

Alan Sokal: *Beyond the Hoax: Science, Philosophy and Culture*

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To many, although certainly not all, of us working in the history and philosophy of science in the mid-1990s Alan Sokal is a hero. Inspired by the book, *Higher Superstition: The Academic Left and its Quarrels with Science*, by Paul Gross and Norman Levitt (1994), Sokal tried an experiment. He asked, “Would the leading North American journal of cultural studies—whose editorial collective includes such luminaries as Fredric Jameson and Andrew Ross—publish an article consisting of utter nonsense if (a) it sounded good and (b) it flattered the editors’ ideological preconceptions? The answer is unfortunately yes (Sokal 2010, p. 115).” Sokal’s essay, “Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity,” is, I believe, unreadable, at least to those of us who try to make sense of what we are reading. As Sokal writes, “My article is a mélange of truths, half-truths, quarter-truths, falsehoods, non sequiturs, and syntactically correct sentences that have no meaning (p. 93).”¹ The article was published in a special issue devoted to the “Science Wars” of *Social Text* (1996, Volumes 46–47), the aforementioned leading cultural studies journal,² without the benefit of refereeing by anyone who knew something about quantum gravity. The hoax was revealed some weeks later in another journal, *Lingua Franca*, a journal which poked fun at academia and which is, alas, no longer with us. The resulting furor appeared on the front page of the *New York Times* and was discussed in *Le Monde*. To those of us opposed to postmodernism in both science studies and elsewhere, there was a certain amount of *schadenfreude*. It seemed that the lack of critical standards in cultural studies had been exposed, although as discussed below, that was not Sokal’s most important goal.

¹ Sokal bemoans the fact that he was unable to provide only a handful of the latter.

² As Sokal himself states. *Social Text* is not a journal without merit. “In fact, I strongly recommend two recent issues of *Social Text*, dealing with the crisis of academic labor.” I subscribed to the journal for a year so that I could get a copy of the original Sokal article. I found an article on the ambiguous attitudes of feminists toward the *Victoria’s Secret* catalogue fascinating and George Levine’s essay in the Science Wars volume, “What is Science Studies for and Who Cares?” is a very good and thoughtful essay.

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It is, therefore, with some sadness that I have to report that this collection, consisting almost entirely of previously published essays by Sokal, is somewhat disappointing. There are parts of the book that are of value, but overall, except for a few of the later essays, there is a sense of *déjà vu*.³ The first section of the book, “The Social Text Affair”, begins with a rather long annotated version of “Transgressing the Boundaries,” which explains all of the numerous jokes. My own reaction on rereading this version was to be reminded of the old admonition to comedians. When you explain a joke it loses much of its humor. The essay itself, in all of its incomprehensibility, is hilarious. It needs no further explanation. The remainder of the first section deals with the aftermath of the hoax. In ‘Transgressing the Boundaries: An Afterword’ Sokal explains the reasons for his hoax. He states that he was not defending science against “the barbarian hordes of lit crit or sociology,” because he doubts that such a defense is necessary.⁴ Despite the resulting academic furor, Sokal states that his initial goal was not to show the absurdity of postmodern views of science or that the standards of rigor in postmodern scholarship were lacking, but rather as “an unabashed Old Leftist,” he wanted to restore the view that science and reason have always been a means of opposing social oppression and that adopting a postmodern view of science does not support that goal. “What I believe this debate is principally about... is the nature of truth reason, and objectivity, and its implications for progressive political action.” This is indeed a theme that runs throughout the book.

In “Science studies: Less than meets the eye,” Sokal examines the work of Carolyn Merchant, Sandra Harding, and Evelyn Fox Keller, three icons of feminist science studies. He notes that both Harding and Merchant bemoan allegedly sexist metaphors on experimentation, rape (Harding) and torture (Merchant), in the work of Francis Bacon. He notes that the work of Noretta Koertge, Alan Soble, and others have argued persuasively that feminist critics of science have found sexual innuendos where none exist and have exaggerated that attribution of violence to experimentation (Koertge 1998). In particular, he quotes a famous, or possibly infamous, statement by Sandra Harding. “A consistent analysis would lead to the conclusion that understanding nature as a woman indifferent to or even welcoming rape was equally fundamental to the interpretations of nature and inquiry. Presumably these metaphors, too, had fruitful pragmatic, methodological, and metaphysical consequences for science. In that case, why is it not as illuminating and honest to refer to Newton’s laws as ‘Newton’s rape manual’ as it is to call them ‘Newton’s mechanics (Harding 1986, p. 113).” He notes that Harding has seemingly said that rape and torture metaphors have had “fruitful pragmatic, methodological, and metaphysical consequences for science.” He asks, “Does Harding realize what she is saying (p. 121).” Such a view is, in fact, disastrous for feminism. Sokal also discusses Fox Keller’s *Reflections on Gender and Science* (1985). He notes that Fox Keller’s discussion of the foundations of quantum mechanics has some well-taken points, but that these are not particularly new. He remarks that “If feminist (or psychoanalytic) thought has anything to contribute to the interpretation of quantum mechanics—or for that matter to *any* branch of the philosophy of physics—we’re still waiting (p. 129).” He does apologize for his “swift and selective refutation in the space of a few pages of several entire books (p. 129),” but both he and I regard the criticism as fair. Sokal closes his essay with criticism of *Higher Superstition* (1994), the book that started it all. He criticizes Gross and Levitt for both selectivity and exaggeration. His point is well taken. The description of Helen Longino’s

