



THE ASSOCIATION OF EXPLORATION GEOCHEMISTS

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

NEWSLETTER NO. 30

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P.K. Theobald
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JANUARY 1980

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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

A. Armour-Brown has joined the Greenland Geological Survey. He is based at the Survey in Copenhagen and carrying out a uranium exploration project in southwest Greenland.

Treasurer:

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

H. Bloom is now retired as Professor of Geology at the Colorado School of Mines, where he has taught exploration geochemistry for over 22 years. He continues to teach in their continuing education program and is associated with Bondar-Clegg Inc. of Lakewood, Colorado, as a consultant.

Councillors:

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

P.G. Moeskops of AMDEL, South Australia, has returned to Australia after undertaking a brief consultancy term in Pakistan on behalf of the Pakistan government.

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

R.V. Sale has accepted the position of Senior Exploration Geochemist with Riofinex in Saudi Arabia and is based in Jeddah, Saudi Arabia.

Australian Regional Councillor:
J.F. Gilfillan

European Regional Councillor:
H.W. Friedrich

Southern Africa Regional Councillor:
G.L. Coetzee

EDITORIAL

The symposium on geochemical exploration for uranium held in conjunction with the GSA meeting in San Diego was a success; Bob Carpenter, Art Rose, and John Runnells are to be congratulated for their effort. The proceedings of the symposium are planned for a special issue of the Journal of Geochemical Exploration. It will be anxiously awaited by those of us who attended and need our minds jogged as well as those who were unable to attend. I wish the editors well and urge the participants to cooperate as expeditiously as possible.

February 27 will be Association of Exploration Geochemists Day in Las Vegas. I am sure that the organizers of the SEG and AIME programs are not aware of this, but check the statistics. On that date Ken Lovstrom has organized the applied geochemistry program for the Society of Mining Engineers, John Webb will be the Distinguished Lecturer for the Society of Economic Geologists, and Herb Hawkes will present the Jackling Lecture. A potent trio of events recognizing senior members of our Association and of the field of Exploration Geochemistry.

The Basin and Range symposium in Tucson (held immediately following the SEG field conference), the uranium symposium in San Diego (held in conjunction with GSA), and the events to transpire in Las Vegas (held by AIME with only indirect support from our Association) are but three many instances that have come to my attention in the past year where the Association of Exploration Geochemists interacted with other associations in more than a casual way. All of these interactions have been accomplished in an informal or ad hoc manner. There are a finite number of accomplished exploration geochemists to service what appears to be an infinite number of information-needing groups. It is gratifying to see that we are wanted, but how can we best serve the need? Is it time to implement a more formal mechanism for coordination within our Association and with our sister societies? I would welcome your thoughts on this matter.

ADMISSIONS COMMITTEE REPORT

The following individuals have been accepted for Membership in the Association by Council. The Association is pleased to welcome the new members.

VOTING MEMBERS

Bloch, S.	Geologist, Oklahoma Geological Survey, Norman, Oklahoma, USA.
Cox, R.S.	(Transfer from Affiliate Member) Exploration geochemist, with Phelps Dodge of Africa Ltd., Braamfontein, South Africa.
Davie, R.F.	Review geologist with the Ontario Geological Survey, Toronto, Ontario, Canada.
Dunn, C.E.	Research geologist, Saskatchewan Dept. of Mineral Resources, Regina, Saskatchewan.
Glanzman, R.K.	Geochemist with the U.S. Geological Survey, Lakewood, Colorado, USA.
Kontio, M.H.M.	Geochemist, LKAB Prospektering AB, Grangesberg, Sweden.
Middleton, W.G.	Project geologist with Uranerz Australia Pty.Ltd. Subiaco, Australia.
Pauwels, A.M.	Senior geologist, Umex, Richmond, British Columbia, Canada.
Read, C.D.	Geochemist, Barringer Magenta Ltd., Calgary, Alberta, Canada.

(Voting members con't.)

- Sargent, J.D. Reinstated. Consulting geologist with GCX America Inc., Corrales, New Mexico, U.S.A.
- Spooner, E.T.C. Assistant Professor at the Dept. of Geology, University of Toronto, Toronto, Ontario, Canada.
- de Toledo, L.A.A. Geochemist, Centro Administrativo da Bahia, Salvador, Brasil.
- Walker, K.R. Geologist, with the Bureau of Mineral Resources, Canberra City, A.C.T., Australia.
- Waychison, M.M. Project geologist with Gulf Minerals of Canada Ltd., Toronto, Ontario, Canada.
- Weiland, E.F. Geochemist with Barringer Research Inc., Golden, Colorado, USA.

