



**THE ROYAL
SOCIETY**

National Forum for Science

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“Do We Trust Today’s Scientists?”

A REPORT BY WENDY BARNABY

Disclaimer: This report highlights key issues that emerged from this event. It is not necessarily an expression of the views of the Royal Society.

On 6 March 2002, the Royal Society held the first of five national fora to engage the public in scientific issues. Politicians, government advisers, non-governmental organizations, scientists and members of the public met to discuss whether we trust today's scientists. The meeting followed four others held in Birmingham, Manchester, Glasgow and Cardiff, at which a total of 166 people from special interest groups, community-based groups, sector representatives such as the police and the general public exchanged views with Royal Society scientists on the underlying causes for the lessening of public confidence in aspects of science, and advised what should be done, and by whom, to reverse it.

In introducing the meeting, Sir Paul Nurse FRS described the results of a MORI poll commissioned by the Royal Society ahead of the meeting. It presented a list of issues to the public and asked them which they were most worried about. Biological weapons and global warming topped the replies: issues which, said Sir Paul, scientists recognized but which not all politicians treated seriously. Next came GM food and animals, BSE/CJD, nuclear power and medical research on animals. The public's confidence in scientists has, Sir Paul argued, been shaken on all of these questions. There followed xenotransplantation, health problems of mobile phones, gene therapy, MMR and stem cell research. In further questioning, 55% of the public agreed (and 27% disagreed) that the funding of science is becoming too commercialised. Asked whether the media represent science responsibly, 39% agreed and 47% disagreed. The final question was whether the respondent would like more influence over the type of scientific research that is done. 53% said yes; 32% said no.

The morning continued with short statements from invited guests, followed by debate.

First to speak was the Government's Chief Science Adviser, Professor David King, who said that recovering public confidence in science and science policy makers in government is at the top of his agenda. The way to do this, he thought, is to be honest with the public.

Author and critic Fay Weldon argued that the only way scientists would be trusted is to show themselves to be trustworthy, on an individual level, over a long period. She identified four possible suspects for the present lack of public trust: the government, the media, the scientists themselves, and the public. She largely absolved the media, saying it's their job to sell papers with scare stories, and that they exercise control over scientists' discoveries on behalf of society. As far as government goes, its chickens of spin have come home to roost: too many mistakes have been made. "There is an enormous emotional, imaginative dimension to personal lives which State and statisticians fail to take into account when they give advice, when by stick and carrot they try to get the population to do what's good for it", said Fay Weldon. "If trust is to be re-gained, whole truths, not partial truths, must to be told the public." For its part, she continued, the public is not ignorant or stupid. It does, however, like certainties, which is its bad luck because there aren't any. It must learn to face the facts of matter, and to live with fluctuating acceptable risk, rather than safe, or not safe. Then it will be prepared to trust where trust is due, and be the better for it. As for scientists themselves, Fay Weldon had this advice: "Take yourselves seriously, universalise your actions, work out the social consequences of what you are doing, and police yourselves. Refrain from responding to political, military or commercial pressure, and the temptations of lavish funding, Go easy on the argument from medicine – too many scientists justify their research on the grounds that it will wipe out some kind of illness or another –when the thrill of the stem cell chase is upon them. Too many cures have been promised: too many have failed to materialize."

The Executive Director of Friends of the Earth, Charles Secrett, said that we ignore scientific discoveries at our peril, but science does not supply perfect answers or predictions. It always takes place in a moral, political and commercial context, and in order to operate effectively, scientists must be open with the public, politicians and non-governmental organizations. It is increasingly hard to do this however as applied science is driven by commerce and the lure of fame and fortune. The commercial imperative leads scientists to avoid discussing their work at an early stage, so that they can claim patents when they publish. We would have more trust in scientists if we had more freedom of information – which means greater public funding of science. The media needs to foster informed debate but not scaremongering. Communities should be more involved in public decisions, and politicians should be interested in science.

