Does Science Matter?

Professor Anne Glover, Chief Scientific Advisor for Scotland

The 2007 ECRR Peter Wilson Lecture – 13 February 2007

At the 2007 ECRR Peter Wilson lecture in February, Scotland's first Chief Scientific Advisor, Professor Anne Glover, posed the question: "Does science matter?" Her conclusion? In a word: "Yes!" But her argument was, of course, slightly more complex…

It started with the Big Bang and ended with a plea for Scotland's scientists to stop being silent on the issues affecting us all, but Anne Glover's lecture on "*Does science matter?*" was sound advice for everyone concerned about the image – and the future – of science.

Professor Glover, the Chief Scientific Advisor for Scotland, explained how science helps us understand the world we live in, from the birth of the cosmos to the ongoing search for dark matter. Along the way, she also covered microbiology, climate change, cancer, renewable energy and nanotechnology (including glass that cleans itself), concluding that even though science may cause many problems, it also provides good solutions.

Controversy was never far away in the course of the lecture, including the worry that water may be the new oil (thus the need for the self-cleaning glass), and the popular notion that scientists are not just "boring" but bad for the planet.

For Professor Glover, science is not just a cure for the ills caused by humans, it's one of the "symptoms" of the human condition. Her argument is that because we are good at reproduction and live in large communities and interact with our environment, we cause lots of damage – including global warming. To counter this, as we have well developed brains, we also have a drive to solve problems (whether they're our fault or not) and need constant stimulation, which is why we need both the arts and the sciences.

What concerns Professor Glover is that we are "more removed from science" today than we have been for decades. We may be on the verge of catapulting spacecraft out of the solar system, but can we cure cancer or reverse climate change?

Professor Glover remains optimistic, however. For example, in the study of microbes, she not only sees healthy progress in pure understanding but also important technological spin-offs. While trying to make microbes glow in the dark, so they can observe them better, microbiologists have in the process developed a number of new applications, including biosensors which may help us measure toxicity or even prevent germ warfare attacks and develop new drugs without animal testing.

Industrialisation may have caused global warming, but Professor Glover also sees hope in new technologies like carbon capture and renewable energy. "Science has identified the problem," she said, "and enables us to do something about it."

According to Professor Glover, the role of science, and her own position as the Chief Scientific Advisor, is likely to grow in the future, as the issues we face become increasingly complex. "Science is the past and the present, and it will certainly be the future," she said. "In Scotland, we produce some of the best science in the world, and we have a legacy to build on, developing new policies pinned on solid scientific evidence."

The questions raised after the lecture reflected this broad philosophical tone, touching on everything from ethics to bad education.

Asked about the profit-driven nature of much scientific research, Professor Glover said commercial pressures can stimulate development, while ethical pressures can also have a positive impact.

The role of the Chief Scientific Advisor herself also came under the spotlight, including the comment that good scientific advice will often produce contradictory views – while bad advice can lead to even greater complications.

Professor Glover then turned her attention to government and education, saying it is hard for those without a solid scientific background to embrace scientific advice, stressing how she saw the need to "strengthen the science base in the Executive" and communicate science much better.

"Government is not very smart at procuring advice," she commented, adding that part of her job was to filter conflicting advice and draw on the support of other specialists.

Do too many scientists "over-claim" achievements in the scramble for funding? In defence of her colleagues, Professor Glover said the media were sometimes to blame, more interested in squeezing out sensational headlines than difficult and complex things like scientific "truth". And education lies at the root of the problem, she added.

“The way science is taught in our schools is not very exciting,” she said. “We must declutter the curriculum and place more emphasis on hands-on experiments.”

Finally, Professor Glover called on Scotland’s scientists to speak up and express their views and stop being so frightened of being misinterpreted, so that what really matters in science (including dark matter) is better understood – not just by politicians but by everyone.

Peter Barr