AFFILIATE MEMBERS

- Cecioni, A.R. Professor at the University of Concepcion, Concepcion, Chile.
- Farias, R. Head of technical services of exploration for Industria Minera Mexico, San Luis Potosi, Mexico.
- Lefin, J.P. Geologist-geochemist with University of Louvain, Belgium.
- Lippitt, C.R. Exploration geologist with Power Resources Corp., Denver, Colorado, U.S.A.
- de Oliviera, J.E. Geologist-geochemist with Companhia de Pesquisa de Recursos Minerais (CPRM), Salvador, Bahia, Brasil.
- Romanini, S.J. Geochemist with Companhia de Pesquisa de Recursos Minerais (CPRM), Porto Velho, Brasil.
- Webb III, W.W. Exploration geologist, Dresser Exploration, Elko, Nevada, U.S.A.

STUDENT MEMBERS

- Benedict, Jr., F.C. Graduate student, Colorado School of Mines, Golden, Co. U.S.A.
- Bertoni, C.H. Graduate student, Queen's University, Kingston, Ontario, Canada.
- Delia, R.G. Graduate student, University of Georgia, Athens, Georgia, U.S.A.
- Fedikow, M.A.F. Ph.D. candidate, School of Applied Geology, University of New South Wales, Sydney, Australia.
- Geronsin, R.L. Graduate student, University of Missouri at Rolla, Rolla, Missouri, U.S.A.
- Habib, H.R. Postgraduate research student at Leeds University, Leeds, England.
- Kumi, R.K. Student at the University of Ghana, Legon, Ghana.
- Lyttle, T.W. Graduate student at Colorado state University, St. Collins, USA.
- Mantzios, L. Student at the University of Athens, Greece.
- Nascimento, J.W. Post graduate student at Fed.University of Bahia, Brasil.
- Oshin, I.O. Graduate student at McMaster University, Hamilton, Ontario, Canada.
- Passos, V.T. da R. Post graduate student at the Fed.University of Bahia, Brasil.
- Tucker, J.D. Student at the Colorado School of Mines, Golden, Colorado, U.S.A.

FUTURE MEETINGS8th INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM - April 10-15, 1980, Hannover

By mid December the organizing committee had received over 300 pre-registration applications, and still more are coming in. Applications have come from around the world where we have members, and also from geochemists in countries where we have no present membership, they include Bulgaria, China and the Soviet Union.

The response to the call for papers was very good and the organizing committee had a hard task to select some 65 for acceptance. Letters were mailed to prospective authors from Hannover in late December.

The third, and final, announcement giving details of all the symposium arrangements, including the accompanying members program, will be mailed in February. If you have not yet registered please note that excursions A1, B1, B2 and C6 are completely booked out, space was still available for other excursions in mid December. A letter will be mailed to all excursion participants in early February giving details and exact fares etc.

In case any members are still on the 8th IGES mailing list and plan to attend they should contact the organizing committee immediately.

Dr. H. Gundlach
8th IGES Organizing Committee
Federal Institute for Geoscience and Natural Resources,
P.O.Box 510 153
D-3000, Hannover 51
Federal Republic of Germany

NEA / IAEA URANIUM EXPLORATION R & D GROUP

Dr. A.G. Darnley, chairman of the NEA/IAEA Uranium Exploration R & D Group, has provided the Newsletter with the following information. Details are currently being worked out between the NEA and the Hannover Organizing Committee, but interested members should be prepared to reach Hannover early, or delay their departure after the symposium.

It is planned to use the Hannover Symposium as an opportunity to inform and seek the views of geochemists about various geochemical projects that have been launched under the auspices of the NEA/IAEA Uranium Exploration R & D Group. This Group provides the focal point for a variety of international collaborative research projects aimed at improving the efficiency and effectiveness of methods of uranium exploration.

