

## Presidential Address: “WHAT NEXT? FACING CHANGE ON THE JOB AND AT GAC”

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### INTRODUCTION

Winnipeg last hosted the Annual Meeting of the Geological Association of Canada and Mineralogical Association of Canada in 1982. At that time, the Presidential Address was given by Nean Allman, my very dear friend and GAC's first woman president. It is an interesting coincidence that both of us should give our Presidential Addresses in Winnipeg. While I am not the first woman president of GAC, I am in fact the first Irish president of the Association. The second Irish president of GAC, Godfrey Nowlan, will present his Presidential Address in Quebec City two years from now, subject, of course, to his successful election at this afternoon's Annual General Meeting.

When I look back on Presidential Addresses over the last dozen years, I am somewhat humbled to be standing — or sitting — before you. In particular, knowing that the brilliant insightful presentations of Frank Blackwood and Fred Longstaffe are still fresh in your minds is intimidating, to say the least.

One of my colleagues at Watts, Griffis and McQuat (WGM) was worried that I might become overconfident and he reminded me that Denis Thatcher, the husband of former British Prime Minister Margaret Thatcher, is reported to have said, “Remember that it is better to keep your mouth shut and be thought a fool than to open it and remove all doubt.” Well, as they say, it's a tough job but somebody's got to do it.

When I first considered this topic, I was initially thinking of the impact of the rapid changes that we currently encounter on a daily basis and wondering a little about what the next decade might bring. The topic was to some degree prompted by the Canadian Geoscience Council's study “Future Challenges and Trends in the Geosciences in Canada,” which is the subject of a special session/symposium at this meeting. GAC is also concerned about what the future may bring and has in the past year developed a ten-year strategy under the very able direction of an ad hoc committee chaired by Grant Mossop. We have also seen significant change in the mining and mineral exploration industries in recent years. It gives me the greatest pleasure to be able to say to this gathering that the Canadian mining and exploration industry is alive, well and busy, not only in this country, but all over the world. If you miss some of your colleagues at this meeting, it is not because they couldn't afford to come, but rather that they were too busy.

When I finally sat down to crystallize some of these ideas two weeks ago, I realized that it was 30 years ago this year that I graduated from University College, Dublin. Once I had recovered from the shock, I realized that there were some personal reflections on the changes that had occurred in those 30 years that might be thought provoking.

It quickly became apparent that the topic was taking on a

life of its own, and that I could not cover all aspects of the subject matter between now and lunch. The beauty of a Presidential Address, however, is that it permits one to flit from idea to idea with no sense of grand or ultimate purpose. This, by the way, is my own interpretation, and what follows are some personal reflections on changing times and changing philosophies.

### HISTORICAL PERSPECTIVE

When I graduated 30 years ago, plate tectonics was in the process of labour and delivery. It was so new that it was not covered in undergraduate courses at my university. We had no lunar rocks because no one had been to the moon, and in fact, there was an element of society that still believed it was made of green cheese. Black smokers and sulphide deposits on the sea floor were unknown, as was the location of the Titanic. The microchip hadn't been invented, and even if it had, I doubt if any of us could have foreseen the impact that it was going to have on our lives. The transistor radio had just arrived on the scene, but the electronic calculator was unknown, and most of us were very adept at the use of a slide rule. By the way, for those of you who didn't know, the best way to keep a slide rule functioning smoothly is to dust it with talcum powder on a regular basis.

Women geoscientists were a rare species indeed. Most of us flew solo in our graduating class and those of us who worked in the mineral exploration business were not permitted to do field work: period! My own first field assignment took place six years after I graduated.

Our male colleagues were in the field. In those days, summer field experience was the norm for undergraduates rather than the exception. As many companies were doing integrated programs with geology, geochemistry and geophysics, many of these students were extremely well trained. Working conditions were a little different. There were no such things as breaks in the middle of a field season, and personal hygiene was taken care of by a cold dip in the lake rather than a hot shower.

