Geoscience Canada

Pyroclasts:
On the Public Appreciation of Science

E. R. W. Neale

Volume 15, Number 1, March 1988

URI: https://id.erudit.org/iderudit/geocan15_1fea01

See table of contents

Publisher(s)

The Geological Association of Canada

ISSN

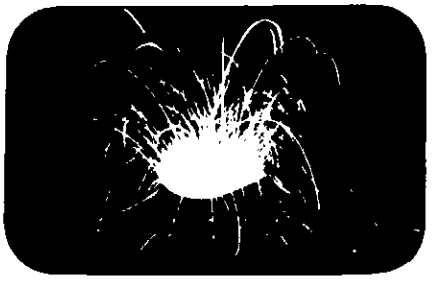
0315-0941 (print)
1911-4850 (digital)

Explore this journal

Cite this article

Neale, E. R. W. (1988). Pyroclasts:: On the Public Appreciation of Science. *Geoscience Canada*, *15*(1), 72–73.

Features



Pyroclasts

On the Public Appreciation of Science

by E.R.W. Neale

The Return(?) of Tuzo

A magnificent article on J. Tuzo Wilson in a mid-January issue of *The Globe and Mail* (Toronto) triggered off the thoughts and queries that follow. Entitled "An Elderly Giant Returns to the Fray", it told of how Tuzo is again in the vanguard of plate tectonics, this time as a proponent of glide in the crash-or-glide debate of continental collision. A great article with only one minute flaw, it stated that Tuzo had *returned* to research after a 10-year stint as director-general of the Ontario Science Centre (OSC). Tuzo really never has to *return* to anything because he never leaves anything. He certainly kept his hand in at science while with the OSC, and equally important, his involvement with public appreciation of science long predates his OSC connection. When I was a post-war undergraduate, he was always in the news, first during Operation Muskox, and a little later, by virtue of his division of the Canadian Shield into Provinces. Then, the International Geophysical Year, which he led so successfully, resulted in press accounts and his best-selling book, *One Chinese Moon*. Plate tectonics in the 1960s and 1970s produced many stars of stage, screen and radio, but if there was one generally acknowledged superstar, it was undoubtedly Professor J. Tuzo Wilson.

Canada has had other giants who shared the excitement of their work with the public. Thus, Sir William Logan not only kept his own and his colleagues' work in the news, but also carted a load of mineral specimens off to the Paris Exposition to show the world some of Canada's wares. And A.P. Coleman, according to a recent article by Nick Eyles, was a regular contributor to the *Toronto Star Weekly* on a great variety of scientific topics.

We all know a few (too few!!) friends and colleagues who are similarly involved with the public. For example, the article on Tuzo in *The Globe and Mail* was written by Toronto geophysicist Derek York who regularly contributes to that paper. The University of Saskatchewan Logan Day celebrations for a decade have consisted of an invitation to the citizens of Saskatoon and nearby towns to bring in their pet rocks and fossils for identification. Hundreds respond and stay on to tour the new museum and Canada's best-designed geology department. The Newfoundland Section of the Geological Association of Canada (GAC) is completing a geological road map of that province, a province where a handful of provincial and university geoscientists have worked together for years through publications, short courses and school visits to improve high school science. The list is fairly long and the geosciences probably have a better record than most other sciences. But it is not good enough because there is evidence to suggest that the populace is not becoming better informed about science.

"Quirks and Quarks" Have Not Converted Our Nation?

When one contemplates the great leaps forward in communication of science over the past quarter century, it is hard to believe that more people are not gaining an appreciation of science. CBC Radio's "Quirks and Quarks" has a larger listening audience than any program except the news. David Suzuki is a smash hit as an entertainer and informer on TV. Those with cable can catch the remarkable Carl Sagan and tune in to "Nova". Most of our major dailies now have qualified science reporters and several run lively, weekly science pages. Many rural weeklies carry informative science articles thanks to Lydia Dotto's Science News Service.

Certainly more people are being exposed to science information than ever before, but awareness studies show that the number of informed people is not increasing. A nationwide survey by MOSST (Ministry of State for Science and Technology) in 1975 showed that 64.4% of Canadians could not name a Canadian scientist and 61.0% could not name a Canadian achievement in science. Twelve years later, Professor Edna Einsiedel found that 65% of Calgarians could not name *any* scientist, living or dead. Of those who could name one, less than half could identify his or her discipline in science. And Calgary is not your ordinary city — a few years ago, it claimed to have more engineers and scientists per capita than any city in Canada and its high schools have enviable records for embarking graduates on careers in science. Incidentally, the Einsiedel survey identified Suzuki as Calgary's best known scientist.

Are We The Only Ones?

Professor Jon D. Miller, Director of the Public Opinion Lab, DeKalb, Illinois, has concentrated on measuring scientific literacy, *i.e.*, the understanding of the meaning of scientific study. He and co-workers ask fairly simple survey questions, but, at the outset, they eliminate people who, for example, believe that astrology is scientific. A 1979 survey indicated that only 7% of American adults were scientifically literate. The result was discouraging to many who had attempted to spread information about science in the post-Sputnik era. A similar survey at the end of 1985 was more discouraging for only 5% of the US population qualified as scientifically literate!

