The scientist's role in the nuclear debate

by F.P. Blackstein*

Until recently the public had little time for, or interest in, studying scientific developments. Details on topics such as medical research, energy developments and communications advances were left to scientific journals and specialist conferences. For the most part the public had faith in science and science was able to maintain that faith through developments which recognizably improved the lot of mankind. But faith is no longer sufficient; scientists must now interact with people if we are to fulfil our obligations in this new theatre of increased public awareness.

Scientists and engineers like myself and my colleagues at Atomic Energy of Canada Ltd. are communicating with the public as one part of a broad programme of public information. This includes: operation of public information centres, visits to our laboratories, interaction with teachers, distribution of reports and hosting exhibits.

Technical people have a lot to learn about communicating with the public, the media and the critics. It is an extremely difficult task, but as concerned scientists it is something we should and must do, openly and constructively.

The issues of public concern in the nuclear power field are well known and have been the subject of discussion at many conferences and seminars. The need for nuclear power is clearly the most pressing point of all. Scarce oil resources and environmental questions relating to all fossil fuels, make this issue most urgent. Other issues include: economic comparisons, the safety and environmental effects of nuclear power, the disposal of nuclear wastes, and weapons proliferation.

However, my main concern here is not these topics, but rather how nuclear scientists and engineers communicate with the general public, the critics, and the media on these issues as they relate to our energy future.

There are some fundamental themes underlying the way in which we should approach the issues. For example, the reason that nuclear power offers such environmental, health and economic advantages stems from the large national and international research efforts before the widescale implementation of nuclear energy. No other energy source has had such an effort devoted to researching and minimizing its possible detrimental effects. Conventional fossil fuel problems such as acid rain and the greenhouse effect are only now receiving significant attention, yet the energy sources responsible are among our oldest technologies.

Because nuclear power has been the subject of such intensive international study, the above theme is applicable to most of the issues in the nuclear debate. Is there an equivalent of the International Commission on Radiological Protection, the International Atomic Energy Agency, the Committee on the Biological Effects of Ionizing Radiation, and the United Nations Scientific Committee on the Effects of Atomic Radiation, for our other energy sources? The answer is a resounding NO!

As a personal theme I believe very strongly that whereas nuclear power is the subject of public concern today – it will be the standard by which all other energy forms will be judged tomorrow.

Who is to blame?

In the 1960s, the "new environmentalists" began to emerge. They were not the naturalists of earlier years who were specifically concerned with the protection of wildlife habitat or the promotion of clean air and clean water. Rather, many of these groups were quasi-political in nature and included a large following from established protest groups. Their arrival in Canada was somewhat delayed and the full effect of these groups was not felt for some years after their appearance on the international scene. But, inevitably, the effect was felt and had to be addressed.

The media, in Canada as in the rest of the world, were happy to provide these anti-nuclear or anti-establishment groups with lots of good coverage, because the views expressed were certainly controversial. It is my contention that the media are *not* anti-nuclear, but rather they are pro-controversy. The public (having been exposed to all this anti-nuclear material) took much of it as the absolute truth, for the simple reason that they did not have a balanced or objective collection of information enabling them to refute the various claims being made. If I had to apportion blame for (the occurrence of) this situation, I would place one third of it on the public for being somewhat apathetic and swallowing all this sensationalism as it was handed to them. One third of the blame would go to the media for not following up and providing a more objective analysis of events, and finally one third of the blame I would attribute to ourselves – that is the scientific community – for not taking an earlier opportunity to communicate our work to the public.

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Enter the scientist

Most of the issues in the nuclear field are fairly technical, and the overall debate in recent years has become quite sophisticated. Thus it became clear that technical staff were the people who should embark on a communications programme. As a result of several years of communicating science to the general public, I feel quite strongly that the scientist's credibility with the public remains high; furthermore, the public does indeed wish to hear from the scientist. The ideal spokesperson is one who has been exposed in depth to a broad cross-section of scientific and engineering disciplines. An open and quick mind plus a concern for human well-being and the environment are important attributes.

However, there are a number of obvious problems in mounting a communications programme in which scientists communicate directly with the public. First and foremost is the fact that most technical people tend to use (for good reason) a complex and detailed jargon, which is totally incomprehensible to the population at large. These technical people have never faced the television lights or radio microphones universal in electronic communications. Furthermore, most of these people have never been exposed to the emotion and stress of the debating platform. As a result, they may be overpowered by the critics, who find this medium very comfortable.

Nevertheless, the scientist brings a wealth of existing talent to the programme. The ability to interpret technical data and to research alternative energy proposals (such as electrical substitution for oil) are invaluable. Years of training in the logical methods of problem solving permits evaluation of technical issues raised by the audience. This scientific approach, when combined with the necessary communications skill, is thus a potent and versatile tool.

I will now outline briefly the activities which we have undertaken at Atomic Energy of Canada with the co-operation of other major groups involved in nuclear power in Canada.

