Scientific Expertise: Epistemological Worries, Political Dilemmas

Focused Discussion Editor's Introduction

Boaz Miller*

Scientific experts have come to play a prominent role as advisors in many areas of public life, including law and governmental policy. Yet these experts' advice can often make it more difficult for the layperson to arrive at an informed decision. Different experts may represent opposing scientific schools of thought or divergent social interests, the details of which may not appear transparent to a casual observer. The role of experts and the nature of expert testimony thus raise important philosophical, historical and sociological questions, some of which are addressed in this focused discussion section.

In a series of influential papers, John Hardwig (1985; 1991; 1994) has argued that when one turns to an expert's advice, rationality requires that he submit to the expert's epistemic authority rather than think for himself. This claim, which has received many criticisms, has to a large extent framed the debate about expertise. In this issue, Ben Almassi proposes a new interpretation of the notion of evidence that resolves inconsistencies in Hardwig's account of expertise and does not entail the problematic conclusion.

Steve Fuller is also among the critics of Hardwig's position. According to Fuller, Hardwig's authoritative model of expertise ascribes power to experts by virtue of their ability to systematically control and manipulate a closed system consisting of a prescribed set of variables. Fuller argues that experts' mastery of such systems is not equivalent to a capacity to successfully address people's actual concerns. For example, while an economist can derive laws from an idealized model of the market, she is not necessarily in a good epistemic position to advise the layperson where to invest his money. The layperson, then, still needs to think for himself (Fuller 2002, 280-83). In this issue, Fuller delves into the historical dimension of this debate. In contemporary philosophy of science he identifies two competing social epistemologies, Hilary Putnam's 'linguistic division of labour' and Philip Kitcher's 'division of cognitive labour', which parallel Fuller's own position and Hardwig's position, respectively. He also

* Boaz Miller is a PhD student at the Institute for the History and Philosophy of Science and Technology (IHPST), University of Toronto. He received an MA at IHPST and a BSc in Computer Science and 'Amirim' Honors Program from the Hebrew University of Jerusalem. He works in the areas of philosophy of science and social epistemology. The subject of his PhD dissertation, written under the supervision of Professor Anjan Chakravartty, is the epistemology of scientific expert testimony in courts. Boaz is the current editor of *Spontaneous Generations*.

criticizes the field of STS for adopting the authoritative model of expertise, applying it to STS itself, and therefore claiming exclusive expertise about science.

Attempts have been made to find a middle way between Hardwig's and Fuller's extreme positions. For example, Robert Pierson has argued that it is rational to turn to experts when they extrapolate their closed-system knowledge into a programme for lay action. In addition, he argues that lay people need always think for themselves, as experts may only provide them with the bare facts, but it is still up to the lay people to decide how they ought to act in light of these facts (Pierson 1994, 403).

However, Pierson's solution seems unsatisfactory. As Stephen Turner argues in this issue, there are no non-political facts; the very decision as to what is political is itself political. For Turner, the epistemology of expertise is inherently political. Given that, what needs to be decided is which epistemological-political framework of expertise is most appropriate in a given context. Turner considers various alternatives, which are more nuanced than the simple 'deferral to experts' model on which Hardwig and Pierson rely.

In addition, Pierson fails to seriously address the sceptical worry that underpins Fuller's and Turner's accounts, which is whether extrapolation from closed-systems and idealized models to the real world is possible and as unproblematic as experts claim it to be. This question of whether and to what extent knowledge gained from idealized models is applicable to real life problems and directly translatable to policy is a central worry that has not yet been adequately addressed in the scholarship about expertise. This worry arises in many contexts. In medicine, for example, medications are often administrated to elderly patients with chronic diseases. Knowledge about the efficacy of these medications is derived from randomized control trials, from which these patients would be excluded due to their age and chronic condition. Thus, while these trials are *prima facie* internally valid, the extrapolation of knowledge from them to the typical patient population is questionable (Upshur 2005, 482). Similarly, in certain computer models of climate change, mathematical relations between certain variables in idealized conditions are identified. However, there remains the question whether these relations still hold in actual systems (Parker, forthcoming).[1] Political interests opposed to large-scale policy initiatives such as the Kyoto Protocols cast doubt on scientific consensus by citing uncertainties in climate model parameter selection.

On the other hand, this worry should not be overstated. As Michael Lynch argues in this issue, expertise is often valuable and indispensable. Overall academic scepticism about scientific expertise is unwarranted. Interested parties cynically use sceptical arguments that are common in STS and HPS to undermine scientists' claims in debates about issues such as creationist science and global warming. STS should rise to the challenge and develop a richer framework for expertise that will not throw out the baby with the bathwater.

