In Memoriam: Peter Lipton*

Tim Lewens†‡

Peter Lipton, one of the world's best-loved philosophers of science, died from a heart attack on the evening of November 25, 2007, at the age of 53. He had been playing squash—a game which he loved, and which he was very good at. Lipton was known for his humor, for his deep love for his family, for his exceptional intellectual generosity, for his inspirational teaching, for his infectious argumentative *brio*, for his unparalleled administrative skills, and for the extraordinary clarity of his thinking and writing. His philosophical work—whether it took the form of a written article, a talk, or a question from the seminar-room floor—was characterized by a supreme limpidity.

Peter Lipton was born in New York City on October 9, 1954. He did his undergraduate degree at Wesleyan University, Connecticut, and then moved to New College, Oxford for his graduate work. He studied for the BPhil under Rom Harré and A. J. Ayer, and then went on to complete a DPhil in 1985. His dissertation—the foundation for his book *Inference to the Best Explanation*—was supervised by William Newton-Smith, and Ayer's influence also remained strong. Lipton's first philosophy position was at Clark University, Massachusetts, and then from 1985 to 1991 he was an Assistant Professor at Williams College, Massachusetts. In 1991 he moved to the Department of History and Philosophy of Science at Cambridge as an Assistant Lecturer, and was promoted to Lecturer in 1994. In 1996 he became Head of Department, and then in 1997 he was appointed to the Departmental Chair in History and Philosophy of Science (later renamed the Hans Rausing Professorship). Lipton held both posts until his death, and during his time as Head of Department, Cam-

*Received May 2008.

†To contact the author, please write to: University of Cambridge, Department of History and Philosophy of Science, Free School Lane, Cambridge CB2 3RH, UK; e-mail: tml1000@cam.ac.uk.

‡I am grateful to the editor for suggesting this obituary, and also to Alexander Bird, Jeremy Butterfield, John Forrester, Martin Kusch, Diana Lipton, David Papineau, and Timothy Williamson for helpful advice and information.

Philosophy of Science 75 (April 2008) pp. 133–139. 0031-8248/2008/7502-0001$10.00

bridge HPS flourished as never before. Historians, philosophers and sociologists of science and medicine worked together harmoniously over this period. HPS was widely recognized as a model department within the University of Cambridge, and staff and students came to view it as a joy to be a part of.

Lipton was a dedicated and gifted educator. He gladly took on a far greater teaching load than was formally required, and he frequently gave talks outside the academy at school philosophy clubs and public events of all kinds. His lectures fizzed with wit and energy, but this never obscured their philosophical clarity. Students admired him greatly. Lipton typically needed bigger lecture rooms than the rest of us to accommodate the audiences he attracted. On one famous occasion, the students thanked him by throwing flowers on to the stage at the end of his course.

Lipton frequently expressed his admiration for David Hume. It was Hume who had first 'hooked him on philosophy', and Lipton never tired of explaining Hume's problem of induction to groups of students or, for that matter, to colleagues. Lipton tended to understand induction in a broad sense—namely, as any apparently respectable form of inference that lacks deductive validity. Hence Lipton's (1998b) work on the epistemology of testimony, for example, grew in part out of his interest in inductive inference, as did much of his other work on epistemological problems in science. By far his best-known work is the modern classic *Inference to the Best Explanation*, first published in 1991, with a substantially revised second edition published in 2004 (Lipton 1991, 2004b). It, too, begins with a discussion of induction, and proceeds to investigate in detail the intuitively plausible idea that we should think a hypothesis true if it best explains some body of data. Lipton observed that many philosophers and scientists have endorsed inference to the best explanation, also known as 'abduction'. Charles Darwin, for example, in the *Origin of Species*' sixth edition, remarked:

> It can hardly be supposed that a false theory would explain, in so satisfactory a manner as does the theory of natural selection, the several large classes of facts above specified. It has recently been objected that this is an unsafe method of arguing; but it is a method used in judging of the common events of life, and has often been used by the greatest natural philosophers. (1959, 748)

'Inference to the Best Explanation' (IBE) is, then, an attractive slogan, but Lipton reminded us that it is empty unless one can say what makes an explanation 'good', and why it should be the case that 'goodness' of an explanation is an indicator of truth.

With regard to the question of what makes an explanation good, Lipton endorsed a causal model. He did not claim that all explanations were

causal, but he argued that if one began with an understanding of causal explanation, a more general account capable of embracing mathematical and geometrical explanation would follow. Lipton also denied that all causes were explanatory, and one of his primary contributions in this domain was a refined theory of contrastive explanation (Lipton 1987). Lipton agreed with predecessors such as Garfinkel (1981), van Fraassen (1980), and Lewis (1986) that contrasts—either implicit or explicit—help to locate those elements of an event's causal history that are explanatorily relevant. Instead of simply asking why the famine occurred in Africa, we ask why it occurred in Africa rather than Europe. And once this contrast is fixed, the causes we cite are different from those that we might cite when we ask why the famine occurred in Africa rather than India. Lipton proposed an adaptation of Mill's method of difference—and here he departed from Lewis's (1986) proposal—to clarify which causes are relevant: "To explain why P rather than Q, we must cite a causal difference between P and not-Q, consisting of a cause of P and the absence of a corresponding event in the case of not-Q" (Lipton 2004b, 42). Hence citing lack of rain might be a good answer to the question why there was a famine in Africa rather than Europe, but not to the question why there was a famine in Africa rather than India. Lipton did not argue that all demands for explanation must be contrastive, nor did he argue that a contrastive 'why?' was, by itself, sufficient to pinpoint an explanatorily relevant cause. He was, however, sceptical of attempts to reduce contrastive explanation to noncontrastive explanation. He opposed, for example, the view that one could reduce 'Why P rather than Q?' to 'Why P, and why not-Q?'.

