

Intellectual Terrorism or a Just War?

by James Ladyman

Review of Alan Sokal and Jean Bricmont, *Intellectual Impostures: Postmodern Philosophers' Abuse of Science*, (London: Profile, 1998). Paper £9.99; hereafter II.

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Whether we think of the routine conviction or acquittal of suspects on the basis of scientific evidence in the law courts, the trust placed in scientific medicine and the extraordinary interventions it makes possible, or the importance that policy makers attach to the opinions of scientists, it is clear that those making up our scientific institutions are among the most authoritative and respected people that there are. Among intellectual endeavours science has an unrivalled dominance in terms of funding, status and influence on practical affairs. However, the days when natural science was widely considered to be a model for the study of the arts and the humanities already seem distant. Indeed the influence of science even within subjects which were conceived of as scientific from their very inception, such as political science and sociology, has waned considerably. Perhaps in economics scientism is still dominant but elsewhere in academia a widespread disillusionment with science has taken hold. Perhaps this is understandable given what were with hindsight the obviously foolish attempts to study everything with the same methodology as is employed in physics. Yet the backlash against a misconceived scientism and reductionism in the study of social life and culture has amounted to more than just a defence of disciplinary boundaries, for critics of science now assail it in its own castles (which they allege are built in the air).

Science has long been abused and exploited by those with oppressive agendas. So, for example, medical science and evolutionary biology has been misrepresented and distorted to justify the subjugation of women and those enslaved and colonised by Europeans, the most advanced technology has been developed and employed for warmongering rather than for the benefit of the poor and needy, and our advanced industrial and technological societies have been developed only at great cost to the Earth's fragile ecology. Yet it is obvious that the powerful elite in any society will seek to control and exploit the most advanced knowledge and technology to expand and

retain their grip on the rest of the population. What else would one expect them to do? In this respect modern science is like Babylonian or Egyptian mathematics, and the nefarious uses to which it has been put are entirely consistent with forms of human behaviour that are as old and as universal as war, torture and slavery.

Nonetheless, in recent times science has been thought by many on the political left to be of its essence a force for oppression. The very characteristics for which led science was once regarded as the saviour of the dispossessed by the left, chiefly its norms of universality and rigour, are now thought by some to be pernicious and essentially exclusive of the perspectives of the marginalised and disenfranchised. Perhaps the reason for the embrace of postmodernism by the left is an overreaction to the discrediting of Marxism; after all Marxism is the meta-narrative par excellence. In any case, it is now true that most feminists, multiculturalists and others on the left have decided that, for example, the aim to avoid ambiguity in scientific discourse is a concealed way of excluding *différance* and alterity. Furthermore, some historians and sociologists of science have endorsed the postmodern thesis that science is just one myth among many and that nature has little to do with the products of scientific inquiry. There is a thriving discipline called 'Science Studies' which studies science in its economic, political and social context. The history of science is now often studied in a way which aims to expose the machinations of power and politics that underlie it, and particular scientific theories have apparently been deconstructed to reveal their implicit specific ideological commitments and the support they offer to the hegemony. The 'science wars' that have polarised much of academia, especially in North America, are between those postmodernists and social constructivists who embrace relativism about scientific knowledge, and those who espouse the objectivity and epistemic privilege of scientific inquiry.

Oddly enough all this hasn't stopped some well-known postmodernists exploiting the prestige of scientific theories by appealing to it in their own work. What is worse is that many of them seem to get the science all wrong and much of what they say which relies upon it seems to be complete nonsense. If you don't believe me you will find more than enough evidence in Sokal and Bricmont's book.

The book owes its origins to the research carried out by Alan Sokal for his spoof article "Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity", which was published by the journal *Social Text* in 1996. That paper, reprinted in the book with a commentary and an appendix, is manifest nonsense according to its author, yet it was published

by an academic journal in its special issue on the science wars. Why? Unfortunately it seems that the journal's editors liked the piece largely because it appeared to be a paper by a reputable physicist which supported their side in the conflict between science and 'postmodern science criticism'. In other words, it was a paper by a "conveniently credentialed ally" as one of the editors put it¹. Hence, Sokal has exposed one part of the academy where the perceived ideological orientation of a piece of writing is seemingly much more important than its arguments (if indeed the latter are important at all). In their often furious response to Sokal's parody many of his critics have concentrated on denouncing him as reactionary and right-wing. Politics thus infuses the 'Sokal affair'.

