

Books by Richard Dawkins

The Selfish Gene

The Extended Phenotype

The Blind Watchmaker

River Out of Eden

Climbing Mount Improbable

Unweaving the Rainbow

A Devil's Chaplain

A DEVIL'S CHAPLAIN
REFLECTIONS ON HOPE, LIES,
SCIENCE, AND LOVE

—

Richard Dawkins



Houghton Mifflin Company

Boston - New York

2003

keep to scale, my nearest neighbours in the crystalline parade would have to be standing more than a kilometre away. No wonder the tiny particles called neutrinos (even smaller than electrons) pass right through the earth and come out the other side as if it wasn't there (on average one passes through you every second).

But if solid things are mostly empty space, why don't we see them as empty space? Why does a diamond feel hard and solid instead of crumbly and full of holes? The answer lies in our own evolution. Our sense organs, like all our bits, have been shaped by Darwinian natural selection over countless generations. You might think that our sense organs would be shaped to give us a 'true' picture of the world as it 'really' is. It is safer to assume that they have been shaped to give us a *useful* picture of the world, to help us to survive. In a way, what sense organs do is assist our brains to construct a useful model of the world, and it is this model that we move around in. It is a kind of 'virtual reality' simulation of the real world. Neutrinos can pass straight through a rock but we can't. If we try to, we hurt ourselves. When constructing its simulation of rock, the brain therefore represents it as hard and solid. It's almost as though our sense organs are telling us: 'You can't get through objects of this kind.' That's what 'solid' means. That's why we perceive them as 'solid'.

In the same way we find much of the universe, as science discovers it, difficult to understand. Einstein's relativity, quantum uncertainty, black holes, the big bang, the expanding universe, the vast slow movement of geological time – all these are hard to grasp. No wonder science frightens some people. But science can even explain why these things are hard to understand, and why the effort frightens us. We are jumped-up apes, and our brains were only designed to understand the mundane details of how to survive in the stone-age African savannah.

These are deep matters, and a short article is not the place to go into them. I shall have succeeded if I have persuaded you that a scientific approach to crystals is more illuminating, more uplifting, and also stranger, than anything imagined in the wildest dreams of New Age gurus or paranormal preachers. The blunt truth is that the dreams and visions of gurus and preachers are not nearly wild enough. By scientific standards, that is.

1.7

Postmodernism Disrobed²²

**Review of *Intellectual Impostures*
by Alan Sokal and Jean Bricmont**

Suppose you are an intellectual impostor with nothing to say, but with strong ambitions to succeed in academic life, collect a coterie of reverent disciples and have students around the world anoint your pages with respectful yellow highlighter. What kind of literary style would you cultivate? Not a lucid one, surely, for clarity would expose your lack of content. The chances are that you would produce something like the following:

We can clearly see that there is no bi-univocal correspondence between linear signifying links or archi-writing, depending on the author, and this multi-referential, multi-dimensional machinic catalysis. The symmetry of scale, the transversality, the pathic non-discursive character of their expansion: all these dimensions remove us from the logic of the excluded middle and reinforce us in our dismissal of the ontological binarism we criticised previously.

This is a quotation from the psychoanalyst Félix Guattari, one of many fashionable French 'intellectuals' outed by Alan Sokal and Jean Bricmont in their splendid book *Intellectual Impostures*, which caused a sensation when published in French last year, and which is now released in a completely rewritten and revised English edition. Guattari goes on indefinitely in this vein and offers, in the opinion of Sokal and Bricmont, 'the most brilliant mélange of scientific, pseudo-scientific and philosophical jargon that we have ever encountered'. Guattari's close collaborator, the late Gilles Deleuze had a similar talent for writing:

In the first place, singularities-events correspond to heterogeneous series which are organized into a system which is neither stable nor unstable, but rather 'metastable', endowed with a potential energy wherein the differences between series are distributed ... In the second place, singularities possess a process of auto-unification, always mobile and displaced to the extent that a paradoxical element traverses the series and makes them resonate, enveloping the corresponding singular points in a single aleatory point and all the emissions, all dice throws, in a single cast.

