



THE ASSOCIATION OF EXPLORATION GEOCHEMISTS

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

President:

P.K. Theobald
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Branch of Exploration Research
5946 MacIntyre Street
Golden, Colorado 80401
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NEWSLETTER NO. 29

Vice-Presidents:

A.W. Rose
Dept. of Geosciences
Pennsylvania State University
University Park, Pennsylvania 16802
U.S.A.

SEPTEMBER 1979

G.R. Webber
Dept. of Geology
McGill University
Montreal, Quebec H3C 3G1
Canada

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 Association office.

Secretary:

R.G. Garrett
Geological Survey of Canada
601 Booth Street
Ottawa, Ontario K1A 0E8
Canada

R. Beeson formerly of Uriran Private Company in Tehran, has joined Robertson Research (Australia) as senior Geochemist.

Treasurer:

I. Thomson
Ontario Geological Survey
77 Grenville Street
Toronto, Ontario M5S 1B3
Canada

P.M.D. Bradshaw has resigned from Barringer Magenta Ltd., Toronto, and has been appointed Chief Geochemist of Placer Development's Technical Service Group responsible for worldwide operations in Vancouver.

Councillors:

1979-80
W.K. Fletcher
R.F. Horsnail
L.D. James
K.A. Lovstrom
T.W. Meyer
J.H. McCarthy

W.K. Fletcher has been appointed technical coordinator to the British Columbia Royal Commission of Inquiry into Uranium Mining chaired by Dr. David V. Bates. His duty being to ascertain what geochemical work is relevant to the Commission and arrange for its presentation.

1979-81
R.C. Armstrong
P.M.D. Bradshaw
R.H. Carpenter
L.G. Closs
W.B. Coker
E.H.W. Hornbrook

A.R. Hope has returned to Australia from the Philippines, his new address is, The Broken Hill Proprietary Co. Ltd., G.P.O. Box 86A, Melbourne, Vic. 3001 Australia.

Australian Regional Councillor:
J.F. Gilfillan

M.V. White has established his own consulting company, Ex-Plor International Corporation, in Oakville, Ontario. The company provides a range of geochemical services and specializes in aspects of rock geochemistry and biogeochemistry where neutron activation analytical methods are used in the search for gold, base metals and uranium.

European Regional Councillor:
W. Friedrich

Southern Africa Regional Councillor:
G.L. Coetzee

EDITORIAL ---- President Paul Theobald

The summer months have been relatively quiet for most of the Association's executive as we enjoyed field work. For those few dedicated souls who have continued to press Association business, it has been a remarkably successful summer. Of prime concern has been the support for and selection of sites for future symposia. The organization for the symposium on geochemical exploration for uranium to be held in conjunction with GSA in San Diego, California, is nearly complete and an excellent program is in the offing. The eighth biennial symposium in Hannover is in its final stages of organization and plans for publication of the symposium proceedings as a special issue of the Journal have been initiated. Initial planning for the ninth biennial symposium in Saskatoon offers great promise. Geochemical applications in energy exploration will provide a natural central theme for the energized environment of that part of Canada. Sites for the tenth and eleventh biennial symposium are still in the discussion stages, but the Scandinavian countries and Brazil have indicated that invitations will be forthcoming to establish a strong base for future planning.

I look forward to renewed activity on a broad spectrum of Association activities this Fall. In the meantime, I hope to squeeze out a few more cool, clear days in the high mountains and wish you all a similar pleasure.

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FUTURE MEETINGS8TH INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM,

April 10 - 15, 1980, Hannover

Dr. Heinrich Gundlach and his organizing committee have the 8th I.G.E.S. preparations well in hand. As a reminder the deadline for abstracts submission is October 15, 1979. These abstracts should be informative, but no longer than one page in length. The selection of contributions to Lecture and Poster Presentations will be based on these abstracts.

Should anyone not be on the 8th I.G.E.S. mailing list and wish to attend the Symposium they should contact the Organizing Committee at the earliest opportunity.

