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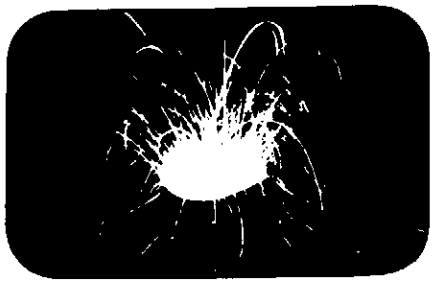

Pyroclasts

Reveille: A Wake-up Call for Organizers of Annual Meetings

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INTRODUCTION

It is high time that we stopped devoting annual meetings to countless presentations of research results, and pondered some of the useful functions that such meetings could perform. Many of us have thought about this over the years as we've dozed through long series of dull, poorly presented papers. Our thoughts crystallized at last year's Geological Association of Canada–Mineralogical Association of Canada (GAC–MAC) meeting in Wolfville, actually a very good one, relative to most. On the first day, one of us (ERWN) chose a session on a subject that he knew something about (and even knew some of the speakers). He walked out, discouraged, after the fourth paper and met Professor Colin Stearn leaving at the same time. "What did you learn?" asked he. "Nothing, absolutely zilch," quoth Colin, rather angrily. We wonder how many hours are spent with no substantial intellectual return, listening to some of the 600 papers in 14 or more simultaneous technical sessions that characterize the average annual meeting of the GAC.

It is probable that very little science is communicated to the general audiences who sit through a multitude of jargon-laden papers at the average annual meeting. There are much better ways to communicate. Subject divisions, regional sections, and special theme conferences on hydrogeochemistry, low-temperature metamorphism, Early Cretaceous spores, and similar subjects (you name them) offer ideal forums in which to present orally your latest results to peers who at least pretend to understand the subjects and the jargon. Of course, if you really want to communicate your research results, this is done most effectively by sending an extended, illustrated abstract by FAX or E-Mail to those working in your own, or closely related, areas. If you wish to have it cited, publish it in the *Canadian Journal of Earth Sciences*, which has the best impact ratio of any Canadian earth science journal. If it's an average paper, *one person will cite it* within the year. A study done some years ago showed that if you are working on a red-hot topic and you wish peers to know about it and to cite it, send annotated *preprints* to the leaders in the field. Are you striving for medals and national awards? If so, remember that some of the most honoured and nationally recognized geoscientists in our country (*e.g.*, Arctic giant Ray Thorsteinsson; the late, great J. Tuzo Wilson) have seldom, if ever, presented papers at GAC–MAC. Yes, there are many ways to be heard, read, cited and honoured, but presenting papers to general audiences at an annual meeting is *not* one of them. Why do GAC members do it year after year? The honest ones will say, "to get my way paid to the meeting". Spread a dab of butter on last year's stale bread and you have bread-and-butter pulp to feed this year's audience at the annual meeting, plus transportation and a three-day meal ticket. *Isn't it time for a change?*

IS ANYTHING DONE RIGHT AT ANNUAL MEETINGS?

Yes, there are many good things at GAC–MAC, but unfortunately, they have to compete with up to 14 simultaneous, sleep-inducing, technical sessions that many participants feel guilt-bound to attend. Let's list some of the obviously useful activities:

Meeting with colleagues and friends from across the country is one of the great advantages of annual meetings. The people you find chatting in corridors are commonly much more productively involved in science than those you find dozing in technical sessions.

Poster sessions are by far the most efficient way to transmit technical information at an annual meeting. Unfortunately, they are not yet as popular with researchers as they should be. It takes much more time and effort to put together a decent poster session than to put together a talk using most of last year's slides. Also, more kudos emanate from a talk to 50 or 100 people than from a poster display that attracts only a dozen discussants (even though those 50 or 100 are mainly uncomprehending, bored or asleep). In contrast, poster discussants talk to you because they are genuinely interested in your research. Somehow, we have to elevate the importance of poster sessions in the eyes of scientists and their managers because they constitute a most efficient and effective means of conveying and exchanging scientific information.

Review papers are natural candidates for presentation at annual meetings. Certainly the best papers and the most vigorous scientific discussions at the Wolfville GAC–MAC were in the session on "Future Research Trends ...". Some of the best papers at Edmonton GAC–MAC '93 were the broad, comprehensive reviews in the very topical sessions on diamonds. (Unfortunately, some of the worst were poorly delivered, highly specialized papers in the same sessions). Presentation of carefully chosen review papers offer the best means of keeping a general audience abreast of developments in a variety of disciplines and subdisciplines. The reviewers need not be "good old boys" and senior establishment people; the best and most effective reviews that some of us ever heard were in the early 1970s by John Dewey on the plate tectonic revolution. (John was then in his thirties and his eloquence and skill as a lecturer changed the paths of many researchers.)

Field trips belong in any setting where earth scientists meet, for there is no better medium of information exchange on data and interpretations.