It calls to mind Peter Medawar's earlier characterization of a certain type of French intellectual style (note, in passing, the contrast offered by Medawar's own elegant and clear prose):

Style has become an object of first importance, and what a style it is! For me it has a prancing, high-stepping quality, full of self-importance, elevated indeed, but in the balletic manner, and stopping from time to time in studied attitudes, as if awaiting an outburst of applause. It has had a deplorable influence on the quality of modern thought ...

Returning to attack the same targets from another angle, Medawar says:

I could quote evidence of the beginnings of a whispering campaign against the virtues of clarity. A writer on structuralism in the *Times Literary Supplement* has suggested that thoughts which are confused and tortuous by reason of their profundity are most appropriately expressed in prose that is deliberately unclear. What a preposterously silly idea! I am reminded of an air-raid warden in wartime Oxford who, when bright moonlight seemed to be defeating the spirit of the blackout, exhorted us to wear dark glasses. He, however, was being funny on purpose.

This is from Medawar's 1968 Lecture on 'Science and Literature', reprinted in *Pluto's Republic*²³. Since Medawar's time, the whispering campaign has raised its voice.

Deleuze and Guattari have written and collaborated on books described by the celebrated Michel Foucault as 'among the greatest of the great ... Some day, perhaps, the century will be Deleuzian.' Sokal and Bricmont, however, remark that

These texts contain a handful of intelligible sentences – sometimes banal, sometimes erroneous – and we have commented on some of them in the footnotes. For the rest, we leave it to the reader to judge.

But it's tough on the reader. No doubt there exist thoughts so profound that most of us will not understand the language in which they are expressed. And no doubt there is also language designed to be unintelligible in order to conceal an absence of honest thought. But how are we to tell the difference? What if it really takes an expert eye to detect whether the emperor has clothes? In particular, how shall we know whether the modish French 'philosophy', whose disciples and exponents have all but taken over large sections of American academic life, is genuinely profound or the vacuous rhetoric of mountebanks and charlatans?

Sokal and Bricmont are professors of physics at, respectively, New

York University and the University of Louvain. They have limited their critique to those books that have ventured to invoke concepts from physics and mathematics. Here they know what they are talking about, and their verdict is unequivocal: on Lacan, for example, whose name is revered by many in humanities departments throughout American and British universities, no doubt partly because he simulates a profound understanding of mathematics:

... although Lacan uses quite a few key words from the mathematical theory of compactness, he mixes them up arbitrarily and without the slightest regard for their meaning. His 'definition' of compactness is not just false: it is gibberish.

They go on to quote the following remarkable piece of reasoning by Lacan:

Thus, by calculating that signification according to the algebraic method used here, namely:

$$\frac{S \text{ (signifier)}}{s \text{ (signified)}} = s \text{ (the statement)}$$

With $S=(-1)$, produces: $s=\sqrt{-1}$

You don't have to be a mathematician to see that this is ridiculous. It recalls the Aldous Huxley character who proved the existence of God by dividing zero into a number, thereby deriving the infinite. In a further piece of reasoning which is entirely typical of the *genre*, Lacan goes on to conclude that the erectile organ

... is equivalent to the $\sqrt{-1}$ of the signification produced above, of the *jouissance* that it restores by the coefficient of its statement to the function of lack of signifier (-1).

We do not need the mathematical expertise of Sokal and Bricmont to assure us that the author of this stuff is a fake. Perhaps he is genuine when he speaks of non-scientific subjects? But a philosopher who is caught equating the erectile organ to the square root of minus one has, for my money, blown his credentials when it comes to things that I *don't* know anything about.

The feminist 'philosopher' Luce Irigaray is another who is given whole chapter treatment by Sokal and Bricmont. In a passage reminiscent of a notorious feminist description of Newton's *Principia* (a 'rape manual'), Irigaray argues that $E=mc^2$ is a 'sexed equation'. Why? Because 'it *privileges* the speed of light over other speeds that are vitally necessary to us' (my emphasis of what I am rapidly coming to

learn is an in-word). Just as typical of the school of thought under examination is Irigaray's thesis on fluid mechanics. Fluids, you see, have been unfairly neglected. 'Masculine physics' *privileges* rigid, solid things. Her American expositor Katherine Hayles made the mistake of re-expressing Irigaray's thoughts in (comparatively) clear language. For once, we get a reasonably unobstructed look at the emperor and, yes, he has no clothes:

