Communicating Science

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My thanks to the association for inviting me to attend the dinner and for the privilege of judging the science journalism competition.

I applaud the Association for persevering with the competition because I believe it fulfils several important functions. First, it encourages science writers by fostering a sense of identity as a sub-set of the journalism industry that is recognised as performing valued work. Second, I am sure that some journalists are encouraged to write science stories because of the potential for reward and recognition that comes with winning a national competition. Finally, and most importantly, it promotes and fosters excellence in science journalism.

It is this theme of fostering excellence, that I wish to focus on tonight. And I would like to talk in terms of "communicating science" rather than science journalism because this points to a variety of expression, not just print and broadcast journalism, but also communication through conferences, seminars and other public forums.

At this point, it is useful to draw on the concept of different "publics" invoked by practitioners of public relations. The nature and method of communication varies according to the messages to be aimed at different audiences. I see four distinct publics in the context of communicating science.

The first is the "science public" which encompasses the science community. Here, communication will be via academic texts and papers; specialist journals; conference presentations, seminars and other discussions with colleagues, peers and postgraduate students.

Then there is what might be termed the "education sector public". This includes students from primary to tertiary; teachers of science; and activities such as *Science Alive* and other educational initiatives. Once again, communicating science will take various forms, pitched at levels appropriate to each audience.

The public at large receive information about and relating to science from what might be termed "popular science" publications; the mass media newspapers, magazines, radio, television; science courses, seminars and workshops.

Finally, there is a public that embraces politicians, government agencies and officials, corporations — people who can be described as movers and shakers, decision-makers who influence and determine policy, priorities and funding. Communication will include government papers; reports and submissions; strategic planning and funding proposals.

This list of publics and the forms of communication relevant to each is by no means exhaustive but should reinforce the notion that the communication of science takes many forms and operates at many levels. All must be recognised as having a part to play in creating an environment in which science is valued, promoted and nurtured.

Tonight, I would like to narrow the focus to the mass media. In this context, there are a number of reasons why we should be concerned about fostering excellence in the communication of science.

First, science is profoundly relevant to countless aspects of our lives. An appreciation and understanding of science will help us all make better sense of the increasingly complex world in which we live. As D.W. Burkett has said, "science, along with art, literature and drama, should be part of the general cultural knowledge of society".

Second, there is a strong public demand for information about science. The audiences for television's *Beyond 2000* which is shown in 100 countries and has generated $40 M in revenue, not to mention natural history programmes such as *Our World* and children-oriented science programmes like *Beakman's World* is evidence enough.

As an aside, scientists who are disdainful of the "moralised" and frequently "gee whiz" science presented in *Beyond 2000* should accept that information must be conveyed at a variety of levels for a variety of audiences. *Beyond 2000* makes science accessible to many people who might otherwise not be exposed to it. Science is to some extent demystified and its importance and relevance brought home.

It would also be unwise to underestimate the public's level of understanding. A Dutch television series, A *Glorious Accident*, featuring talking heads talking science, attracted big audiences despite the somewhat daunting subjects and format, six 100-minute programmes with a three and a half hour conclusion.

Quality communication of science is also necessary as part of a process of public education. Many myths and misconceptions about science and scientists exist. The Aus-

tralian Commission for the Future attributes the low image of scientists to depictions, factual and fictional, in the mass media, including film. We have all seen the mad scientist, socially aloof and obsessed. The stereotype can be easily dismissed for what it is but the image of scientists is not helped when the arcane aspects of their work are emphasised and there is a reluctance to communicate in accessible language. If the link between scientific progress and economic development is explained, the importance and relevance of research will be better understood.

Fourthly, the public needs quality information on which to make judgements about research and development policies and priorities involving public money. Unlike like health and education and other "hot" political subjects, science and technology rarely attracts public debate. Much of the discussion takes place at meetings like this or in staff common rooms at universities and Crown Research Institutes. If more money is to be invested in research, politicians and the public have to appreciate why and be satisfied there is value for money. Informed decisions are made by informed people. Accountability also extends to the ethical issues that have arisen from the work of scientists in such areas as genetic engineering and animal research.