Dr. H. Gundlach
8th I.G.E.S. Organizing Committee
Federal Institute of Geosciences and Natural Resources
P.O.Box 510 153
D-3000, Hannover 51
Federal Republic of Germany

Eastern North America Air Charters and Flights

For those who will be attending the 8th I.G.E.S. and will be leaving from Eastern Canada and the U.S. Anne Cameron, the wife of our Journal Editor, has compiled the following information. To date only a single member has responded to the secretary's note re travel from Eastern North America in the June Newsletter.

As people return from the field travel plans will be made, so this information is timely.

Charter Class:	14-60 days. Limited number of seats. These seats must be booked well in advance, there is a \$50.00 non-refundable deposit. The balance of the fare must be paid 30 days prior to departure.
	Montreal - Frankfurt Can.\$ 445
	Toronto - Frankfurt Can.\$ 457
	New York - Frankfurt US \$ 368
	Frankfurt- Hannover DM 323
Apex:	14-60 days. Only a limited number of seats available and these must be booked well in advance, at least 30 days. Full payment of fare is required within 7 days of booking.
	Montreal - Hannover Can.\$ 512
	Toronto - Hannover Can.\$ 542
	New York - Hannover US \$ 420
G.I.T.:	Timing flexible, all members of the group must travel together. Group size must be in the range of 7-21 persons.
	Montreal - Hannover Can.\$ 612
	Toronto - Hannover Can.\$ 667
	New York - Hannover No G.I.T. rate
Excursion:	14-60 days. No advanced booking benefits (i.e. rate reduction)
	Montreal - Hannover Can.\$ 699
	Toronto - Hannover Can.\$ 723
	New York - Hannover US \$ 608
Economy:	Timing flexible.
	Montreal - Hannover Can.\$ 990
	Toronto - Hannover Can.\$1050
	New York - Hannover US \$ 722

The routing of these flights breaks down into two types, closed jaw and open jaw. A closed jaw routing does not allow for any stop-overs. Charter Class falls into this group, no deviation is allowed from the North America to Frankfurt return, any additional European travel would have to begin and end in Frankfurt. All other flights are open jaw, i.e. the east bound portion puts one in Hannover, but the west bound return may be from other points in Europe, with appropriate modifications to cost.

Only one of these options, G.I.T., is group travel, all others are individually arrangeable. If one intends to travel only to points in Europe to which Frankfurt is convenient and be there for two weeks Charter Class is the best buy. However, only a limited number of these seats are available - book early. The Apex fare looks very attractive, low cost and open jaw, however one must book early and pay the fare in full within 7 days of booking. If any group of 7 or more persons wish to travel to Hannover together and return to North America together some benefits are available in comparison with the regular excursion or economy rates fares most of us are familiar with.

Please note that these fares may well change before 1980, however the relative merits of the different classes of travel can be gauged from the above.

A further point of interest. Immediately after the Symposium one of the major European Trade Fairs starts in Hannover. Therefore, it is suggested that travel and hotel arrangements are made as far in advance as possible so as to ensure a satisfactory outcome.

9TH INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUMMay 12-14, 1982, Saskatoon, Canada

The organizing committee has held its first meeting and a basic theme of geochemistry in the service of Energy has been decided upon. Further meetings are planned for this autumn and winter.

GEOCHEMICAL EXPLORATION FOR URANIUM SYMPOSIUMNovember 4, 1979, San Diego, U.S.A.

This one day symposium to be held just prior to the Annual Meeting of the Geological Society of America is being sponsored by the Association and the U.S. Department of Energy. The topics cover all aspects of uranium geochemical exploration in North America. The organizing committee is led by Bob Carpenter and it is proposed that the papers be published in the Journal. If you plan to attend the GSA meeting come a day earlier and attend the symposium. The Symposium will be held in the Presidio Room (seating for 1100) of the Town and Country Convention Centre and a list of the topics and speakers is given below. Note that GSA registration does not start till the afternoon of Sunday, November 4, however GSA registration is not a prerequisite for entry to the Symposium. Both the GSA and the Association do hope that Symposium attendees will in fact register and attend the GSA annual meeting.