Any answer to the question of what makes an explanation good leaves open the difficult work of saying why one might think that explanatory power is a guide to truth. Here, Lipton distinguished what he called 'Inference to the Likeliest Explanation', from 'Inference to the Loveliest Explanation'. The first account asks us to infer the potential explanation that is most likely to be true, while the second asks us to infer the potential explanation that most increases our understanding. One of Lipton's examples helps to explain the contrast: "It is extremely likely that smoking opium puts people to sleep because of its dormative powers . . . , but this is the very model of an unlovely explanation" (2004b, 59). Lipton argued that any worthwhile account of IBE must defend Inference to the Loveliest Explanation. The task one must accomplish is to show that features of explanation that increase our understanding are also more-or-less reliable indicators of truth. We wish to show, in other words, that "loveliness is a guide to likeliness" (2004b, 61).

Lipton was aware of the limitations of his defence of IBE: he did not claim to have developed a watertight argument supporting the claim that loveliness is a guide to likeliness. Indeed, much of *Inference to the Best*

Explanation is dedicated to describing aspects of our abductive practices, rather than justifying them. But Lipton made important justificatory contributions, too. He reminds us that many have taken Hume's problem of induction to show that for any nondeductive mode of inference to be justified, it must be the case that the world's contingent structure conforms to our inferential practices. For induction regarding the future to be a reliable method of belief formation, it seems that the universe must be lawlike. Suppose, then, that the defender of IBE must concede that loveliness is a guide to likeliness only if the world is appropriately structured. Perhaps we must concede that for IBE to be justified, the world needs to be simple. It remains the case that IBE's defender is in no worse a position than one who seeks to defend run-of-the-mill past-to-future induction. "There is," as Lipton put it, "a sense in which the success of induction is miraculous or inexplicable on any account of how it is done" (2004b, 145).

Lipton also confronted the 'best of a bad lot' objection to IBE (Lipton 1993). The worry is that since we can only consider a small number of potential explanations for some phenomenon, the chances are that the true explanation lies in the vast array of hypotheses that we have not evaluated: "On this view, to believe that the best available theory is true would be like believing that Jones will win the Olympics when all one knows is that he is the fastest miler in Britain" (2004b, 152). In response to this, Lipton pointed out that we can ensure that one of the theories we consider is true simply by considering, for example, a hypothesis and its negation.

Lipton made occasional forays into issues relating to the philosophy of mind (e.g., Lipton 1998a), and freedom of the will (e.g., Lipton 2004a), but the bulk of his work tended to focus on traditional problems in the philosophy of science such as the nature of ceteris-paribus laws (Lipton 1999), the alleged epistemic advantages of prediction over accommodation (Lipton 1990), or our warrant for believing claims about unobservables. One of his later published works (written with his then-PhD student Paul Dicken) expressed scepticism about van Fraassen's ability to draw the observable-unobservable distinction in the right way for constructive empiricism (Dicken and Lipton, 2006). In every case, Lipton found ways of making lasting and respected contributions without resorting to unnecessary formalism or showy examples from the more technical areas of science.

As with *Inference to the Best Explanation*, most of Lipton's writing was directed towards a defence of scientific realism. It was Lipton's general conviction that science is, as he put it, "in the truth business" (Lipton 2005). We have already alluded to the way in which Lipton appealed to reliabilist epistemology in order to argue that, from the standpoint of

justification, IBE is no worse off than plain induction. This tactic of employing reliabilist epistemology in the service of scientific realism was repeated to good effect in much of Lipton's work. In "Tracking Track Records" (Lipton 2000) he considered reliabilist responses to the problem of induction, and then put such responses to work in a novel way in the context of both the 'Miracle Argument' and the 'Pessimistic Meta-Induction'. Briefly, Lipton favored an adaptation of Nozick's 'tracking' account of reliability. On this view, a good inductive argument is one such that, were the conclusion false, the premises of the argument would have been false, too. This is a way of spelling out the thought that the evidence on which we base our inductions should be sensitive to the truth of the conclusions our inferences seek to establish: "Thus my prediction that it will rain is only strong insofar as my evidence would not have been just the same if it were not going to rain" (Lipton 2000, 185). But Lipton argued that this criterion can be used to undermine the pessimistic meta-induction. To give a flavor of Lipton's argument, consider the thought that whatever the status of current theories—true or false—past scientific theories will tend to be incompatible with these current theories. Hence, regardless of the truth of current science, we will tend to regard past theories as false from the perspective of current science, and simple enumerative induction will lead us to infer from this evidence base that current theories are false, too. It follows that a simple inductive inference from the falsehood of past theories to the falsehood of current theories is weak, because it does not meet the tracking requirement. Reliabilism was again put to work in "The Ravens Revisited" (Lipton 2007a), a very recent paper on confirmation. Here, Lipton argued for an adaptation and bolstering of earlier Bayesian responses to the raven paradox along reliabilist lines. As a final example of this sort of work, Lipton argued that much of what was attractive in Popper's falsificationist methodology of science could be salvaged by viewing Popper's claims in the spirit of externalist epistemology (Lipton 1995).

