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Secretary's Report
May 1988 - May 1989

R. Frank Blackwood

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Secretary's Report May 1988 - May 1989

Introduction

It has been a steady but successful year for the Geological Association of Canada. Starting with the highly successful St. John's '88 Joint Annual Meeting (the first time GAC/MAC has met with our sister society, the Canadian Society of Petroleum Geologists), and including our high-quality publications, members can be justifiably proud of the Association's activities. It also has been a year of some introspection and analysis as the Planning Committee and Council examined GAC's potential for growth. And, of course, the many Committees, Sections, and Divisions of GAC continued to implement initiatives and plan for future events, ensuring the continuing relevancy of GAC to Canadian geoscience.

Evaluation of GAC activities and policy formulation for committees and staff were carried out at joint meetings of Executive and Council held at Montreal (October, 1988), Vancouver (February, 1989) and Montreal (May, 1989). The Executive Committee also met separately in Drumheller (September, 1988) and Toronto (December, 1988). At the Toronto meeting, a 1989 budget proposal was hammered out for Council's consideration at the Vancouver meeting in February, 1989.

Membership Statistics

The following is a breakdown of membership categories within the Geological Association of Canada and a comparison of numbers for the last three years. This year's figures were valid to April 30, 1989.

Membership Category	April 1987	April 1988	April 1989
Honourary Fellows	3	2	2
Life Fellows	3	3	3
Retired Fellows	182	164	111
Fellows	1847	1848	1868
Associates	503	496	506
Student Associates	252	201	202
Undergraduate Associates	N/A	2	5
Corporate Members	46	51	37
	2836	2767	2734

The geographic distribution of members is given below:

Canada	2526	2466	2424
Newfoundland	76	71	74
Nova Scotia	102	89	86
New Brunswick	52	53	55
Prince Edward Island	1	1	1
Quebec	263	259	265
Ontario	1029	1023	999
Manitoba	52	53	45
Saskatchewan	82	74	72
Alberta	306	289	262
British Columbia	531	524	524
NWT and Yukon	32	30	30
United States	187	186	197
Australia/New Zealand	30	31	33
South/Central America	11	11	9
Africa and Asia	20	20	19
Europe	62	53	52

Members elected since April, 1988, are as follows:

Fellows

J. Adamec
M.W. Bowles
K. Brook
D.F. Brown
D.J. Brownlee
E. Buhlmann
D.M. Burton
I.J. Campbell
S.J. Carmichael
L. Christenson
D.A. Collins
W.T. Coolen
S.F. Coombes
F. Corfu
P.H. Davenport
R.H. Dean
B.D. Devlin
A.P. Dickin
G. Di Prisco
M.W. Dufresne
G.W. Eberz
L.R. Erdman
A.D. Ettlinger
C.C. Everett
R.L. Faulkner
F. Ferri
J.K. Filo
D. Francis
K. Fujita
P.C. Grew
J.W. Haggart
N.M. Halden
J. Hall
D.R. Halliwell
T.D. Hamilton
T.S.T. Heah
R.Y. Higgs
D.H. James
R.H. Janes
M. Jébrak
D. Jones
M.C. Kennedy
A. Kerr
R. Kerrich
B.I. Kronberg
A. Kroner
P.C. Lightfoot
B.D. Loncarevic
B.F.N. Long
D.R. Lucas
P. Lutynski
N. Machado-Fernandes
D.T. MacInnis
G.L.D. Matile
B.J. McKay
M.G. Mihalynuk
C.M. Moore
P. Mordaunt
R.K. Netolitzky
R.B. Neuman
R.L. O'Breham
J.W. Perston
M.E. Robb
D.S. Rogers
M. Rusu
M.L. Serack
W.C. Seyers
B.R. Shaw
G.S. Shelp
W.W. Shilts
C.R. Stanley
D. Stone
A.E. Taylor
W. Thompson
B.E. Tucholke
R.M. Tweedie
A.H. Vogt
S.R. Westrop
J.B. Whyte
W.E. Wiley
D. Winston
K. Dewing
T. Dey
M.S.V. Douglas
H. Falck
S. Faure
M.E. Fay
M.A. Fekete
T.G. Fisher
M. Foisy
R.A. Foy
G.K. Gagnier
W. Galong
R.E. Gerber
R. Girard
J. Goutier
T.P. Grace
M.J. Gray
G.M. Green
P.E.J. Grossman
A.M. Hamilton
K.D. Hancock
B.L.K. Hartley
S.R. Hill
J.A. Hyatt
M.B. Innes
S.E.B. Irwin
Z. Ji
G.K.M. Kearvell
G.J. Kilfoil
E.A. Kinsman
D. Kirkwood
J. Lahaye
M.H. Lack
D.G. Laderoute
P.J. Laubitz
M.I. Leybourne
S. Liu
E.O. McCrossan
D.W.A. McDonald
S.A. McLean
J. McMurry
G. McTaggart
D. Morin
R.P. Moritz
J.W. North
M.M. Perras
R.Y. Poulin
I.A. Powell
D. Reddy
D.J. Ritcey
G.L. Roste
P.T. Sarjeant
W.A. Schleiss
R.L. Sherlock
F.H. Shrimer
W.A. Spirito
A.M. Stevenson
W. Suttner
A.A.B. Tims
S.S. Tomlinson
I. Torok
Jen Treutlein
T. Vandall
J.L. West
E. Zaleski

Associates

M.C.C. Alton
U.B. Andersson
C.E. Anstey
F. Auclair
J.T. Aultman
R.J. Baerg
M.E. Baknes
P.H. Benham
M.A. Bernier
L. Bertrand
J. Beyers
M.D. Bliss
J.M. Boissonneault
T.A. Brennand
P. Budkewitsch
W.M. Buhay
S. Cattalani
J.R. Chiarerzelli
R.A. Churchill
G.R. Cope
L. Corrivaux
S.A. Dehler
R.J. Delorme
F.A.R. Dennis
P. Desjarlais