The privileging of solid over fluid mechanics, and indeed the inability of science to deal with turbulent flow at all, she attributes to the association of fluidity with femininity. Whereas men have sex organs that protrude and become rigid, women have openings that leak menstrual blood and vaginal fluids ... From this perspective it is no wonder that science has not been able to arrive at a successful model for turbulence. The problem of turbulent flow cannot be solved because the conceptions of fluids (and of women) have been formulated so as necessarily to leave unarticulated remainders.

You don't have to be a physicist to smell out the daffy absurdity of this kind of argument (the tone of it has become all too familiar), but it helps to have Sokal and Bricmont on hand to tell us the real reason why turbulent flow is a hard problem (the Navier-Stokes equations are difficult to solve).

In similar manner, Sokal and Bricmont expose Bruno Latour's confusion of relativity with relativism, Lyotard's 'postmodern science', and the widespread and predictable misuses of Gödel's Theorem, quantum theory and chaos theory. The renowned Jean Baudrillard is only one of many to find chaos theory a useful tool for bamboozling readers. Once again, Sokal and Bricmont help us by analysing the tricks being played. The following sentence, 'though constructed from scientific terminology, is meaningless from a scientific point of view':

Perhaps history itself has to be regarded as a chaotic formation, in which acceleration puts an end to linearity and the turbulence created by acceleration deflects history definitively from its end, just as such turbulence distances effects from their causes.

I won't quote any more, for, as Sokal and Bricmont say, Baudrillard's text 'continues in a gradual crescendo of nonsense'. They again call attention to 'the high density of scientific and pseudoscientific terminology - inserted in sentences that are, as far as we can make out, devoid of meaning'. Their summing up of Baudrillard could stand for any of the authors criticized here, and lionized throughout America:

In summary, one finds in Baudrillard's works a profusion of scientific terms, used with total disregard for their meaning and, above all, in a context where they are manifestly irrelevant. Whether or not one interprets them as metaphors, it is hard to see what role they could play, except to give an appearance of profundity to trite observations about sociology or history. Moreover, the scientific terminology is mixed up with a non-scientific vocabulary that is employed with equal sloppiness. When all is said and done, one wonders what would be left of Baudrillard's thought if the verbal veneer covering it were stripped away.

But don't the postmodernists claim only to be 'playing games'? Isn't it the whole point of their philosophy that anything goes, there is no absolute truth, anything written has the same status as anything else, no point of view is privileged? Given their own standards of relative truth, isn't it rather unfair to take them to task for fooling around with word-games, and playing little jokes on readers? Perhaps, but one is then left wondering why their writings are so stupefyingly boring. Shouldn't games at least be entertaining, not po-faced, solemn and pretentious? More tellingly, if they are only joking around, why do they react with such shrieks of dismay when somebody plays a joke at their expense? The genesis of *Intellectual Impostures* was a brilliant hoax perpetrated by Alan Sokal, and the stunning success of his *coup* was not greeted with the chuckles of delight that one might have hoped for after such a feat of deconstructive game playing. Apparently, when you've become the establishment, it ceases to be funny when somebody punctures the established bag of wind.

As is now rather well known, in 1996 Sokal submitted to the American journal *Social Text* a paper called 'Transgressing the Boundaries: towards a transformative hermeneutics of quantum gravity'. From start to finish the paper was nonsense. It was a carefully crafted parody of postmodern metatwaddle. Sokal was inspired to do this by Paul Gross and Norman Levitt's *Higher Superstition: the academic left and its quarrels with science*, an important book which deserves to become as well known in Britain as it already is in America. Hardly able to believe what he read in this book, Sokal followed up the references to postmodern literature, and found that Gross and Levitt did not exaggerate. He resolved to do something about it. In Gary Kamiya's words:

Anyone who has spent much time wading through the pious, obscurantist, jargon-filled cant that now passes for 'advanced' thought in the humanities knew it was bound to happen sooner or later: some clever academic, armed with the not-so-secret passwords ('hermeneutics', 'transgressive', 'Lacanian',

'hegemony', to name but a few) would write a completely bogus paper, submit it to an *au courant* journal, and have it accepted ... Sokal's piece uses all the right terms. It cites all the best people. It whacks sinners (white men, the 'real world'), applauds the virtuous (women, general metaphysical lunacy) ... And it is complete, unadulterated bullshit – a fact that somehow escaped the attention of the high-powered editors of *Social Text*, who must now be experiencing that queasy sensation that afflicted the Trojans the morning after they pulled that nice big gift horse into their city.