Lipton retained a central interest in the philosophy of science throughout his career, but his interests broadened in the final years of his life. He began to undertake work in applied ethics, chairing the Nuffield Council on Bioethics' (2003) working group on ethical issues in pharmacogenetics, and then becoming a full member of the Nuffield Council on Bioethics. Religion had always been important to Lipton—he was co-chair of the Beth Shalom reform synagogue in Cambridge—but he waited a long time before writing on the relationship between religion and science. One of his final papers defends what he called "The Immersion Solution" to the problem of religious belief (Lipton 2007b). It is an adaptation of van Fraassen's (1980) constructive empiricism to the religious domain. Van Fraassen's position with respect to claims about unobservable entities

combines a realist construal of their semantics with an anti-realist epistemology. But van Fraassen insists that the practicing scientist should have a thorough commitment to 'immersing' herself in the world of theory. Lipton advocated a similar package for religious claims. On his account, we should understand many of the central claims of religious texts literally, but we should not believe them. Rather, we should approach them with something like van Fraassen's 'acceptance'. This makes room for profound commitment to religious life. By analogy with constructive empiricism's advocacy of 'immersion' in the world of the theory, Lipton argued that scepticism about the truth of religious claims is compatible with allowing these claims to guide one's life. Of course, Lipton insisted on several important disanalogies with constructive empiricism. Most obviously, he did not merely withhold judgement regarding religion's supernatural claims; he believed them to be false. Thus, Lipton elegantly defended what might seem contradictory to many, namely, a religious atheism.

Peter Lipton is survived by his wife Diana, by his sons Jacob and Jonah, and by his mother Lini. The hundreds of people who came to his funeral on a cold afternoon in November are a testimony to the number of lives he touched. Those who knew Peter—and so many did, from King's College, where he was a fellow; from the Jewish community; from the philosophical community—are still recognizing new ways in which they miss him.

REFERENCES

Darwin, C. (1959), *The Origin of Species by Charles Darwin: A Variorum Text*. Edited by M. Peckham. Philadelphia: University of Pennsylvania Press.
Dicken, P., and P. Lipton (2006), "What Can Bas Believe?", *Analysis* 66: 226–233.
Garfinkel, A. (1981), *Forms of Explanation*. New Haven, CT: Yale University Press.
Lewis, D. (1986), "Causal Explanation". In *Philosophical Papers*, vol. 2. Oxford: Oxford University Press, 214–240.
Lipton, P. (1987), "A Real Contrast", *Analysis* 47: 207–208.
——— (1990), "Prediction and Prejudice", *International Studies in the Philosophy of Science* 4: 51–65.
——— (1991), *Inference to the Best Explanation*. London: Routledge.
——— (1993), "Is the Best Good Enough?", *Proceedings of the Aristotelian Society* 93: 89–104.
——— (1995), "Popper and Reliabilism", in A. O'Hear (ed.), *Karl Popper: Philosophy and Problems*. Cambridge: Cambridge University Press, 31–43.
——— (1998a), "Binding the Mind", in J. Cornwell (ed.), *Consciousness and Human Identity*. Oxford: Oxford University Press, 212–224.
——— (1998b), "The Epistemology of Testimony", *Studies in the History and Philosophy of Science* 29: 1–31.
——— (1999), "All Else Being Equal", *Philosophy* 74: 155–168.
——— (2000), "Tracking Track Records", *Proceedings of the Aristotelian Society*, Supplementary Volume 74: 179–205.
——— (2004a), "Genetic and Generic Determinism: A New Threat to Free Will?", in D.

Rees and S. Rose (eds.), *The New Brain Sciences: Perils and Prospects*. Cambridge: Cambridge University Press, 88–100.
——— (2004b), *Inference to the Best Explanation*. 2nd ed. London: Routledge.
——— (2005), "The Truth about Science", *Philosophical Transactions of the Royal Society B* 360: 1259–1269.
——— (2007a), "The Ravens Revisited", in A. O'Hear (ed.), *Philosophy of Science*. Cambridge: Cambridge University Press, 75–95.
——— (2007b), "Science and Religion: The Immersion Solution", in Andrew Moore and Michael Scott (eds.), *Realism and Religion: Philosophical and Theological Perspectives*. Aldershot: Ashgate, 31–46.
Nuffield Council on Bioethics (2003), *Pharmacogenetics: Ethical Issues*. London: Nuffield Council on Bioethics.
van Fraassen, B. (1980), *The Scientific Image*. Oxford: Clarendon.