

The Royal Society of Edinburgh

**Peter Wilson Lecture 2016
Joint with the Scottish Consortium for Rural Research
and the Royal Society of Biology, Scotland**

Lost in Translation

**Professor Dame Anne Glover FRSE
Vice-Principal External Affairs and Dean for Europe,
University of Aberdeen**

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Report by Matthew Shelley

The evening was introduced by Royal Society of Edinburgh President, Dame Jocelyn Bell Burnell. This annual lecture commemorates the late Professor Peter Wilson, former Professor of Agriculture and Rural Economy at the University of Edinburgh and an active Fellow of the RSE. It was delivered by Dame Anne Glover, whose roles include being Professor of Molecular and Cell Biology at the University of Aberdeen. She is also a former Chief Scientific Advisor to the President of the European Commission in Brussels and a former Chief Scientific Advisor for Scotland.

As a PhD student at Cambridge, Professor Glover remembers her supervisor saying that “research not communicated is research not done”. The life of a scientist is one of exploration and seeking knowledge and she believes that it is of fundamental importance that the learning and discoveries are communicated. It is not enough for scientists to simply communicate with each other; research is publicly funded and so the outcomes need to be shared. This is also important because research gives politicians, policy makers and others the information they need to base decisions on evidence rather than on hunches.

Professor Glover looked at different sorts of evidence and where it comes from. Much is the result of collaborations across the 28 Member States of the EU, pooling resources for projects they could not afford alone. She said: “If we look at our achievements in science, engineering and technology, there’s a tremendous source of pride there because we are number one in the world.” One reason for our research excellence is that we have superb infrastructure, created at an international level; such as the Very Large Telescope, for studying the biggest objects in the Universe, and the Large Hadron Collider, which allows us to research the smallest.

The evidence gathered from scientific research allows us to take a rational approach to tackling the world’s major challenges. A recent example is the work to halt Ebola. In a globalised era it is essential to be able to respond fast and effectively to challenges such as disease – Ebola in West Africa one day can be in Edinburgh the next.

Reliable and high-quality evidence is also needed, said Professor Glover, if we are to learn how to cope with the vastly increasing older population in the developed world and

in order to sustainably provide the world with food and energy. “With climate change,” she added, “we also need to think about how to deal with natural disasters, which are happening with a higher frequency.” When research is applied it also brings economic benefits – for example, through the jobs generated by new technologies.

Turning to quality of evidence, Professor Glover quoted the Irish-American politician Daniel Moynihan, who said we are all entitled to our own opinions but we are not entitled to our own facts. Many claimed that the Turin Shroud was used for the burial of Jesus, others disagreed. Radiocarbon dating has shown it is medieval, not ancient. By taking a scientific approach, we can have confidence that results come from a source without vested interests; but, most importantly, that they are testable and repeatable. There is also the issue of trust. Professor Glover highlighted poll findings which suggest that doctors, teachers and scientists are highly trusted, while politicians and journalists are not. Most politicians Professor Glover has met have wanted to make life better for others and it is “troubling” that we have little faith in those we elect to run things on our behalf. “It might be something to do with the way they use evidence,” she suggested. This can also apply to the media. She cited tabloid claims that flights and buses to the UK were booked solid when Romania became a full member of the EU. In fact just ten people arrived in the first fortnight. And while people claim not to trust journalists, they are influenced by headlines.

To give the public a reliable view of the world, it is imperative that scientists communicate evidence effectively. One area needing work is in perceptions of risk, where people often rely on gut reaction. Research shows that people are alarmed by the danger from terrorism and have significant fears about air and rail accidents; although the risks are small. By contrast, their concern about cancer and car crashes is lower than the actual risk. To cut real risks, it’s essential to base decisions on scientific evidence rather than on gut reaction. There can be catastrophes if evidence is ignored. In the 1960s, the Soviet Government proceeded without asking for evidence and decided to divert rivers feeding the Aral Sea. An ecological disaster ensued and what was the world’s fourth-largest lake is now largely dried up.

The key is to make information accessible and useable. From her own career, Professor Glover knows this presents challenges; not least because scientists emphasise the uncertainties and politicians want things to be clear cut. But scientists have to be “the universal translators of evidence into something that really has an impact on citizens through the medium of policy, policy makers and government.” It is also vital for scientists to be straightforward about what they do and don’t know. Professor Glover applauded the approach of the Intergovernmental Panel on Climate Change (IPCC), which uses everyday phrases such as “very likely”, “quite likely” and “unlikely”.

If scientists fail to communicate effectively, then the public is at risk of receiving information in distorted forms. A story from the *Daily Mail* used genuine data to claim that global warming had stopped 16 years before. However, they only used a fragment of the scientific graph. The whole graph showed a strong upward trend over the decades, in which there were some periods when the rise was fast and others where it was slow or temporarily flat.

“There is a global consensus among scientists that human beings are having a negative impact on our climate and it’s quite rapid,” said Professor Glover. Yet this reality can be distorted by those who find it inconvenient or are in search of sensational headlines.

When information is misused, then scientists need to speak out – “if we don’t act, who will act?” The hole in the ozone layer, discovered in the 1980s and shown to be caused by CFC gases, is a good example of how collective action by scientists can work; even in the face of resistance by big business.

Professor Glover gave an example of poor political practice. Last year, the Scottish Government announced that GM crop growth was being banned because there was uncertainty about the technology and because the ban could bring economic advantages. However, she argued that it is “the most explored form of plant breeding” and the technology is safe, adding that there was no evidence for the economic claim. The reason they said it, she continued, was because people in Scotland do not want GM crops. Professor Glover argued that the Scottish Government should have shown leadership and said that the technology is safe, but that evidence of economic impact is being sought and there would be no GM crops because of public concerns.

There can be circumstances where the science is legitimately overridden by other factors, said Professor Glover, but it is essential to be open about the reasons. She concluded that transparency leads to “better politics, better representation and greater trust in politicians.”

Q&A

Asked about other examples of poor use or misuse of science by government, Professor Glover said she had concerns about the approach taken to the badger cull. She questioned the evidence used to justify the cull, but if one was to take place, then a follow-up would be needed to show how many carried TB. This was not implemented.

On the issue of whether politicians recognise that science is valuable as a cultural activity as well as a means for problem solving, Professor Glover said she thought not. Nonetheless, she strongly believes it is part of European cultural identity and that there are great advantages in funding pure science. She added that there are two types of science – “applied” and “not-yet-applied” – and that there is “evidence in bucket-loads” that we all reap the benefits of pure science.

The Vote of Thanks was offered by Professor Stuart Monro OBE FRSE.

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