Finally, excellence in communicating science needs to be fostered because the mass media are not covering science as well as they should.

Part of the problem is a lack of space and time devoted to science news and information which reflects its low priority on the daily news agenda. In New Zealand, the science round or beat is almost always, at most, a part-time specialist area tagged on to other, more hard news-oriented rounds. At the other extreme, the *Boston Globe* has nine science writers and three subeditors with a specialist interest in science.

I suspect the gatekeepers who decide what is published do not perceive a high level of public interest in science-related news. Australian research undertaken in 1988 produced results which would probably be similar here. Journalists were asked to rank a list of 15 news subjects, first in terms of their own interests and then in terms of what they thought were their viewers' interests. They ranked science and medicine sixth when asked for their own interest, and thirteenth on behalf of the viewers who in fact ranked science and medicine first in their list of interests.

Then, it would be my observation based on 18 years in daily journalism, that the gatekeepers generally are not knowledgeable about or empathetic to science and technology. Thus, science stories which do not meet certain news criteria, to be mentioned shortly, are unlikely to strike the right chord.

Another important factor is the commercial imperative. It is no surprise that many daily newspapers have weekly information technology or computer pages — they generate advertising which supports the editorial space.

Apart from the low priority accorded science news, the quality of reporting is another issue. Scientists are often critical of the mass media for:

- A lack of accuracy and precision which often flows from the editorial process of paraphrasing, abbreviating and simplifying for a lay audience. One would never condone inaccuracy or poor reporting, but simple, direct writing may inevitably produce a measure of imprecision.
- Misplaced emphasis arising from a predisposition for: "gee whiz" breakthrough stories: controversial stories; bold stories which emphasise potential impacts and quirky stories.

That discipline called "sociobiology", which explores the notion that behaviour is shaped by genetic factors, is a rich source of stories of the kind to which scientists object. Consider these:

Time: "Machismo is biologically based, and says in effect — I have good genes, let me mate."

Playboy: "If you get caught fooling around, don't say 'the devil made me do it', it's your DNA."

Science Digest: " Obesity is a genetic tendency to stock for a famine that never comes."

Other criticisms:

- A failure to make clear uncertainties that underlie research and a tendency to exaggerate the benefits of research.
- Sensational headings.
- The stereotyping of scientists and some fields of science.

Journalists, for their part, are critical of scientists who are remote and unhelpful. Journalists will always be drawn to sources who are accessible, available and ideally, quotable. This explains why some scientists are frequently quoted in the mass media, sometimes to the chagrin of peers and colleagues who complain that they are not the most qualified to comment on a particular field.

Scientists can also be self-serving, hence journalists are worried that they are sometimes manipulated by researchers whose agenda is attracting and/or maintaining funding, in effect, they are "retailing science".

Another complaint, and one which I am sure most of you in this room are happy to accept, is that scientists do not think journalistically. By this I mean, the need to recognise the potential for a story that will serve an audience. The task of the journalist is to interest and excite the reader/viewer/listener and to make links to the audience's everyday experience so they appreciate the value and relevance of the research described.

So what can be done to foster excellence in communicating science? Part of the answer lies with people like myself who train journalists. At Canterbury, we have encouraged science graduates to consider journalism and I am pleased to say that each intake over recent years has included science graduates. In my experience, they offer different insights and

perspectives of benefit to our postgraduate Diploma in Journalism course *per se*. Most enter the workforce keen to apply their science to journalism and have achieved this both in daily journalism and in such roles as communication officers with government and other agencies.

The in-office training available to working journalists should embrace science reporting. We held such a course several years ago and it attracted journalists from throughout New Zealand but I am not aware of other workbased training.

Scientists must acquire more media nous and skills. Some individuals and interest groups have participated in media training courses staged by the Royal Society and others. The University of Sydney has launched a communicating science course aimed at science graduates which could well be a model for initiatives here.

Most New Zealand universities now publish media directories outlining the expertise of staff as have some groups, for example the geographers. Journalists have no excuse for not getting expert comment once sources have been identified.

Working together, scientists and journalists can significantly improve the quality of information communicated to the public.