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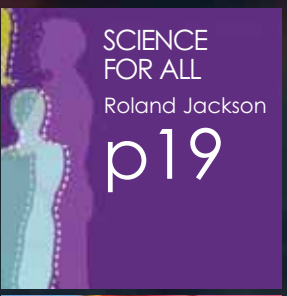
Ten years on

Science in the media

Inventing language in Kerala

In praise of science communication



SCIENCE FOR ALL
Roland Jackson
p19

PUBLIC SCIENTIFIC LITERACY IN CHINA
Fajun Chen
p22

FROM CYNICISM TO PARTICIPATION
Rachel Brazil
p24

People & Science is the new name of Science & Public Affairs

EDITORIAL

Food security figures in this issue of *People & Science*. The Spat (p10) sees a debate between Vicki Hird and John McDermott on whether we should eat less meat to increase food security. And Tom McMillan (p29) argues that the research and regulatory bodies which address food security need to concentrate less on scientific answers to the problem and more on engaging with a wider range of people.

Most of this issue, however, looks at the current state of public engagement in the UK and abroad.

Patrick Jenkin chaired the Lords Select Committee on Science and Technology which, in 2000, published the seminal report, *Science and Society*. It demanded a change from public understanding of science to engaging the public with science. Ten years on, Patrick Jenkin surveys the field to see what progress has been made.

Noting that there have been some distinct successes, he considers public trust in scientists, scientists' own practices, the lip service paid to engagement and the reality in academic and public bodies. He concludes that those engaging the public still need to work out better ways of achieving their aims.

In 2010, the Labour government has been working to do just that. Its expert groups, set up to address the five themes incorporated in its science and society strategy, reported in spring. They produced some animated web-based debate, and the groups are in various stages of follow-up work. Karen Folkes (p5) summarises the findings of the Science for Careers and the Science and Learning groups. Fiona Fox (p18) brings good news from the Science and the Media report, and Roland Jackson (p19) updates us on the follow-up to the Science for All report. Tim Lewens (p20) considers the Science and Trust report's comments on the role of engagement in building trust.

It is not only the UK government which has been thinking about public engagement. The Australian government recently published a national strategy for engagement with science. Reflecting on the report, Susannah Eliott (p21) argues that too much science communication has become focussed on profile-raising rather than the public's need to know. Scientists should, she says, be encouraged to engage with the public when they are needed most, and not just when they have a new discovery to announce.

The Chinese government, too, has put public scientific literacy on its agenda. Fajun Chen (p22) argues that the Chinese people will find scientific literacy more important than scientific knowledge *per se* in facing the challenges of economic and political development.

Scientific literacy has been nurtured in the Indian state of Kerala by the Kerala Forum for Science Literature (KSSP). A P Jararaman (p23) relates how, along with other founders of the KSSP, he invented new words for scientific terms in the Keralese language rather than Sanskrit, to anchor knowledge amongst the people. Just how necessary that was becomes obvious when he tells us that the Sanskrit for 'switch', literally translated, is electricity-arrival-departure-control-rod.

This issue sees the last piece from Phil Willis MP (p28), who retired from Parliament before the election. He chaired a particularly active Science and Technology Select Committee. Let us hope for equally enthusiastic examination of the science-related issues of the day from the new Parliament.

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Ten years on

Patrick Jenkin considers the current state of public engagement

Ten years ago, the House of Lords Select Committee on Science and Technology published a report entitled *Science and Society*.[1] How this came to be written may be of some interest. At the first meeting of the Committee which I attended, we were asked to suggest subjects for possible inquiries. Tentatively, I suggested that there was growing concern about a declining level of trust by the public in the work of scientists. 'Oh, we are dealing with this already,' said one of the very distinguished scientists loftily; 'it is called The Public Understanding of Science.' So I subsided!

Not long after that, I was approached by Lord Winston, by then Chairman of the Select Committee, suggesting that I might like to chair an inquiry into science and the public. I was delighted and of course agreed. The title of the inquiry became *Science and Society*, and we got to work.

Our report, published in February 2000, is still in demand. It has been described as one of the most influential reports of the decade.

It took about a year before its messages were absorbed by the science community. So what were these messages?

Listen as well as talk

Although public interest in science seemed never to have been higher, we found a disturbing lack of trust in what scientists did and said. 'The Public Understanding of Science' did not seem to be delivering, and we identified the cause as being a one-way process – top down, condescending and even demeaning. Instead, we recommended 'engagement' with the public. Instead of just teaching and preaching, scientists, engineers and technologists should talk to public audiences of all kinds about their work – their aims, their skills and their enthusiasms. We called, as one American witness put it to us, for 'ears as well as voices'. It is as important to listen to the public as it is to talk to them.

Ten years on, all the major scientific and engineering bodies now have their 'Science and Society' programmes. The government took up the challenge and initiated 'Science So What? So Everything!', and work is going on in government departments.