So were these the good old days? In some ways, no. Working conditions were a lot tougher, and there was a certain amount of drudgery associated with hand plotting of data and hand-drawn maps. Mind you, I sort of miss my colouring pencils. On the other hand, a young geologist 30 years ago had the opportunity to be exposed to a whole range of different mineral deposit types and a lot of interesting geology. There were porphyry coppers, nickel deposits, carbonate-hosted lead-zinc deposits, volcanogenic massive sulphide deposits, tin in granites, uranium, niobium and tantalum in pegmatites, and, just occasionally, the odd gold deposit. At \$35 an ounce, gold was not the only metal on the block. There is no question in my mind that the young geologist of the 1960s

had more opportunities to learn both theoretical and practical geoscience than his counterparts in succeeding decades.

### THE INTERVENING DECADES

Ten years later, uranium was hot, if you'll excuse the pun. Tin had just been discovered in Nova Scotia. I was working on a base and precious metal vein target in the Gaspé, and we were doing wet chemistry for arsenic in a field lab in Matapédia. All the universities had mainframes, and Fortran was beginning to be talked about in geoscience departments. It seemed sometimes that computers were being used to determine the answers to problems that might better have been solved with common sense. In some instances, efforts were made to quantify mineral potential by assigning factors to qualitative things like geology. As far as I know, none of these types of studies resulted in mineral discoveries. At the same time, useful databases were being built. Geostatistical studies were also starting to have an impact on the way people looked at reserve estimation and the resulting impact was to be a mixed blessing. There was still a reasonably steady supply of summer jobs for university students, and the graduate geologist could anticipate finding a so-called permanent job.

By 1986, we were in the midst of flow-through financing and the only commodity of interest appeared to be gold. There was a lot of Canadian activity in Nevada and other western states in the United States as heap leaching technology made extracting gold from very low-grade deposits possible. Because flow-through financing often meant last-minute expenditures, the young geologist could usually be found sitting a drill on a gold prospect but he or she rarely had the opportunity to wander further afield and try to understand how the bigger geological picture came together. Personal computers were on most desks, but laptops and notebooks were not yet available to take into the field. Core logging software was being developed so that we could better organize our data. I had just finished a few years' work on Ontario oil shales as an alternative source of fuel. Because of the high oil prices in the early 1980s, we had also been looking at mechanisms for draining the remaining oil out of abandoned fields in southern Ontario. But by 1986, a lot of WGM's work was related to mergers and acquisitions of small, medium and large gold companies. There had been a shift, too, in employment styles. No longer could the graduate geologist expect to obtain a job in the mining industry with a monthly salary and benefits. Contract work became the rule rather than the exception, and the word "consultant" became synonymous with "self-employed," or even "unemployed."

And then the world as I knew it started to change very rapidly.

### THE PAST DECADE

In the past decade, we have seen major political upheaval. We have all had to relearn geography and national boundaries. The Soviet Union no longer exists, and the Berlin Wall has come crashing down. We have seen a recession that left many of us in the mining industry convinced that things could never be as good again: we were wrong. We have seen major change in the mineral policy of many countries in an effort to attract overseas investment. We have seen small, medium and major Canadian mining companies take advantage of these changes to spread their wings internationally. We have

seen global recognition of Canada's role in financing exploration and development projects.

We have seen major technological change. How about those IBM commercials showing the lost field party in Brazil calling in by radio modem to get a map? Geographic information systems, global positioning units, and voice recognition software are here and now, and not just part of our future. The information superhighway has made all the information that we could possibly want — maybe a lot more than we want — available at a few keystrokes.

There have been major upheavals in the public sector and academe. These changes have been swift, sudden and severe, and much of our membership is still reeling from the impact.

### GAC Over the Past Three Decades

What has happened to GAC during the past three decades? Before he retired as Secretary-Treasurer of the Association, Elliot Burden initiated a study on Historical Trends for GAC Members and Finances — 1969 to 1994. GAC Council was intrigued by the preliminary numbers presented by Elliot last May in Victoria, so we invited him to come and present a more detailed report at our October Council meeting in Winnipeg. Elliot reviewed membership statistics and GAC income and expenditures over the 25-year period.

The study showed that GAC membership skyrocketed during the 1970s, stayed almost constant in the 2800 to 3000 range from 1982 to 1991, and then started to creep down. It is around the 2200 mark in 1996. Elliot reached the conclusion that our retirements are significantly exceeding our recruitments and, given that a significant number of "baby-boomers" will begin to retire in the next decade, we need either to face the prospect of a much smaller association, or to consider new services to attract new members and keep existing members. It is interesting to note that membership in the American Association of Petroleum Geologists, which is approximately 10 times that of GAC, also rose to a peak in the 1980s and has been declining ever since.