Among the many ironies in the Sokal affair is the fact that Sokal's hoax upset some people who ought to have embraced it. After all, to the postmodernist, the indiscernibility of authenticity and pastiche is the quintessence of the postmodern condition, and furthermore the author has no particular authority as to the meaning of his text which floats free of his intentions, so maybe Sokal's paper is after all a profound contribution to postmodern science. The editors of the journal should hardly feel the need to be defensive about the exposure of their ideological criteria for publication, since that is to suggest the possibility of criteria that are free from ideology which is, according to them, an enlightenment pipe dream. Hence, the publication of the paper is a paradigmatically postmodern event.

Sokal managed to pull off his hoax by making a huge number of citations to postmodernist, poststructuralist and social constructivist writings about science (including some by the editors of *Social Text*). In places the paper is very funny and the implied critique of a certain style of writing is hard to miss: on many pages the footnotes and quotations occupy far more space than Sokal's main text and the references run to over 11 pages (in the middle of one sentence there are four footnote symbols in a row). Reading Sokal's paper leaves one with a heightened sense of the danger that in any intellectual endeavour specialisation and the canonisation of particular authors and texts may result in the triumph of form over content. In it Sokal is sure to quote approvingly from the works of the most celebrated members of the pantheon of postmodernism. He refers to quantum mechanics, general relativity, chaos theory and a lot more besides with a perfunctory wave of the hand which suggests a confidence that his readers are expert enough in the field to both follow what he says without further elucidation, and be capable of judging its merits. In fact Sokal's throw-away remarks are so riddled with errors of exposition and analysis that any

¹ Quoted by Sokal in "What the Sokal Text Affair Does and Does Not Prove", in Noretta Koertge (ed.), *A House Built on Sand: Exposing Postmodernist Myths about Science*, (Oxford: Oxford University Press, 1988), p. 11.

scientifically or mathematically literate reader would have immediately spotted the article for what it was or thrown it in the bin. The editors of *Social Text*, though, published it, Sokal revealed the hoax, and the Sokal affair graced the pages of the North America's and Europe's newspapers.

In Sokal's and Bricmont's book it becomes clear what inspired the extreme obfuscation and audacious declaration in Sokal's parody. The main part of the book consists of a chapter on each of Jaques Lacan, Julia Kristeva, Luce Irigaray, Bruno Latour, Jean Baudrillard, Giles DeLuze and Félix Guattari, and Paul Virilio, wherein each of these alleged intellectuals and alleged impostors is quoted at length making use of advanced concepts or at least terminology from mathematics, logic or science, and is then subjected to a critique which reveals that they are woefully ignorant of the subject matter. This would be a bit much all at once so the authors insert theme-based chapters on 'Epistemic relativism and the philosophy of science', 'Chaos theory and "postmodern science"', and 'Gödel's theorem and set theory: Some examples of abuse', plus an epilogue on the cultural and political context of the book.

Now according to Noretta Koertge², in 1994 FBI agents attended a meeting of historians and philosophers of science hoping to obtain some insight into the origins of the ideas in the Unabomber's manifesto. FBI agents attending conferences where the sort of material Sokal and Bricmont review is presented could be forgiven for thinking they had stumbled upon the legacy of a cold-war plot to addle the brains of Western intellectuals (the reactionary nature of the bureau is obvious from the pitifully modernist slogan 'the truth is out there'). I suspect Sokal and Bricmont regard the widespread fascination with the writings of their subjects as a kind of mass hysteria and they are out to show that, *in so far as they talk about and make use of science and mathematics*, these emperors and empresses are clothed only in the insubstantial fabric of their own pretensions and the credulity of their admirers.