Aspects of geochemistry which are presently covered by the R & D Group's activities include data files; uranium litho-geochemistry including standards and procedures; uranium biogeochemistry including lake sediments; radon and helium. Some of the R & D activities are organized under specifically geochemical headings, e.g. "Biogeochemistry", "Gases"; in other activities geochemistry is incidental to a broader aim, such as "Recognition of Uranium Provinces". In both types of situation there is scope for the participation and interaction of additional researchers, and it seems sensible to ask a gathering of geochemists the following question "Are there any obviously rewarding lines of geochemical R & D that are being overlooked?" It is recognized that a case can always be made for pursuing almost any line of research on the grounds that sooner or later it may pay-off. What is needed is a brain-storming session to stimulate suggestions concerning possible short-cuts

to success! For this reason the NEA/IAEA Exploration Group proposes to convene a one-day Workshop in conjunction with the Hannover Symposium in order to provide information, exchange ideas, and formulate proposals if such seem to be warranted. Members of the Association will be advised as to the time and place of the Workshop in the next Newsletter. If information is required in the meantime please contact the R & D Group secretariat:

Dr. D.M. Taylor, Nuclear Energy Agency, 38 Boulevard Suchet,
75016 Paris, France. Telephone 524-8200

NORTH AMERICAN AIR CHARTER FLIGHT

Mrs. E.C. Hill, who has been looking into 8th IGES charter flight possibilities for western North American members (see page 7, Newsletter No. 28), has mailed from Casper, Wyoming, details of the final travel arrangements she has been able to organize. Her letter has gone to all members in Canada and the United States. For North American members unable to take advantage of Mrs. Hill's arrangements other possibilities were outlined in the last Newsletter (see p . 3 of No.29).

9th INTERNATIONAL GEOCHEMICAL EXPLORATION SYMPOSIUM - May 12-14, 1982, Saskatoon

A series of organizing committee meetings are being held this winter and spring in Saskatoon. Themes and other general topics will be defined, these will be published in the Newsletter later this year.

URANIUM GEOLOGY AND EXPLORATION - short course

A three-day short course in Uranium Geology and Exploration is to be offered twice: March 12-14 and May 21-23, 1980, by Dr. Richard H. De Voto of the Colorado School of Mines. The course covers: a) The geochemistry and geology of uranium, b) The mechanisms important in the generation of anomolous uranium concentrations, c) The many geologic environments favorable for the formation of economic and subeconomic uranium deposits, d) The geology and geochemistry of the principal uranium districts of the world, and e) exploration techniques and programs. Registration fee: \$300.

For information regarding the course, contact the office of Continuing Education, Colorado School of Mines, Golden, Colorado 80401; Telephone (303) 279-0300 extension 2321.

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REGIONAL REPORT - SOUTHERN AFRICA

The last review of trends in Exploration Geochemistry in Southern Africa, published in Newsletter No. 14, January 1974 almost coincided with a major downturn in exploration following the boom of the late sixties and early seventies. Exploration activity has returned to quite healthy levels again, especially over the past two years. Increased uranium exploration has partly been responsible for the upturn.

Current exploration expenditure in the Republic of South Africa alone has been estimated at some \$60 million (US) per annum. This is probably a conservative estimate and the actual figure may be in the region of \$80 - 100 million.

The greater part of the above expenditure is accounted for by Witwatersrand gold and uranium, as well as diamond and coal exploration in which exploration geochemistry does not play a significant role. Base metal and non-Witwatersrand uranium exploration possibly accounts for some \$30 million per annum.

Exploration geochemistry was well entrenched, even 10 years ago, but its importance has increased, at the cost of geophysics and particularly the electrical methods. It is without question the most important primary exploration tool. The most marked trends in geochemical exploration which have developed in the past couple of years are:

- i) Increasing use of litho-geochemistry to detect inconspicuous mineralisation, halos or alteration zones.
- ii) Increasing use of multi-element analysis.
- iii) A greater understanding of the geochemistry of gossans.
- iv) Improved analytical techniques have led to a lowering of detection limits for the common base metals which has been of particular value in desert environment geochemistry.
- v) Greater attention to the geochemistry of the more exotic metals such as Sn, W, Ta.
- vi) Greater use of partial extraction techniques, particularly in uranium geochemistry. Although the latter has not been without its difficulties considerable progress has been made.