<u>Time</u>	<u>Title</u>	<u>Principal Author</u>
8:30	Geochemical Exploration for Uranium - an Overview	G. Markos
9:00	Hydrogeochemical and Stream Sediment Reconnaissance	S.L. Bolivar
9:35	Analytical Methodology for Uranium Exploration- Retrospective and Prospective	F.N. Ward
10:10	Intermission	
10:25	The Management and Analysis of Regional Geochemical Data	R.G. Garrett
11:00	Geochemical Exploration Models for Sedimentary Uranium Deposits	A.W. Rose
11:30	Granitic Uranium Deposits	J.W. Rogers
12:00	Lunch	
1:30	Solution - Mineral Equilibria Concepts Applied to Ground Water Prospecting for Uranium Deposits	D.D. Langmuir
1:50	Uranium Exploration - Ground and Surface Waters	T.R. Butz
2:10	Geochemical Exploration for Uranium in Northern Lakes	E.M. Cameron
2:30	Stream Sediment Geochemical Surveys for Uranium	V. Price
2:50	Intermission	
3:05	Geochemical Exploration for Uranium in Playas	D.L. Leach
3:25	Geochemical Exploration for Uranium Employing Soil Sampling	P.M.D. Bradshaw
3:45	Geochemical Exploration - Technique Integretation in the Red Desert, Wyoming	L.B. Bramlett
4:05	Panel Discussion with Principal Authors to answer questions from the audience	

A GEOCHEMICAL SHORT COURSE, December 3-5, 1979

This 3 day short course is being organized by Ben Ainsworth of Placer Development, Toronto, in conjunction with the Northwest Mining Association, to be held, at the annual meeting in Spokane, Washington. The course is designed for exploration geologists working in the western cordillera who are users of geochemical methods but would not consider themselves geochemists. The Association is well represented in the speakers list which in addition to Ainsworth includes Barakso, Bradshaw, Hoffman, Lett, Smeed and Wahl. The course is limited to 200 persons and has an associated fee of \$200.00.

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FROM THE SECRETARY'S OFFICE

Firstly I would like to thank all those members who have already sent in their 1980 dues to the Toronto office, and also those who have publicized the availability of Geochemical Exploration 1978. This publicizing activity by you has resulted in some 93 orders being sent in.

The second call for 1980 dues is enclosed, if you have not yet sent your dues in the office would be most grateful if you would forward them to reach Toronto by the end of the year.

There have been several inquiries about reprints from Geochemical Exploration 1978 by authors. The publisher assures us that the reprints were mailed over the period June to July. Any problems being experienced are believed to be due to the mail system. The packages left by 4th class mail and if you have not received them yet I suggest you contact the publisher and inform him of their non-arrival.

Mr. Chad H. Davis
Spectra-Graphics, Inc.,
P.O.Box 38487
Denver, Colorado 80238 U.S.A.

The amendment of our By-Law No.1, in effect our constitution, which was voted upon, and passed, at the Tucson AGM has been approved by the Federal Minister of Consumer and Corporate Affairs. This step was necessary due to our incorporation under Federal Law in Canada. Over the summer the By-Law has been re-typed, with the aid of a word processing typewriter, and has been checked. It will be going to the printer after the cover preparation is complete. It is intended to mail copies to all members with the December Newsletter.

