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Scientism and Philosophism:

Comment on 'Kinder, Gentler Science Wars' by Gabriel Stolzenberg

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Gabriel Stolzenberg's (2004) review essay of Labinger and Collins (2001) raises a number of provocative points, but I will respond only to one that he makes in passing. While discussing my essay in the collection (Lynch, 2001), Stolzenberg (2004: 80) refers to a statement of Steven Weinberg's (2001: 240) with which I express agreement: 'Less thoughtfully, ... , Lynch endorses Weinberg's anti-intellectual conceit that "philosophers may be able to help us sharpen the way we understand words like 'real' and 'true' and 'cause', but they have no business telling us not to use them"'. This is a minor point of criticism in the context of Stolzenberg's entire essay, but it provides me with an opportunity to clarify something that I believe is important and easily ignored.

To begin to specify what I had in mind when endorsing Weinberg's line, I would like to return to a remark that Gilbert Ryle made 50 years ago. This is a remark that I have often found helpful to think about in connection with the science wars (see Lynch, 1996). Ryle (1954) used the phrase 'poison-pen effect' to describe a Baconian literary device with which a writer enlists the authority of science in an effort to show that everyday knowledge is illusory. He likened this literary device to 'poison' because of the way it appears to undermine everyday life experience, inviting distrust in familiar appearances. Ryle was objecting to the way some of the prominent scientists in his day would astonish popular audiences by claiming, for example, that the apparent solidity of familiar objects like tables and chairs is really an illusion created by our sensory receptors and brains, whereas, in fact, such objects are composed entirely of tiny atoms surrounded by vast amounts of empty space. Ryle attacked this rhetorical device first by questioning its scientific authority. He pointed out that '[t]here is no such animal as "Science"', no total knowledge system that contrasts with everyday knowledge. He added that there

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'are scores of sciences. Most of these sciences are such that acquaintanceship with them or, what is even more captivating, hearsay knowledge about them has not the slightest tendency to make us contrast their world with the everyday world' (Ryle, 1954: 69). Ryle observed (1954: 73) that the so-called 'world of science', which notable scientist–metaphysicians contrasted with illusory everyday experience, was 'not of science in general but of atomic and sub-atomic physics in particular, enhanced by some slightly incongruous appendages borrowed from one branch of neuro-physiology'. To make absolutely clear that he was not attacking scientific knowledge – namely the particular hypotheses and findings in specialized branches of physics, chemistry, meteorology, astronomy, paleontology, entomology, or geology – Ryle added 'I am questioning nothing that any scientist says on weekdays in his working tone of voice. But I certainly am questioning most of what a very few of them say in an edifying tone of voice on Sundays' (p. 75).

Abundant examples of such 'scientific'[1] statements made from the pulpit can be found in writings and speeches made by public scientists[2] during the height of the science wars. For example, exactly the kind of pronouncement that Ryle was targeting was made by embryologist Lewis Wolpert (1993: 6):

> Thus we think that grass is green, that stones are hard and that snow is cold. But physics teaches us that the greenness of grass, the hardness of stones and the coldness of snow are not the greenness, hardness and coldness that we know in our own experience, but something very different.

Perhaps Wolpert means to say that physics (and other specialized sciences) can teach us about why granite is harder than shale, or why green grass turns brown under drought conditions, and how our sensory receptors are organized so that snow feels cold; but such lessons would be poisonous in Ryle's sense if they were to suggest that what we *think* is 'hard', 'green', or 'cold' is an illusion.[3]

Ryle points out that pronouncements about tables and chairs being made of empty space may be instructive about the atomic structure of matter, but that they should not deter us from continuing to think that our furniture is, in fact, solid. We might think of furniture differently in light of the science lesson, but this should not affect our trust in the solidity of the chairs we sit on or the tables we pound.[4] There are, of course, contexts in which novel understandings stemming from scientific research make a great deal of difference for the way we live, and Ryle was not suggesting that 'common sense intuition' (whatever might be meant by 'common sense' or 'intuition') is complete and always adequate.

To appreciate Ryle's remark, it is necessary to distinguish utterances (or entire texts) in which scientist speak philosophically or metaphysically, from talk and writing in which they speak (whether in plain or technical language) about scientific facts, theories, and principles. There may be no sharp line between talking metaphysics and talking science – between

scientism and science – and an attempt to draw the distinction can be difficult and contentious in particular cases. The difficulty is compounded when a scientist denies the relevance of 'philosophy' even when addressing what, to others at least, look very much like philosophical questions. Wolpert, for example, denies the relevance of philosophy even while expounding upon his own philosophy of science:

> My own position, philosophically, is that of a common-sense realist: I believe there is an external world which I share with others and which can be studied. I know that philosophically my position may be indefensible, but – and this is crucial – holding my position will have made not one iota of difference to the nature of scientific investigation or scientific theories. It is irrelevant. (Wolpert, 1993: 106)

The trouble with this statement is that it occurs in a book that is about the relationship between 'science' and 'common sense'. The book says nothing about Wolpert's research in embryology, nor does it review research by others in that field. In other words, Wolpert's denial of the relevance of philosophy performs argumentative work in a book that advances general theses about the nature of science and its difference from common sense. These theses are philosophical in scope and have little obvious connection with Wolpert's scientific research (indeed, in the earlier passage he acknowledges their irrelevance). If philosophy were privileged in the way that Wolpert privileges 'science' over 'common sense', then readers who want definitive answers to the questions that Wolpert addresses should turn to professional philosophers of science rather than to the amateurish writings of a self-described 'common-sense realist'.

