Science and the Media

A public meeting on “Science and the Media” was held on Thursday 13th May in Committee Room 7, House of Commons. The proceedings were chaired by Anne Campbell MP and Phyllis Starkey MP and were well attended. Presentations were made by Fiona Fox (Director of the Science Media Centre at the Royal Institution), Lord David Sainsbury (Science Minister), Prof Colin Blakemore (Medical Research Council) and Richard Ladle (School of Geography and the Environment, University of Oxford).

Fiona Fox introduced her talk by providing illustrations of the sometimes rather abrasive discourses that can occur between scientists and journalists- citing the case of a recent altercation between Robert Winston and Paul Routledge. She pointed out that that the two disciplines of science and the media have little common ground-with the latter being governed by the need for a quick and eye-catching response whereas the former moves on a very different timescale and is steered by the need to reach conclusions which can withstand peer review. It has also been claimed by some journalists that scientists in many cases can be very elitist and thereby discouraging intercourse with lesser mortals!

Nevertheless it is becoming evident that science journalism is flourishing with more positive stories about recent advances particularly in the broadsheets. It is also encouraging that the Association of British Science Writers is thriving and that many young graduates are very keen to acquire journalistic skills.

However a major problem does exist for scientists in dealing with misleading headlines-a point made in a recent House of Lords report.

One must make a distinction between the kind of reports that appear in the broadsheets and those that are splashed across the front pages of the tabloids and even on BBC5.However it must be said that the scary headlines generated by such issues as BSE, GM crops and MMR cannot be merely attributed to the vagaries of an irresponsible press. Scientists themselves did not react positively at the time to the opportunities to present their point of view in a more convincing manner. Thus, to many people their first introduction to nanotechnology was to learn about the fears of 'grey goo' from Prince Charles and for these views to go largely unchallenged and thereby allowing this new branch of science to be introduced on a negative and ominous note. To some extent lessons have been learnt from these episodes and the formation of the Science Media Centre has been welcomed by the scientific community and many scientists are now willing, to respond to requests from the Centre to meet the media's demands for information.

Lord Sainsbury emphasised the need to have a more confident relationship between scientists and the public. He admitted that 'the public understanding of science' initiative while, in its time, a very forward looking project was based on two assumptions Firstly, if people knew more about science they would automatically look more favourably on scientific research. And secondly, that one could raise the level of scientific understanding substantially other than through the educational system. Neither of these assumptions turned out to be correct and there was clearly a need to move forward with a new agenda.

The British public has a positive view about science. In a survey that the Office of Science and Technology published with the Wellcome Trust a few years ago, 80% of people surveyed agreed that Britain

needs to develop science and technology in order to enhance its international competitiveness; 72% agreed that, even if it brings no immediate benefits, scientific research that advances knowledge is necessary and should be supported by Government; and 84% of people thought that scientists and engineers make a valuable contribution to society.
There was also some good news from a complementary survey by the Wellcome Trust of the role of scientists in public debate. 84% of the scientists questioned believe that they have a duty to communicate the results and implications of their work to the public, and more than half of them had done so in the past year. Almost 6 out of 10 scientists said that they would like to spend more time on public dialogue activities.

But, while science is generally seen in a positive light, people have questions and concerns about particular new technologies, and we need to be able to answer those questions and reassure them that any ethical, safety or environmental issues raised by those technologies are being properly addressed.

This means dealing with some of the difficult questions at the start of major new developments in science and technology and asking whether there are any new ethical, health or environmental issues involved. Lord Sainsbury then outlined some significant successes in this engagement e.g. embryo research and human genetics. He also could envisage major areas where well informed and open debates could be very useful e.g. energy policy and brain research. Thus while considerable progress had been made much needs to be done.

Colin Blakemore stressed the need to weigh up the effect that a given scientific or technological advance had on the public perception

of its risks and benefits. Thus mobile phones were more acceptable than GM foods on this basis. The question of who communicates science to the public is a vital one and indeed it can be argued that science communication could be a profession in its own right. It is also vital in some cases to impart the nature of the scientific process rather than the details of a particular issue. Quite often it may be important to point out that scientists are not a race apart!

