BOOK REVIEWS

Errol Morris, ***The Ashtray; or, The Man Who Denied Reality.*** Chicago: University of Chicago Press (2018), 192 pp., $30.00 (cloth).

> A labyrinth with no center. For the religious Chesterton, it is the nightmare of atheism. . . . For me, a secular Jew from Long Island, it is the mystery without a solution. A murder without a murderer. A world without answers. (39)

Errol Morris is a celebrated documentary filmmaker, best known for investigative films like *Thin Blue Line*, as well as deep dives into the epistemology of public life in *The Unknown Known* and *Umbrella Man*. Less well known is that he studied the history of science and philosophy, receiving graduate training at Princeton and Berkeley. The title of his book, *The Ashtray*, refers to a cut-glass ashtray thrown by Morris's then-mentor Thomas Kuhn. According to Morris, in the midst of a heated disagreement about the right way to interpret Maxwell's electromagnetic theory, Kuhn became so agitated that he threw his ashtray maybe, or maybe not, toward Morris's head. Shortly after this incident, Morris was asked to leave Princeton's History of Science Program and went to study philosophy at Berkeley. As one might guess, Kuhn's violent way of resolving the disagreement did not lead to a gentle reply. This book is a self-described highly polemical discussion of Kuhn and of what Morris takes to be the dangers of Kuhn's antirealism. It concerns very technical subjects in philosophy of science and philosophy of language, yet is written in a highly accessible way. It is full of fascinating digressions about film, photography, the art of translation, and the history of mathematics. From a scholarly point of view it is probably unfair to Kuhn, but I loved reading it anyway.

Ostensibly, *The Ashtray* is a response to the most radical antirealist claims of *The Structure of Scientific Revolutions*. Morris seems to accept much of what Kuhn says about issues such as tacit knowledge and theory ladenness of perception, although he argues for the priority and superiority of Michael Polyani's and N. R. Hanson's accounts of these issues. His main concern is, instead, Kuhn's famous discussion of paradigms and their incommensurability. Morris develops a realist objection to Kuhn, arguing that the resources of externalist theories of reference developed by Saul Kripke and Hilary Putnam save cross-paradigm reference and hence realism. Kuhn relies on a descriptivist theory of names, but when a more plausible theory is adopted, Morris argues, Kuhn's arguments fall apart. Although this is a familiar kind

https://doi.org/10.1086/714100 Published online by Cambridge University Press

of argument to philosophers of science, explored in great depth in, for example, Philip Kitcher's *The Advancement of Science: Science without Legend, Objectivity without Illusions* (Oxford: Oxford University Press, 1995), this response is not well known outside of philosophy circles. Morris has done a great service in bringing these ideas to a wider audience.

Morris also devotes considerable attention to Kuhn's cautions against (Morris would say obsessions with) Whigishness in history. This term comes from Herbert Butterfield, who defined it as "the study of the past with direct and perpetual reference to the present" (*The Whig Interpretation of History* [London: Bell, 1950], 11). The reasonable exhortation to understand historical actors in terms that they could understand was, according to Morris, pathologized by Kuhn to mean one could not make any mention of the present at all in trying to understand the past. One objection is that this prevents the possibility of the long-term accumulation of evidence, which is necessary for a realist like Morris. But an even more radical source of Morris's disagreement with Kuhn is the connection between Whigishness and paradigms. Kuhn seems to hold that, since our current scientific understanding is conditioned by our own paradigm, we cannot use our knowledge of the world to help us understand the past. Morris asked Kuhn, "If paradigms are really incommensurable, how is the history of science possible? Wouldn't we merely be interpreting the past in light of the present?" (13). These questions were too much for Kuhn, and the ashtray went flying through the air in response.

While Morris's discussion of Kuhn is interesting, and the ashtray story some combination of amusing and horrifying, to me the real interest of *The Ashtray* lies elsewhere. One fascinating feature of the book is Morris's interviews with Kripke, Putnam, and Noam Chomsky. He is a master interviewer, and I learned a lot from the reflections of these philosophers on Kuhn, reference, realism, and paradigms. But for me, the most interesting feature of the book is Morris's positive account of empirical investigation—a thesis he calls *investigative realism*.

Morris does not fully explain what he means by investigative realism, but I think we can get a pretty good idea from the book and from his epistemology-oriented films. Here are the central ideas:

1. **Perception is theory laden, but reference is not.** Although he believes the idea is misused in Kuhn, Morris accepts and elaborates on Hanson's idea of theory ladenness. He praises this insight and argues that Hanson's work should be better known inside and outside of philosophy (I quite agree). *Ashtray* continues developing themes from *Standard Operating Procedure* and *Believing Is Seeing* about how our expectations shape what we see in an image. Although our perceptions may differ and generate different interpretations of these images, they are ultimately causally linked to a historical event. So it is, he argues,

with science, and hence theory ladenness is compatible with scientific realism.