A brief sketch of progress in the various climatic regions of southern Africa follows:

Geochemistry has proven to be a highly effective technique with quite wide application in the ultra-arid Namib desert region of South West Africa/Namibia and its extension into the northwestern Cape Province. Despite insignificant rainfall (0-50 mm per annum) small ephemeral streams drainage inselbergs are sampled, using the coarse, i.e. -10 to +30 mesh fraction, and low order but clearly discernible anomalies can be related to bedrock mineralisation. The old pebble-armoured plains, characteristic of much of the desert, also yields a meaningful geochemical response either in the coarse or -80 mesh fraction. Geochemistry has generally not been attempted in the regions of fixed or transient sand dunes. In the somewhat less arid regions inland from the Namib, with 50 to 200 mm rainfall per annum, both stream and soil geochemistry is generally effective using the -80 mesh fraction. Although the -200 mesh fraction may at places provide better anomaly contrast it is not commonly used because of the difficulty in obtaining sufficient material for analysis.

In the major Kalahari basin of south-central Africa, which contains up to 300 m of continental sediments of Cretaceous and younger age, the use of biogeochemistry and the heavy and ultrafine fractions of the soil has enjoyed some success. Precise determination of the common base metals in the range 1-10 ppm on the -80 mesh soil fraction has yielded responses in areas with 25 m of Kalahari cover.

Geochemistry continues to be an effective instrument in the more humid (300 - 1500 mm annual rainfall) eastern half of South Africa. Some old rules of thumb and long-held beliefs have suffered in the process of continued reappraisal especially with regard to dispersion and leaching. Routine analyses of iron and manganese on soils, and stream sediments, coupled with the usual base metal analysis, have been of value in guarding against enrichments caused by scavenging.

There has been considerable activity in the Mesozoic Karoo sandstone uranium provinces of South Africa where the initial surface discovery was made by Union Carbide in 1969. The Geological Survey of South Africa has carried out an extensive hydrogeochemical survey, sampling water bores, in this semi-arid region. The results, which are published periodically, have been of considerable assistance in exploration.

Major difficulty has been experienced in some of the secondary uranium deposits of the arid western regions of the subcontinent as a result of disequilibrium between uranium and its radium and radon daughter products.

The Geological Surveys of Botswana and Swaziland have conducted geochemical surveys, principally stream sediment sampling, in their respective countries as has the Geological Survey of South Africa.

Consolidated Diamond Mines of South Africa during 1978 announced a 6 million (US) five year programme to further the mining industry in the territory. A substantial portion of these funds have been allocated to geochemical surveys of regions thought to be difficult to prospect or previously neglected. Systematic stream sediment and soil sampling programmes in several areas have been completed. A helicopter-borne Surtrace survey of a large tract in the north west of the territory is in progress. Results of the CDM Mineral Survey, including geochemistry are placed on open file with the Geological Survey in Windhoek as they become available.

In summary, exploration geochemistry is flourishing in Southern Africa and has led to the discovery of a considerable number of new prospects. Some of these have significant promise and more will no doubt be heard of them.

G.L. Coetzee, Johannesburg, November 1979.

NOMINATIONS FOR COUNCIL

Nominations for Council were made to fill 5 vacancies which will arise at the next Annual General Meeting in April 1980. Ballots have been prepared and distributed to the voting membership. Results of this voting will be tabulated at the AGM, after which the new Councillors will be announced. It is important that the Voting Members cast their ballots as soon as received. The ballots must be returned to the Association's permanent office in Rexdale (Toronto) by April 1, 1980, from there they will be transferred to Hannover for the AGM on April 14th.

Four of the five vacancies on Council are due to members who must retire as demanded in our By-Laws, or do so due to pressure of their work. On behalf of the Association I would like to thank Dick Horsnail, Lloyd James, Tim Meyer and Howie McCarthy for all their time and effort given in service to the Association.

NEW OFFICERS OF THE ASSOCIATION

At a Council Meeting held on November 4, 1979, members of the new Executive were elected for the year 1980-81.

Art W. Rose of Penn State University has been elected to the position of President of the Association.

G. Roger Webber of McGill University, Montreal, has been elected as First Vice-President of the Association.

Ken A. Lovstrom of Amax, Denver, has been elected as Second Vice-President.

Ian Thomson of the Ontario Geological Survey, Toronto, has been re-elected to the position of Treasurer.

Bob Garrett of the Geological Survey of Canada, Ottawa, has been re-elected to the position of Secretary.

