

## **‘Is Science Out of Control?’ A Failed Book Proposal** **Steve Fuller**

*In 2013, I was invited to publish a book in a new Polity Press series on ‘New Human Frontiers’, which had already commissioned books by, among others, Harry Collins and Mike Hulme. These books were meant to be short and punchy—30,000 words with a clear message. The question posed by the title had been agreed—but not the specific take on it. Polity, a publisher of two of my previous books (including [one](#) portraying intelligent design in a sympathetic light), found the argument made for the generally negative answer to the question unacceptable.*

If any form of authority can claim to have global reach, it is science. With the backing of science, virtually anything is possible politically. Medical scientists compel vaccinations, dietary regimes and hospital stays. Earth scientists license the movement of people from their homes and alter the patterns of their energy use. Economic scientists dictate the flow of money and define who is rich and poor. But all of these scientists are not subject to the normal democratic processes of accountability. Few if any of them are even elected to public office. Rather, they serve as advisors to elected officials or act at a distance in universities and think tanks as ‘thought leaders’. This state-of-affairs alone might suggest that science is ‘out of control’.

But there are still more reasons: Science is increasingly expensive, in terms of both its conduct and its consequences. This type of concern surfaces in several different ways: Ordinary members of the public feel that they should understand more about this ‘science’ on which their lives increasingly depend. Equally they feel that ‘science’ should either resolve its uncertainties before recommending action or refrain from the political field altogether. Moreover, scientists themselves increasingly voice their disapproval of how their expertise is used in policy contexts. In that case, science may be ‘out of control’ simply because it is out of the control of scientists.

I shall argue that, on the contrary, all of these concerns are misguided. If anything, we should be concerned that scientists are too protective of their own authority, which makes them unwilling to have the evidence that underwrites their knowledge claims be more widely distributed and scrutinised, even though we live in a world where it is becoming easier to do just that. This stalemate reflects the particular neo-liberal slant of contemporary democracy. On the one hand, the internet has enabled so much information to be made publicly available that the burden of proof has shifted to those who would argue for restricting the flow of information, even when national security is at issue. On the other hand, not everyone can exploit this information equally well, and scientists—but not only them—fear that big corporate interests will harvest the flow of data for their advantage, which is presumed to be against the public interest.

Not surprisingly, then, the recent past has witnessed—especially in the United States—a spate of books (e.g. the best-selling *The Republican War on Science* by Chris Mooney and the more scholarly *Merchants of Doubt* by Naomi Oreskes and Erik Conway) that portray the scientific establishment as a besieged bulwark of righteous inquiry against the

rising tide of big money and insidious politics that would pervert the course of science, thereby sending it ‘out of control’. These fears are also overstated. The more balanced picture presented in this book argues that science has never been unequivocally good in its consequences, even when professional scientists have been fully in charge. This is only to be expected given the sheer power that science puts at our disposal, especially once we treat it as more than an intellectual exercise but as a blueprint for the future of the human condition.

Whatever else may be true about science, it has allowed us to live comfortably with greater levels of risk because its promised benefits have been delivered with sufficient regularity to offset the intermittent costs. Of course, there is no guarantee that this mental calculation will continue to work indefinitely, but there is no denying that it has so far worked. Moreover, a mark of a mature society is that it recognises that science always operates with ‘dirty hands’ yet persists in the faith that the solution to any science-induced problems is, in some sense, *more* not less science.

### **Chapter 1: Why Do People Think that Science is out of Control?**

Science looms larger in global society—be it measured in terms of manpower, resources, influence or impact—than ever before. Moreover, while science’s ascendancy has been trailed since the 17<sup>th</sup> century, it has been only in the last 150 years that science has palpably transformed ordinary people’s lives, increasingly so as we get closer to the present. Although in the 20<sup>th</sup> century witnessed the promotion of scientific research in the context of state imperatives (e.g. better national security, health and education), for the most part major scientific discoveries have been made without prior concern for such imperatives. In other words, science’s much vaunted sense of ‘free inquiry’ has contributed historically to its ‘out of control’ character. But equally implicated are the multiple sources available for accessing information about science, which result in multiple interpretations of common bodies of data. In short, most of the evidence for science being ‘out of control’ actually refers to its more distinctive and positive features.