Short courses are also ideally suited to the annual meeting setting. If you need a specific "technical excuse" to attend a GAC–MAC meeting, a short course or a field trip should be much more legitimate than delivery of a bread-and-butter paper!

Sessions on the social implications and ramifications of our sci-

ence are also of key importance at an annual meeting. Sessions on education at Wolfville and Edmonton had many teachers in the audience to provide some practical input. At Wolfville, there was an overflowing audience for the very small room, and many were turned away (presumably to doze off in one or another of the myriad simultaneous technical sessions). Another event at the recent Edmonton annual meeting deserves mention: namely, the session on women geoscientists' issues. The multitude of competing, concurrent sessions ensured that attendance at this societally important session was kept smaller than it should have been.

WHAT ELSE IS SUITABLE FOR ANNUAL MEETINGS?

We think that our annual meetings should provide forums, presentations and panels that reflect the wide variety of professional interests, concerns and activities of GAC–MAC members. *Research is only one of these* and, in the main, it can be effectively covered for a general audience by review papers, posters, field trips, and short courses. There might be room for *a maximum of two continuing technical sessions, out of a total of four simultaneous sessions,* to present the results of up to 100 research projects that are judged to represent true advances in our science, rather than rehashes with minute increments of new data. Many other interests are seldom, if ever, considered (*e.g.*, pre-college education, university curricula, potential new niches for earth scientists, interdisciplinary ventures, research policy, and more). We also feel that the annual meeting should be a flagship platform to reach out into the community. Inviting teachers to attend sessions at Wolfville and Edmonton was a start, but we are still only scratching the surface. Let's invite politicians, senior administrators, media people, and other "outsiders" to join some of our forums and share ideas with us. Let's look at a few of the things we can do at our major meeting of the year:

Pre-college science education is a field where we all consider ourselves experts; after all, we once attended school so we are convinced that we have the necessary experience to make judgements. Some, particularly corporate leaders, are persuaded that drastic revisions are required in teacher training and in the various curricula, but when confronted, it often turns out that they have very little idea of what is presently included in training and curricula! In contrast, those of us who have worked closely with teachers through EDGEO (the Canadian Geoscience Council's training program for teachers) or through scientist-in-the-schools projects, usually modify our criticisms as we gain some appreciation of the problems teachers face.

Many earth science professors actually are pleased that comparatively little earth science is taught in high schools. They prefer that entrants to geoscience programs have a good grounding in mathematics, physics and chemistry. In contrast, some master teachers in United States schools maintain that well-taught earth science courses provide the most rigorous lab (and field) experience in high school curricula and that earth science could and should be used as a prime vehicle to teach chemistry, physics and other component sciences. Who is right?

Most of us, when we have made classroom appearances, have emphasized the advantages of careers in our discipline. Teachers warn us against such hard sells and advise us to concentrate on the scientific method and the inter-relatedness of the sciences. Do they have a point?

There has been much criticism of faculties of education by practising teachers, among others. Should education of science teachers be the responsibility of science faculties and their departments — as in some United States universities — with education faculties being restricted to pedagogical training? Could our association play some part in investigating this possibility? There are a host of queries and concerns and blank spaces to be filled in by providing truly enlightening, major forums at the GAC's annual meeting, with educators and other concerned outsiders participating.

University earth science has given us large doses of research at annual meetings, but very little else. Yet earth science departments recently have been faced with many problems: declining budgets, decreased enrollments, and difficulties in finding employment for their graduates. They have also been faced with criticisms: lack of relevance in teaching, lack of consultations with non-academics when designing new courses, lack of rewards and recognition for good teaching, slow response to needs for interdisciplinary courses, and lethargy in exploring new niches into which their products might fit.

Would it be feasible to air and discuss such difficulties and criticisms at a GAC–MAC forum? Would non-academic members be interested and would they provide useful feedback to the academics? We think "yes" in all cases. Should some earth science secondary school teachers be present? If their experience is similar to that of their American counterparts, we shall find them constructively critical of course content, teaching quality, and attitudes toward non-geology majors. Why is the articulate young park interpreter who is taking one of us on a tour of the Burgess Shale this summer an English grad instead of a geology grad? Why does one of Canada's leading science journalists, who has provided great coverage of geoscience projects, look back with disappointment and some derision on his university geology courses?

There should be no shortage of material that could be constructively examined by university people and their non-academic peers, and no better place for discussion than the annual meeting.

Public awareness of science is not increasing at a measurable rate, even though our best newspapers now contain weekly science pages — some of them superb — and broadcast-media coverage is at an all-time high. The percentage of science illiterates remains the same because the media seem to have captured that fixed proportion of the population that can be diverted from football games and serial killer mysteries by good science programming.

