further details.)

September 29 - October 1, 1986

GOLD '86 (International Symposium), Toronto, Canada. (E. Craigie, Selco Division of BP Resources, Canada. 55 University Avenue, Suite 1700, Toronto, Ontario, Canada M5J 2H7)

October, 1986

3rd EXPLORATION GEOCHEMISTRY SYMPOSIUM, Guilin, China. (See Newsletter for further details.)

November 10 - 11, 1986

INTERNATIONAL SOUTH EUROPEAN SYMPOSIUM IN EXPLORATION GEOCHEMISTRY, Athens, Greece. (See Newsletter for further details)

1987

April 23 - 26, 1987

12th INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM - 4th SYMPOSIUM ON METHODS OF GEOCHEMICAL PROSPECTING, Orlean La Source, France. (The Organizing Committee, 12 IGES - 4th SMGP, BRGM B.P. 6009, 45060 Orleans Cedex, France, tel. 38 64.30.08)

**REGIONAL MEETING OF THE ASSOCIATION OF EXPLORATION GEOCHEMISTS -
EXPLORATION IN THE NORTH AMERICAN CORDILLERA,
Vancouver, B.C., Canada May 12 - 14, 1986**

SECOND CALL FOR PAPERS

The theme of this meeting is Geochemical Exploration for Cordilleran Mineral Deposits.

From Mexico to Alaska the American Cordillera presents a wide variety of mineral deposit types, geological settings, topographic and climatic variations that challenge the exploration skills of those who would find mines. Geochemical exploration techniques have played, and will continue to play a significant role in mine finding in the Cordillera.

The Association of Exploration Geochemists and the Cordilleran Section of the Geological Association of Canada, co-sponsors of the Symposium invite papers for oral presentation and/or poster sessions which deal with:

- integrated exploration case histories, successful or otherwise
- The impact of the varied physical environments of the Cordillera on the application of geochemical techniques
- Geochemistry of mineral deposit and their genesis
- Advances in current techniques, sampling analytical and interpretive
- New frontiers - vapor, multi element and bio-assay geochemistry techniques

Extended abstracts of proposed papers of up to 500 words should be sent, before November 5, 1985 to:

GEOEXPO/86 Regional Symposium Association
700 - 409 Granville Street
Vancouver, British Columbia, Canada
V6T 1T2

It is expected that complete manuscripts submitted by June 15, 1986 will be published in the Symposium Volume.

**THIRD INTERNATIONAL IHSS MEETING
Oslo, Norway - August 4 - 8, 1986**

The Third International Humic Substances Society (IHSS) meeting has been rescheduled for Oslo, Norway, August 4-8, 1986. The three main topics of the meeting are:

- * Marine Humic Substances
- * Biochemical - Biological Aspects of Humic Substances
- * Practical Applications of Basic Research on Humic Substances

Contact:

Dr. Egil Gjessing
Norwegian Institute for Water Research or
P.O. Box 333, Blindern
N-Blindern Oslo 3, Norway
Telephone: (472) 23 52 80

Wesley L. Campbell
U.S. Geological Survey-WRD
5293 Ward Road
Arvada, CO 80002 U.S.A.
Telephone: (303) 236-3615

BULK MINEABLE PRECIOUS METAL DEPOSITS
OF THE WESTERN UNITED STATES
Symposium: April 6 - 8, 1987

CALL FOR PAPERS

The Geological Society of Nevada is calling for the submission of abstracts for an international symposium on ore deposits. The abstracts submitted should represent high quality, scientific papers that deal with one or more of the following aspects of Bulk Mineable Precious Metal deposits: descriptive geology and mineralogy, exploration techniques, genetic models, successful exploration and development scenarios and advances in extraction and recovery techniques. Although the emphasis of the symposium and bound volume will be deposits of the Western United States, papers describing bulk mineable precious metal deposits around the world are invited.

Abstract deadline: **December 1, 1985**. For more information write: Geological Society of Nevada, Symposium Committee, P.O. Box 70218, Reno, Nevada, U.S.A. 89570-0218.

INTERNATIONAL SOUTH EUROPEAN SYMPOSIUM IN EXPLORATION GEOCHEMISTRY
Athens, Greece, November 10-11, 1986

The Institute of Geology and Mineral Exploration (Greece) and the Association of Exploration Geochemists is sponsoring the International South European Symposium in Exploration Geochemistry. This Symposium will be held in Athens, Greece, from November 10-11, 1986. The program includes two days of technical sessions (general and special sessions, poster presentations and exhibitions), field trips and program for guests and spouses.