ANNUAL GENERAL MEETING -1980

The next Annual General Meeting of the Association will be held in conjunction with the 8th IGES in Hannover, West Germany. The meeting will be held immediately after the last technical session on Monday, April 14, 1980. The Agenda for the AGM is as follows:

1. Minutes of the 1979 Annual General Meeting
2. Matters arising
3. Presidents' Report
4. Secretary's Report
5. Treasurer's Report
6. Appointment of Auditors
7. Introduction of the 1980-81 Executive
8. Election of Ordinary Councillors
9. Any Other Business
10. Adjournment

The President, P.K. Theobald, will deliver his address immediately following the adjournment of the meeting.

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FROM THE SECRETARY'S OFFICE

A copy of our By-Laws, with the ammendment passed at the AGM last year in Tucson, Arizona, is being mailed to all members with this Newsletter. However 'dry' the document may be please take the time to read it, especially the sections on Membership and Councillors, Articles 2 and 4. I draw your attention to section 4.04 and 4.05 on the nomination and election of Councillors. Any group of six or more Voting Members may propose a Voting Member for membership of Council.

With reference to membership the permanent office has drawn my attention to the fact that many Student Members who have graduated are now sending in dues of US \$42.50. Do not let me discourage you! Thank you for continuing to support the Association. However, once Student Members have gained two years of experience (see By Laws 2.08 (i)) they should apply for Affiliate status. If you fall into this situation could you please ask the Rexdale office for an application form? Once you have completed it with updated information please return it to the office with a note to the effect that it is a transfer.

Dues. So far the Rexdale office has received some 410 dues for 1980. Over half of those expected, and hopefully many are in the mail to us. If you have not yet forwarded your 1980 dues a notice is enclosed with this mailing. Please attend to the matter, for two reasons. Firstly, we will be advising Elsevier of the Journal circulation list soon - no dues, no Journal. Secondly, the new membership list, which will be available in time for the 8th IGES in Hannover is

being based on 1980 membership. No update is planned until the 9th IGES in 1982, so please make every effort to get your dues in.

You will notice that this issue contains a report from our Regional Councillor in Southern Africa, Louis Coetzee. This is a very welcome addition to the Newsletter. Reports such as his help keep members aware of activity around the world. Should any member have a similar regional report, or a report on a local meeting, I am sure it would be of general interest and we would be glad to include it in a Newsletter issue.

REPRINTS OF 7TH IGES, GOLDEN, PAPERS

Only a few authors have received their reprints from Geochemical Exploration 1978. Paul Theobald, John Watterson and Ed Post in Denver have been doing what they can, progress is being made and the end is hopefully in sight. Chad Davis, the president of Spectra/Graphics, was unfortunately killed in a car accident; he was in charge of the production of the volume. John Watterson sends the following note;

Some internal disorder at Spectra/Graphics is now known to have resulted in failure to deliver reprint orders of Geochemical Exploration 1978 articles. We are working with the new management of Spectra/Graphics and would appreciate those persons who have ordered reprints of symposium volume articles to advise the business manager of the '78 symposium--E.V. Post, Skyline Labs, 12090 W.50th Place, Wheatridge, Co. 80033, USA -- as soon as possible of the number of reprints ordered and the amount paid, enclosing if possible, a xerox copy of both sides of cancelled checks or money order receipts.

P.K. Theobald, J.R. Watterson, E.V. Post.

OLD ISSUES OF THE JOURNAL

The office has had many enquiries as to the availability of past issues of the Journal of Geochemical Exploration, sometimes single issues are lost or members would like to obtain old volumes. To fulfill this need enquiries were made to Elsevier, they have made the following offer:

1. Single issues are only available for 1978 and 1979 volume, i.e. from volumes 9-11 inclusive, these are costed at Dfl 46.00 per 100 printed pages.
2. Prior to 1978, i.e. volumes 1-10 inclusive, only full volumes are available. These will be offered at a special 40% discount to Association members, i.e. Dfl 90.00 (approximately US \$45.00), plus Dfl 10.00 postage per volume.

There is a time limit to this offer and all orders have to be coordinated through the AEG. Therefore, all requests must be received by March 31st, 1980, and should be sent directly to the Secretary's office in Ottawa. As it is probable that members may only require single issues from pre 1978 volumes I will compile orders into whole volumes on a first come first served basis. I am afraid that if a full volume cannot be created from separate orders we will be unable to place the order. In addition Elsevier informs me that for some of the older volumes only 20 or 30 remain.