On a more cheerful note, US national surveys have found that about 40% of the population have a high level of interest in science and technology issues. Of this group, approximately half (*i.e.*, 20% of the population) also consider themselves to be well-informed about science. This elite group forms the "attentive public": many of them regularly follow science shows, read at least one science magazine and visit a zoo, botanical garden or aquarium at least once a year.

This group is important for when there are differences between science policy leaders on a specific issue, *e.g.*, nuclear power plants, both sides appeal to the attentive public to make their views known to governmental decision-makers. Also, when decision-makers reject the views of science policy leaders, *e.g.*, over federal funding of research, the policy leaders attempt to generate political pressure from this attentive public.

And now more bad news: Jon Miller's studies have shown that 90% of this attentive public do *not* meet the minimal criteria for scientific literacy. Although they are interested and consider themselves informed, they do not understand the basics of science and are largely dependent on science journalists for their views. Also, brace yourself, many of this elite group of attentive public have serious misconceptions of science and that includes the 40% of them who reject the idea of evolution!

It does make one wonder if it isn't time to become involved, working together with one's colleagues and with science journalists.

What Price Involvement?

Readers of my age will recall the suspicion of Tuzo Wilson's science and motives in the '50s and '60s because he not only made science news, but was always available to talk about any aspect of science on which he felt informed. David Suzuki in the '70s found many of his colleagues were opposed to him being granted sabbatical leave from The University of British Columbia because he proposed to spend it at CBC (Canadian Broadcasting Corporation). A distinguished past-president of GAC referred disparagingly to the Royal Society of Canada's newly initiated Bancroft Award as the "B S Award" because it proposed to recognize contributions to public awareness of science. Many of those who have embarked on awareness of science projects have not been looked upon kindly by superiors who feel they should be finding more oil or publishing more papers, while their colleagues are convinced they are seeking personal publicity. It is a no-win game.

A paper by two professors of journalism, Sharon Dunwoody and Michael Ryan, points out that major studies undertaken in the US and France show that scientists are *not* rewarded by their peers for popularizing research.

It is obviously time for a change. More scientists must become involved. To accelerate changes in attitude and to make efforts in public awareness acceptable, programs must gain peer recognition. Most scientists prize this form of approval above all others and it must be obtained through their societies. Scientific societies through their meetings, publications and awards have become the most powerful influences shaping the goals of the various disciplines. GAC will be in good company if it decides to make the public appreciation of science a truly major part of its mandate.

Who Is Doing What Now?

In Britain, the Royal Society, the British Association for the Advancement of Science and the Royal Institute have joined hands in a new resurgence of interest in getting through to the public. The Michael Faraday Award has been initiated, a media fellowship scheme created, research projects into public awareness of science initiated, and a scientific literacy campaign is about to be launched.

In the United States, the American Association for the Advancement of Science has played a catalytic role: "NOVA", CBS Radio, *Science 86* are products with which we are all familiar. The relevant AAAS committee includes not only scientists, but science communicators and researchers into the communication process. The AAAS has also produced a great book, *Scientists and Journalists* (The Free Press, Macmillan Inc., 1986), that should be in all your libraries, but isn't — I've checked. Sigma Xi, the scientific research society, is also on the move. During Prof. Ken Hare's presidency, the society surveyed its vast membership and found that many felt that sharing science with the public deserved a high priority. Current president, Tom Malone (of Global Change fame) has taken up the baton, is involving all chapters of Sigma Xi in projects, and is inviting representatives of all North American scientific societies (that includes GAC) to a meeting in Orlando, Florida, in October 1988 to convince them to motivate their members to communicate with the public.

In Canada, MOSST (MIST (Ministry of Industry, Science and Technology) by the time you read this) has just announced a several million dollar strategy to enhance the public's awareness of science and its ability to participate more fully in an increasingly technological world. The Royal Society of Canada is bringing representatives of 35 scientific societies together to decide how they can improve their public awareness activities and how they can contribute to the federal government strategy.

So, How About GAC?

GAC has many public awareness projects to its credit — a few on the national scale, more through its regional sections and affiliates. Most have been *ad hoc* affairs and have involved relatively few members. Enhancement of public appreciation of science must become a high priority activity of our Association. All members must be encouraged to become involved by reading and discussion, by awards at regional and divisional levels, and by high-profile sessions at annual meetings.

We need not think in terms of national TV programs or banner headlines except when the rare opportunity arises. But we should think in terms of co-operation with journalists in local radio, newspapers and magazines; of creative volunteer work with local youth groups, museums and natural history societies. We should think of reaching beyond the attentive and interested public to the 60% who don't know or care at all about science — maybe by working through their children in primary school, cub scouts and guides. Whatever we do shouldn't be done to glorify geoscience above other sciences. In fact, it is high time we began working with the chemists, physicists, biologists and engineers. What better way to start than with consortia to promote a variety of public awareness projects at both regional and national levels.

I shall conclude by quoting from an article in *The American Scientist* by Nobel Laureate Roald Hoffman: "Scientists and engineers must tell people around them — relatives, young people, fellow citizens — what it is they are doing, and why they are doing it."

Jump to it, Fellows and Members, the time is now.

Accepted 3 February 1988.