The qualification here is important as the authors make clear that they have no expertise when it comes to evaluating the rest of their subjects' writings, and they claim that the book is not to be taken as an attack on contemporary French thought, as some have alleged, but merely on the abuse of science by certain authors. This is perhaps a little disingenuous for one gains from the book the impression that its targets are superficial thinkers with a talent for wordplay, and that they either lack the intellectual virtues that would prevent them from making spurious use of material they don't understand, or they are so ignorant or lacking in self-knowledge as to think they understand what they clearly don't.

²Koertage (ed.) (1998), p. 4.

Each chapter concerned with a particular author consists of large amounts of quotation, so that the reader can be sure their work is not being unfairly represented out of context, followed by an account of all the mistaken uses of terms, reports of theorems and theories and other abuses of the science or mathematics in question.³ So we get Lacan's unintelligible account of the topology of the unconscious: "This torus really exists and it is exactly the structure of the neurotic." (p. 19); Kristeva's application to poetics of sophisticated concepts and theorems in mathematical logic and set theory, of which she clearly lacks even an elementary grasp; Irigaray's confused and bizarre account of relativity theory and quantum mechanics, and her extraordinary claim that the reason for the slow development of fluid mechanics compared to the mechanics of solids is the identification of fluidity with the feminine (there is no need for this explanation when one takes into account the fact that fluids in motion are vastly more complicated than solids in motion, and that hence computers are needed to solve the equations for relatively simple problems even approximately); Latour's analysis of relativity theory (which at least he seems to understand a little) in which he asks: "how can we learn from Einstein how to study society?" (p. 122) (the answer 'we can't' seems not to have occurred to him); Baudrillard's non-Euclidean space of war (p. 137); and there is lots more where this came from.

Given the temptation Sokal's and Bricmont's rhetoric is really quite restrained: "Might Lacan be trying to impress his audience with a superficial erudition?" (p. 29); Kristeva is marginally more intelligible but also more ignorant (p. 47); of Irigaray's claim that women's bodies have a special relation to the universe because of their menstrual cycles: "Simon de Beauvoir must be turning in her grave" (p. 113); and Latour "illustrates perfectly the problems encountered by a sociologist who aims to analyse the content of a scientific theory he does not understand very well" (p. 115).

In so far as Sokal and Bricmont aim to demonstrate the abuse of science and mathematics by certain authors, they are to my mind entirely successful. The texts quoted in this book are often laughable but the situation is ultimately depressing. Why has nobody previously pointed out that these writers have made appeals to science and mathematics that are not just spurious but full of erroneous exposition? One can only assume that those who read and get excited by this kind of material are entirely ignorant of the theories invoked. That Snow's two cultures should be so far apart that these people have got away with this nonsense for so long until a couple of physicists

³ Sokal and Bricmont are sensitive to the charge they may have translated the texts cited in a way that makes them sound sillier than they are. Hence, when we are confronted with a particularly demented piece of writing they offer us the original French too so we can make of what we will.

take them to task is the most disheartening aspect of the whole affair. The paradox at the heart of it all is that postmodernists, poststructuralists and others are eager to curtail the imperialist tendencies of scientists and to argue that science is just one myth among many. Yet this book reveals the extent to which many of the canonical figures in these movements are keen to both vicariously trade off the authority of science by employing it in their own work, and furthermore, to seek to find what they present as straightforward implications of advanced, and often interpretationally disputed theories for the study of literature, sociology or feminism. In this respect, Sokal and Bricmont can be seen as pleading for science to be kept in its proper place, while the same intellectuals who have inspired a widespread disdain for claims of scientific objectivity, and the autonomy of reason are busy colonising their own fields with physics and mathematics.

A comparable irony concerns the aspirations of some sociologists and historians of science who claim to be able to establish an account of scientific practice and change without appealing to or even having any understanding of the theories and experimental results of the science in question. (This methodology was inspired by the 'strong programme in the sociology of knowledge'.) Nowadays someone engaged in the study of science may be inclined to cite their ignorance of the science in question as a qualification for the job. This is bizarre to say the least: would one expect to be able to undertake an adequate analysis of the practice of literary criticism without having ever read a novel, or to undertake the history and sociology of chess without ever learning the rules of the game? It is not long since the spectre of scientism was rightly laid to rest and yet other equally ridiculous research programmes are already vying for the role of foundation. So sociology and history are sometimes presented as epistemically prior to the science they study; on the other hand, some philosophers inspired by literary theory seem to think that everything is a text, while others seem to think everything is a narrative. So we get the view that science is a story we tell ourselves, or that nature is a text; such reductionism should be taken no more seriously than scientific reductionism. But then nowadays contradicting oneself can be proclaimed as a revolutionary act that challenges the hegemony of Aristotelian logic and the phallogocentric order.