Transfer from Associate to Fellow

W.K. Akhurst
J.J. Bouillon
D.A. Brown
B. Butterworth
W.T. Collins
H.J. Copland
P.A. Cousineau
M.P. Cunningham
C. Davis
H. Dragert
S.F. Foley
B.P. Fowler
M.I. Garland
J.S. Getsinger
M.J. Girard
C. Gosselin
T.R. Hart
K. Hicks
R.J. Johnston
E.C. Jowett
B.F. Kean
J.R.L. Learn
A.R. Lotimer
A. Mahmood
S.G. McAllister
J.W. Page
K.R. Pride
A.G. Pronk
B.T. Schreiner
K.R. Shannon
V.M. Shein
A. Slivitzky
D.B. Stevenson
M.L. Thomson
B.G. Warner
D.R. Webb
P.J. Whittaker

The following members resigned from the Association since April, 1988:

Regular Members

L.A. Baldwin
D.A. Barr
M.A. Beauregard
W.R. Benham
C.J. Borghouts
J.A. Collins
L.M. Cumming
D. Duba
V.G. Ethier
K.C. Fahrni
J.E. Fisher
J.A.S. Fogarassy
J.W.D. Griffith
J.A. Harquail
A.P.E. Hopkins
J.C. Laveau
R.C. Lenzer
G.S. Maxwell
G. Nadon
P.R.J. Nicholls
J.B. Olson
A.W. Panko
C.J. Rees
J. Richardson
D.G.W. Smith
A.G. Tworo

Corporate Members

Dome Petroleum Ltd.
Esso Minerals Canada
Newmont Exploration of Canada
Technical Marketing Assoc.

The Council of the Geological Association of Canada notes with regret the passing of the following members:

E. Bronlund
W.F. Dix
F. Ebbutt
A.W. Jolliffe
P. Misch
C.M. Scarfe

Medals and Awards

The GAC awarded five prestigious medals at its annual luncheon held on Monday, May 15, during the Montreal '89 Annual Meeting. The highest award of the Association, the Logan Medal, was awarded to Thomas E. Krogh; the Past President's Medal to John G. Malpas; the J. Willis Ambrose Medal to W. Glen E. Caldwell; the Duncan R. Derry Medal (selected by the Mineral Deposits Division) to Gilles O. Allard; and the Elkanah Billings Medal (selected by the Paleontology Division) to E. Timothy Tozer. The citations read at the medal presentations are given below.

Logan Medal

Precise measurement of time is a fundamental prerequisite for studies of geological history and processes. Before the refinements in U-Pb isotopic geochronology for which Tom Krogh is principally responsible, the ages of Precambrian rocks had analytical errors of tens of millions of years, and there was often uncertainty as to whether the ages determined represented igneous crystallization or subsequent metamorphic events. Today, laboratories around the world employing techniques developed by Krogh are routinely dating igneous and metamorphic minerals with an analytical precision approaching 0.2 per cent. Igneous ages can be confidently isolated from later events, and a variety of minerals representing different blocking temperatures can be dated in order to calibrate metamorphic cooling histories. A consequence of these developments is the "coming of age" of Precambrian geology, and thereby the possibility of understanding the origin of most of the continental crust.

Krogh's contributions to isotopic geochronology have been highlighted by numerous ingenious and unanticipated technical improvements. They include developments in low-contamination microchemistry, utilization of the ^{205}Pb spike, and air-abrasion techniques to improve concordancy. Sample sizes have been reduced from tens of kilograms to microscopic fragments of single crystals. Tom has consistently refused to accept the adequacy of current technology, and has always been ready to share his latest breakthroughs.

The Jack Satterly geochronology laboratory at the Royal Ontario Museum, which Tom Krogh designed and implemented, hosts a dynamic research environment including full-time, post-doctoral, and student workers, as well as an unending stream of guest researchers. Geochronological studies on rocks from around the world are carried out there. Principal emphasis is on the Archean Superior Province of the Canadian Shield, which boasts the most extensive, high-precision, geochronological data-base of any Precambrian terrane. Studies done at or inspired by the Royal Ontario Museum have irrevocably changed geological concepts in the Canadian Shield and in the Appalachian-Caledonian Orogen.

Tom Krogh demonstrated vision and an eye for important problems early in his career. Almost twenty years ago he formulated a test of the hypothesis that the Superior Province was formed by the successive accretion of volcanic island arcs. He reasoned that, accordingly, the greenstone belts should have uniform ages along strike but incrementally varying ages across strike. With but a handful of age determinations, he boldly postulated that arc accretion progressed from north to south, a scenario that several hundred zircon ages now seem ever more strongly to support. Of all the tectonic models that have foundered on the reefs of hard geochronological data, Tom's survives.

CITATION. For the development and application of ultra-precise U-Pb isotopic dating of igneous and metamorphic rocks, upon which virtually all modern studies of Precambrian crustal development depends.

I take pleasure in conferring the Geological Association of Canada's Logan Medal for 1989 on Dr. Thomas E. Krogh of the Royal Ontario Museum.

(J.M. Hamilton; prepared by P.F. Hoffman, J.A. Percival and K.D. Card)

Past President's Medal

John Malpas is recognized as a world leader in igneous petrology, particularly that of ancient and modern ocean crust. His research on the Bay of Islands Complex in western Newfoundland established this Paleozoic example as a world standard for ophiolite studies and led to an understanding of important mantle/crust relationships, physical and petrochemical models of magma chambers, metallogenetic processes, and metamorphic and structural effects of ophiolite obduction. Using a balanced approach of field and laboratory studies, he has advanced our knowledge of processes that construct the ocean crust. He played a key role in recognizing the importance of the Petrological Moho, the origin of metamorphic soles to ophiolite thrust sheets, the varied origin of oceanic plagiogranites and criteria for modelling crustal construction by multiple magma chambers. A combination of field relationships and geochemistry led him to suggest that many ophiolites represent products of spreading above convergent plate boundaries, at the time a most significant advance in our understanding of the ocean crust. His work has involved testing and comparing relationships among ophiolite occurrences from California to Middle Asia and New Zealand.

John was among the first to participate in marine studies and comparisons of modern oceanic crust and on-land ophiolite suites. His models for oceanic crustal construction, including coeval magmatism and crustal deformation, are now accepted by the marine geoscience community worldwide.