One interesting point highlighted in Elliot's survey is that industry members currently make up 40% of the Association. The Mineral Deposits Division, which is our largest division, suffered a slight decrease in membership during the recession, but it now has more than 750 members.

Our annual dues when adjusted for inflation are not all that different than those of 1969.

You are all aware that the *Canadian Journal of Earth Sciences* was decoupled from membership in 1993. Approximately half the membership still subscribes to the journal, but that does not tell the whole story. Sixty-five percent of those in academe still take the *Journal*, whereas only 35% of those in industry still subscribe.

Annual meeting profits are positive but erratic, varying from break-even to more than \$80,000 in Toronto in 1991. Elliot's analysis also showed that our income from publications over the period has been almost always lower than our expenditures. In other words, we are treading very close to the edge from a financial perspective.

### WOMEN IN THE GEOSCIENCES: ONE WOMAN'S PERSPECTIVE

I initially thought that I should try to get through my Presidential Address without making any reference to women in the

geosciences. My reluctance to deal with this issue stems from the fact that I can only draw upon my own experience and cannot really speak for other people. The experience of women in the three sectors that make up our membership — the public sector, industry and academe — is quite different in each instance. There are also significant differences between those of us working in the mining industry and those in the petroleum industry. I suspect that even if I were to compare my experience with younger women geoscientists who graduated, say, ten years ago, our views of the progress of women in the mining industry would be different. However, since it has been 14 years since the last woman president addressed you, it probably behooves me to comment on progress.

I mentioned earlier that when I graduated, it was impossible for a woman to obtain employment that included field assignments. It was also not uncommon for a woman visiting a mine site to be told that she could not go underground because the unions might walk out. In April of 1990, I was underground at the Homestake Mine in South Dakota. When I returned to surface, I was shown to the Women's Dry (a dry is basically a shower and locker room). Not only did the women have their own facilities, but it was quite evident that there were at least five or six women working underground on a regular basis. I do not know whether these women were geologists, miners or samplers, and it doesn't really matter.

At WGM's office in Toronto, there are five women geologists on permanent staff. Or, to put it another way, 40% of the geologists on permanent staff are women. These women have carried out assignments for our clients on every continent except Australia and Antarctica. Their assignments have ranged from managing drill programs in Argentina to project management of larger due diligence studies for our clients.

In 1993 at the GAC-MAC Annual Meeting in Edmonton, Lynda Bloom and Jane Werniuk asked the question, "Where are the female vice-presidents in industry?" While women have not yet made it to the executive ranks of the major mining companies, women geologists and engineers can now be found as presidents and vice-presidents of the junior and mid-sized companies.

In my opinion, there has been significant progress in the last three decades. I have certainly experienced frustration over the years, but then again, so have my male colleagues and it is all too easy to blame every setback on gender.

I simply cannot leave this subject without speaking of the great debt of gratitude that I owe my male colleagues, friends and mentors over the years. I do not know if my experience is unique, but I have been given an incredible amount of support and encouragement from men of all generations. I have also been blessed with a husband who takes on more than 50% of the domestic responsibility and who is truly "the wind beneath my wings." In sum total, I have had more help than hindrance. And, as Forrest Gump puts it, "That's all I have to say about that."

#### WHAT NEXT?

So, where do we go from here? By this stage, you probably think this Presidential Address is riding off in every direction at once, and you are right. I suppose it could also be described as a tornado cutting a swath through the last 30 years and touching down at random. With your permission, I would like to touch down a few more times before we finish, and talk a little about where we are today, and the challenges we face as the millennium approaches.

The mining business that I know and love so well is a cyclical business. This is not news, it is reality. The problem is that despite all the efforts of economic gurus from the London School of Economics and other places, nobody seems to be able to predict when these cycles will occur and how long they will last. I am personally not given to pessimism, but I must admit that during the last down cycle, I was convinced by my more pessimistic friends that things would never be the same again. I was wrong. In March in Toronto, we witnessed the biggest turnout ever for the Prospectors and Developers Association convention. Not only did the convention attract a large number of international visitors, I can pretty well guarantee you that a very large number of the Canadian geologists and mining people who attended the convention had stamps or visas in their passports for countries in South America, Africa, Central Asia, and Indonesia in the past year. Furthermore, while gold and diamonds are still top priority for most companies, we have seen a resurgence of interest in porphyry coppers, nickel and other base metals in the past two years. For many of our younger geologists, this is the first opportunity they have had to study these types of deposits in the field.