As one might expect the least satisfying chapter of the book is the one on relativism in the philosophy of science. The authors' epistemology is unreconstructed empiricism - all we really know are our own ideas, with a modern spin provided by the appeal to inference to the best explanation - we can't prove the existence of the external world but we accept it as the best explanation we have of our sensory experience, similarly we ought to accept scientific theories as

the best explanation of the regularities in the phenomena. Sokal and Bricmont attempt to undermine relativism inspired by the writings of Kuhn and Feyerabend (who certainly cannot be criticised for their lack of scientific knowledge). They make it clear that they are not attacking subtler forms of antirealism about scientific theories such as instrumentalism, pragmatism and so on, but one cannot avoid getting the impression from this chapter that there is nothing between out and out belief in the full theoretical world-view of modern science and complete scepticism. Indeed their response to the familiar problem of the underdetermination of theory by evidence is to suggest that it is just another form of Humean scepticism.

In fact they mistakenly characterise the underdetermination problem as concerning the extrapolation from a finite set of data to a law or generalisation that implies an infinite data set. That is just the problem of induction whereas the underdetermination problem is that, even if we knew the full infinite set of the data, that would not uniquely determine the theoretical or causal structure from which it issues. This does present a problem for realists about the unobservables postulated by theoretical science, as does the fact that the theories in some domains have been subject to wholesale revision over time, and the fact that the metaphysics of contemporary science is full of conceptual puzzles and that our best physics does not offer us a coherent and unified ontology. Similarly what they have to say about the scientific method is unconvincing: appealing to common sense and what would count as compelling evidence in a law court is not sufficient to show that there is such a thing as the scientific method and to demarcate science from pseudo-science. There are difficult problems here which Sokal and Bricmont gloss over in their eagerness to defend science against scepticism and relativism.

The paradox of self-refutation that Paul Boghossian elucidates in his commentary on the Sokal affair⁴, besets all forms of scepticism or relativism that are articulated in a general form such as 'we cannot have knowledge' or 'all truths are relative to a perspective': of the first statement one need only ask whether it is claimed to be a piece of knowledge, if so then it is false and if not then why should one believe it; of the second statement one need only ask whether it is universally true, if so then it is false and if not then one is able to adopt a perspective from whence it is false. If only the enemies of rationalism were so easily dispatched; if they are to be coherent they will adopt the Pyrrhonian strategy and avoid making any general claims and simply arm themselves with various techniques and wait for the advocate of knowledge or reason to come along boasting of their wares; when one does so they can set about deconstructing the particular arguments, exposing presuppositions, demonstrating hidden ideological commitments, presenting alternative

⁴ "What the Sokal Hoax ought to teach us", in Koertage 1998, p. 28.

hypotheses and so on. Many will read Sokal and Bricmont and retain their scepticism or relativism about science at the level of particular theories; to rebut their claims a detailed analysis of the cases in question is required.⁵

Unfortunately a common response to the Sokal affair by advocates of postmodernism(s) is to accuse Sokal and his ilk of being political reactionaries who are anti-gay, anti-feminist and anti-multiculturalist and perhaps also anti-French.⁶ However, Sokal states: "My concern is explicitly political: to combat a currently fashionable postmodernist/poststructuralist/social-constructivist discourse - and more generally a penchant for subjectivism - which is, I believe, inimical to the values and future of the Left".⁷ In fact, Sokal pronounces himself to be "an unabashed Old Leftist who never quite understood how deconstruction was supposed to help the working class"⁸. Sokal and Bricmont point out: "Deny that non-context dependent assertions can be true, and you don't just throw out quantum mechanics and molecular biology: you also throw out the Nazi gas chambers, the American enslavement of Africans and the fact that today in New York it is raining".⁹ Of course, this is quite right, which is not to say that relativism or scepticism are thereby refuted, but to show that to attack their enemies as if being opposed to them entailed that one must be a conservative is thoroughly wrong-headed. On the contrary, the left has more to lose than the right from relativism or scepticism since the conservative fallback to tradition has long been recognised as the most obvious response to the threat of them.