Teaching scientists to speak

Recognizing that there are a large number of individual "publics" within the general public, it is obvious that a spectrum of scientists will be necessary if one wishes to communicate successfully with this broad cross-section of audiences. For example, environmental research scientists are the obvious choice to meet nature-oriented audiences, while physicists would be the choice for discussions on future energy options such as solar-voltaic or thermonuclear fusion.

Many of our scientific staff were eager and willing to participate in the nuclear debate; we aimed at obtaining the widest possible cross-section of skills, both personal and professional, in the group of individuals who were to become our front-line communicators. From the spectrum of scientific disciplines we selected physicists, chemists, biologists, engineers and mathematicians.

Newspaper reports of the challenges by Mr Blackstein to nuclear critics.

Their personal interests, such as environmental concern, concern for the development of Third World countries, and other related factors, were also taken into consideration. This resulted in the selection of approximately 50 scientists and engineers within Atomic Energy of Canada; our colleagues in the electrical utilities selected an equal number of individuals to participate in this programme, bringing the total to more than 100 scientists and engineers.

Recognizing the difficulties scientists have in communicating with the public, a training programme was undertaken in an attempt to obviate the problems aforementioned. Among the communications skills which we undertook to learn were:

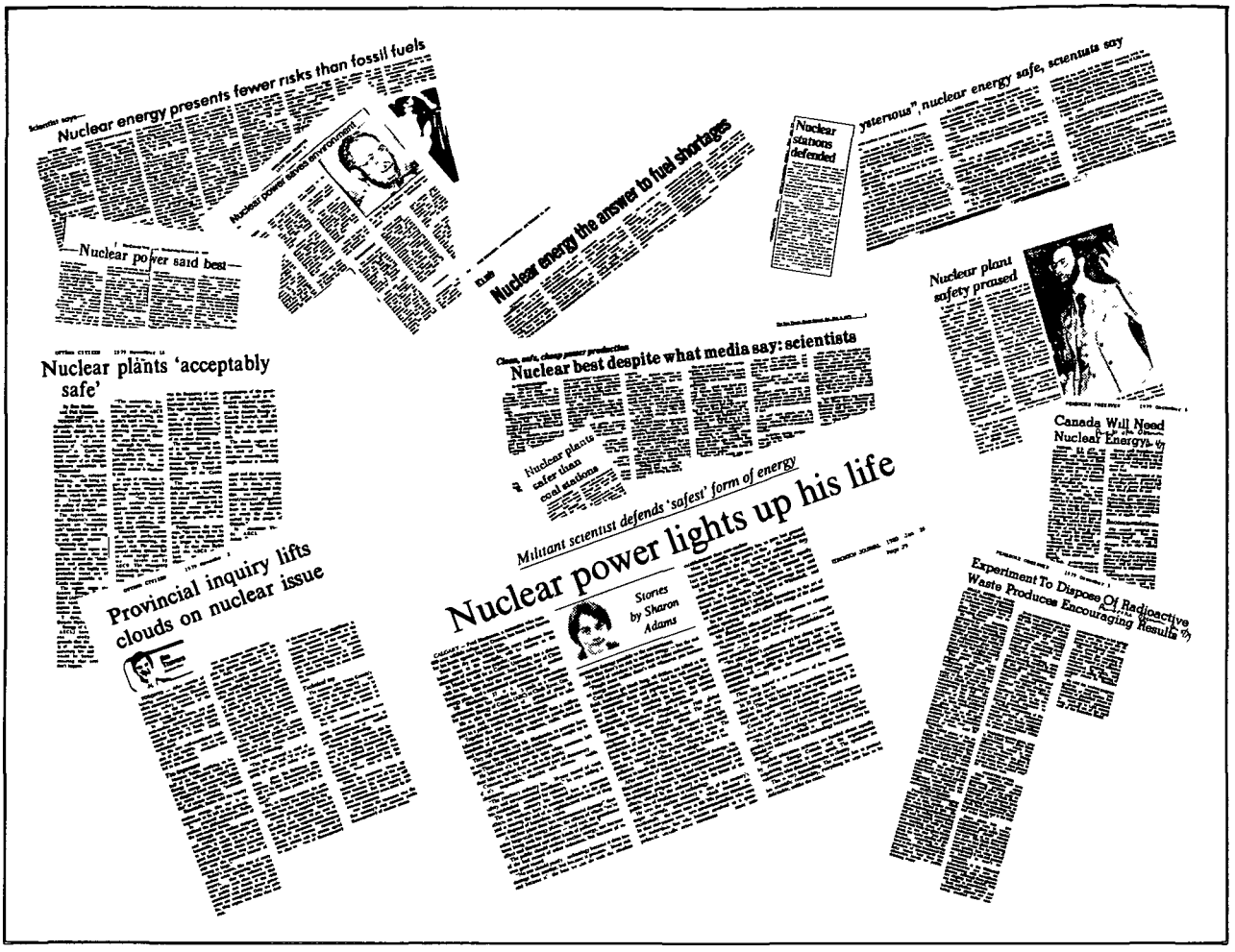
- the ability to explain technical subjects without falling back on our jargon. For example, the difference between nuclear fission and thermonuclear fusion is difficult enough to explain to other technical people, but incredibly difficult to explain to the general public if one must avoid jargon. This is but one of many subject areas which we had to learn to discuss credibly with the general public.

