



## Geological Education

### A Need for Communication

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Geoscience education should indeed be an important responsibility of the professional Canadian geoscience community. We find the public quite unaware of the role and importance of the earth sciences in today's world, and we find that the earth sciences are virtually ignored in our secondary schools and practically non-existent in our elementary schools.

With respect to contributions from the professional Canadian geoscience community in attempting to remedy or at least recognize this unfortunate situation, it was pointed out in 1974 by John Usher that only local progress had been achieved through the efforts of a few genuinely interested individuals. That was to the point and blunt enough then, but, as we know today, the situation has not really changed. Jon Rau has rightly stated that except for a few isolated areas in Canada earth science professionals have literally turned their back on the teaching profession.

But why stop at the teaching profession? The Canadian geoscience profession has consistently turned its back on the Canadian public. Historically the earth scientist has spent most of his/her time talking to other earth scientists and has spent very little time and effort communicating with the public. Very few earth scientists have been, or are now, aware of this responsibility, and fewer yet are actually involved in some aspect of public education.

If those who do have the education, the training and experience are not motivated through conscience or professional responsibility to communicate something of the

fascination and inspiration that the 'total grand design' of this planet offers, can we expect those who often do not have basic introductory earth science courses to pick up the ball and do it for us?

Rau's 44 suggestions really hit home in this respect. If the geoscience professionals in this country cannot collectively influence the quality and number of science teachers coming out of teachers colleges, and if they cannot collectively influence provincial departments of education with respect to a much more realistic perspective and approach to earth science education, THEN, the least we can do is attempt to help those teachers who are already out in the system.

The key question has been posed, 'Can we find a common ground to bring the dedicated professional earth scientist together with his or her school counterpart?'. Association with science teachers and their classes is indeed absolutely essential. But, before that association can develop, the Canadian geoscience profession must recognize that the school teacher IS a counterpart. That recognition, along with the recognition that public education IS one of the responsibilities of the geoscience profession, is the missing link in the obvious direction that the profession must take. That, I feel, will be a long time in coming, and is of course dependent to some extent on the successful efforts of those now involved.

The direction and efforts of those who are now involved, as the present situation indicates, will not be successful if we continue to operate quite independently of each other without effective communications and without a co-ordinated commitment to take the matter seriously.

Our current activities should also be reviewed. Focusing on the inadequacies of the school system and the provincial education ministries in providing basic geoscience curricula and qualified teachers has been a logical first step in attempting to remedy the situation. It should be pointed out though, that by concentrating all our efforts on this particular avenue, many other viable approaches, and a large portion of the population as well, will be neglected. Consideration should also be given to an assessment of alternate approaches that can supplement the geoscience

curricula in our schools but which has the potential of reaching larger segments of the population as well.

Before assessing alternate methods, consideration should be given to any techniques that are unique to earth science education. By virtue of the very nature of the earth sciences, three-dimensional examples, samples and support materials are essential.

The only other professional institution which collects and displays examples of our three-dimensional world as an aid to understanding, recognizes the responsibility and obligation of communicating to the whole public spectrum, and is recognized as a practical educational medium, is the museum. Here lies a whole new world for geoscience education consideration.

There is a great deal of potential in the museological field for contributions from the geoscience education community, but, this approach is not without its problems, and communication is a major one.

Despite the importance of earth resources in this country's history, there are few public earth science museums, displays and collections. Those existing museums, displays and collections have tended to remain isolated from the general trend of modernization in Canadian museums, and, except for examples in our provincial museums and the National Museum of Natural Sciences, have failed to respond to changes in museum education technique.

Earth science museums and museums with earth science resources are generally not telling educators how to use their collections, how to co-ordinate class visits with curricula or how to make and use displays for use in and out of the classroom. There is not enough detailed information available on what earth science museums, displays and resources are available, what they are, where they are, how and when they can be used. Those who are involved in geoscience education in this country have a very important contribution to make in this respect.

Museums with earth science resources, geology departments, mining schools, national interpretive centres and whatever other earth science oriented resources we have in this country could, and should, be co-ordinated to act as both a resource centre network and as a clearing house for new ideas and techniques in both

museological and classroom earth science education.