(G.V. Middleton; prepared by A.F. King)

J. Willis Ambrose Medal

The Geological Association of Canada's J. Willis Ambrose Medal is awarded to an individual who has rendered sustained distinguished service to the earth sciences in Canada through outstanding accomplishments in one or more of the following realms: education, research, management and administration, and promotion of institutional, professional or society affairs.

Glen Caldwell's contribution to the earth sciences in Canada has been profound. For over three decades he has worked unceasingly and with great success to serve the science of geology and his fellow scientists, and, through research, teaching and professional service, to promote the earth sciences in North America.

Members of GAC are well acquainted with many of his accomplishments. He served on council for many years and was President in 1980-81. He has been Chairman of the Editorial Committee, and was editor of Special Paper 13 and co-author of Special Paper 21. From 1982 to 1988, he occupied a key position in the Canadian geological community as Editor of the *Canadian Journal of Earth Sciences*, and he has acted as Associate Editor for the *Bulletin of Canadian Petroleum Geology*.

Glen Caldwell has contributed to Canadian Geoscience through his work for NSERC for over a decade and now serves as a member of Council. For his fairness and good judgement he has been sought after to serve on review committees and site-visit teams, and he has come to know most of the faculty in Canadian university geology departments.

Throughout his professional life he has been an active researcher, and his work on the Cretaceous of the Western Interior is known internationally. Even with heavy administrative and professional commitments, he continues to probe the secrets of the Cretaceous from new and innovative points of view.

Among his other achievements, he has been chairman of the American Commission on Stratigraphic Nomenclature; he is President of the Canadian Geological Foundation; he has been active on committees of the Royal Society of Canada; and this year he was appointed Vice-President of the International Union of Geological Sciences.

During his sixteen-year tenure as Head of the Department of Geological Sciences at the University of Saskatchewan, he led the department to national and international prominence. In 1988, Glen Caldwell moved to the University of Western Ontario to assume the position of Vice-President (Research).

(D.J. Tempelman Kluit)

Duncan R. Derry Medal

The Duncan R. Derry Medal is awarded annually by the Mineral Deposits Division of the Geological Association of Canada to a Canadian geologist who has made major contributions to the field of economic geology. The 1989 winner is Gilles Allard, a man with an outstanding varied career in teaching, in exploration, and in geological mapping. He was born in Rougemont, Quebec, and he obtained a B.A. degree in 1948, majoring in languages, and later in 1952, a B.Sc. degree, majoring in geology, both from the University of Montreal. In 1953, he was awarded a M.Sc. from Queens University for his thesis entitled "Structure and Mineralization in the Chibougamau Area". He continued on to Johns Hopkins University where he obtained his Ph.D. in 1956, again working on the Chibougamau area. I am told by others who were students with Gilles that he was an exceptional student.

During these university years, he worked on several field-mapping projects, including ones with the GSC in Labrador, with Jalore Mining Co. in Ontario, and with the Quebec Department of Mines in the Chibougamau area. During his summers with the Quebec Department of Mines, he was extremely active in encouraging students to better understand the relationships between regional geology and metallogeny. The numerous Sunday trips he led will always be remembered by those fortunate to have been on them, and they demonstrate his ability to teach to all the basics of field geology and exploration.

After completing his B.Sc. in 1952, Gilles made his first discovery of mineralization during a mapping project with the Quebec Department of Mines in the southern half of McKenzie township, Chibougamau district. This copper zone later became known as the "Siderite Hill" showing.

He left Johns Hopkins University in 1955 to take charge of the exploration programs for Campbell Chibougamau Mines Ltd. He didn't waste any time making the transition to the "real" world. After studying the geological setting combined with a geophysical (EM) anomaly, he mounted a large winter ('56-'57) drilling program on Chibougamau Lake, with 21 drills working at one time on the lake in extremely cold and windy conditions. This program led directly to the discovery of the Henderson Cu-Au Mine, which has operated from 1961 to the present day. In addition, several large claim blocks were acquired covering lithologically and structurally "promising" ground, which formed the focus of exploration for the next several years, even as Gilles left to pursue other duties.

His love for teaching drew him to the University of Virginia in 1958-59 where he was Assistant Professor in Geology. He followed this short taste of teaching with an exotic stint in Brazil between 1959 and 1964 at Petrobras Curso de Geologia, University of Bahia, Salvador.

He returned to the United States in 1964 and for the next two years became a Visiting Professor at the University of California, Riverside Campus. In 1965, he moved on to become Associate Professor of Geology at the University of Georgia, a position he held through to 1969.

During the summer months, Gilles returned to another love — field mapping in the Chibougamau area for the Quebec Department of Mines. His work resulted in Gilles mapping of magnetites with his recognition of the significance of analyzing for vanadium. Relatively high assays were obtained and an important reserve of vanadium in North America was identified, but cannot compete with South Africa at the present time.

In 1970, Gilles was appointed as Professor of Geology at the University of Georgia, a position he continues to hold. On numerous occasions he was named Professor of the Year, a remarkable feat that again demonstrates his love for the teaching of geology to students.

In 1972, Gilles led two excursions for the International Geological Congress. In addition, he was author, editor, translator of guidebooks for excursions through the Val d'Or, Noranda, Matagami and Chibougamau mining districts.

In 1973, Gilles was invited by UNESCO to teach a course on Canadian ore deposits and Canadian exploration methods at the University of Bahia in Salvador, Brazil.

Having barely unpacked his bags after returning in 1974, he, along with Jules Cimon, set about organizing the Chibougamau Symposium. There he predicted that the Waconichi Formation was a good potential host for volcanogenic stratiform orebodies, and that the structure of the Chibougamau area pointed to Scott township as a good target. Following up on this advice in 1975, Dave Hutton assembled ground and the Selco Scott township orebody was discovered. Once again, Gilles was part of a "team effort" — this time between a government geologist and a company manager of exploration who recognized the potential of a geological suggestion and carried it to fruition. That same year Gilles took time to teach a course at the University of Geneva, Switzerland.