- the obvious need to deal with the positive effects of nuclear power, whilst still discussing the legitimate concerns of the public is another important and difficult area requiring training.

- the various techniques for use on the debating platform were something that scientific staff were not generally aware of and these skills had to be learned.

These are but a few examples of the many foreign techniques in which the group of scientific communicators had to become skilled. We enlisted the aid of consultants as well as some of our own more experienced communicators to assist us in acquiring a necessary level of skill to become intelligent speakers.

Those people who underwent this training made a considerable personal commitment. They devoted a



Some of the press coverage of the canadian pro-nuclear team.

significant amount of time and effort to the training and many extra hours travelling and working to speak publicly on these issues.

It is easy to be a critic, but to speak authoritatively on many subjects is extremely difficult and requires a considerable amount of hard, extra-curricular work. In addition to undertaking communications training, it was also necessary to broaden the scientific and technical knowledge of each of the participants, to go beyond his/her own area of expertise. We accomplished this by organizing a number of meetings and briefings, where our biologists would learn the salient points from the disciplines of physics and chemistry, and conversely the physicists and chemists would learn biology, and so on. This training period required about one year, and at the end of that time, we had a large, capable, group of speakers, able to communicate with the public across a wide spectrum of technical issues.

Once we had a reasonable number of trained technical speakers, it was necessary to determine the direction in which to proceed.

Our approach was to undertake a positive, high profile programme in which we would no longer sit back and wait for the public to ask about our work or for the critics to challenge us. Rather, we embarked on a programme in which we searched out public platforms from which to address the people of Canada. Because of the intense interest in nuclear-related subjects, it was not too difficult to receive invitations to appear before public gatherings, in newspaper interviews, and radio and television programmes. To make best use of our scientists' time, and our financial resources, we undertook such programmes in selected geographic regions, and wherever possible while a scientist was in that region to conduct scientific business. As a result, in a matter of just two days, one of our speakers would be found appearing on several public platforms, such as service clubs, university assemblies, etc., and an equal number of radio, television and newspaper interviews. In this way, we were able to communicate with very many people for a reasonable expenditure of time and money.

In the last year, we have participated in literally hundreds of radio and television programmes throughout Canada, hundreds of newspaper interviews, on public platforms and before all types of special-interest groups. We have debated with the critics at almost every invitation and we have now actually begun to challenge the critics to debate on some occasions.

Others speak out

We have obtained good feedback from the public of Canada and are also receiving increasingly favourable and balanced news coverage as a result of undertaking this programme.

We believe that the nuclear issues are now being presented to the public in a more balanced way as a result of our work. News accounts appear to be more objective and stress the relationship of nuclear power and its risks to the other sources of energy available, but we still have a long way to go.

Another positive effect of our efforts has become evident, although it was not one which we had initially planned. As a result of numerous appearances by members of our team (on radio, television and before government enquiries) other scientists – not associated with the nuclear industry – have begun to speak out. These scientists from the academic community and other research groups, have followed our example and are making an important contribution to the public's understanding of nuclear power. Because such people have no direct ties to the nuclear industry, their opinions often carry more weight with the public than our own.

Hindsight is even better than 20/20 vision and in retrospect we should have mounted this programme ten years ago. It is imperative to continue this type of communications if nuclear power is to take its rightful role in meeting the energy needs of Canada and, indeed, the world as a whole.

Recognizing that the scientist still has some credibility with the public, a team effort with the Public Affairs people is the way to achieve results in this very complex technological, sociological and political issue.

At the service of the public

The major points in our programme are as follows:

- The most important point is the vigorous nature of the programme in which we, the proponents of nuclear power, go out before the public, in an open, objective and credible way.
- It is necessary to be positive rather than defensive.
- It is necessary to place the issues in proper perspective so that while we endorse the expansion of nuclear's role in meeting our energy needs, we must also recognize the concerns of the public.
- We must address both risks and benefits in a comprehensive manner. The relationship between nuclear energy and other forms of energy should be highlighted.
- The preparation and training to broaden our technical knowledge and provide communications skills is a top priority.

The statements by other scientists.

One must always bear in mind that we, the nuclear community, have strived diligently for 30 years to bring nuclear power to the service of the public. We have done this in an environmentally and economically acceptable way. However, our belief that nuclear power is acceptable is not sufficient; a significant fraction of the public feels otherwise. We must (and we should be proud to) discuss our work and convey our confidence in nuclear power to all; I encourage those who have access to significant numbers of scientists and engineers to consider undertaking a programme of this type.