---

[1] For more on the controversy about medical clinical trials and models of climate change see my review of the *Trust in Science* conference in this issue.

One field, though, to which the worry about the value of idealized models may plausibly apply, is social epistemology itself. A large body of literature in social epistemology deals with the epistemology of testimony. With some notable exceptions (e.g. Goldman 2002; Brewer 2006), writings on the epistemology of testimony typically exclude the issue of expertise, focusing on 'pure' or idealized cases of testimonial interaction (Adler 2006, 1). Thus, the literature is full of mundane examples of people asking other people for directions in the street, or imaginary cases involving testimony by aliens (e.g. Lackey 2006, 167). While there is no doubt that some things can be learned from these examples, a worry remains to what extent this knowledge is applicable to real life cases.

The literature in the epistemology of testimony tends to see epistemic inequality as an 'interfering factor' in the way to achieving genuine insights about knowledge producing practices. However, it seems that epistemic inequality is the rule, rather than the exception, and is perhaps inherent to testimonial interactions. Note that even in mundane cases, such as a foreigner asking for directions from a local in a foreign city, the local is in a superior epistemic position. The local is presumably an expert about local roads. While the foreigner can relatively easily *acquire* the required expertise, for example by buying a map of the city, *prima facie* there if no reason to exclude expertise from the analysis of the situation. Moreover, a deeper look reveals that by buying a map, the foreigner has traded one authoritative epistemic source, namely the local person, with another, namely the map. Thus, epistemic inequality seems to be inherent to the situation after all. It cannot be simply swept away from the picture without begging the question.

The papers in this focused discussion section take expertise seriously. They combine theory as well as discussion of real cases. Some cases are contemporary. Stephen Bocking examines the role of expertise in the environmental controversy around salmon fish farming in British Columbia. He uses this example to show the need for a new social contract regarding expertise. Aaron K. Martin and Edgar A. Whitley look at the controversy around the UK government identity card scheme. They show how expertise is used as a political resource to block public discussion of the implications of the suggested project. Other papers in this section are historical case studies. Palmira Fontes da Costa examines the crucial role anatomical expertise played in the interpretation of hermaphrodites bodies in the eighteenth century. James Hull looks at the creation of the Toronto Building Code by Clarence R. Young. He notes the important role professional engineering ideology of impartial expertise played in that process.

We hope that this focused discussion section of the first issue of *Spontaneous Generations* will make a modest contribution to the growing

scholarship about science and expertise. We welcome comments and responses at hapsat.society@utoronto.ca or through the journal's online submission system, which we will be happy to publish in our next issue.

Acknowledgements

My thanks to Isaac Record for his thoughtful comments and suggestions.

BOAZ MILLER
316 Victoria College
91 Charles Street West
Toronto, Ontario, Canada
M5S 1K7
boaz.miller@utoronto.ca
http://individual.utoronto.ca/boaz

References

Adler, Jonathan. 2007. Epistemological Problems of Testimony. *The Stanford Encyclopedia of Philosophy*. Summer 2007 Edition, ed. Edward N. Zalta. http://plato.stanford.edu/archives/sum2007/entries/testimony-episprob/.

Brewer, Scott. 2006. Scientific Expert Testimony and Intellectual Due Process. In *The Philosophy of Expertise*, ed. Robert Crease and Evan Selinger, 111-58. New York: Columbia University Press.

Fuller, Steve. 2002. *Social Epistemology*. Bloomington, IN: Indiana University Press.

Goldman, Alvin. 2001. Experts: Which Ones Should You Trust? *Philosophy and Phenomenological Research* 63(1): 85-111.

Hardwig, John. 1985. Epistemic Dependence. *The Journal of Philosophy* 82(7): 335-49.

Hardwig, John. 1991. The Role of Trust in Knowledge. *The Journal of Philosophy* 88(12): 693-708.

Hardwig, John. 1994. Toward an Ethics of Expertise. In *Professional Ethics and Social Responsibility*, ed. Daniel E. Wueste, 83-101. London: Rowman and Littlefield.

Lackey, Jennifer. 2006. It Takes Two to Tango: Beyond Reductionism and Non-Reductionism in the Epistemology of Testimony. In *The Epistemology of Testimony*, ed. Jennifer Lackey and Ernst Sosa, 160-89. New York: Oxford University Press.

Parker, Wendy. forthcoming. Computer Simulation through an Error-Statistical Lens. *Synthese*.

Pierson, Robert. 1994. The Epistemic Authority of Expertise. *PSA* 1: 398-405.

Upshur, Ross E.G. 2005. Looking for Rules in a World of Exceptions: Reflections on Evidence-Based Practice. *Perspectives in Biology and Medicine* 48(4): 477-89.