Registration and welcoming reception on November 9, 1986

For information and registration forms write to:

Organizing Committee
International South European Symposium in Exploration Geochemistry
Institute of Geology and Mineral Exploration
70 Messoghion Street
115 27 Athens, Greece
Telex: 021 6357 IGME GR

COMPUTER APPLICATIONS IN MINERAL EXPLORATION
CAME '86 - BYTING THE ROCKS

The sponsoring societies of Computer Applications in Mineral Exploration invite your participation in the second CAME Conference and Exhibition to be held on January 14 and 15, 1986, at the Sheraton Centre, Toronto.

The objectives of CAME '86 are the same as those of the very successful 1984 conference - to familiarize everyone involved in the mineral exploration industry with all the various computer services and facilities that are available to them. This second conference and exhibition is intended to bring the user up to date with developments in this rapidly changing area, and one with increasing influence in all aspects of exploration.

The exhibition will present displays and hands on demonstrations, as well as special classroom style sessions in oversize booths. The formal **Presentations** will be given in the immediately adjacent theatre. These systems will emphasize practical experience gained by users of currently available systems, as well as recent developments by service organizations and manufacturers. The **Expanded Abstracts** of the presentations will be published in a special volume to be included in the registration fee. Some of the areas in which presentations, poster-displays and exhibits are invited include:

- | | |
|--|---|
| -bibliographical and reference data bases | -mineral deposit files |
| -data gathering and interpretation in the field | -drill core logging and presentation |
| -integration of analytical results with field data | -graphical data presentation, mapping, 3-D models |
| -statistical interpretation, geostatistics | -claims and property maintenance |
| -processing of remotely sensed data | -data integration through digital image analysis |
| -financial and risk analysis | -artificial intelligence and expert systems |
| -ore reserve compilations, ore deposit models | -preliminary mine layout for feasibility studies |

A special accommodation discount will be available at the Sheraton Centre. Further information on CAME '86 will be distributed in the newsletters and journals of the sponsoring societies. Potential speakers are invited to submit an outline of their presentation for consideration by the Program Committee, as soon as possible. Final expanded abstracts (1000 to 2000 words) will be required by October 31, 1985. Further information can be obtained from:

Program

Grant Troop
Ontario Geological Survey
77 Grenville Street
Toronto, Ontario
M5S 1B3

Exhibition

Dave Jones
MPH Consulting Limited
120 Adelaide St. W., Ste. 2406
Toronto, Ontario
M5H 1T1

Registration

Terence Bottrill
Bottrill Geological Services
192 Weldon Avenue
Oakville, Ontario
L6K 2H8

1986 SME-AIME ANNUAL MEETING, NEW ORLEANS, LOUISIANA
GEOCHEMICAL SESSION: March 5, 1986

"Lithogeochemical methods of exploration for Volcanogenic Massive Sulfides"

Session Chairman: S. Clark Smith
P.O. Box 18325
Reno, Nevada 89701
Tel: (702) 849-2235

The Geochemistry Session will be a half day of papers dealing with volcanogenic massive sulfide systems and the key geochemical signatures

that can be used during exploration to identify and locate them. There will be some discussion on the occurrence of gold and the relationships to the ore forming processes. This session follows two days of papers on VMS of North America and South America sponsored by the SEG.

**A SYMPOSIUM ON
SEDIMENT-HOSTED STRATIFORM COPPER DEPOSITS
OTTAWA, CANADA
MAY 17 - 19, 1986**

The Mineral Deposits Division of the Geological Association of Canada and the Mineralogical Association of Canada are organizing an international **Symposium on Sediment-Hosted, Stratiform Copper Deposits** as part of the Geological Association of Canada - Mineralogical Association of Canada - Canadian Geophysical Union Annual Meeting, Ottawa, 1986.

Sediment-hosted stratiform copper deposits have been the subject of considerable research in several parts of the world and new concepts and hypotheses have been developed.

TECHNICAL AND POSTER SESSIONS

The **technical program** will include presentations on deposits in the Lubin district of Poland, the Zambian and Zairian Copperbelts, the North American Redstone, Spar Lake and White Pine districts and possibly important deposits in the Soviet Union, China and Australia. Additional talks will be given on tectonic settings, age relationships, sediment diagenesis, basinal fluid geochemistry and migration and ore genesis.

A series of **poster displays** is being planned as an integral part of the symposium.