### **Chapter 2: Has the Immorality or Amorality of Scientists Sent Science out of Control?**

This also misreads the historical reality. Suppose we were to consider the four scientific innovations of the 20<sup>th</sup> century with the greatest human relevance: the artificial fertiliser, the genetic code, nuclear energy, and mass computerisation. In each case, the original innovators also managed to turn the same knowledge to less obviously beneficial and often destructive ends, more or less knowingly. Rather than imagining that these scientists somehow lost their scruples in the face of power, a more psychologically plausible explanation is that they were simply applying the same sort of foresight and comprehensive vision in both cases, without full control of the consequences. However, only our own superstitious sense of hindsight ends up declaring the scientists benevolent in the one case but malevolent in the other. This divided judgement is often the legacy of major wars. A comparison of the fates of genetics and nuclear energy after the Second World War—the former the weapon of choice of the losers, the latter of the winners—makes the point. In at least the first fifty years after the war, not only genetics but also

biological science more generally had to undergo massive re-branding—in ways that arguably misrepresented its cognitive content and distorted its research trajectory. Nuclear science did not face a similar fate, despite periodic calls to limit and even ban its uses.

### **Chapter 3: Is Something External to Science—Especially Big Money—Sending it out of Control?**

When this question is asked, it is normally presumed that the distorting influence is coming from private, especially corporate money. In that case, the salutary effects of public money is illustrated by an institution like the US National Science Foundation, which doles out money based on the advice of the relevant scientific peers. However, the probity of peer review rests on an unjustified assumption that science is spontaneously organized in democratic terms. But even granting that false assumption, it does not follow either that peer review has been a progressive force in the advancement of science or even that public funding has been generally organized according to peer review principles. On the one hand, the Rockefeller Foundation had no problem luring academics into research projects that violated the disciplinary boundaries enforced by the academic curriculum. On the other hand, during the Cold War there was much concern about public money distorting science, especially when the military was the world's biggest science funder. While no one denies that money can become a problem for science funding when it is both concentrated and unaccountable, the exact nature of the problem remains an open question. From the Rockefeller Foundation we got molecular biology, from the Pentagon the information technology revolution. (And yes, lots of other dodgy stuff too.) However, it is unlikely that these innovations would have come about without the size and shape of their funding. Put to a vote, they would have been probably defeated for being too risky, wasteful, speculative, etc. In this respect, charges of big money 'distorting science' are better treated as veiled complaints about the political motives of the funders, something that are better contested on those terms without getting into dubious arguments about 'distorting science'.

### **Chapter 4: The Case for Science Being Anything *but* out of Control.**

We may be exposed to more scientifically induced risks now than ever before. On the other hand, it may simply be that our capacity to measure, or at least calculate, those risks has never been greater. But there are other clearer indicators that science is far from being out of control. If anything, we may be losing our faith in science. First, the corporate and military sectors are spending less money on research and development (R&D) now than they did during the Cold War, which in retrospect may turn out to have been a 'golden age' for scientific investment. Indeed, R&D is usually the first item to be cut when an organization needs to downsize. The squeeze is then placed on universities to pick up the slack, which has fuelled many, frequently innovative cross-sector collaborations. At the same time, this external pressure has also compromised academics' ability to engage in genuinely 'free' inquiry—or for that matter, reap all the benefits of their collaborations. But still more potentially debilitating constraints are self-imposed by universities through their so-called 'institutional review boards' (IRBs), which limit the sort of research that can be done on humans (even with their consent), and increasingly animals. The spectre

of Nazi medical research still overshadows the moralism surrounding IRBs. Yet, had IRBs been in effect throughout the 19<sup>th</sup> and most of the 20<sup>th</sup> century, they would have seriously retarded the advancement of science—as they are arguably doing now.

**Chapter 5: Science Looks Like it is out of Control Only Because it is Increasingly out of the Control of Professional Scientists.**

A fairly conventional history of modernity says that the ascendancy of science corresponds to the decline in religious authority. But more precisely, it corresponds to the decline in authority as a basis for knowledge altogether—including one that might be provided by a scientific high church. The deep impact of the Protestant Reformation on the modern secular world-view requires taking this point seriously. Under the spell of Protestantism, people come to believe that they can decide things for themselves because they have been divinely endowed with fundamentally the same cognitive powers as their fellows. All people need is the data—be it the Biblical text or the empirical track record—and they can generate their own theories and make their own judgements, on the basis of which they then stake their lives. Both democratic politics and capitalist economies have been predicated on this idea for two centuries or more. Science, in this respect, is the final frontier when it comes to removing paternalist regimes and licensed producers—in this case, peer-reviewed academic scientists. In this brave new world of what I have dubbed ‘Protscience’, one may be a *science customer* without necessarily being a *science consumer*: i.e. an investor in the production of scientific knowledge who nevertheless adopts its results selectively for one’s own purposes—in exactly the same way as one need not always vote the party line or buy from the same vendor.