At the invitation of the GAC and MAC, Gilles led field trips to the Chibougamau area in 1979. In 1981 and 1984, he conducted lecture tours to Quebec universities and central Ontario universities respectively at the invitation of the C.I.M. The 1984-85 lecture tour was as a distinguished lecturer, presenting 21 lectures across Canada.

In 1983, he was Chairman of the Society of Economic Geologists Annual Meeting in Atlanta, Georgia. That same year he participated in the Archean symposium in Beijing, China.

Between 1985 and 1987, he was Member (1985-86) and Chairman (1986-87) of the SEG Thayer Lindsey Visiting Lecturer Committee, a most prestigious lecture series. During 1985-86, he also found time to be Chairman of the Southeast Section of the Geological Society of America. His love for South America allowed him to be lured away to Cuzco, Peru, to lecture at a short course on stratiform ore deposits, organized by Multiciencias '86 (UNESCO).

In 1987, Gilles was appointed member of the SEG Publishing Company. Over the last couple of years, he served as a member of several committees at the University of Georgia as well as currently being on the Committee of Nominations with the Geological Society of America.

Gilles has just arrived here after leading a field trip during the southeast GSA meeting.

Whew! What a career! Too bad the "bonus points" programs weren't in effect during *all* of Gilles' travels.

Gilles belongs to 13 individual professional affiliations, including GSA, Mineral Society of America, CIM, AIME, SEG, GAC, MAC, Brazil, Southeast States, and the International Association on Genesis of Ore Deposits.

Gilles has supervised and graduated 24 M.Sc. candidates and 6 Ph.D. candidates. He has carried out editorial and review work for several institutions including the National Science Foundation and the National Research Council of Canada. He has reviewed papers for CIM, *CJES*, *GSA Bulletin*, *Economic Geology*, *The Canadian Mineralogist*, *American Mineralogist*, GAC, and the Quebec Ministry of Mines.

Invited lecture tours have taken him to 36 separate universities (sometimes two or three times) across Canada, USA, and Europe. He has also presented lectures to several societies including Sigma Xi (5), AIME (4), and CIM (16), as well as service clubs such as Rotary and Kiwanis, and also to elementary and high schools. Although these activities might sound very hectic, Gilles' constant enthusiasm was always admired.

Turning to publications, Gilles has been no less prolific in disseminating his ideas and concepts as a result of his work in Quebec, Brazil, and Southeast United States. And, of course, his work was published in English and French. In all, he has published 28 research papers, 37 abstracts, and 33 technical publications.

Gilles' lifetime involvement in promoting and understanding the geology and metallogeny of the Chibougamau area has made him a household word for any geologist working in that camp. His outstanding teaching and research studies at the University of Georgia combine a great deal of his work in Quebec with alteration studies in southeast USA. Most of this research is out in the geologic literature, and is a very solid contribution.

Gilles has probably participated in more than 100 national and international scientific conferences, where his energy and enthusiasm contributed to the dissemination of ideas and concepts. Whether on an outcrop with an assistant, on a bus-load of field trippers, in front of a room full of young and not necessarily all enthusiastic students, or in front of an august body of scientists, Gilles was foremost respected.

Several explorationists have stated that Gilles has most influenced the beginning of their professional career.

Ladies and Gentlemen, this year's Duncan R. Derry Medal recipient is a great teacher, a great field geologist, a gifted speaker and an enthusiast. His inspired students populate the successful exploration companies and mineral deposit research institutions around the world.

He has added significantly to our knowledge and understanding of diverse types of important mineral deposits and has improved our efficiency in mineral discovery.

Gilles is a humble man and professes to be embarrassed by this award. He has spent much time on the giving, rather than receiving, end for various other forms of recognition. We wish him continuing success in his career as one of Canada's pre-eminent "transplanted" economic geologists.

A most worthy recipient and a gentleman of distinction — Dr. Gilles O. Allard.

(Tom Schroeter)

Elkanah Billings Medal

Born January 13, 1928, in England; B.A. (King's College), Cambridge University, 1948; Ph.D. (geology), University of Toronto, 1952; University of Western Ontario (Lecturer), 1948-52; Geological Survey of Canada, 1952 on. Tozer's achievement in producing an authoritative and tested global biochronological scale for the Triassic System is unique. His work combines mastery of two centuries of scientific publication with his own extensive field studies that began in 1954 and extended throughout North America and subsequently to many parts of the world. Early in his career, when the geology of Canada's Arctic Islands was virtually unknown, he mapped geologically (in part with R. Thorsteinsson) Victoria Island and parts of Prince Patrick, Melville, Axel Heiberg and other islands, an area comparable with that of the British Isles. In doing so, he established a stratigraphic framework for the entire Mesozoic and Tertiary sequence in the Sverdrup Basin. As a young man, he was privileged to work with Frank McLearn, a leading authority on Triassic ammonites and biochronology. Tozer continued from McLearn's foundations, with meticulous field collecting for the solution of local and regional geological problems, combined with examination of reference collections from all over the world. The cumulative effect of his work has been a synthesis of the Triassic System into component stages and zones of global application. Nineteen-sixty-seven saw the first major document, an elegant but detailed synthesis of the stratigraphic relationships of the Triassic ammonite and pelecypod faunas in Canada. In 1968, this was extended (with N.J. Silberling) throughout the North American Cordillera. Since then, the model has received enthusiastic and universal acceptance, and is currently employed throughout Europe, USSR and China, as well as the Americas. Two monumental taxonomic monographs have been completed on the Canadian Triassic faunas, as has a vital synthesis of the Triassic ammonite genera of the world. These serve as the standard references for future generations of Triassic workers. Parallel with his biochronological work, Tozer has maintained his interest in structural geology, and has used his model to interpret the paleolatitudinal significance of suspect terranes in western Cordillera from the Yukon Territory to Mexico, and has suggested a means of interpreting the history of the Mesozoic Pacific. In his 1984 book on the history of the evolution of the Triassic time scale, Tozer has done something which few have done before, giving an account of the history of the personalities of those who dedicated their scientific lives to the Triassic, and has shown us the complexity and excitement of research in that branch of geology that furnishes the time dimension — stratigraphy.