A prominent objective of the meeting will be to identify features and criteria of the sedimentary copper environment of significance in mineral exploration.

FIELD TRIPS

An excursion to the Michigan Copper District and the Spar Lake area of North America will be arranged prior to the meeting (May 10-16, 1986). In addition, initial planning is underway for a post-symposium 7-10 day field visit to West German and Polish field areas with mine visits in Poland (commencing May 23, 1986). Visits to core libraries in West Germany and to government offices in Poland will be part of this trip.

LOCATION AND DATE

The Symposium is being organized as part of the Geological Association of Canada - Mineralogical Association of Canada - Canadian Geophysical Union 1986 annual meeting in Ottawa. Registration for the symposium will commence on the evening of Friday, May 16, 1986 and the technical and poster sessions will end at noon on Monday, May 19, 1986. Poster displays will be open throughout the symposium. Delegates will register for both the symposium and the GAC-MAC-CGU Annual Meeting.

The technical program of the Annual Meeting will begin on Monday, May 19, 1986 and end on Wednesday, May 21, 1986 partially overlapping and continuing after the symposium.

FURTHER INFORMATION

Prospective authors, exhibitors and delegates should write to the following address requesting further information: -

Sediment Hosted Stratiform Copper Deposits"
c/o Professor A.J. Naldrett
Department of Geology
University of Toronto
Toronto, Ontario
Canada M5S 1A1

CALL FOR PAPERS

Although invited speakers will address the symposium, unsolicited papers will constitute a major part of the program. The Organizing Committee encourages the submittal of abstracts of quality papers on the symposium theme and closely related topics.

Titles of proposed papers should be submitted prior to June 30, 1985. The receipt of abstracts deadline is October 15, 1985.

PUBLICATIONS

A volume containing both invited and unsolicited presentations will be published as soon as possible after the symposium. All authors will be required to submit final manuscripts at the time of the symposium.

THIRD EXPLORATION GEOCHEMISTRY SYMPOSIUM, GUILIN, CHINA, October, 1986

FIRST CIRCULAR

Full details of the 3rd Exploration Geochemistry of China sponsored jointly by the Commission of Exploration Geochemistry of the Geological Society of China, the Society of Metals of China and the Society of Nonferrous Metals of China are given in a first Circular enclosed with this Newsletter. The number of delegates attending this meeting will be limited and will be selected on a "first come - first served basis". Members interested in attending the Symposium should respond to the first Circular as soon as possible.

**SYMPOSIUM ON INNOVATIVE DIRECTIONS
IN PETROLEUM EXPLORATION**
8 - 10 September 1986, London, U.K.

CALL FOR PAPERS

The Symposium is presented by the Institute for the Study of Earth and Man at Southern Methodist University, Dallas, and is co-sponsored by the Department of Geology, Imperial College, London. It will present state of the art technologies and their applications to hydrocarbon exploration, with particular emphasis being given not only to innovation but also to integrated approaches. All aspects of geophysics, geochemistry, geobotany, remote sensing and fluid migration will be considered for inclusion, but traditional seismic papers are unlikely to be accepted. Papers dealing with case histories as well as those of a more theoretical nature are welcome. Papers are to be presented in English and a Proceedings volume with the full text of each paper will be published following the Symposium. An Exhibition/poster area will be provided.

Extended abstracts of around 1,000 words should be submitted before October, 1985 to:

Ian Williamson
Department of Geology
Imperial College
London SW7 2BP, U.K.

Those interested in attending the Symposium but not in presenting a paper should contact ISEM/SMU, Box 274, Dallas, Texas 75275, U.S.A., attention N. Blanchard (from North America), or Conference Co-ordinates, 70 Richmond Road, Middlesex TW1 3BE, U.K. (elsewhere).

FROM THE SECRETARY'S OFFICE

There are a number of important items of information in this Newsletter to which I would draw your attention. Firstly, the 1986 Membership Dues Notice is enclosed and I would urge you to renew your dues **as soon as possible** before January 1, 1986. In particular, this request applies to those members who have still not paid their 1985 dues. Remember that members who are in arrears with 1985 dues by January 1, 1986 will no longer receive the Newsletter and Journal. All dues payments must be made in United States currency **only** and I would suggest that Canadian members employ a U.S. dollar money order to avoid bank charges on cheques written in U.S. dollars. If you have any doubts discuss the best method of payment with your bank. The second item concerns nominations of Ordinary Councillors to serve during the 1986-88 term. During the Annual General Meeting at GEOEXPO '86 in Vancouver the new Executive will be introduced and Ordinary Councillors for the 1986-88 term will be elected. Candidates for Council may be nominated by either a Council Resolution or by a written nomination from **six voting members** submitted to the Secretary by November 1, 1985. A nomination form is included with the Newsletter and although time is limited before the deadline I would ask members to give serious thought to completing a nomination for Councillor. Thirdly you will see that there is an announcement for the schedule of the 1985-86 Distinguished Lecturer tour to be given by the Association's Distinguished Lecturer, Dr. Ian Nichol.

