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See table of contents

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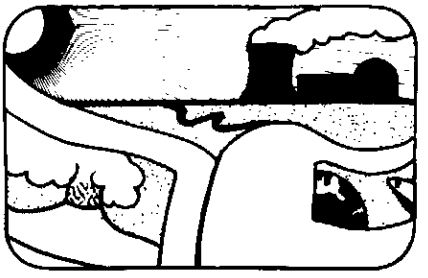

Geological Education

Communicating Science: The Role of National Societies

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INTRODUCTION

Most, possibly all, national scientific, technological and professional societies list public education and communication as at least secondary goals in their mandates. Most, possibly all, have embarked on a variety of (usually) short-lived projects to enhance public awareness of science (PAS). Very few have devised and sustained successful, long-term projects. Those few are mainly "umbrella" groups, *i.e.*, coalitions of national societies, each representing a broad spectrum within a major discipline.

Some of the best, most imaginative, and enduring PAS work has been carried out in Canada by individuals, by newly formed societies or groups committed to communication, by regional scientific societies (*e.g.*, the Atlantic Geoscience Society), and by semi-autonomous local sections and chapters of national societies. Such local activity is obviously an answer to our nation's pressing need for much greater involvement of the practitioners themselves in the awakening of our population to the methods, the excitement, and the usefulness of science and engineering.

In the United States, guidelines to effective involvement of scientists have long been provided by the American Association for the Advancement of Science (AAAS) and, to a lesser extent, Sigma XI. Recently, the Royal Society of Canada has taken up the cause and attempted to inform national societies of the urgent need to increase their PAS activities and some of the routes that might be followed. National societies must be restructured and must reassess their missions and priorities. They must stimulate and support local PAS activities across the country, devise national programs for local implementation, effect information exchange, stage annual workshops as guidelines to local activities, honour outstanding contributions to PAS, and foster joint projects with sister disciplines.

THE NEED FOR INVOLVEMENT

A recent national survey by Calgary professor Edna Einsiedel (1990) has shown that Canadians lack much understanding of the history, methods and motives of science. These findings are very similar to those elsewhere in the developed world. In the United States, Professor Jon Miller (1986) cited evidence that the scientific literacy of that nation has declined since the 1960s and the immediate post-Sputnik era. This is despite vastly improved radio, television and newspaper coverage of science and technology. These praiseworthy improvements in media coverage apparently cater mainly to the converted, to those who profess to know or care a little about the subject. Miller has shown that even this converted group has only a superficial knowledge, and about 90% of it could be classified as scientifically illiterate. We need to help all of our fellow citizens to understand and appreciate science. Why? Simply because about 60% of decisions made at all levels of government include some components of science and technology, and, in a participatory democracy, an informed electorate is a basic requirement for sound decision-making.

The most effective approach to remedy scientific illiteracy is through schoolchildren, particularly those in elementary and junior high school. Some attempt to do this by lobbying for radical change in school curricula, but change is difficult to effect in a complex, entrenched system! Educators find that there are often good reasons to question the motives and backgrounds of the reformers. Another, easier and more satisfying way to address the problem is to make volunteer scientists and engineers available to the school system to act as role models and resource people: not to sing the praises of their own particular disciplines and to endorse careers in them, but to illustrate the ways in which scientists work and reason, and to give some sense of the usefulness of science and the pleasure of doing it.

This is the need, and it is one that scientific societies can play a major role in satisfying.

ATTEMPTS TO COPE WITH THE NEED

From the beginnings of science, a few accomplished practitioners have always been ready to share the excitement of their profession with their fellow citizens through popular articles, exhibits and public lectures. In our own profession, in the last century, the names of Charles Lyell and Thomas Huxley come to mind and, in our country, William Logan and Robert Bell. In this century, there are many, but they are only a small percentage of the community of science. Most of us not only eschew such public exposure, but tend to denigrate the efforts of those who attempt to communicate. Societies must take on the responsibility of eliminating the "peer sneer".

During the past half century, most science and engineering societies have had committees and programs devoted to education and/or public awareness of science. Projects have generally emphasized careers through the production of booklets, videos and lectures and, typically, very few members have been involved. There have also been attempts to enhance the status of various disciplines; remember the slogan "Physics is Good for You"? Although many of these projects have been moderately successful and the career information has been welcomed by high school teachers and students, they have not penetrated the critical zone: the elementary and junior high school levels where students' attitudes to science

are molded. Also, some projects have aroused the suspicions of educators and the public as forms of self advertisement.

Most of the success stories in the past decade belong to small, local groups. Examples include: the more active chapters of WISE (Women in Science and Engineering), which have done a splendid job of bringing women as role models into the classrooms; the Atlantic Geoscience Society, with its videos and other supplements to classroom teaching; and the Vancouver chapter of the Chemical Institute of Canada, with its scientist-in-the-classroom program, which has proved to be a model for a burgeoning provincial program. A more recent and unusual example is the Calgary Science Network (Nowlan, 1992), an interdisciplinary group of scientists, educators and media people with several successful initiatives to their credit, including operation of a Science Hotline and co-ordination of local activities during Science and Technology Week.

The economic importance of science and technology, together with drastically falling university enrollments in science and engineering, has prompted some action by governments within the past decade. The Federal Government introduced a modest granting program, now known as Science Culture Canada, about eight years ago. Then, in consultation with several scientific societies, it proclaimed the first national Science and Technology Week in October 1990. Provincial governments have also shown some initiatives. Quebec has long been in the lead with a well-developed youth science leisure movement and an annual "Semaine des Sciences". Recently, British Columbia, through a contract with Science World in Vancouver, has developed an extensive "Scientist-in-the-Schools" program.