The Rt Hon Margaret Becket, MP, Secretary of State for Environment, Food and Rural Affairs, agreed that the public does not trust scientists and thought that they probably should. One of the underlying causes of their suspicion was the BSE episode: the perception that the public had not been told just how alarming the situation was. She disagreed that the media's role is to foster scares, and argued that the media should be encouraged to understand what it is reasonable to ask of scientists. This is that scientists cannot be expected to speak of certainty, but only to reduce the range of uncertainties. If this is the truth, we should say it; and her Department is reviewing its science and beginning horizon-scanning with a view to being more open about its science. Scientists, continued Margaret Becket, have no more right than anyone else to demand simple trust, but they can demand responsible awareness of what they do.

The Chief Scientific Adviser of Greenpeace UK, Dr Douglas Parr, argued that we trust astronomers and dinosaur-hunters, but not science as it contributes to policy options. Contrasting two events which happened in the early 1990's – the invention of the world wide web, and the accession of John Major as Prime Minister, he asked which event has had more impact on our lives today. If we think it's the web, why do we accept that we vote for politicians but that science policy-making happens with practically no public input? People should be engaged in choices about which areas of science are investigated as a matter of principle. It means taking control of our futures.

Douglas Parr continued that people are used to dealing with uncertainty. We do that every time we take out a mortgage or travel by train. What we find hard is agreeing on our response to unknowns.

During the wide-ranging discussion that followed, the following points were made:

- * Dialogue is only useful if it yields knowledge and truth. Politicians offer reassurance without providing all the necessary information.
- * When asked whether they trust today's scientists, 64% of the public say yes and 23% say no. However, 88% trust cancer scientists, 78% trust scientists in environmental organizations, 48% trust scientists in industry and 44% trust scientists in government. Half of scientists sponsored by public funding see no reason to talk to the public and the vast majority doesn't feel equipped to do so. Funding needs to be increased for teaching scientists to talk to the media. On virtually every scientific issue of concern to the public, women are significantly more concerned than men.
- * Politicians and scientists patronize the public over MMR. People should be allowed to choose what they want to do. Politicians must master briefs given to them by scientists so they can treat the public seriously with real data on specific issues.

- * Most politicians are not scientists, but they meet many members of the public and know what concerns them. The House of Commons Select Committee on Science and Technology can make a difference, for example in its enquiry into cancer services. It made the Government introduce changes which are now beginning to have an effect.
- * Experimentation on animals is bad science because drugs tested on animals have turned out to be bad for humans. If this work is as necessary as we are led to believe, why is it so secret? A reply argued that concern over animal experimentation has led the UK to adopt the most stringent controls over these experiments in the world, and that openness is restricted by concern for the welfare of the scientists involved. Public opinion polls show that the only issue on which 16-24 year-olds differ significantly from the general public is animal experimentation. About 25% of the British public feels so strongly about this that they say they would not want to cause pain or death to an animal even to cure childhood leukaemia.
- * The Anglo-Saxon way of debating opposing propositions, leading to disagreements over extreme positions, needs to be tempered by the continental approach of engaging around alternatives. We need new forms of participatory democracy to stop antagonistic extremes engaging in battle over science policy.
- * Openness means not only a dialogue between scientists and public but also between scientists in terms people can understand. Independent scientists have been criticized by biotechnology companies for findings which disagree with the companies' own work, and they should be supported by the Royal Society and government. One suggestion about how to protect the independence of science was to have a vigorous higher education sector with research supported by independent – ie public - funding.
- * Science teaching in schools needs to present science as tentative knowledge rather than as received wisdom. The public needs to understand that disagreement between scientists is healthy and part of the scientific method.