Finally an item concerning the recent 11th International Geochemical Exploration Symposium. Although this meeting was undoubtedly a technical success, overall attendance was disappointing. Of the 371 delegates less than 50% were AEG members and of this group more than 50% were from Canada. Undoubtedly the poor economic climate is a contributing factor to the low attendance, but the figures raise a number of fundamental questions concerning future International Meetings sponsored by the Association.

1. Are registration costs too high?
2. Should there be greater emphasis on workshops as opposed to technical sessions?
3. Are geochemists interested in the type of field trips typically offered at International Meetings? What alternative field trips could be offered?
4. Is advertising for International Meetings sufficient to attract non-AEG members?
5. Are International Meetings held in conjunction with other organizations more effective?

We would welcome comments from members on these questions and any other relevant factors of International Meetings.

COMPUTER SOFTWARE PROGRAM POOL

The Association of Exploration Geochemists has formed a computer program software pool for geochemical and geological applications. This allows Association members to share existing software and avoid duplicating the work of writing programs that other have already done. In order to make this pool a success, we would like to get contributions from members. If each member can submit one program then we can be well on our way to establishing a sizable pool.

Initially, a list of programs with a brief description of each new program will be published with each newsletter. A catalogue of all programs will be maintained by the AEG and will be made available on request.

Contributions can be in any programming language and for any computer; however, we would like to have the following rules observed.

- For each program:
- Source listing with internal documentation
 - The type of machine the program was written for
 - A list of peripheral devices required
 - User documentation

Observing these rules will assist any user in obtaining maximum benefits and assist in troubleshooting.

The Association of Exploration Geochemists or anyone else affiliated with the authorship or distributing of the computer programs assumes no responsibility for any problems or errors that arise from the use of any of the programs. All users assume use of the programs entirely at their own risk.

Programs Currently Available (Contributed by the Ontario Geological Survey)-

TERNARY PLOTTING PACKAGE	\$12.00
BINARY PLOTTING PACKAGE	12.00
IRVBAR	6.00
JENSEN	6.00
JENBND	6.00
STRNET	6.00

Please note that all orders for software should be made to

The Association of Exploration Geochemists
P. O. Box 523
Rexdale, Ontario, Canada
M9W 5L4

For further information, requests, submissions, contact:

Eric Grunsky
Ontario Geological Survey
911 - 77 Grenville Street
Toronto, Ontario, Canada
M5S 1B3
Telephone: 416-965-7046

STUDENT PAPER COMPETITION - 1985

The Association of Exploration Geochemists will hold its second annual Student Paper Competition in 1985. Papers eligible for the competition must have been published in a refereed scientific journal within the last five years **and** less than five years since the graduation of the student author. Multiple authors are allowed, although the student must be the senior author. Deadline for receipt of nominations is **November 1, 1985**. The award will be announced in January, 1986 and the prize will consist of a two-year membership at the appropriate level in the Association of Exploration Geochemists and receipt of all publications. Please send nominations, including three copies of the paper and the current address of the nominee to: S.E. Kesler, Department of Geological Sciences, University of Michigan, Ann Arbor, MI 48109-1063, U.S.A.

DISTINGUISHED LECTURER SERIES

The Committee is pleased to announce that Dr. Ian Nichol will visit the following schools during the 1985-1986 lecture tour.

Bowling Green State University
Bowling Green, Ohio
Indiana University
Bloomington, Indiana
University of Tennessee
Knoxville, Tennessee
Dalhousie University
Halifax, N.S., Canada
Memorial University of Newfoundland
St. John's, Newfoundland, Canada
McGill University
Montreal, Quebec, Canada

During the lecture tour, Dr. Nichol will present talks on the following topics: "Geochemical Exploration - a Multi-Faceted Activity"; "Computer Data-Processing - a Help or Hindrance"; and "Geochemical Exploration for Gold Deposits".

Each host organization will be responsible for inviting nearby schools and professional organizations to the lectures and seminars presented by Dr. Nichol.

