Book Reviews/Comptes rendus

ZAMMITO, JOHN H. *A Nice Derangement of Epistemes: Post-Positivism in the Study of Science from Quine to Latour*. Chicago. (2004). The University of Chicago Press. 390 pp. Index.

This is a book whose thesis is that "the all-out version" of radical social constructivism, pursuing further calls for reflexivity and constructivism "all the way down," has reached a series of absurd postures. The test case presented is the infamous Sokal affair. Alan Sokal, it will be recalled, was the physicist whose article in *Social Text*, a deliberate parody of postmodern thinking, was included in a special issue dedicated to the display of postmodern thought.

Its narrative begins in the 1930s with Quine's rebellion against neo-positivism. Neo- positivists of the Vienna Circle held that the methodology of scientific observations were independent of single theories; rather theoretical adequacy, tested through observation, accumulates over time. The effect was to give scientific methodology and validity claims to "fact" and "objectivity" an *a priori* status. In his well known rebuttal, Quine held that there can be no unique procedure to achieve a determinate rendering of fact, for one can always conceive at least one other theory which is compatible with the same body of evidence. There is always under-determination in theory, moreover observation and facts are not linguistically neutral. Quine asserted that the truth claims based on supposed neutrality of epistemic knowledge in science should be replaced by a linguistic notion of truth.

The discussion of Quine versus the Vienna Circle introduces the format for the rest of the book. The author is a historian and uses intensive examination of documentary evidence from principle authors in subsequent controversies in the history of science. A chronological leap occurs between Quine and Kuhn's *Structure of Scientific Revolutions*, together with Karl Popper's reformulation of neo-positivist versions of causality, published in the early 1960s. In Zammito's narrative, these become the critical turning points against older forms of positivism. Kuhn attacked the notions of 'progress' imbued in the positivist's approach to knowledge. He also attacked natural science's own conception of scientific realism, proposing that there could be no simple accumulation of scientific knowledge. Rather science proceeded in discontinuous blips, with one successor scientific paradigm often being incommensurable with another.

Here Zammito begins to take sides. His purpose is not so much to defend the epistemological premises of positivism, or even to contest trends in post-positivism, but to counter that which construes 'positivism' so broadly that the very label is used to dismiss empirical enquiry. Yet he declares that Kuhn's conception of incommensurability was a 'misadventure' based on a faulty theory of comparison. A more thoroughly worked out historical approach, and a better theory of comparison, would have revealed concrete transitions through which meaning change occurs, and which permits commensurability for rival theories. An extensive criticism of Kuhn is placed against 'recalcitrant logicists' who continued to parade a foundationalist view, studiously ignoring Kuhn, and trivializing historians of science who followed in Kuhn's wake. It took the whole decade of the 1980s for the philosophers of science to grant that a historically based philosophy of science was a valuable venture. By that time some of the new historians of science had come to regard the philosophers of science as 'outmoded, trivial and irrelevant.'

A brief rapprochement in the history and philosophy of science was overrun by the 'social construction of knowledge.' Considering this, Zammito moves into familiar territory for social scientists, the sociology of scientific knowledge' (SSK). Under the influence of David Bloor, on the one hand, and Bruno Latour's notions of 'hybridity' on the other, the position elaborated is that theories of knowledge are, in effect, reflections of social ideologies. Bloor's overall position was that 'knowledge grows under the impulse of two great interests, one an overt interest in prediction, manipulation and control and a covert interest in rationalization and persuasion.'

Zammito hurries past Bloor's positions on interested knowledge, ignoring the issue of scientific knowledge turning away from the engagement of theory and observation in the abstract towards wholesale application of knowledge to technique. Instead, Zammito asserts that SSK never gave a sufficiently compelling account as to why social causes should have a paramount place in the construction of scientific knowledge. This seems a peculiarly inverted position to take when natural science is heavily supported as a public good rather than for its hobbyist aspects.

Not all sympathizers of constructivism are tarred with the same brush. Feminist social constructionists come out rather well in his account of the 'science wars.' Zammito's overall hostility to SSK arises because it became a convention for the generations that followed. It justified an escalating series of attacks against scientific method, from a worrying relativism through discourse analysis and new literary forms, to an even more radical relativism of reflexivity appearing in cultural studies and postmodern Departments of English. The backlash grew despite the fact that many of its authors have little formal knowledge of science, either social or natural. Their radical deconstruction seems to speak from a well of almost absolute scepticism, the hyperbole of their discourse suggesting that we cannot distinguish the reality of perception from theories of

physical reality. If this is the case then we must resign ourselves forever to abandoning empiricism in a haze of epistemological uncertainty.

One can share Zammito's concern over the hyperboles of postmodernism, yet understand epistemological uncertainty in the mind-set of people in Europe over planting, growing and eating of genetically modified food - despite guarantees of rigorous empirical testing. Zammito has produced a well worked narrative with one major flaw. His documentary evidence, copiously supplied and clearly presented, favours the theory and method of physics and chemistry, where empiricism and objectivism deployed through quantitative analysis continues to have robustness. The case for a social constructivist position on "quarks" - one of the issues he elaborates - must always seem thin. This is no longer the case in biology which receives brief reference. At least since the Vienna Circle, biology has had some realization that physical-mathematical explanatory models have their deficits and can only describe one set of many other sets or elements that enter into a comprehensive life context. Now there is an increasing understanding that evidence from observation in experimental laboratories tied to its theoretical language can produce false paradigms for other contexts. Even the prevailing paradigm, from "DNA to RNA to Protein and everything else" is suspect because of the discounted evidence that protein bodies are context-dependent interpreters of the genetic text. Contrary to Zammito's nervousness about reflexivity, empirical evidence will arbitrate. Yet a semiotic biology? This is real incommensurability.

Peter Harries-Jones *York University*