So what does increasing globalization mean for the next generation of graduates in the geosciences? Scientific excellence and technological know-how will still be of primary importance, but will need to be supplemented by other skills. The geoscientist of the future will need a broad, general education and will have to be reasonably fluent in at least one other language: for example, Spanish, Russian or French. Fluency in English and the ability to communicate scientific concepts to a non-technical audience of investors, financial analysts, and lawyers will remain essential to those involved in financing foreign exploration and development projects. Knowledge of world geography and the cultural differences which affect the conduct of business in other countries will be definite assets.

As always, industry is looking for graduate geologists who are scientifically excellent, but who also have practical field experience. In the past, industry provided undergraduates with regular field seasons in Canada. This type of experience has become less common and, as an increasing number of Canadian companies do business overseas, there is a possibility that junior field assignments will be given to local in-country geologists rather than to Canadian students or junior geologists. How, then, are we going to give our young geologists the practical field experience and training they need? Last year at this time, Fred Longstaffe suggested that perhaps it was time for us to "co-operate to establish some permanent regional field schools in suitable locations that properly represent a good diversity of geological settings... [This would be] a co-operative project of university, industry and government-based geoscience institutions." I would like to add my support to this concept. Another approach to the problem is being undertaken by GAC under the Student Internship Program. The long-term objective of this program is to match potential employers with students and to encourage firms to hire these students by providing some form of financial participation.

So what other things is GAC doing to prepare for the millennium? The long-term future of GAC is being pursued on several fronts, with an emphasis on co-operation and collaboration with other national and international societies. Past-President Fred Longstaffe has been extremely active in the

International Convocation of Geoscience Societies, and in development of a potential co-operative agreement between the American Geophysical Union and GAC. Among other benefits, this agreement would give GAC a greatly enlarged market for its publications.

We are looking hard at the current range of services that we provide and the type of services we can provide in the future. We believe that as professional registration is implemented in most provinces, GAC has a role to play in providing professional development courses to upgrade professional skills. This is also compatible with Recommendation 3 in "Future Challenges and Trends in the Geosciences in Canada" which advocates life-long education and training.

We have responded to members' concerns about annual meetings, and the poster session will be much more common at future GAC meetings. Through the generous benevolence of Jerry Remick, we are now able to offer significant cash prizes for poster sessions at our annual meetings.

In the longer term, we are looking at strategy for the next ten years and beyond. Former GAC President Grant Mossop has spearheaded this initiative and over the weekend presented to Council the most recent draft of the Strategic Plan. The plan builds on the study of the future of the geosciences in Canada, completed by the Canadian Geoscience Council earlier this year. The full report on the latter study has just been published as a special double issue of *Geoscience Canada*.

Basic strategies in the ten-year plan include:

- that GAC broaden its mission to encompass and emphasize Earth System Science and Public Awareness of Science;
- that GAC work with the CGC and other Canadian geoscience societies to forge a Union of Canadian Earth Sciences, embracing all the major geoscience societies in the country;
- that Annual Meetings evolve into joint ventures between GAC—MAC and Union or other large societies, so that we can share costs and integrate our interests;
- that GAC continue to foster and promote short courses, field conferences, workshops and NUNA conferences, and initiate a new series of thematic conferences;
- that we continue to reward excellence and celebrate our heritage through an expanded program of medals and awards;
- and that we continue to disseminate geoscience through our publications program, increasingly using electronic means.

All of this is in the context of providing members with products and services that address ever-evolving needs and new challenges.

Frank Blackwood gave us a wonderful presentation on the poetry of geology two years ago. There has not been much poetry in my Presidential Address, but I would like to close with a few lines from the third verse of the "Lake Isle of Innisfree" by William Butler Yeats, which I believe could have been written for the geologist, or at the very least a departing President of GAC:

I will arise and go now for always everyday  
 I hear lake water lapping with low sounds by the shore  
 I hear it on the roadway and on the pavement grey  
 I hear it in the deep heart's core.

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