Sincerely,
Norman G. Lavery, Chairman
5545 Skyway Drive
Missoula, Montana 59801
U.S.A.

PROJECT ENGINEER**EMPLOYMENT OPPORTUNITY** (Notice via Ian Thomson from B.C. Dept of Mines)

A geochemist is required by the Ministry of Energy, Mines and Petroleum Resources on a contract basis under the Canada-British Columbia Mineral Development Agreement (1985-1990).

DUTIES: To carry out orientation geochemical field surveys in advance of regional surveys. To plan and implement follow-up surveys aimed at generating exploration 'plays' for industry. To undertake statistical analysis and interpretation of geochemical data.

QUALIFICATIONS: M.Sc. in exploration geochemistry plus experience with industry or government in carrying out geochemical exploration surveys in the Cordillera. Experience in use of computers in statistical analysis and interpretation.

SALARY RANGE: \$35,000 to \$45,000 per annum

Apply in writing, including a detailed resume on or before October 18, 1985 to: Dr. R. Smyth, Chief Geologist, Geological Branch, Mineral Resources Division, Ministry of Energy, Mines and Petroleum Resources, Room 418 Douglas Building, 617 Government Street, Victoria, B.C. V8V 1X4

BIBLIOGRAPHYRECENT PAPERS ON EXPLORATION GEOCHEMISTRY

This list comprises titles that have appeared in major publications since the compilation presented in Newsletter 52. Journals routinely covered and abbreviations used are Bulletin of the Canadian Institute of Mining and Metallurgy (CIM BULL), Economic Geology (EG), Geochimica et Cosmochimica Acta (GCA), Journal of Geochemical Exploration (JGE), the USGS Bulletin (USGS BULL), Circular (USGS CIR), Open File Report (USGS OFR) and Professional Papers (USGS PROF P), Transactions of Institution of Mining and Metallurgy, Section B: Applied Earth Science (TRANS IMM). Publications less frequently cited are identified in full. Compiled by Donald D. Runnells and Sandra L. Jones, Department of Geological Sciences, University of Colorado, Boulder.

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Beaumont, C., et al., 1985. Isomerization and aromatization of hydrocarbons and paleothermometry and burial history of Alberta Foreland basin. *AAPG Bull.* 69(4):546-566.

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Bhattacharjee, J., 1983. Variation of trace elements in feldspars as a guide to prospecting muscovite mineralization in Bhilwara pegmatite belt, Rajasthan. *Ind. Min.* 37 (3): p.1ff.

Bingqiu, Z., and Waisheng, X., 1984. Geochemical characteristics of mineralization of porphyry copper deposits. *Geochimica* (No. 2):117-124.

Bochang, X., and Xuejing, X., 1985. Fuzzy cluster analysis in geochemical exploration. *JGE* 23(3):281-292.

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Brown, W.M., Kwak, T.A.P., and Askins, P.W., 1984. Geology and geochemistry of a F-Sn-W skarn system--the Hole 16 deposit, Mt. Garnet, North Queensland, Australia. *Austr. J. Earth Sci.* 31(3):317ff.

Cabri, L.J., et al., 1984. Quantitative trace-element analyses of sulfides from Sudbury and Stillwater by proton microprobe. *Can. Mineral.* 22(Pt. 4):521-542.

Chork, C.Y., and Govett, G.J.S., 1985. Comparison of interpretations of geochemical soil data by some multivariate statistical methods, Key Anacon, N.B., Canada. *JGE* 23(3): 213-242.

Creasy, S.C., 1984. The Schultz Granite, the Tea Cup Granodiorite, and the Granite Basin Porphyry: A geochemical comparison of mineralized and unmineralized stocks in southern Arizona. USGS PROF P 1303, 41 p.

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The Northwest Mining Association will hold its 91st Annual Convention in Spokane, Washington with the theme "New Opportunities for Mining and Minerals".

The Program will include a Pre-Convention Government Industry Forum, Technical sessions on the Geology of Precious Metals, Geophysics and Geochemistry, Markets/Economics, Mine Management, Energy and Geostatistics. A Short Course entitled "Micro-Computer Applications for the Mineral Industry" will be held at the Sheraton Hotel, Spokane from December 2nd-4th, 1985. Topics include Budgeting (Cost Control and Graphics), Geophysical Applications, Automated Geographic Information, Geochemical Applications, Oil Reserve and Mine Production, Controls in Mining Construction, Economic Analysis and Summary Comments. The course will be directed by Jim Lincoln.

Further details may be obtained from

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