This is where we can pick up Stolzenberg's criticisms of my apparent endorsement of Weinberg's remark about what philosophers can or cannot tell scientists. Recall, that Stolzenberg calls an 'anti-intellectual conceit' Weinberg's statement that 'philosophers may be able to help us sharpen the way we understand words like "real" and "true" and "cause", but they have no business telling us not to use them'. Like Wolpert, Weinberg (2001: 240) professes 'naive realism' as a working philosophy, and argues that philosophy of science has no bearing upon the way he conducts his research. He also makes general statements that are consistent with such a philosophy. For example, he characterizes the 'scientific process' as 'the often slow and uncertain progress of physical theories toward an ultimate culture-free form that is the way it is because this is the way the world is' (2001: 238). This, of course, is a contested (indeed, a widely rejected) position in history and philosophy of science, and Weinberg defends it in his popular writings with general vernacular arguments rather than with specific equations or propositions drawn from his research. But, as I understand the passage about the words 'real', 'true', and 'cause' that Stolzenberg quotes, Weinberg is speaking of *the way we understand words* – ordinary words – in everyday life (including mundane situations of scientific work). He is saying that we (scientists and non-scientists alike) can use these words sensibly and competently without having to study philosophy.

Particularly in the context of debates about realism and relativism, it is easy to forget that the words 'real', 'true' and 'cause' are common vocabulary items in English, and many other languages too. In many of the contexts in which we use these words we would not see much need to consult professional (or even amateur) philosophers, and philosophers should not feel slighted for not being consulted. So, for example, in the vegetable section of a supermarket I might declare a longing for a 'real' tomato (a tomato that is nowhere to be found among the tasteless industrial products so labeled). Or, in a conversation with a friend I might insist that the story I had just told is 'really true', or when late to a meeting I might give the excuse that heavy traffic downtown 'caused' me to be late. I think I would be right to object if someone were to insist that I must read Kant or Hume before I could possibly know what I was talking about. As Weinberg states, studying philosophy might help sharpen our reflections about the meaning of such terms, but it shouldn't deter us from using them.

Recall my objection to Wolpert's claim about the words 'green', 'hard', and 'cold'. When I say that 'It is miserably cold out tonight' (as it certainly is, as I write), I see no need to cite physical principles or give a quantitative standard for what 'miserably cold' might mean. This is not an anti-scientific conceit, but a reliance on a communal sense of ordinary language. An analogous defense can be made of using the terms 'real', 'true', and 'cause' in many circumstances of action, including circumstances in which scientists communicate with one another in research situations. Can Weinberg be granted the right to use such terms without paying tribute to philosophy? Of course! In fact, there is no need even to grant a right that comes with the territory of a natural language.

To absolve Weinberg (but not Wolpert) of scientism, is not necessarily to end the story. If we were to pursue Weinberg's usage into his technical domain (which I am unprepared to do), we might conclude that the way he uses 'real', 'true', and 'cause' is not at all like my talk of tomatoes, stories, and traffic; that something decisively philosophical or metaphysical is involved in his quest for a final theory. However, the questions would still remain. First: what difference would one or another *philosophy* make for his theoretical work? Second: what difference would his *theory* make for our everyday activities? It would be arrogant to answer 'nothing' to either or both questions. But to assume that a scientific theory (whether billed as final or otherwise) would necessarily reveal the ignorance of common sense would be to fall into the arrogance of scientism. And, to assume that particular philosophy would reveal the ignorance of grocery shoppers who talk about 'real' tomatoes and theoretical physicists who talk about 'real' subatomic particles is to fall into the arrogance of philosophism.

The tricky issue in this case is that in the space of a two-and-a-half page essay, Weinberg (2001) both insists upon his 'right' to use everyday language in a 'naive' way and without interference from philosophy, *and* expounds upon a naive realist philosophy. I believe that contradiction can be avoided if we assume that Weinberg's philosophy has little to do with his

(unspecified) everyday (and research-specific) uses of terms like 'real', 'true', and 'cause'. We might imagine that Weinberg would use such terms in much the same way in vernacular shop-talk, even if he espoused a 'postmodernist' or 'relativist' philosophy when talking, in general, *about* science. Such a sharp distinction between contexts of language-use might seem artificial, but it points to an ambiguity that is at the very heart of the science wars.

Notes

1. The scare quotes around 'scientific' are intended to connote statements said by scientists that have no clear relationship to the theoretical knowledge and empirical findings which would otherwise be credited to the particular scientists or their fields of research. The inverted commas are not meant to signal skepticism about science in general.
2. By 'public scientists' I mean a variation on the present-day theme of 'public intellectual': a scientist who is prominent in public life, and who writes and talks about topics that are broader, and often remote from, the specific topics of their specialized research (if, indeed, they conduct, or once did conduct, specialized research). Examples would include Richard Dawkins, Lewis Wolpert, Stephen Hawking, E.O. Wilson, Freeman Dyson, and Steven Weinberg.
3. Wolpert gives a number of examples of accepted scientific knowledge that large proportions of the general public do not know or reject, and he also cites common mistakes about physical facts, such as whether a bullet fired out of a gun falls to the ground at the same time as a bullet simultaneously dropped from the same height. But what Wolpert obscures with such examples is that the terms 'hard', 'green' and 'cold' are not shown by scientific research to be *ignorant* or *mistaken* when used in conventional ways to characterize stones, grass, and snow.
4. I am reminded of an amusing defense of relativism by Edwards et al. (1995) titled 'Death and Furniture'. They use the terms 'Death' and 'Furniture' to characterize, respectively, moral and ontological refutations of relativism. 'Furniture' is a matter of pounding on the table to demonstrate that *this is real, dammit*! Following Ryle, we can think of a variant – 'Death *of* Furniture': an argument that removes furniture from the everyday world and reconfigures it as (mostly) empty space.

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