One of the problems that arises in today's very competitive environment is that some scientists may feel that devoting resources to communication with the media could conflict with their career progress. The MRC is very aware of this and has taken practical steps to encourage grant holders to communicate their results more effectively.

There are a number of simple rules that scientists should adhere to in dealing with the media: communicate as simply as possible but without lowering standards: respect for journalists is also a key component of any interaction.

Richard Ladle provided a more specific illustration of the misconceptions and exaggerations that can occur in mistranslating the results of an article in the emotive issue of conservation ecology.
A clear illustration of this occurred recently when the UK print media headlined the claim that one million species are to go extinct within 50 years whereas the peer reviewed science on which it was based suggested that a variable proportion of land animals and plants may eventually go extinct as a consequence of the next 50 years of climate change.

The headlines were apparently based on a study in the journal

Nature published in January 2004 from the University of Leeds that modelled the potential effects of global warming on the extinction of certain species of land animals and plants. The results of this study suggested that under moderate climate change scenarios between 15% and 37% of the 1103 organisms considered within the study would be "committed to extinction" by 2050. The authors defined this term as meaning, an estimate of proportions of species committed to future extinctions as a consequence of climate change over the next 50 years, and "not the number of species that will become extinct during this period". Furthermore they note: "decades may elapse between area reduction… and extinction". In short, the study claimed that if the assumptions and predictions of their model were valid then a proportion of the species studied would eventually occupy environmental conditions incompatible with their long-term survival.

Somewhat surprisingly, the press release from Leeds University contained many of the more sensational sound bites that were later picked up by the national newspapers. For a start, the press release ran with the headline: "Climate Change Threatens a Million Species with Extinction". This is attributable to a quote inside the press release from the lead author, Professor Chris Thomas, along with a non-attributed claim that a quarter of land animals and plants may go extinct. It should be noted here that the figure of a million species did not appear in the original peer reviewed article (possibly because it was based on some crude assumptions about the number of species currently unknown to science inhabiting tropical rainforests).

In mitigation, the press release did go to some length to explain that the extinctions will occur *eventually* [their emphasis] and not in the next 50 years. Unfortunately, the same cannot be said of the resulting newswires from the big press agencies. A Reuters newswire

contained many of the mistakes and exaggerations later seen in the mass media when it stated that: “Global warming could wipe out a quarter of all species of plants and animals on earth by 2050 “. United Press International were similarly off the mark with their statement (8th January) that “Between 15 percent and 37 percent of animal species sampled in six critical world ecological regions could become extinct by the year 2050 because of their inability to adapt to a changing climate.”

Over the next two weeks twenty-nine articles published in UK’s national and local newspapers reporting this study were reviewed and it was found a systematic pattern of errors in 26 of them. The most significant misrepresentation of the study’s findings was the oft-repeated contention that over a million species would go extinct due to global warming by 2050 (21/29 reports). Just two reports explained that only a few species would actually be extinct by 2050; worryingly, two reports suggested that 1/3 of all the world’s species would become extinct. No report specified the full range of uncertainty.

Such scary headlines were always likely to catch the attention of politicians and some were quick to publicly support the sensationalist statements. From the conservation lobby many of the largest and best-known NGO’s produced press releases or ran news stories on their websites and WWF-UK mailed its membership with a ‘Conservation Emergency!’ with the opening line “you’ve no doubt seen the recent press and television headlines – by 2050 global warming could wipe out one million species of animals and plants”.

The following month *The Independent* ran the headline: “Extinction beckons for Britain’s well-loved native mammals”. Once again the press might be open to accusations of jumping the gun as not a single mammal species is teetering on the brink of extinction.

The problem with all of the examples described here is that it engenders the public perception of a “hot crisis” – an imminent disaster that may personally affect all of us. This is fine when such a disaster does actually occur but very dangerous when none of the predictions transpire within the compressed timescale that is normally implied. Eventually this could lead to public apathy and even “conservation fatigue”. Thus it has become increasingly important that scientists and the media use extreme caution in relaying information with high degrees of uncertainty. Finally, scientists should think long and hard before promoting work where the results are still in a preliminary stage of testing or development. At the leading edge of science where new ideas are being tested, disagreements and inaccuracies are all part of the natural scientific process.