

NARRATIVE, RELIGION
AND SCIENCE

Fundamentalism versus Irony
1700–1999

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PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS
The Edinburgh Building, Cambridge CB2 2RU, UK
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, VIC 3166, Australia
Ruiz de Alarcón 13, 28014 Madrid, Spain
Dock House, The Waterfront, Cape Town 8001, South Africa

<http://www.cambridge.org>

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First published 2002

Printed in the United Kingdom at the University Press, Cambridge

Typeface Baskerville Monotype 11 / 12.5 pt. *System* L^AT_EX 2_ε [TB]

A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication data

Prickett, Stephen.
Narrative, religion and science : Fundamentalism versus Irony, 1700–1999 /
by Stephen Prickett.
p. cm.
Includes bibliographical references and index.
1. Narration (Rhetoric) 2. Literature and science. 3. Religion and literature.
I. Title.

PN212.P75 2002

808 – dc21 2001043849

ISBN 0 521 81136 8 hardback
ISBN 0 521 00983 9 paperback

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CHAPTER I

Postmodernism, grand narratives and just-so stories

POSTMODERNISM AND GRAND NARRATIVES

We have so far been using the word ‘narrative’ as if it had a clear and agreed meaning, but this is, of course, not so. For the French philosopher Jean-François Lyotard, for example, narrative not merely tells a story, but, of itself, constitutes a kind of ‘knowledge’ – a particular way of understanding the world.

Scientific knowledge does not represent the totality of knowledge; it has always existed in addition to, and in competition and conflict with, another kind of knowledge, which I will call narrative in the interests of simplicity . . . I do not mean to say that narrative knowledge can prevail over science, but its model is related to ideas of internal equilibrium and conviviality next to which contemporary scientific knowledge cuts a poor figure, especially if it is to undergo an exteriorization with respect to the ‘knower’ and an alienation from its user even greater than has previously been the case.¹

In contrast with the kind of ‘objective’ knowledge of the material world supposedly provided by science, for Lyotard, narrative provides an essentially subjective and personal view of things. We have within us all a personal ‘story’ which we tell ourselves, and which we constantly modify and alter in the light of experience. Indeed it has been argued that our very mental health and stability depends upon the kind of internal narrative we construct.² A fractured and incoherent self-construction can be both symptom and cause of profound psychic dislocation.³ But it is more than just a personal story-telling. Lyotard has borrowed from Ivan Illich

¹ Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge*, pp. 7–8.

² See, for instance, C.G. Jung, *Collected Works*, ed. H. Read, M. Fordham and G. Adler, Routledge, 1953–78, Vol. XVI, para. 135. For comments on this view see Anthony Stevens, *Private Myths: Dreams and Dreaming*, Penguin, 1996, p. 108.

³ For practical therapeutic applications see, for instance, Murray Cox and Alice Theilgaard, *Mutative Metaphors in Psychotherapy: The Aeolian Mode*, Tavistock, 1987.

the term 'conviviality' to imply the *communal* nature of narrative. Originally, we must presume, public narratives (as distinct from our 'private' ones) were a matter of reciting aloud to an audience. Homer's originally oral epics were an essential part of the classical Greek sense of 'identity' – a word whose Latin root, *idem*, we recall, meant not individuality, but 'sameness'. Through Homer, all Greeks could feel their common heritage, and experience the 'sameness' that differentiated them from the surrounding barbarians. Roman, Norse, Teutonic and Anglo-Saxon mythology and epics served a similar purpose. Even more recently, the stories of the founders of the United States of America, Washington, Jefferson, Paul Revere, John Paul Jones, Daniel Boone and Davey Crockett, are used to create a common feeling of 'Americanness' among an immigrant population most of whose genetic ancestors were in quite other parts of the world in the late eighteenth and early nineteenth centuries when these heroes supposedly shaped their nation.

Nor was this 'conviviality' necessarily destroyed or even weakened by literacy and the popularity of private reading. Protestantism, with its stress on individual study of the Bible, was a product of the printing-press. Yet if we stress the tendency of those first Protestant and later Puritan communities to split into rancorous and disputatious sects, we miss the corresponding sense of community, equally fostered by individual Bible study, that bound the members of those sects tightly together. Even reading novels, which since the eighteenth century has been almost invariably a silent and solitary activity, has done little to dampen the inherent conviviality of narrative – as any literary society or fan-club will testify. Sterne, Fanny Burney and Byron were mobbed by admirers. Dickens found inexhaustible audiences for his readings from his own work – and wept with them over the death of little Nell. Kipling's short story, 'The Jancites', hinges on the comradeship, even the sense of an 'inner ring',⁴ created on the First World War battlefield by a number of quite different individuals, from officers to nurses, on discovering their common love of Jane Austen.