To begin the afternoon, participants discussed focused topics in workshops. Under the headings of four themes, they then fed their conclusions back to the whole meeting:

1. Lack of control of applied science.

Society should have an effective mechanism to enable the public to be involved in debates on key issues. The interests of science are well served by the Royal Society, but the interests of society should be protected by an organization that is democratically accountable, includes many stakeholders, and with a wider focus than risk. It should talk about all innovation to ask who has funded it and in whose interests it might operate.

To counter control of science by vested interests which are not properly accountable to the public, we need much more independent (non-military, non-corporate) funding of basic research. We need disclosure of funding sources for published science.

To ensure that regulation of science protects the public, new technologies should be regulated. Gaps in current regulatory bodies should be identified and new bodies should reflect the membership of society at large.

To allay concern about the rapid pace and uncertain consequences of 'new frontier' science, we need to set up international channels to lessen the gap between the effects that science has and the way it's appreciated by the public, to enable the public to absorb the changes science presents and to get on with life. We need discussion of the moral ramifications of what has already happened before we can adjust to what is coming.

To meet the challenge science poses to ethics, the Royal Society should adapt and promote a set of generic ethical guidelines on scientific practice and dissemination. It should also set up an ethics committee to monitor the implementation of the guidelines.

2. The need for information.

To judge whether people providing scientific information are acting in the public interest, we need to make people more aware of the sources of information. We could also change the way we teach science to make students question their judgments. A free-for-all database could publish all research with views of scientists and ethicists. We need national standards for the publication of information, with criteria set by citizens' juries, to ensure that the public can judge information effectively.

To clarify who is funding scientific research and its applications, and allow the public to assess the information presented, disclosure of funding sources should be required by scientific journals and in media interviews.

To determine whom to trust when scientific issues are discussed, we need to recognize that, in a society which questions investment advice and everything else, science is not unique in being challenged. We need to engender in the scientific community a cultural commitment to dialogue. We trust people when they are open and accountable, and we trust people rather than institutions, so every scientist should build a dialogue. The Royal Society should not believe that it alone can rebuild trust.

3. Communication and media

To counter misleading or inaccurate reporting of science, the Royal Society should set up an instant response website to provide background on breaking stories. There could also be an annual 'Phlogiston' award to name and shame the worst editors and stories most guilty of hype.

To discourage scientists from deliberately manipulating information through the media for their own ends, the Royal Society should strengthen its guidelines on how scientists should behave with the media and disseminate them to undergraduates and postgraduates.

To encourage scientists to communicate in ways the public can understand and trust, they should encourage young, friendly researchers to communicate the excitement of their science to students. Science communication should be recognized by other scientists and by employers as part of a scientist's job, and training for it should be provided.

To raise enthusiasm amongst young people for science, we should provide incentives for academic scientists to become communicators. We should also identify and train charismatic champions of science to exert influence through the media.

Education and understanding

To enable people to understand the nature of the scientific process, we need more discussions between scientists themselves about how they go about their science: the attributes of the process they use. We need more case studies of how things are done: the blind alleys as well as the results.

To foster more public understanding of risk, schools need to promote early education in risk, hazards, benefits and uncertainties. Professional bodies need to develop appropriate risk-benefit vocabularies for all kinds of target audiences.

To improve science teaching in schools, the curriculum needs to endorse scientific literacy, understanding of risk, the nature of science and scientific method. We need to make scientific information accessible to parents and young children, perhaps on websites.

To enable people to understand the impact of science on society at large, we need to empower people through dialogues and citizens' groups. We need to encourage government, the Royal Society and other funding bodies to fund scientists to learn to communicate with people outside their peer group.

Conclusion

Summarizing the meeting, Sir Paul Nurse said the Royal Society would collate the conclusions reached to see how they could be taken forward. There were already three things he would want to explore. The first is seeing whether the Royal Society's website couldn't be more simply named, and using it to identify other websites disseminating science to the public and to judge their quality. The second is the general issue concerning a generic code of ethics for science. The third is to keep a watching brief on scientific issues so we can identify where problems may come from in future, so that the public need not be surprised by future developments.