(Des Collins)

Headquarters

It was with great sorrow and sadness that we received the news of Maureen Penney's tragic death this past Easter. Our Associate Secretary-Treasurer and office manager of GAC Headquarters was killed in an automobile accident during a severe late-winter storm on Easter Sunday, March 26, 1989. Maureen had served our Association faithfully and well over the past seven years, and many of us will long remember her exuberant competence and infectious laughter. Expressions of sympathy were sent to Maureen's husband and family by Treasurer John Malpas, President John Hamilton and the Secretary.

After Maureen's untimely death, it became necessary to take steps to meet the office-function void left at Headquarters. We did this by turning to our existing full-time staff. Karen Johnston, who had been Assistant Secretary-Treasurer for the last four years, and who is conversant with all aspects of the Association's activities, was made office manager, responsible for all details of the day-to-day routine. Her official title will be Associate Secretary. Yvonne (Bonnie) Snow, who had been our Publications Officer for the past year, has had her responsibilities broadened to include bookkeeping duties for all of our financial trans-

actions — effectively, she has become Headquarters accountant or Associate Treasurer. Both Karen and Bonnie are to be commended and thanked for meeting their extra responsibilities under very trying circumstances, and keeping Headquarters operations on a very even keel during a most difficult period.

With this reassignment and consolidation of duties for our two permanent employees, it became necessary to hire a clerk-stenographer for secretarial support. Therefore, I am pleased to inform you that Arlene Kelly has joined our Headquarters staff as Assistant Secretary-Treasurer. This means we are continuing with three full-time employees to handle the myriad tasks at Headquarters, and I have every confidence that our Association will continue to be well served.

Publications Distribution

The distribution of GAC publications (Special Papers, Reprint Series, Short Course Notes, Field Trip guidebooks) is working extremely well out of our St. John's Headquarters. Under Bonnie Snow's direction, all transactions are now computerized, including invoicing for Geoscience Canada. Our book-storage facility is reaching its limit, but this will be alleviated when Headquarters moves into new quarters on the Memorial University campus sometime this summer.

Advertising Manager

GAC's first Advertising Manager, Bill Collins, resigned at the end of 1988 to give full attention to his duties at ODP. We are grateful for the several initiatives Bill took during his short tenure, and wish him well at the ODP Secretariat.

We have been fortunate in finding a replacement for Bill in the person of Celeste Andrews, a geology honours graduate from Memorial University. Celeste has been working out of Headquarters on a half-time basis, and gave a good measure of support to other staff members during the period following Maureen Penney's death. During the past year, the Advertising Manager represented GAC at the GSA meeting in Denver and the PDA in Toronto. One result of these meetings has been the arrangement for exchange publications advertising with other societies. As well, agreement has been reached with the Geological Society of London (arranged by Publications Committee Chairman Bob Baragar) to offer publications of our respective societies to each other at member rates. Celeste facilitated the printing of a GAC publications list with prices in sterling for inclusion in the *Journal of the Geological Society* (circulation 5600). A new mobile display unit also has been purchased. It is of attractive design, and its light weight and luggage-style shipping capability will mean a significant savings in shipping costs (payback in freight charges alone over four years).

Scientific Meetings

St. John's 88

After several years of preparation, the St. John's '88 Annual Meeting was successfully held in May, 1988, at the Memorial University of Newfoundland. It marked the first time that GAC and MAC have met with the Canadian Society of Petroleum Geologists (CSPG). The meeting was both a technical and financial success, and Council has expressed its gratitude to General Co-Chairman (GAC) John Fleming and his Local Organizing Committee for an excellent job.

NUNA Research and Field conferences

Preparations are well under way for our NUNA Research Conference on "Late Proterozoic Rifting, Glaciation and Eustasy" (Windermere '90), under the guidance of J.D. Aitken. However, no firm proposals for field conferences have been received. Interested members with ideas in this regard should submit them to Program Committee Chairman, Emlyn Koster.

Financial Report

1988 Audit

The audited financial statement of the Association for 1988 was prepared by Doane Raymond and sent to all Fellows in March, 1989. The following is a summary of income and expenditures from the auditor's report.

Total income for 1988 was $277,197. This mostly represents members fees, corporate membership, revenue from St. John's '88, and interest on investments.

Expenditures for 1988 under Members Services were $226,536. These include salaries and benefits to Headquarters staff; insurance, telephone and postage costs; subscriptions to CJES; computer charges; and the audit.

Publications are treated separately by the auditors, and represented an excess of cost over recoveries of $2,964 in 1988. This is based on costs of $171,381, which include printing, distribution, postage and storage, and Recoveries of $168,417, which include sale of publications, sale of advertising and grants, for a net loss of $2,964. (Note: Special Paper printing costs incurred late in the year will not be compensated for by book sales until the new year, thus tipping the balance sheet toward a deficit position as a function of publication schedule.)

The above figures indicate an overall excess of income over expenditures of $47,697, *i.e.*,

Income		$277,197
Expenditures		$226,536
		50,661
Publications		(2,964)
Excess		$ 47,697

In 1988, Council approved a break-even budget. However, as indicated above, the Association actually realized an Excess of $47,697. There are two main reasons for this: a larger-than-expected return from the St. John's '88 Annual Meeting; and forecasted typesetting, editing and printing costs that were not realized due to unavoidable delays in Special Paper production.

1989 Budget

The 1989 budget was approved by Council at the February, 1989, Council Meeting in Vancouver. The following is a statement of its main items:

Income

Members Income	$286,011
Publications Sales	176,350
Publications Grants	76,284
	$538,645

Expenditures

Members Services	361,934
Publications Production	192,400
Publications Distribution	31,200
	$585,534

Total Income	$538,645
Total Expenditures	585,534
Excess of Expenditures over Income	($ 46,889)

Two observations regarding the 1989 budget that members should consider: over 60 per cent of total expenditure goes toward Members Services; and the importance of grants to our publication ventures. Also, as already noted, many of the publication costs related to Special Papers, Reprint Series, *etc.*, come at the end of the year, and the books themselves are often not available for sale until year-end (indeed, many times it is early in the next year before any revenue is realized). Therefore, the Association may have to wait for the succeeding year to see a significant return on publications expensed in the current year. These factors come to play in 1989 and contribute largely to our projected deficit of $46,889. It is comforting to remember, however, that a surplus of similar size was realized in 1988.