There are some very exciting educational programs and projects involving earth science museums and collections in this country, but this information is not readily available through the standard educational communications. The Board of Education for the Borough of North York, Toronto, Ontario, for example, is currently involved with a major experimental classroom project involving a paleontology collection. The Department of Geological Sciences, Queen's University, Kingston, Ontario, is currently redeveloping its departmental museum with an educational perspective that will involve both departmental and regional school involvement.

There are numerous museological examples and I am sure that others have information on exciting classroom programs that could be shared as well.

It is obvious today that there is a problem common to all aspects of geoscience education in Canada. It is simply one of effective communications among those who are actively involved. What appears to be needed is a resource centre network or a clearing house of geoscience education information and a commitment at either the national level or selected provincial levels to tie it all together. A co-ordinated voice does not exist for those involved in geoscience education in Canada; the classroom teachers, the museum educators and members of the profession at large with educational interests.

It is time to take the matter seriously, and it is time to start working together. The challenge is there and comments are welcomed on any of these ideas.

The possible remedies to the Canadian geoscience education problem are really only limited to our imagination and the commitments we as individuals make.

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## Pyroclasts

Ward Neale

### Up the Establishment

In our very first (un-named) column last November it was suggested that more geoscientists should be nominated for high ranking posts such as deputy minister, presidents, deans and so on. Since then several university people have pointed out to me that we are actually fairly well represented among the academic brass. Until Finn Campbell's recent resignation as V.P. at Calgary there were six academic mandarins, now there are five: Roger Blais at Polytechnique, Herb Armstrong at Guelph, John Mothersill at Lakehead, Con Gravenor at Windsor and Bob Uffen at Queens. Not bad I guess for a discipline that only numbers 10,000 members in its learned societies.

However, why not pick up a university calendar at random and see how other disciplines are faring? I happened to choose that of the University of Regina where the Vice President is a chemical engineer, the Dean of Graduate Studies a chemist, the Dean of Science a chemist and (get this!) the Dean of Arts is a chemist.

In the February issue a little piece called 'Help Stamp Out in-Groups' was designed to show either that there was no Canadian geoscience establishment or if there was then it was a harmless ephemeral thing. Strangely enough the article provoked letters from a couple of those mentioned, not because they had been named as part of the Establishment but because they were considered FORMER establishment. Documentation was provided to prove that they were still very busy people who had tight grips on the reins. Perhaps there is a Mafia in the Canadian georama after all. My investigation will resume immediately and I shall probably enlist the aid of Elmer MacKay, M.P.

### Who Made Your Sandwich

Speaking of busy people, the busiest person I know is David Strangway (U. Of T.) who takes time out from meetings in Edmonton to jet off to Washington, D.C. and is back again so unobtrusively that you think he had just stepped outside for a haircut. He doesn't bore you to death telling you how busy he is because his wife Alice cured him of this long ago by asking him "who made your peanut butter sandwich" anytime that he complained of overwork. It stemmed from a conversation they both had with an acquaintance who was complaining of all the unpleasantness that he suffered: his poorly planned home, his lack of social life and his boring job. When he got around to complaining about his lunches and the fact that he had to eat his lunch at his desk for the past 25 years and it was always the same old thing, peanut butter sandwiches, Alice had to interject, "... But surely you can do something about that! Why not get your wife to make different kinds of sandwiches?" "No chance of that", came the despondent reply, "I have to make them myself".

Must say I stopped in mid bite when I heard that story and began to wonder about the spreading of my own peanut butter.

### Research for Survival

On another track, Dave Strangway told several groups at the Edmonton GAC/MAC that he thought the recent SCITEC FORUM at Waterloo was the best thing of its kind that he had ever attended. It was entitled 'Shaping Our Future Now' and was directed chiefly towards the problems of Canada's manufacturing industry. The focus was on the need for changes in emphasis in industrial research and development so that Canada can make its contribution to world survival from a base of strength. Distinguished industrial scientists were among the guest speakers and also formed most of the participating audience of 140. Senator Lamontagne, the Hon. Bud Drury and a panel of 3 science-oriented M.P.'s fleshed out a program that produced some very provocative statements, e.g., "Canada is not going to achieve anticipated successes in high technology industry. We should be satisfied with our impressive achievements in small, knowledge-oriented industries (e.g.