Cultural change

But it soon became apparent that there were problems. Our report did not attempt to define what was meant by 'engagement', though what we described as the 'new mood for dialogue' could be expressed in many different ways. We mentioned such things as consultative panels, focus groups, consensus conferences, internet dialogues and so on. Though valuable, they were no substitute for genuine changes in the *cultures* of key decision-making institutions.

Some of this has been happening. Like others, I have served on award panels where prizes are given for excellence in science engagement, and I have been astonished by the range and variety of what is going on. Many thousands of people in all walks of life have been able to listen to and contribute to the dialogue.

But has anything changed very much? Are scientists any better trusted? Does the public support what the scientific community is up to? Has the culture really changed for the better?

Scepticism remains

One can certainly point to some very notable successes. One has been the support for stem cell research, even though some of the work, such as on hybrid embryos, initially aroused misgivings. However, Parliament with the support of the public, passed the legislation. Active campaigning by the voluntary sector was certainly a major factor.

But if one looks at the wider picture and asks whether the public really trusts science, the situation is far from encouraging. Take for instance the growing scepticism among the public about climate change. Climate change is the most serious threat facing the world today, but as many people in Britain now believe the sceptics as believe the scientific establishment! Here the argument is centring around disputes about the facts, with the two sides becoming ever more entrenched, with arguments in black and white: 'You're wrong, I'm right!' Of course, the East Anglia University probe and the Himalayan glaciers blunder have done much to stir this up. Yet decades of serious, unchallengable scientific evidence is being thrust aside as the sceptics desperately try to prove that the scientists are wrong.

Take another example – GM crops. At Question Time in the Lords, I asked if the recent approval by the EU Commission for cultivating a GM potato was a sign of changing attitudes. The Minister replying mentioned, not once but three times, that 'the supermarkets will not sell GM food.' All the science points, not only to the safety of GM foods, but to the fact that the technology is essential if we are to feed the nine billion people that will be on our planet by 2050. Yet public opposition in the UK remains vehement.

Purpose and trust

So what has gone wrong? Why have ten years of active public engagement (PE) not improved matters? One major difficulty has sometimes been the lack of clarity about the purpose of PE. Where there is clarity, as for the defeat of disease through stem cell research, the engagement works. Where the threat seems remote and the aim is to change behaviour, it does not seem to work.

It comes back to trust. It is said that trust arrives on foot but departs on horseback – and the recent climate change scandals illustrate this dramatically. Scientists must be readier to admit the uncertainties as well as the certainties. They must be swifter to correct mistakes.

There is now some academic research which seeks to throw light on what is going on.

Current developments

The Science Communication Unit at the University of the West of England, has recently produced a 'Public Engagement Map'.[2] While not purporting to be in any way complete, it does attempt to quantify what PE is going on. They ask five questions about involvement in PE: Who does it? What is done? Where does it happen? Why does it happen? And how does it happen? Their vision is fine: a society where scientists listen to and learn from the views from the public leading to mutual respect; where science communities are accessible and visible with informed open debate about what is going on. But when one comes to examine some of the actual activities they list, a rather mixed story emerges.

Of course much worthwhile engagement goes on but, in what they call 'the science industry sector', much of what happens is just marketing. In the academic sector, the stated aims seem admirable – to enable society to value and have confidence in the research process and outputs, and to help young people to pursue research careers. But there is little evidence of rewards or recognition. In the public sector, the survey says 'there appears to be some discrepancy between what is said and what is done within the public sector.' (Where I have I heard that before?)

Another report by a team at the London School of Economics: 'Scientists on Public Engagement: from communication to deliberation', though based on a limited survey of scientists active in PE, contains some very interesting qualitative assessments.[3] The report appears to confirm the significance of a major sea change in professional scientific culture toward participation in PE as a key component of scientific research and innovation. It suggests that models of unsupportive publics are being replaced by intelligent,

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supportive and scientifically capable publics, particularly in relation to biology and medicine. Lapses in public support – GM crops, the MMR vaccine are mentioned – were attributed less to the public than to medical chicanery or to the negative influence of the media – the so-called 'Frankenstein Foods'!

Better methods

However, it reinforces the difficulty of fitting PE activities into the job descriptions of working scientists. PE is seen to be under-incentivised and under-rewarded, and potentially detrimental to research and to professional stigmatising! Moreover, efforts to improve incentives will run into the difficulty of measuring scientists' contributions, and risk turning the current voluntary activities into a bureaucratised system with more box ticking.

When our Select Committee came out with its firm proposals for public engagement in preference to the public understanding of science, we greatly underestimated the difficulties of doing it. I am sure that our aim was right – to engage in public dialogue on the scientific issues of the day. Those engaged in PE often state their aims with admirable clarity. They still need to work out better ways of achieving those aims.

1 www.publications.parliament.uk/pa/ld199900/ldselect/ldsctech/38/3801.htm

2 http://tiny.cc/b19ls

3 www.lse.ac.uk/collections/BIOS/scope/scope.htm

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