³ In a brief review I will not comment on all the essays.

⁴ Nevertheless, Sokal and Jean Bricmont authored a subsequent book, *Fashionable Nonsense* (1998), that exposed the rather silly views on science of such scholars as Irigaray and Lacan.

Science as Social Knowledge (1990), a book with which I have considerable disagreement, does not resemble the book I read.

The first section is an interesting set of historical documents and a view of an important intellectual controversy written by an important participant. None of the essays in this section were published after 1998. What is lacking is any discussion on how Sokal views the hoax from the perspective of 15 years later. One would like to read his answers to questions like: Are the Science Wars over? What was their importance? Have there been any changes for the better? In short, I would have liked to read an essay, "Looking Back at the Hoax."

Sokal does include a few references to more recent work in his footnotes, but he doesn't discuss it in any detail. My own view is that although the science wars are still ongoing, albeit more quietly, and with fewer very active participants, there are some hopeful signs. Take, for example, *The One Culture?* (2001) edited by Harry Collins, a leading social constructivist sociologist and Jay Labinger, a chemist at Caltech. As Sam Schweber wrote, "In *The One Culture?* historians and sociologists of science concisely clarify the intent and methodology of their approach, while scientists respectfully make clear what irks them about 'science studies.' In the subsequent exchanges, all concerned pave the way for further fruitful interactions and researches (from the book cover)."

The second section of the book, 'Science and Philosophy,' contains two essays, "Cognitive relativism in the philosophy of science" and "Defense of a modest scientific realism." I shall comment only on the former. In this essay Sokal argues against relativism, which he regards as "pernicious both intellectually and politically," and certain views in the philosophy of science which he believes have supported it. He defines relativism as "any philosophy that claims that the truth or falsity of a statement is relative to an individual or to a social group (p. 174)." Cognitive relativism, according to Sokal, deals with statements concerning facts and comes in three forms: (1) ontological, relativism about truth, (2) epistemological, which focuses on the degree of justification of those facts by evidence, and (3) methodological, which asserts that sociologists should ignore truth and evidence in discussing why certain groups hold such beliefs.

Sokal brings forth the usual suspects, Thomas Kuhn and Paul Feyerabend, and one unusual suspect, Karl Popper. As Sokal admits, Popper can hardly be called a relativist, but Sokal argues that the criticisms of Popper's views do give aid and comfort to the relativist position. As is well known, Popper's view is that in order for a statement or theory to be scientific it must be falsifiable. There must be some possible state of the world that could refute it. Thus, the statement, "It is raining or it is not raining," is unscientific because it cannot be falsified.⁵ If a theory has been falsified then, according to Popper, it must be ruthlessly rejected. Popper also argues that there is an asymmetry between confirmation and falsification. No finite set of observations of white swans can prove the statement, "All swans are white," whereas the observation of a single black swan can falsify it. In Popper's view theories can only be refuted, not confirmed. There is, for Popper, no possibility of probabilistic inductive support. Sokal points out that Popper's view is inconsistent with the history of science. Theories that are seemingly refuted are not always immediately rejected and that confirmations do increase belief in theories. Consider the problems that discrepancies in the orbit of Uranus posed for Newton's theory of gravitation and the subsequent discovery of Neptune. The discrepancies did not lead to the rejection of Newton's theory and the discovery of Neptune was regarded as an important confirmation of that theory. Sokal notes that there are other difficulties for Popper's view. Falsification is not as

⁵ Any tautology would be unscientific.

simple as Popper believed. Consider the *modus ponens*. If a hypothesis h entails evidence e then not e entails not h . As Duhem and Quine, in slightly different ways, pointed out it is not h alone that entails e , but rather h and b , that entails e , where b is background knowledge. Thus, not e entails not h or not b , and one doesn't know where to put the not. These difficulties, according to Sokal, support relativism.