The most effective way to change that proportion is by getting to children in the elementary and junior high classrooms. Many GAC members are active in classroom visits, science fairs, teacher training through EDGEO, and in many other ways. What is needed is some co-ordination and information exchange. In part, this is provided by special sessions, such as those at Edmonton GAC–MAC '93 entitled, "Earth Science Outreach from K to 12". Unfortunately, they had to compete with 11 other sessions, including the one in which this Pyroclast landed!

The Edmonton organizing committee deserves full public awareness marks for linking the 1993 annual meeting with

the dinosaur extravaganza "The Greatest Show Unearthed", and for producing an excellent lay person's manual entitled "Edmonton Beneath Our Feet". In addition to combatting science illiteracy, we owe something to the literates who follow the science press and broadcasts. Many of us are concerned that earth science doesn't get the press it deserves, and others worry about inaccuracies in press stories. How about addressing such concerns at GAC–MAC meetings? The Royal Society of Canada set the lead and several national scientific societies have followed by bringing scientists and science writers together in workshops and other *milieu*. It's time we began organizing such workshops as a regular part of our annual gathering.

New niches must be found for our old science because it is likely that long-time reliance on the fluctuating demand for hydrocarbons and metals will no longer sustain our profession. According to some economists, the emerging, global, techno-economic paradigm based on data manipulation, communication and transport diminishes the power and value of possessing one's own natural resources. The message: No more solid gold bathroom fittings in Calgary. It would be interesting to stage debates between resource industry savants and some of the new-wave economists on the future of our non-renewable resources.

Whether we believe in the long-range decline of the importance of resource industries, there were those among us who, 30 years ago, called out for more diversification. Bob Leggett, always *avant-garde*, pointed out the enormous potential demand for engineering geology, hydrogeology, urban planning, and the like. Others pointed to the potential role of geology in waste disposal and environmental studies. We have done some good things in these areas, but not enough to take up the slack created by the decline in the resource industries. As Leggett said, we should go out, sell ourselves, and create our own market; this we didn't do. Another case in point is Harry V. Warren's interesting pioneer work on geology and health. It was never followed up in this country although it should have been an easy sell since, next to hockey scores, health is uppermost in the public mind.

Should we have forums, possibly arranged and co-ordinated by the Canadian Geoscience Council (CGC) where we examine the future prospects of our science and hear of unfilled niches and opportunities to progress in new directions? Should we follow up on the suggestions that survive discussion by setting up *ad hoc* working groups that will investigate the changes in education and the lobbying that will be required to move earth scientists into new spheres?

Mega-projects and policy discussions have been successfully aired at annual meetings on a very few occasions and deserve to be in the program every year. A panel discussion on nuclear waste disposal was convened by the CGC at the Vancouver GAC–MAC in 1977. It drew the best and brightest of our members to a lively discussion that resulted in the formation of a standing technical advisory committee to Atomic Energy of Canada Limited. More recently, a first session on Canada's role in the Global Change Program held at the St. John's GAC–MAC in 1988 drew an enormous crowd that sat on the floor and crowded in doorways and onto window sills, despite nine competing technical sessions.

When we have mega-projects competing for scarce funds (as we did with LITHOPROBE, Ocean Drilling (ODP), and Continental Drilling a few years ago) shouldn't we bring the main proponents together to debate the merits of their projects before a GAC–MAC audience? And should a program such as Canadian participation in ODP be closed down without at least a government minister or two or three appearing before us at an annual meeting to hear our views?

The past few years have seen a radical change in the behaviour of deputy ministers and other senior bureaucrats. Instead of defending their departments to the death in the face of any criticism, they are now restructuring and virtually tearing up departmental roots, supposedly in response to the changing global techno-economic paradigm. Many of the changes will profoundly affect our federal and provincial surveys, our universities, and other institutions of concern to earth scientists. Shouldn't some of these senior mandarins be invited to use our annual meeting as a forum in which to explain and debate the implementation of these far-reaching changes?

SUMMARY

We must stop wasting our annual meetings on the delivery of stale bread-and-butter technical papers. There are many good reasons to attend such annual meetings and our employers and sponsors (such as the Natural Sciences and Engineering Research Council) must be made to recognize them. It is time to move away from the technical-paper-in-exchange-for-travel-funds syndrome that is policy among employers and granting agencies.

Research papers should be very carefully selected through peer review, and confined to *one or two continuing oral sessions, while other topics take up the remainder of a maximum of four simultaneous sessions.* Research results would also be communicated in field trips, short courses, review papers, and particularly, poster sessions. Posters deserve more recognition because of the importance they can play in scientific communication.

Annual general meetings should reflect the varied activities and concerns of members. They should include sessions on education, workshops on media relations, forums on university earth science and on the future of our profession, discussions on policy and on mega-projects, and many other matters. They should involve outsiders to give fresh perspectives.

It's time to wake up to what we are all about.

Editor's Note:
Letters commenting on this Pyroclast will be welcomed by *Geoscience Canada.* Any letter writers requiring anonymity will be granted this status by the editor. (Please note the new address for the editor.)