Sokal's paper must have seemed a gift to the editors because this was a *physicist* saying all the right-on things they wanted to hear, attacking the 'post-Enlightenment hegemony' and such uncool notions as the existence of the real world. They didn't know that Sokal had also crammed his paper with egregious scientific howlers, of a kind that any referee with an undergraduate degree in physics would instantly have detected. It was sent to no such referee. The editors, Andrew Ross and others, were satisfied that its ideology conformed to their own, and were perhaps flattered by references to their own works. This ignominious piece of editing rightly earned them the 1996 Ig Nobel Prize for literature.

Notwithstanding the egg all over their faces, and despite their feminist pretensions, these editors are dominant males in the academic lekking arena. Andrew Ross himself has the boorish, tenured confidence to say things like, 'I am glad to be rid of English Departments. I hate literature, for one thing, and English departments tend to be full of people who love literature'; and the yahooish complacency to begin a book on 'science studies' with these words: 'This book is dedicated to all of the science teachers I never had. It could only have been written without them.' He and his fellow 'cultural studies' and 'science studies' barons are not harmless eccentrics at third-rate state colleges. Many of them have tenured professorships at some of America's best universities. Men of this kind sit on appointment committees, wielding power over young academics who might secretly aspire to an *honest* academic career in literary studies or, say, anthropology. I know – because many of them have told me – that there are sincere scholars out there who would speak out if they dared, but who are intimidated into silence. To them, Alan Sokal will appear as a hero, and nobody with a sense of humour or a sense of justice will disagree. It helps, by the way, although it is strictly irrelevant, that his own left-wing credentials are impeccable.

In a detailed post-mortem of his famous hoax, submitted to *Social Text* but predictably rejected by them and published elsewhere, Sokal

notes that, in addition to numerous half truths, falsehoods and non-sequiturs, his original article contained some 'syntactically correct sentences that have no meaning whatsoever'. He regrets that there were not more of the latter: 'I tried hard to produce them, but I found that, save for rare bursts of inspiration, I just didn't have the knack.' If he were writing his parody today, he'd surely have been helped by a virtuoso piece of computer programming by Andrew Bulhak of Melbourne: the Postmodernism Generator. Every time you visit it at <http://www.elsewhere.org/cgi-bin/postmodern/> it will spontaneously generate for you, using faultless grammatical principles, a spanking new postmodern discourse, never before seen. I have just been there, and it produced for me a 6000-word article called 'Capitalist theory and the subtextual paradigm of context' by 'David I. L. Werther and Rudolf du Garbandier of the Department of English, Cambridge University' (poetic justice there, for it was Cambridge who saw fit to give Jacques Derrida an honorary degree). Here's a typical sentence from this impressively erudite work:

If one examines capitalist theory, one is faced with a choice: either reject neotextual materialism or conclude that society has objective value. If dialectic desituationism holds, we have to choose between Habermasian discourse and the subtextual paradigm of context. It could be said that the subject is contextualised into a textual nationalism that includes truth as a reality. In a sense, the premise of the subtextual paradigm of context states that reality comes from the collective unconscious.

Visit the Postmodernism Generator. It is a literally infinite source of randomly generated syntactically correct nonsense, distinguishable from the real thing only in being more fun to read. You could generate thousands of papers per day, each one unique and ready for publication, complete with numbered endnotes. Manuscripts should be submitted to the 'Editorial Collective' of *Social Text*, double-spaced and in triplicate.

As for the harder task of reclaiming humanities and social studies departments for genuine scholars, Sokal and Bricmont have joined Gross and Levitt in giving a friendly and sympathetic lead from the world of science. We must hope that it will be followed.