Kuhn and Feyerabend are more plausible as support for relativist views. In Kuhn's theory of scientific revolutions, in which one paradigm, or world view, is replaced by another, the decision cannot be based on evidence alone. Kuhn likens such change to a religious conversion. This is because paradigms are incommensurable. The argument, briefly stated, is that there is no neutral observation language, all observation terms are theory-laden. Experiments described in the same terms are not the same when interpreted in two different paradigms because the terms have different meanings. If evidence cannot decide such a change in paradigm then we are left with relativism. Sokal does remark that there are two different interpretations of Kuhn's work, a moderate one, which does not really support relativism, and a radical one, which does. Most of the critics of science have adopted the radical view, a position that Kuhn, himself, disavowed. Feyerabend's views as support for relativism is easier. In *Against Method* (1975), he argues that there is no universal scientific method that fits the history of science and that therefore "anything goes." For Feyerabend science is no better than voodoo. Sokal correctly points out that the fact that all scientific methodologies have limitations does not imply that anything goes. For example, I know of no accepted scientific methodology that would condone the manipulation of data to support one's preferred theory.

The remainder of the essay is devoted to trenchant criticism of the relativist views of social-constructivist sociologists of scientific knowledge such as Barry Barnes, David Bloor, and Bruno Latour. Although Sokal's criticism of these views is sharp, he offers little evidence that they, or other postmodern views of science, have, in fact, been influenced by the philosophies of Kuhn and Feyerabend or by the criticisms of Popper. I believe such arguments can be made, but Sokal hasn't made them. The essay does, however, make useful, short presentations of the views of the authors mentioned above.

In the last two essays, "Religion, politics and survival" and "Epilogue: Epistemology and ethics," both of which are published here for the first time, Sokal deals with more significant social issues. There are questions concerning the religious influence in American politics. In the former essay, Sokal does this by critically analyzing two books, *The End of Faith* (2004), a best seller by Sam Harris, and the lesser known *Spirit Matters* (2000) by Michael Lerner. Sokal considers them both important, though "deeply flawed." The books are written from two very different perspectives. Harris is an atheist and Lerner is a well-known rabbi. Harris is quite caustic. "Jesus Christ—who, as it turns out, was born of a virgin, cheated death, and rose bodily into the heavens—can now be eaten in the form of a cracker. A few Latin words spoken over your favorite Burgundy, and you can drink his blood as well. Is there any doubt that a lone subscriber to these beliefs would be considered mad (Harris 2004, p. 72)?" Sokal agrees. "Many people will no doubt be offended by Harris' (and my) characterization of Catholicism and other religions as 'mad' (Sokal 2010, p. 377)."

Lerner, on the other hand advocates a rather vague Emancipatory Spirituality (Lerner's capitals). In Sokal's view, Lerner has a dubious cosmology, but important psychological insights that Sokal believes the political left should not ignore. Lerner criticizes the left for its condescension toward working class conservatives and their desire for purpose, value, and meaning in their lives.

This brings Sokal to his real goal and an important sticking point. His goal is a just and fair society. The sticking point is the possible reconciliation of Sokal's view of religion,

which he regards a “massive delusion,” having no evidential basis, with the ethical and moral values that religious believers espouse. He also believes that we can, in fact, argue that progressive social policies are moral and do not conflict with basic moral values. He believes that this can open a fruitful dialogue between the left and the right-leaning evangelicals in the United States. One may hope he is correct but, given recent events, that hope may be slim.

In the final essay Sokal reiterates his view that public debate must be grounded in the best evidence available. He believes that religion has been given a free ride in the sense that it has not been subjected to the kinds of epistemological criticisms that other views face. He argues that making decisions based on insufficient evidence is immoral. He supports this with a story told by William Clifford, a nineteenth-century mathematician. Clifford told of a ship owner who, suspecting that his ship was not seaworthy and facing considerable expense to make it so, persuaded himself that because the ship had survived many previous voyages, it was safe. He sent it out and the ship sank and all aboard perished. Clifford asked how one should judge the ship owner. He argued that the owner was both responsible and immoral because he had based his decision on insufficient evidence. Sokal agrees and extends this to all decisions. He ends with a plea for “sincere inquiry and honest debate (p. 458),” but recognizes that it might not be possible at this time.

As I stated earlier this book is somewhat disappointing, but it is one that I will keep on my shelf. Despite the lack of a retrospective view of the Science Wars it, along with *A House Built on Sand* (1998), offers one side of those wars. For the other side, Volumes 46–47 (1996) of *Social Text* is a good reference. In addition, I find Sokal’s arguments that we can maintain a good epistemology and still share the humane values that will lead to a just society both persuasive and hopeful. It is not clear that they will persuade those with opposing views, but one can hope.

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