Committees

GAC works on the committee system, each with its own "Terms of Reference" regarding important specific functions within the Association. There are fifteen committees altogether, each with its own chairperson. Three of these committees are for the purpose of selecting GAC medal winners: the Logan, Ambrose and Past President's medal committees; and one oversees the Logan Fund. The chairpersons of three other committees, Publications, Program and Finance, sit with the officers and the Past President of the Association on the Executive Committee (chaired by the President).

The ***Publications Committee*** is chaired by Bob Baragar. It has overall responsibility for all of GAC's publications, including their editing, typesetting and printing. One of our most popular publications is, of course, the quarterly journal *Geoscience Canada*, which is published under the Editorship of Andrew Miall and Managing Editor Monica Easton. GAC's newsmagazine, GEOLOG, is edited by Michael Easton and Monica Gaiswinkler Easton, and continues to be much appreciated by members. In the past, GEOLOG has been published quarterly, but starting in 1989, Council has approved a five-issue offering to allow for better scheduling of news items and announcements over the year.

One Special Paper was published during the report period and released at the Annual Meeting in Montreal:
Special Paper #35 — *The Late Quaternary Development of the Champlain Sea Basin*; edited by N.R. Gadd.

There are five Special Papers currently in preparation and/or production:

1. *Sediment-Hosted Stratiform Copper Deposits*
2. *Evolution of Western Interior Foreland Basin*
3. *Trans-Hudson Orogen*
4. *Middle Proterozoic Evolution of the Southern Margin of Laurentia–Baltica*
5. *The Cigar Lake Uranium Deposit, Saskatchewan, Canada*

Number 3 of GAC's *Geoscience Canada Reprint Series, Ore Deposit Models*, was released last year at the Annual Meeting in St. John's. It has had considerable success to date with 1159 copies sold out of a print run of 2135. Number 4 in the series, *Diagenesis*, is nearly completed and will be released in early fall.

Three volumes of Short Course Notes were released at the Montreal '89 Annual Meeting:

1. Short Course Notes 5, *Applications of Microcomputers in Geology*, edited by Malcolm Reeves, is from a short course given at the Saskatoon '87 Annual Meeting.
2. Short Course Notes 6, *Mineralization and Shear Zones*, edited by J.T. Bursnall, was part of the Montreal '89 program.
3. Short Course Notes 7, *XRF Analysis in Geological Sciences*, edited by S.T. Ahmedali, was also part of the Montreal '89 program.

Co-ordinating all of GAC's publishing activity is an onerous task and demands considerable attention from Committee Chairman Bob Baragar. Bob also advises our Advertising Manager on particular promotions, and, of course, liaises with the editorial board of the *Canadian Journal of Earth Sciences*.

The ***Program Committee*** is chaired by Emlyn Koster. This report period represents the first full year that the Program Committee Chairman has been a member of the Executive Committee. The active participation of the Chairman at the Executive level reflects the crucial role that program planning plays in the overall activities of the Association.

This year the Committee carried out an analysis of past GAC Annual Meetings, *e.g.*, number of concurrent sessions, Symposia versus Special and General sessions, local or regional topics, *etc.* As a result, there has been a distilling of trends that will be useful in planning future technical programs at Annual Meetings. Also, the GAC/MAC Annual Meeting Manual is being updated and a second edition will be printed and made available to Local Organizing Committees (LOCs) upon completion of revisions and additions. The Program Committee plays an important role in assisting LOCs and ensuring adherence to GAC policy principles at Annual Meetings. To this end, the Chairman maintains close contact with all existing LOCs for future Annual Meetings — the Council — approved venue for these being as follows: Vancouver '90, Toronto '91, Wolfville '92, Edmonton '93, Waterloo '94, Victoria '95, Winnipeg '96 and Ottawa '97. The GAC Program Committee also met twice with the MAC Program Committee (in the fall and spring) to ensure continued communication and co-operation in preparing for these Annual Meetings. Finally, Chairman Koster is keeping abreast of developments for Windermere '90 or GAC's NUNA Research Conference on "Late Proterozoic Rifting, Glaciation and Eustasy" planned for September 9-14, 1990.

The ***Finance Committee*** is chaired by Gordon West. It advises Executive and Council on financial matters, including recommendations on GAC's short- and long-term investment strategies for our retained surplus.

The ***Howard Street Robinson Fund Committee*** is chaired by Hugh Squair. It manages the H.S. Robinson trust fund, using fund proceeds to support Precambrian and economic geology research projects. This year the Committee approved seed money for two GAC Special Papers: "Middle Proterozoic Evolution of the Southern Margin of Laurentia – Baltica" and "The Cigar Lake Uranium Deposit, Saskatchewan, Canada". The Committee also supports the H.S. Robinson Lecturer by paying travel costs. This year the lecturer was Dr. Tom Krogh of the Royal Ontario Museum, who gave a total of 26 lectures across Canada.

The ***Education Committee*** is chaired by Jean-Claude Dionne. It administers the awarding of prizes to students selected by earth-science departments of Canadian universities (the prize is free membership in GAC for a year and a Special Paper of the student's choice). This year 24 prizes were awarded. The Education Committee is also endeavouring to compile a list of provincial contacts concerned with earth-science education in Canadian schools, as well as making available to the schools a list of films and videos on earth science.

The ***Membership Drive Committee*** is chaired by Janet King. This year the Committee took several initiatives by way of letter campaigns to promote the Association to members and non-members alike: a welcoming letter was sent to all new members, and it encouraged them to have their colleagues join; non-member authors who had published in *CJES* were written to acknowledge their contribution to the journal chosen by GAC as its principal medium of publication of scientific papers, and to invite them to join our Association; a letter (signed by the President) was sent to appropriate corporations highlighting the benefits of corporate membership. Perhaps the most important initiative taken by the Committee (a joint effort by Janet King and Councillor Normand Goulet) was the opening of negotiations with L'Association professionelle des géologues et des géophysiciens du Québec (APGGQ) concerning closer involvement between this group and GAC. As a result, both Associations have agreed to compose a "letter of understanding" that will lead to associated-society status for GAC and APGGQ. Hopefully, this will help us to better communicate geoscience information within Quebec and the rest of Canada.