The office occasionally receives letters from Journal authors about reprints of their articles. The situation is as follows. The galley proofs are sent to the senior author by Elsevier for checking. Accompanying the proofs is a Reprint Order Form, this must be filled out and returned with the proofs. Any second authors, etc. are not sent Reprint Order Forms and the senior author should make appropriate arrangements for an adequate supply of reprints. The Association does not enter into this procedure, it is strictly a transaction between the author(s) and Elsevier. The person responsible for the Journal at Elsevier is Mr. Alan V. Stunt and any specific problems should be addressed to him,

Mr. A.V. Stunt
Editorial Office,
Journal of Geochemical Exploration
P.O.Box 1345
Amsterdam, The Netherlands

Another problem which sometimes leads to letters to the office is the delivery of back issues for the year in which a new member joins the Association. Once a member is on Elsevier's mailing list current issues are shipped by a combination of air freight and mail. However, back issues are shipped by surface mail from the Netherlands. This procedure can take from 1 to 3 months and often a current issue will arrive before the back issues. Therefore, new members please allow for this mailing system, you have not been forgotten.

In case you have not noticed, the 1979 Supplement to the Bibliography of Exploration Geochemistry is now available from the Toronto office. This 85 page update to the 1972-75 Bibliography is a bargain at US \$2.50.

JOURNAL NEWS

The Editor of our Journal, Eion Cameron, has provided the Newsletter with a list of forthcoming papers in the Journal. These are listed in order of their transmittal from the Editor to Elsevier, they will probably appear in this same order, as listed below.

- Benson, L.V. and Leach, D.L. Uranium transport in the Walker River Basin, California and Nevada.
- Amit, O. and Bein, A. The genesis of asphalt in the Dead Sea area
- Thurman, E.M. and Runnells, D.D. Baseline study of the concentration of molybdenum in bottom sediments of the major rivers in Colorado, U.S.A.
- Tripathi, V.S. Factor analysis in geochemical exploration.
- Ball, T.K. et al., Geochemical prospecting for baryte and celestite using a portable radioisotope fluorescence analyser.
- Storm, et al., A method for the determination of tungsten in silicate rocks after lithium metaborate decomposition.
- Gulson, B.L. and Mizon, K.J. Lead isotopes as a tool for gossan assessment in base metal exploration.
- Dunlop, A.C. et al., Surface litho-geochemical studies about a distal massive sulphide occurrence at Limerick, New South Wales.
- Cameron, E.M. Effect of graphite on the enhancement of surficial geochemical anomalies originating from the oxidation of sulphides.
- Ribiero, M.J. and Dos Santos, M.M. Geochemical exploration over a mafic-ultramafic complex, Americano do Brasil, Goias, Brasil.
- Plimer, I.R. and Elliott, S.M. The use of the Rb/Sr ratio as a guide to mineralization.
- Pahlavanpour, B. et al., The determination of tin in geochemical samples by inductivity coupled plasma atomic emission spectrometry.
- Lively, R.S. et al., Disequilibrium in the ²³⁸Uranium series in samples from Yeelirrie, Western Australia.
- Brooks, R.R. Indicator plants for mineral prospecting - a review.
- Chukhrov, F.V. et al., Background levels of copper and zinc in common plants from various regions of the Soviet Union.

BIBLIOGRAPHYRECENT PAPERS ON EXPLORATION GEOCHEMISTRY

This list comprises titles that have appeared in major publications since the compilation present in Newsletter No. 28. Journals routinely covered and abbreviations used are as follows: Economic Geology (EG); Geochimica et Cosmochimica Acta (GCA); The USGS Journal of Research (USGS JR); Circular (USGS CIR); and Open File Report (USGS OFR); Geological Survey of Canada Papers (GSC Paper) and Open File Report (GSC OFR); Bulletin of the Canadian Institute of Mining and Metallurgy (CIM Bull); Transactions of Institute of Mining and Metallurgy, Section B: Applied Earth Sciences, (Trans IMM). Publication less frequently cited are identified in full. Compiled by L. Graham Closs, Colorado School of Mines, Member AEG Bibliography Committee.

Allegre, C.J. and Hart, S.R. (Eds) 1978. Trace Elements in Igneous Petrology. Elsevier. 272 p.

Alsac, C. and Latulippe, M. 1979. Quelques aspects petrographiques et geochemiques der volcanisme acean du Malartic en Abitibi (Province de Quebec, Canada). Can. J. Earth Sci. 16(5): 1041-1059.