2. **Perfect translation is difficult but not impossible (and certainly is a reasonable ideal).** Morris takes an interesting detour through the complexities of literary translation to reflect on translation in general, especially as applied to Kuhnian themes. Many of these ideas are developed in the book as a commentary on his conservation with Putnam. These issues were especially vivid for Putnam because his father wrote the canonical translation of *Don Quixote* into English, and Putnam himself was a native French speaker. Morris and Putnam agree that there are many cases in which there is no simple way to translate a word from one language to another. For example, the word *allure* has a much wider spectrum of meaning in French than in English. However, difficulty with translating and a lack of one-to-one correspondence is not the same thing as impossibility of translation. We can be told that how one walks is part of the meaning of *allure* in French, even if a translation that preserves this sense will sound rather clumsy. Thus, one may not infer from the fact that translation is difficult that there is conceptual or linguistic incommensurability between paradigms.
3. **Referring to unobservables and to the past requires active investigation.** "The world isn't instantly knowable to us, but we can investigate. As the world evolves in time it secretes evidence. We can use anything and everything in our bag of tricks. DNA evidence, carbon-14 dating, ballistics, fingernail scrapings. . . . We can trace and retrace our steps like Theseus in the labyrinth" (164). This is the Morris of *Thin Blue Line*, *Umbrella Man*, and *Wormwood*. The truth may be buried under noise, distractions, and downright deceptions, but it can ultimately be found. A philosopher of science might call this idea *consilience*, that our ability to uncover underlying reality is enhanced by multiple, independent lines of evidence.

Investigative realism, as I understand it, is an attractive idea and the basis for a very sophisticated form of scientific realism. It bears affinities to theses defended by the Stanford School and allied approaches in philosophy of science. In particular, Morris's emphasis on the active nature of investigation is very similar to Ian Hacking's and Nancy Cartwright's accounts of causal contact through instrumentation as our best evidence for the existence of unobservable entities. Similarly, there are many affinities between Morris's views and those of Bill Wimsatt and Dick Levins, who emphasize the use of partial, incomplete models to construct a more realistic picture of the world. I understand that writing for a broad audience imposes a lot of limitations, but I would have wanted to know a lot more about investigative realism and the connection between it and the Stanford School.

Other reviewers of *The Ashtray* have criticized Morris for being unfair to Kuhn. For one thing, he says very little about the most plausible part of *Structure*: Kuhn's discussion of normal science. Second, and more importantly, he does not apply the principle of charity to Kuhn's most radical-sounding claims. If we find ourselves reading chapter 10 of *Structure* in such a radically antirealist way that it is inconsistent with common sense, maybe there is another reading available? Kitcher, for example, argues that a more charitable reading of *Structure* is that Kuhn has a deeply pragmatist streak (Philip Kitcher, "The Ashtray Has Landed: The Case of Morris v. Kuhn," *Los Angeles Review of Books*, May 18, 2018). Kuhn invokes James in connection with his claim that when the paradigm changes the world literally changes, and this could be a clue that what Kuhn denies is not the reality of the physical world but that the world is "ready-made." It does not come carved up in neat chunks, and revolutionary changes in science can cause the community to reconceptualize how the world is divided up. It is in that sense that the world literally changes, not that the underlying physical reality changes.

This less radical reading of Kuhn is certainly available to readers, although in my view Kuhn remained unclear about exactly how he should be interpreted on these points throughout his life. But in the end, Morris's book is not really about the best way to read Kuhn. Insofar as it is responding to Kuhn, it offers an alternative to how investigators of the past—be they past crimes or episodes from the history of science—ought to do their work. Kuhn obsesses about Whigishness and the impossibility of translation. Morris sees these issues as making investigative work difficult but not impossible. *The Ashtray* offers nonspecialists a window into debates in philosophy of language and philosophy of science and offers professional philosophers a window into how one of the most talented living documentarians thinks about epistemology. It is thoroughly stimulating to read not only for its main arguments but for dozens of interesting connections to mathematics, art, film, and literature. I highly recommend it.

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Elaine Landry, ed., ***Categories for the Working Philosopher.*** Oxford: Oxford University Press (2017), xiv+417 pp., $110.00 (cloth).

The essays in *Categories for the Working Philosopher* are an excellent illustration of why category theory might interest a "working" philosopher—that is, a philosopher whose day job is more or less independent of the foundations of mathematics. Each contribution describes some substantial application of