Non-governmental agencies have also joined the fray. Our national academy, the Royal Society of Canada, has established a widely representative PAS Committee, which publishes a newsletter, *OYEZ*[3], and has sponsored workshops bringing representatives of national societies together with resource people to discuss ways and means of involving scientists in communication of science. The Chemical Institute of Canada has initiated a National Chemistry Week, which has now been merged with National Science and Technology Week celebrations. The Canadian Geoscience Council has restored its training program for teachers, EDGEO, which had withered on the vine as it lost its place on the Council's priority list. The Canadian Federation of Biological Sciences has several PAS programs underway, and has created a prestigious medal and award to honour outstanding communicators. An organization that deserves special mention is the Science Alberta Foundation. This agency, founded two years ago by petroleum geologist Jim Grey, is funded jointly by government and industry to initiate PAS activity in the province through a combination of grants, workshops and unique information exchange sessions such as chautauquas.

In summary, we have interest and support from government and scientific umbrella groups at the top and we have praiseworthy activity by diverse small groups at the local level. National scientific societies, which hold the middle ground, have not (with a few possible exceptions) carved out roles for themselves. If a major need, as argued here, is to involve as many scientists as possible in the communications process, surely the societies to which most of them belong have an obligation to lead and to co-ordinate. Some suggestions follow.

Restructuring

The 1991 Sigma Xi/AAAS international forum on "Global Change and the Human Prospect" produced some important recommendations addressed to national professional and scientific societies. The forum participants suggested restructuring, to address environmental and educational problems. They stated: "Scientific society members should become actively involved with K-12 schools to bring scientists and engineers to the students to further enhance a sense of excitement and wonder of science ...". To effect this, "Professional societies should support science education at all levels *by reviewing and revising their mission statements and by examining the composition of their boards to reflect the high priority of science education...*".

A few societies had already dusted off their mandates to emphasize the importance of PAS and education. A good example is the Geological Society of America. Its SAGE (Science Awareness through Geoscience Education) Program has achieved prominence during the past few years, enthusiastically endorsed by recent presidents and strongly represented on the governing council.

Creation of a PAS/Education Committee

Most professional and scientific societies have an education or a communications committee of one kind or another. Meetings, if any, take place at the annual general meeting of the society. Activities, *e.g.*, production of a career booklet, take place sporadically when the society has the good fortune to have one or two activists on the committee.

Required is a committee of proven activists with innovative successes to their credit. The chair, chosen for leadership qualities, should have a prominent place on the society's council. The committee members should have an adequate budget for conference phone calls, facsimile transmission, and other means of communication among themselves and with the society's members.

Appointments should be on short, renewable terms so that ineffective persons (the scourge of PAS committees) can be quickly and gently removed from office.

The mandate of the committee should be to involve most, or all, of the society's members in PAS activities with emphasis on the needs of schoolchildren. The committee should have specific time-constrained objectives to complete each year. Without such specific tasks the best intentions in the world amount to naught!

Activities of a PAS/Education Committee

- As the committee's main task will be to involve as many society members as possible, it must immediately establish regular contact with the membership through a special news sheet or through regular inserts in the society's newsletter.
- A prestigious annual award or medal to honour contributions of scientists to education and/or public communication should be established at the national level. Such peer recognition is cherished by scientists and leads to employer recognition of PAS activities.
- The committee should attempt to devise national programs, similar to the SAGE program of the GSA, that can be implemented on the local level by sections, chapters or other groups.
- Activists in areas far distant from local sections or chapters should be encouraged to set up multi-disciplinary PAS groups, possibly patterned on the Calgary Science Network.
- The committee should interact with its counterparts in other disciplines. This will enable the committee to exchange useful information and establish contacts between its regional activists and similarly motivated people in other disciplines, leading to the formation of local science networks.
- Committee members should review current literature on PAS (*e.g.*, the wealth of material from AAAS, *GSA Today*, the Royal Society's *OYEZ*[3]) and ensure that local activists are kept abreast of new ideas and placed on mailing lists for appropriate items.
- The committee should stage a workshop for regional activists at each annual general meeting. Workshops would involve resource people who could instruct on media relations, classroom techniques, and many other essentials. The regional representatives could then, in turn, involve their local members in similar instructive workshops.

IN SUMMARY

Canadians' lack of understanding and appreciation of science is a serious matter in a democracy where decisions at all levels of government increasingly involve science and technology. More scientists must become involved directly in communication with their fellow citizens. At present, a few individuals or small groups (*e.g.*, sections of societies) carry out effective PAS projects in scattered centres from St. John's to Victoria. Governments and organizations such as the

Royal Society of Canada have recently offered PAS grants and supplied some guidance and information exchange. The major requirement now is for national scientific societies to mobilize their members in PAS activities by providing reasons and incentives for participating, devising programs for local implementation, and organizing instructive workshops. To effect this, most societies will have to revise their mandates to give PAS the priority that it deserves, and reorganize their Education/PAS committees to involve proven activists. Societies will deserve the nation's gratitude when they finally emerge from their cocoons, recognize the importance of PAS and involve their members in direct communication with their fellow citizens, especially schoolchildren. *The time is now!*

[Presented at a workshop on "The Written and Spoken Word" organized by G.L. Williams, Geological Association of Canada, Annual Meeting, Wolfville, Nova Scotia, May 1992.]

REFERENCES

Einsiedel, E., 1990, Scientific Literacy — A Survey of Adult Canadians: University of Calgary, Communications Studies, 50 p.

Miller, J.D., 1986, Scientific Literacy in the United States: CIBA Foundation, Symposium pre-print Communicating Science to the Public, London, UK, 36 p.

Nowlan, G.S., 1992, Calgary Science Network: OYEZ³, v. 4, n. 1, p. 10-12.

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