Anon. 1979. Ontario-Eastern Shore Lake Superior Regional Lake Sediment and Geochemical Reconnaissance Data. GSC OFR 554 and 555/Ontario Geological Survey OFR 5266 and 5267. (NTS Sheets 41K, 41N, 42 C, 42F, (S/2)).

Anon. 1979. Regional Stream Sediment and Water Geochemical Reconnaissance Data, Southern and Northern Yukon Territory. (NTS 105B, F, and 117A and parts of 117B, C, and D). GSC OFR 563-565.

Anon. 1979. Regional Lake Sediment and Water Geochemical Reconnaissance Data, Central Baffin Island, Northwest Territories (NTS 27B, 37A, 37D and parts of 27C). GSC OFR 566-568.

Anon. 1979. Geochemical and generalized geologic map showing distribution and abundance of barium, arsenic, boron, and vanadium in stream sediments in the Chandalar quadrangle, Alaska. Scale 1:250,000. USGS MF-878-G.

Borodanov, V.M. 1978. Granitoids alkalinity-a criteria of prospecting for scarn-scheelite type of tungsten. Proc. USSR Acad. Sci.-Geological Series No. 10: 55-84.

Chapman, R.P. 1978. Evaluation of some statistical methods of interpreting multi-element geochemical drainage data from New Brunswick. Math. Geol. 10(2): 195-224.

Ciesielski, A. 1979. Sediments de ruisseau-Canton de Villemontel. DP-672. Ministere des Richesses Naturelles, Quebec, P.Q.

Curtin, G.C. 1979. Geochemical and generalized geologic maps showing the distribution and abundance of thorium and distribution of uranium in selected samples in the Central Alaska Range, Talkeetna quadrangle, Alaska. USGS OFR 79-430.

- Davidson, A. and Moore, J.M., Jr. 1978. Omo River Project data-management system: an appraisal. *Computers and Geosciences*. 4(1): 101-114.
- Davies, T.C. and Bloxam, T.W. 1979. Heavy metal distribution in laterites, Southwest of Regent, Freetown Igneous Complex, Sierra Leone. *EG* 74(3): 638-644.
- Doyle, P.J. and Fletcher, W.K. 1979. Regional geochemical mapping in areas lacking surface drainages: Cu, Fe, Mn, and Zn contents of overburden and soil in south-central Saskatchewan. *Can. J. Earth Sci.* 16(5): 1086-1093.
- Dumitriu, C. et.al. 1979. Correspondence analysis applied to a comparison of some rhyolitic zones in the Noranda Area (Quebec, Canada). *Math. Geol.* 11(3): 299-308.
- Dzhenehuraeva, R.D. et.al. 1978. Revealing of geochemical gold anomalies on chemical element complexes. *Proc. USSR Acad. Sci.-Geological Series*. No. 8: 100-121.
- Feiss, P.G. and Ragland, P.C. 1979. A comparison of geochemical exploration techniques in the Carolina Slate Belt. *Mining Engineering*. 31(6): 678-682.
- Ferguson, R.B. et.al. 1977. Data-management and analysis systems for large-scale hydrogeochemical reconnaissance. *Computers and Geoscience*. 3(3): 453-458.
- Gleeson, C.F. and Boyle, R.W. 1979. Uranium content of stream and spring sediments, Keno Hill area, Yukon Territory. *GSC OFR* 612.
- Goubin, N. 1978. Some examples of management and processing of geological and geochemical data. *Computers and Geoscience*. 4(1): 37-52.
- Guzhova, N.G. and Chepizhnaya, E.A. 1979. Radioactive elements in the rocks of some near-surface gold-ore deposits. *Intern. Geol. Rev.* 21(6): 687-694.
- Hopkins, R.T. et.al. 1979. Geochemical analyses of rock, soil, and stream sediment samples from the Cities Creek Wilderness study area. Monroe County, Tennessee. *USGS OFR* 79-577. 31 p.
- Howard, P.F. and Hough, M.J. 1979. On the geochemistry and origin of the D Tree, Wonarah, and Sherrin Creek phosphorite deposits of the Georgina Basin, Northern Australia. *EG* 74(2): 260-284.
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- Kronberg, B.I. et.al. 1979. The chemistry of some Brazilian soils element mobility during intense weathering. Chem. Geol. 24(3/4): 211-230.
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- Nash, J.T. 1978. (Organizer/Preface): Special Issue Devoted to the Geology and Geochemistry of Uranium. EG 73(8): 1401-1748.
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EMPLOYMENT OPPORTUNITY

