What is science and why should we care? — Part III

March 28, 2014February 8, 2015 essay politics, pseudoscience, religion, science, war

(https://scientiasalon.files.wordpress.com/2014/03/iraq_8-years1.jpg)by Alan Sokal

In all the examples discussed so far I have been at pains to distinguish clearly between factual matters and ethical or aesthetic matters, because the epistemological issues they raise are so different. And I have restricted my discussion almost entirely to factual matters, simply because of the limitations of my own competence.

But if I am preoccupied by the relation between belief and evidence, it is not solely for intellectual reasons — not solely because I'm a "grumpy old fart who aspire[s] to the sullen joy of having it known that [I] don't suffer fools gladly" [18] (to borrow the words of my friend and fellow gadfly Norm Levitt, who died suddenly four years ago at the young age of 66). Rather, my concern that public debate be grounded in the best available evidence is, above all else, ethical.

To illustrate the connection I have in mind between epistemology and ethics, let me start with a fanciful example: suppose that the leader of a militarily powerful country believes, sincerely but erroneously, on the basis of flawed "intelligence," that a smaller country possesses threatening weapons of mass destruction; and suppose further that he launches a preemptive war on that basis, killing tens of thousands of innocent civilians as "collateral damage." Aren't he and his supporters ethically culpable for their epistemic sloppiness?

I stress that this example is fanciful. The overwhelming preponderance of currently available evidence suggests that the Bush and Blair administrations first decided to overthrow Saddam Hussein, and then sought a publicly presentable pretext, using dubious or even forged "intelligence" to "justify" that pretext and to mislead Congress, Parliament and the public into supporting that war. [19]

Which brings me to the last, and in my opinion most dangerous, set of adversaries of the evidence-based worldview in the contemporary world: namely, propagandists, public-relations flacks and spin doctors, along with the politicians and corporations who employ them — in short, all those whose goal is not to analyze honestly the evidence for and against a particular policy, but is simply to manipulate the public into reaching a predetermined conclusion by whatever technique will work, however dishonest or fraudulent.

So the issue here is no longer mere muddled thinking or sloppy reasoning; it is fraud. The Oxford English Dictionary defines "fraud" as "the using of false representations to obtain an unjust advantage or to injure the rights or interests of another." In the Anglo-American common law, a "false representation" can take many forms, including [20]:

i) A false statement of fact, known to be false at the time it was made;

ii) A statement of fact with no reasonable basis to make that statement;

iii) A promise of future performance made with an intent, at the time the promise was made, not to perform as promised;

iv) An expression of opinion that is false, made by one claiming or implying to have special knowledge of the subject matter of the opinion — where "special knowledge" means knowledge or information superior to that possessed by the other party, and to which the other party did not have equal access.

Anything here sound familiar? These are the standards that we would use if George Bush and Tony Blair had sold us a used car. In fact, they sold us a war that has at the moment of this writing cost the lives of 179 British soldiers, 4486 American soldiers, and somewhere between 112,000 and 600,000 Iraqis — a human toll, that is, of somewhere between 35 and 200 September 11ths; that has cost the American taxpayers a staggering $810 billion (with ultimate estimates ranging from $1–3 trillion); and that has strengthened both al-Qaeda and Iran — in short, a war that may well turn out to be the greatest foreign-policy blunder of American history. (Of course the British have a longer history, and hence a longer history of blunders to compete with.)

Now, in the common law there are in fact two distinct torts of misrepresentation: negligent misrepresentation and fraudulent misrepresentation. Fraudulent misrepresentation is of course difficult to prove because it involves the state of mind of the person making the misrepresentation, i.e. what he actually knew or believed at the time of the false statement. Which means that the question becomes (as it was in the case of an earlier American president who stood accused of far lesser crimes and misdemeanors): What did George Bush and Tony Blair know and when did they know it? Unfortunately, the documents that could elucidate this question are top secret, so we may not know the answer for 50 years, if ever. But enough documents have been leaked so far to support, I think, a verdict of fraudulent misrepresentation.

Now, all this is very likely old hat to most of the people who read Scientia Salon. We know perfectly well that our politicians (or at least some of them) lie to us; we take it for granted; we are inured to it. And that may be precisely the problem. Perhaps we have become so inured to political lies — so hard-headedly cynical — that we have lost our ability to become appropriately outraged. We have lost our ability to call a spade a spade, a lie a lie, a fraud a fraud. Instead we call it "spin".