I would stress that if you are missing several issues from a volume and you want to insure their purchase you should purchase the entire volume. Purchasing issue by issue relies on other members to make up the balance for volume sets. Clearly if everyone wants a single issue, say V.8, 1/2, the Sydney Symposium, we are going to be unable to place the order.

Send no money with your order, but if you wish to avail yourself of this offer please get your order to Ottawa as fast as possible. This exercise requires a lot to be done on trust. I cannot guarantee orders will be filled so I prefer not to receive funds for the Association at this time. You will be billed once the costs to the Association, including onwards postage from the Rexdale office, can be determined. The order will be placed with Elsevier in Europe at the time of the 8th IGES in April. At this time it would seem that single issues after 1978 will cost some \$28.00, for the three issue volumes in 1976 and 1977 the cost per single issue would be about \$19.00 or \$38.00 for a double issue; for the four issue volumes in 1973 to 1975 the single issue cost would be about \$14.00, etc. In 1972 there were only two issues to volume 1, so costs would be about \$28.00 each. These estimates are in US dollars and include AEG postage and handling. Please remember that they are estimates only, final costs will be known in April.

JOURNAL NEWS

The special issue, "Conceptual Models in Exploration Geochemistry; Australia", edited by C.R.M. Butt and R.E. Smith will be published as volume 12, Numbers 2 and 3. This combined issue will thus complete the 1979 journal subscription year. It will not however be published in 1979. The final parts of the manuscripts were forwarded to Amsterdam at the end of November, and we are tentatively estimating a publication date of April 1980. Having read the papers I can assure readers that this issue carries forward the high standards and usefulness of the Conceptual Models series.

E.M. Cameron, Editor

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BIBLIOGRAPHY

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This list comprises titles that have appeared in major publications since the compilation present in Newsletter No. 29. 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). Publications less frequently cited are identified in full. Compiled by L. Graham Closs, Colorado School of Mines, Member AEG Bibliography Committee.

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ANNUAL GENERAL MEETING

The Association of Exploration Geochemists
will hold their
Annual General Meeting
following the last technical paper of the day at the
8th International Geochemical Exploration Symposium
in the
"Beethoven Hall"
of the
"Stradthalle Hannover"
on
Monday, April 14, 1980, at 1630 hours

THE ASSOCIATION OF EXPLORATION GEOCHEMISTS



ELECTION OF ORDINARY COUNCILLORS

Eight Voting Members of the Association have been nominated for Ordinary Councillors for the 1980-1982 period. Five incumbent Ordinary Councillors will retire at the upcoming Annual General Meeting in April, 1980. Consequently, members are asked to cast five votes by erasing three names of candidates you do not wish to vote for from the Balloting List. The persons whose names are not erased from the Balloting List will receive one vote in the balloting.

Any Balloting List will be deemed invalid if the number of names not erased therefrom shall be more than five.

Limited information on each candidate is included on the reverse page.

Voting Members should not sign or otherwise identify themselves on the Balloting List. Place the completed List in the small envelope marked "AEG Ordinary Councillor Ballot" and seal. Place this small envelope in the large envelope bearing the permanent office address, seal, stamp and mail to arrive in Rexdale not later than April 1st, 1980.

The Association of Exploration Gechemists,
P.O.Box 523,
Rexdale, Ontario, CANADA
M9W 5L4

NOMINEES FOR ORDINARY COUNCILLORS 1980-1982

- S.J. Hoffman - Chief Geochemist, B.P. Minerals, Vancouver, B.C. Canada.
- W.K. Fletcher - Associate Professor, University of British Columbia, Vancouver, B.C. Canada.
- L.A. Clark - Exploration Manager, Saskatchewan Mining & Dev. Corp., Saskatoon, Saskatchewan, Canada.
- J.L. Wahl - Director-Senior Geologist of W.G. Wahl Ltd., Toronto, Ontario, Canada.
- S.E. Kesler - Professor, University of Michigan, Ann Arbor, Michigan, U.S.A.
- G.M. Allcott - Chief of Branch of Exploration Research, U.S.G.S., Denver, Colorado, U.S.A.
- R.E.W. Lett - Chief Geochemist Barringer Magenta, Toronto, Ontario, Canada.
- N.G. Lavery - Senior Research Associate at Exxon Production Research Co., Houston, Texas, U.S.A.