IMPERIAL COLLEGE

MINERAL INDUSTRY RESEARCH FELLOW

Applications are invited for this challenging post in Exploration Geochemistry within the Applied Geochemistry Research Group of the Department of Geology. The Fellow will provide leadership in research and teaching within his field, in co-ordination with other related activities within the Department. The appointment is for seven years in the first instance, and is supported by significant research funding provided by interested mining companies. The Department is well-resourced in terms of analytical and computational facilities.

Applicants should have at least ten years relevant experience in industry and/or reserach, and should identify the areas of research interest which they would like to develop.

The appointment will be at a senior level on the salary scale £8182-£10097 (under review) plus £502 London Allowance and membership of USS.

Applications, including a full curriculum vitae and the names of two referees should be sent to,

Professor J.L. Knill,
Department of Geology,
Imperial College,
London SW7 2BP
England

from whom further particulars can be obtained. Closing date for applications is October 12, 1979.

Last Minute News Last Minute News Last Minute News Last Minute News Last Minute News Last Minute

NOMINATIONS FOR ORDINARY COUNCILLORS

Members are reminded that nominations for at least 8 ordinary councillors are required for the election of councillors for the 1980-82 term. Any voting member may be nominated, this nomination must be supported by 6 voting members and the nominee must provide a written undertaking that he will serve on Council. Nominations should be in the hands of the Secretary by November 1, 1979.

Last Minute News Last Minute News Last Minute News Last Minute News Last Minute News Last Minute

PUBLICATIONS OF THE ASSOCIATION OF EXPLORATION GEOCHEMISTS

Special Volume

- 1 Bibliography of Exploration Geochemistry, January 1965 - December 1971 : H.E. Hawkes (1972), 118 p., \$7.50.
- 2 *Geochemical Exploration 1974. Proceedings of the 5th I.G.E.S., Vancouver, Canada. Editors I.L. Elliott and W.K. Fletcher (1975), 720 p., \$80.00.
- 3 *Conceptual Models in Exploration Geochemistry. The Canadian Cordillera and Canadian Shield: Editor and Compiler P.M.D. Bradshaw (1975). Reprinted from the Journal of Geochemical Exploration V 4, No.1, 216 p., OUT OF PRINT.
- 4 Applications of Probability Graphs in Mineral Exploration: A.J. Sinclair (1975), 95 p., \$6.00 for AEG members and students, and \$8.00 for non-members.
- 5 Bibliography of Exploration Geochemistry, January 1972 - December 1975: H.E. Hawkes, (1976), 195 p., \$10.00.
- 1977 Supplement to the Bibliography of Exploration Geochemistry, January 1976 - June 1977: H.E. Hawkes (1978), 63 p., \$2.00 for AEG members and students, \$4.00 for non-members.
- 1979 Supplement to the Bibliography of Exploration Geochemistry, July 1979 - December 1978; H.E. Hawkes (1979), 85 p., \$2.50.
- 6 *Geochemical Exploration 1976: Proceedings of the 6th I.G.E.S., Sydney, Australia. Editors C.R.M. Butt and I.G.P. Wilding (1977). Reprinted from the Journal of Geochemical Exploration V 8 No.1/2, 494 p., \$45.25.
- 7 Geochemical Exploration 1978: Proceedings of the 7th I.G.E.S., Golden, Colorado. Editors J.R. Watterson and P.K. Theobald (1979). 504 P., \$35.00 for AEG members, and \$40.00 for non-members.

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