We have now travelled a long way from "science," understood narrowly as physics, chemistry, biology and the like. But the whole point is that any such narrow definition of science is misguided. We live in a single real world; the administrative divisions used for convenience in our universities do not in fact correspond to any natural philosophical boundaries. It makes no sense to use one set of standards of evidence in physics, chemistry and biology, and then suddenly relax your standards when it comes to medicine, religion or politics. Lest this sound to you like a scientist's imperialism, I want to stress that it is exactly the contrary. As the philosopher Susan Haack lucidly observes:

"Our standards of what constitutes good, honest, thorough inquiry and what constitutes good, strong, supportive evidence are not internal to science. In judging where science has succeeded and where it has failed, in what areas and at what times it has done better and in what worse, we are appealing to the standards by which we judge the solidity of empirical beliefs, or the rigor and thoroughness of empirical inquiry, generally." [21]

The bottom line is that science is not merely a bag of clever tricks that turn out to be useful in investigating some arcane questions about the inanimate and biological worlds. Rather, the natural sciences are nothing more or less than one particular application — albeit an unusually successful one — of a more general rationalist worldview, centered on the modest insistence that empirical claims must be substantiated by empirical evidence.

Conversely, the philosophical lessons learned from four centuries of work in the natural sciences can be of real value — if properly understood — in other domains of human life. Of course, I am not suggesting that historians or policy-makers should use exactly the same methods as physicists — that would be absurd. But neither do biologists use precisely the same methods as physicists; nor, for that matter, do biochemists use the same methods as ecologists, or solid-state physicists as elementary-particle physicists. The detailed methods of inquiry must of course be adapted to the subject matter at hand. What remains unchanged in all areas of life, however, is the underlying philosophy: namely, to constrain our theories as strongly as possible by empirical evidence, and to modify or reject those theories that fail to conform to the evidence. That is what I mean by the scientific worldview.

It is because of this general philosophical lesson, far more than any specific discoveries, that the natural sciences have had such a profound effect on human culture since the time of Galileo and Francis Bacon. The affirmative side of science, consisting of its well-verified claims about the physical and biological world, may be what first springs to mind when people think about "science"; but it is the critical and skeptical side of science that is the most profound, and the most intellectually subversive. The scientific worldview inevitably comes into conflict with all non-scientific modes of thought that make purportedly factual claims about the world. And how could it be otherwise? After all, scientists are constantly subjecting their colleagues' theories to severe conceptual and empirical scrutiny. On what grounds could one reject phlogistic chemistry, the fixity of species, or Newton's particle theory of light — not to mention thousands of other plausible but wrong scientific theories — and yet accept astrology, homeopathy or the virgin birth?

The critical thrust of science even extends beyond the factual realm, to ethics and politics. Of course, as a logical matter one cannot derive an "ought" from an "is". But historically — starting in the 17th and 18th centuries in Europe and then spreading gradually to more or less the entire world — scientific skepticism has played the role of an intellectual acid, slowly dissolving the irrational beliefs that legitimated the established social order and its supposed authorities, be they the priesthood, the monarchy, the aristocracy, or allegedly superior races and social classes. Four hundred years later, it seems sadly evident that this revolutionary transition from a dogmatic to an evidence-based worldview is very far from being complete.

———

Alan Sokal is a Professor of Physics at New York University and Professor of Mathematics at University College London. His most recent book is Beyond the Hoax (http://www.amazon.com/Beyond-Hoax-Science-Philosophy-Culture-ebook/dp/B006TC2EIO/ref=sr_1_1?ie=UTF8&qid=1395341303&sr=8-1&keywords=sokal+Beyond+the+Hoax): Science, Philosophy and Culture (Oxford University Press).

[18] Levitt, Norman. 1996. Response to Freudenberg. Technoscience: Newsletter of the Society for Social Studies of Science 9, no. 2 (Spring).

[19] Rich, Frank. 2006. The Greatest Story Ever Sold: The Decline and Fall of Truth in Bush's America. Penguin Press.

[20] Spencer Bower, George and K.R. Handley. 2000. Actionable Misrepresentation, 4th ed. Butterworths, chapter 2-5.

[21] Haack, Susan. 1998. Manifesto of a Passionate Moderate: Unfashionable Essays. University of Chicago Press, p. 94.

37 thoughts on "**What is science and why should we care? — Part III**"

1. **Robin Herbert** says:
   March 28, 2014 at 8:04 am

   Let's look at this in context of this statement from part II:

   "*And here, it seems to me, is the crux of the conflict between religion and science. Not the religious rejection of specific scientific theories (be it heliocentrism in the 17th century or evolutionary biology today); over time most religions do find some way to make peace with well-established science..*"

   This damning with faint praise of "over time most religions do find some way to make peace with well-established science" – working in the "war between religion and science".

   Now can you really not know that the Catholic Church encouraged, enabled and funded scientific research throughout the middle ages?