The ***Membership Review Committee*** is chaired by Norman Halden. The Committee reviews all membership applications to ensure compliance with GAC's entry requirements. This year 281 applicants were approved for membership. Chairman Halden also has been co-operating with the Membership Drive Committee in devising ways of enticing previous members back into the fold. Finally, the Committee assisted Headquarters in arranging for the French translation of correspondence to francophone applicants.

The ***Planning Committee*** was chaired by Gerry Middleton during 1988-89. After deliberating on future policy and direction for GAC, the Committee produced a report entitled "Towards a long-term plan for the Geological Association of Canada". The report identified three options: (1) Stay as we are; (2) Grow by in-house professionalization; (3) Grow by contracting out. The February Council meeting in Vancouver was specially structured to allow for extensive debate of the Planning Committee's report. These discussions were summarized by John Hamilton in his Presidential Preamble in Volume 18, Part 3 of GEOLOG (March/April, 1989 edition). Clearly, the Planning Committee has been the catalyst for a valuable dialogue, which Council can draw upon when making future policy decisions. Of course, analysis of these and other issues will be continued by the Planning Committee under the guidance of its new chairperson, Mary-Claire Ward of Watts, Griffis and McOuat.

The ***Professional Affairs Committee*** is chaired by Ron Smyth. New terms of reference were proposed by the Committee and approved by Council. These will see the Professional Affairs Committee providing information to GAC members on changes in laws, regulations, *etc.*, that affect the ability of geoscientists to practice their profession in Canada.

The ***Public Information Committee*** is chaired by Geoff Norris. The Chairman represented GAC at a Sigma Xi/AAAS meeting in Orlando, Florida, last October, where ways and means of communicating science to the public (particularly schools) were discussed. The Committee hopes to mobilize local GAC Sections to get involved with public outreach.

The ***Logan Fund Committee*** is chaired by John Hamilton. Donations to the Fund amounted to $1049 during the past year, mostly contributed by members when returning their membership fees.

Divisions

GAC has nine Divisions and they all report to Council on a regular basis throughout the year. They are all active and what follows is a summary of major activities for the report period.

Canadian Sedimentology Research Group. The CSRG took initiatives this year to expand the Group's activities, particularly by forming informal contacts with other sedimentary-geology-oriented organizations across Canada. They co-sponsored a symposium on "Recent Advances in Sedimentology" at the 1989 annual colloquium of the Atlantic Geoscience Society. A notice advertising CSRG and its activities was included in CSPG's *Reservoir*. The annual meeting of the CSRG was held May 24-26 at the University of Ottawa. It consisted of two field trips on the first day followed by two days of informal presentations. The Group also published three newsletters during the year. Finally, a revised constitution that formally installs CSRG as a Division of GAC was approved by GAC Council in Montreal.

Environmental Earth Sciences. The EES Division co-sponsored the Special Session on "Applications to Environment and Health" and sponsored the Special Session "Environmental Impact of Mining Activity" at the Montreal '89 Annual Meeting. Also, international speakers were invited to attend the Special Session on "Massive Ground Ice: Delineation, Geology and Origin". The Division is currently working on rewriting its constitution into a formal document for Council ratification.

Geophysics. After the Canadian Geophysical Union (CGU) became independent of GAC, our Association attempted to form a new Geophysics Division in May, 1988, at St. John's '88. However, it was decided then that more homework needed to be done, and that a second attempt at a founding meeting would be made at Montreal '89. I am pleased to report that a successful meeting was held on May 17, 1989, and the new Geophysics Division has been formed. This will ensure that geophysics remains a vibrant part of GAC's program, particularly as a result of co-operative ventures with CGU.

Marine Geosciences. The Division has been improving communications between its members and organizing future meetings for marine geologists and geophysicists from both coasts of Canada. They also published a newsletter in February and another was due this spring.

Mineral Deposits. Two issues of the MDD newsletter, *The Gangue*, were published in 1988-89, after more than a year's hiatus. MDD also became one of several co-sponsors of the new "Mining Hall of Fame", which held its inaugural meeting in Toronto on January 9, 1989. Results from a MDD-sponsored questionnaire on "Continuing Professional Education" (part of a M.Sc. thesis at UBC) are being assembled. A paper was edited by MDD and published in *The Northern Miner Magazine* on the Iskut River Gold Camp in B.C. MDD also ran a very successful workshop in Vancouver on "Porphyry Cu-Au Deposits in the Cordillera". The winner of the William Harvey Gross Medal this year was Ron Britten, who received his award at the MDD Annual Luncheon in Montreal. MDD has also established the Julian Boldy Certificate Award, to be presented annually to a geoscientist judged as giving the best paper in a MDD-sponsored session at the Annual Meeting. The inaugural winner at Montreal '89 was H. Scott Swinden of the Geological Survey Branch, Newfoundland Department of Mines and Energy, for his paper, co-authored with G.A. Jenner (Memorial University) and B.F. Kean (Geological Survey Branch), "The Significance of Refractory Source Melting in Volcanogenic Sulphide Mineralization: Examples from Central Newfoundland". The Division also selected the H.S. Robinson Distinguished Lecturer for 1989-90, and chose Richard R. Walker of Westmin Resources, Vancouver, who will lecture on "Topics in Exploration for Volcanic-hosted Ore Deposits".

Paleontology. The annual Canadian Paleontology and Biostratigraphy Seminar was held at the University of Manitoba on September 23-25. It included a one-day field trip. The Division produced two newsletters during 1988-89, and sponsored a Special Session at Montreal '89 on "Silurian Reefs of Northeastern North America". Finally, the results of a successful membership drive are expected to increase members to 150 from the 100 of last year.