Furthermore, it is important to note that Sokal and Bricmont are really quite radical in their view of the role of science and technology in contemporary society and should definitely not be taken as any kind of apologists for the social and environmental horrors wrought by the advanced industrial economies. However, they find it unfortunate that postmodern critics of science, in their eagerness to attack the ascendancy in Western society of the military-industrial complex, the petrochemical industry and other groups which have exploited science and technology in a way that has scant regard for the wellbeing of most of the planet, have often ended up attacking those

⁵ Koretage (ed.) (1998) includes detailed critiques of some of the most widely cited studies of the history of science which claim to find ideological commitments like sexism in scientific theories.

⁶ The general form of inference seems to be : You are anti-X, another group of people who are anti-X are also anti-Y, therefore you are anti-Y as well. (This reasoning is also found deployed in the debate about GM foods whose detractors are often accused of being anti-scientific luddites.)

⁷ II, p. 249.

⁸ Ibid.

⁹ Ibid., p. 255.

aspects of science, such as the goal of objectivity, the respect for empirical evidence and so on which have the greatest emancipatory value. They have a point: a critique of the inadequate and sometimes corrupt science behind claims such as that genetically modified crops will do no harm to the environment, that nuclear power is a safe technology, and that tobacco is not harmful, cannot even get going unless it is assumed that there are norms of good science which people can be criticised for falling short of. Indeed, how else can one demonstrate the existence of high levels of pollution or the danger posed by nuclear waste without appealing to scientific procedures and theories? I have to agree with Sokal and Bricmont that: "Those who wield political or economic power will quite naturally prefer that science and technology be attacked as such, because these attacks help conceal the relationships of force on which their own power is based".¹⁰

Sadly I expect that the publication of this book has and will do little other than to entrench the two camps. Those who always thought postmodernism was nonsense will certainly be more sure of themselves. What of the philosophers that Sokal and Bricmont take to task and those who have embraced their writings? The evidence seems to be that, in so far as they bother to engage in the debate at all, they will adopt the view that the standards of rigour and clarity that are adopted by Sokal and Bricmont are out of place outside of physics and mathematics. Hence, they will argue that the critique in *Intellectual Impostors* presupposes modernist dogmas about the autonomy of reason, the possibility of univocality and the commensurate need for perspicuous argument which the postmodernist simply rejects. So, for example, John Sturrock seems to be of the view that the only condition that a work outside of the sciences need satisfy is that it be in some way provocative and "wild and contentious".¹¹

Part of the problem I think may be that many of those who read Sokal's and Bricmont's critique will have no real experience of the precise way that concepts and arguments are deployed in mathematics, logic or science; hence, they will fail to appreciate the contrast to which the authors are drawing attention. The gap between the two cultures grows ever wider it seems. Yet have things really degenerated to the point where many of those working in the arts and humanities would rather abandon all norms of rigour and clarity, as Sturrock does, than accept the force of Sokal's and Bricmont's critique. Of course, on a day to day level they cannot for people routinely mark students' essays, reject some papers and accept others for journals, and examine Ph.D. theses on the basis of how these works measure up to the traditional standards of scholarship. This demonstrates the hypocrisy that postmodernism forces upon its adherents, for if there really is

¹⁰ Ibid., p. 191

¹¹ *London Review of Books*, 20 (14), 16 July 1998

nothing but the endless play of signifiers, how could one pretend that the award of a doctorate to one person and the withholding of it from another was anything but an act of whim? Yet it is undeniable that many academics have become enamoured of the theories and style of the philosophers debunked in this book and will not want to give up them or their new modes of discourse. It seems then that the malaise in contemporary intellectual life is so advanced that the patients will not be willing to take their medicine; one can only hope that this book will help immunise some of those who are not yet infected.