Precambrian. The Division's newsletter, the newly named *Precambrian Times*, was distributed in April, depicting the Division's new logo. The Precambrian Division also selected the H.S. Robinson Distinguished Lecturer for 1988-89: T.E. Krogh of the Royal Ontario Museum presented his lectures on U-Pb geochronology to 26 audiences across Canada.

Structural Geology and Tectonics. The Division-supported Canadian Tectonics Group held its Annual Meeting on October 21-23, 1988, at Banff, Alberta. Thirty-five people attended a full day of talks and a field trip through Rocky Mountain Front Range structures. At the dinner gathering, the Division's Best Paper and Best Thesis awards for 1987 were announced. In the Best Paper category, the winner was "Eocene Structural Development of the Valhalla Complex, Southeastern British Columbia" by Sharon Carr (Carleton University), Randy Parrish (Geological Survey of Canada) and Dick Brown (Carleton University). The Best Thesis was a Ph.D. dissertation entitled "The Intermontane-Omineca Belt Boundary in the Quesnel Lake Area, East-Central British Columbia: Tectonic Implications Based on Geology, Structure, and Paleomagnetism" by Chris Rees (British Columbia Geological Survey), completed at Carleton University. The Division also awarded a $600 field-trip prize to the student who submitted the best abstract for an oral or poster presentation in the structure and/or tectonics categories at the Montreal '89 Annual Meeting. The winner was Bruno Lafrance of the University of New Brunswick for his talk "Textural and Microstructural Evolution of Limestone Mylonites". Two issues of the Division's newsletter, *The Main Thrust*, were published during the year.

Volcanology. The Division ran a field trip to classic volcanic localities of southern Italy and Sicily during the period April 29 to May 13, 1989, with participants arriving in Montreal in time for the Annual Meeting. At the Montreal meeting, the Leopold Gélinas award for the best M.Sc or Ph.D thesis in volcanology was presented. The winner was Francois Brissette of the Université de Montréal for his M.Sc. thesis on "Sedimentological Study of the Pyroclastic Deposits of the Vulsini Volcano, Central Italy". Two issues of the Division's newsletter, *Ashfall*, were published during the past year.

Sections

GAC has five Sections, and they provide a very important national-body presence in their respective regions. The following is a summary of the Sections' activities.

Cordilleran. The Section sponsored two very successful short courses: "Structural Settings and Gold Deposits" and "Industrial Minerals in British Columbia". Three talks were either sponsored or co-sponsored in their Lecture Series: "Pb-Zn Deposits in Ireland" by Murray Hitzman, "Alkaline Copper Porphyries" by Felix Meutschler, and a public lecture and slide show entitled "Earthly Delights" by Joe Nagel. A special public lecture was presented in Richmond, B.C.,

by writer John Nance on earthquake hazards in the Pacific Northwest. A successful meeting jointly sponsored by the Smithers Exploration Group was held in Smithers on the theme "Stratigraphy and Mineral Deposits in Northwestern B.C.". It included field trips and was well attended. The Section is in the process of revising their book on Vancouver Geology, which is intended for publication in a new format and in time for the Vancouver '90 Annual Meeting. Finally, the second annual May Day Picnic was a fun-filled event again this year.

Edmonton. The Section sponsored a very successful field trip in the fall of 1988 to the Rocky Mountain Foothills. Geologists from all over Alberta participated in this tour of Lower Cretaceous coal-bearing units of western Alberta. The Luncheon/Speaker program resulted in six well-attended lectures, including one on "The Structure and Tectonic History of the Western Canada Subduction Zone" by GAC Past President's Medallist, Dr. Ron Clowes. The Section's second annual Pub Night drew a standing-room-only crowd of over 100 people to hear Dr. Owen Beattie speak on the demise of the Franklin Expedition. Finally, membership in the Section is up, largely due to student recruitment at the University of Alberta.

Newfoundland. The year's activities started with Logan Day celebrations on September 25, 1988. The Annual Fall Field Trip took place in October with some 42 participants examining the geology of the Burin Peninsula. The Section's Annual General Meeting was held in March, 1989, and included technical sessions over two days that featured 28 authors — abstracts from this meeting will be published in Maritime Sediments and Atlantic Geology. At the annual dinner and dance, the Section's E.R.W. Neale Scholarship ($500.00) was presented to Heather Moore. Two issues of *Mélange*, the Section's newsletter, were published during the year. Also, a special issue of the *Newfoundland Journal of Geological Education* entitled "Geology of Newfoundland and Labrador" was released in May and has been distributed to all schools in the province. The Newfoundland and Labrador Geological Highway Map has been delayed because of inadequate funding; assistance will be sought from government and industry. Finally, the Section has established a trust fund, provisionally entitled "GAC Newfoundland Section St. John's '88 Fund", from its share of proceeds from the St. John '88 Annual Meeting and grants from the sponsoring societies, to further geoscientific activities in the province.

Pacific. The Section had a very successful technical program that included six talks throughout the year. Work on the Vancouver Island Geological Guidebook is progressing with the first half of the book completed. The Section sponsored a well-received six-week extension-education course at the University of Victoria on the "Mineral Potential of British Columbia". The 1988 Science Fair award was presented by the Section to Miss Jessica Mondia for her exhibit on "Energy Efficiency for Canadians".

Winnipeg. The Section held twelve meetings throughout the year, featuring guest speakers from Canada and the United States. Two of the speakers were GAC's H.S. Robinson Distinguished Lecturer for 1988-89, Dr. Tom Krogh, and GAC's Past President's Medallist for 1988-89, Dr. Ron Clowes. Membership is down somewhat in the Section but they are looking forward to another active season next year.

Associated Societies

GAC has associated-society status with the following: Atlantic Geoscience Society, Canadian Quaternary Association, Canadian Geophysical Union, Canadian Society of Petroleum Geologists, and the Toronto Geological Discussion Group. We communicate with these groups throughout the year and, where possible, take advantage of opportunities for joint sponsorship of geoscience activities.

Respectfully submitted,

R. Frank Blackwood
Secretary

St. John's, Newfoundland
May 1989