For Lyotard (who naturally does not use such illustrations) narratives have their place – and it is an important one. But whether personal or communal, that place is essentially subjective and limited. What is at stake is the nature of what he calls 'grand narratives'. The physical

⁴ For C.S. Lewis, the term is unambiguously bad, signifying invisible corruption (see his essay 'The Inner Ring' (1944) in *They Asked for a Paper*). Kipling is more subtle and ambiguous, giving us both the very real shock of pleasure and surprise in the characters involved, but not missing the material advantages it gives the wounded private who is the narrator.

sciences have traditionally sought to explain the world in terms of fixed natural laws which permitted, in theory at least, mathematically predictable workings and outcomes. The so-called 'social sciences', despite the notorious slipperiness of their material, were set up more recently to imitate the model of precision presented by the older sciences, and looked for similar 'natural laws' governing human behaviour in economics, the distribution of wealth, criminology and more recently in sociobiology. Classical Marxism, for instance, had claimed that economics provided universal 'laws' of human behaviour. But by the mid-years of the twentieth century the uncertainties created, in particular in physics, by the seemingly inexplicable behaviour of particles in quantum theory began to cast doubts on this model of science. Responding as ever to trends in the physical sciences, some social scientists expressed serious doubts about what their own discipline could achieve. Others were questioning not merely the possibility but even the desirability of such over-arching theories as total explanations of everything. In 1959 an American sociologist, C. Wright Mills, criticized the whole idea of 'Grand Theory', arguing that the belief that the social disciplines should be aiming to construct 'a systematic theory of "the nature of man and society"' was actually impeding any real progress.⁵ Though only repeating what was by then quite a widespread view,⁶ this critique was unusual in that it attacked the pretensions of Grand Theory in the name of imagination rather than science. Other criticisms quickly followed, among the most telling being Thomas Kuhn's argument that there were no facts independent of our theories about them, and that consequently there was, and could be, no one way of viewing, classifying and explaining the world which all rational persons were logically obliged to accept.⁷ Such theories, it was suggested, were better seen not in terms of natural law but 'fictions', *stories* which we constructed to explain events. 'Grand Theory' was better described as 'grand narrative'.

It was not, however, until the debate about postmodernism began in earnest in the late 1970s that the controversy over the possibilities of grand narratives spilled over and began to affect literature and aesthetics.

As with any other fashionable term, 'postmodernism' has recently attracted a wide variety of sometimes conflicting usages. It was actually

⁵ C. Wright Mills, *The Sociological Imagination*, N.Y.: Oxford University Press, 1959, p. 23.

⁶ See Quentin Skinner's 'Introduction' to *The Return of Grand Theory in the Human Sciences*, ed. Quentin Skinner, Cambridge University Press, 1985.

⁷ Thomas Kuhn, *The Structure of Scientific Revolutions*, University of Chicago Press, 1962, pp. 140 ff.

first used by the historian, Arnold Toynbee, who, as part of his attempt to write a Christian interpretation of world history in 1939, used the term to mean an unrealized moment in the future when history and humanity might be redeemed.⁸ Not least, perhaps, owing to his unfortunate timing, the word did not catch on. But even that false start showed it uncomfortably straddling the divide between two very different kinds of meaning. On the one hand, it suggested a definable historical period – in its current usage always taken to include the present moment – while on the other it implied a collection of related theories, a movement, or even just a mood which somehow looks to the future to redeem, or at least, explain the present. Though it often seems to mean very different things in art, architecture, literature and philosophy, a common thread running through most of these fields is the fact that it wholeheartedly embraces rather than deplores pluralism. Postmodernism luxuriates in meanings, rather than meaning.

Thus in *The Postmodern Condition*, Lyotard argues that what *he* called ‘postmodernism’ is actually to be *defined* in terms of its resistance to any kind of grand narrative:

I will use the term *modern* to designate any science that legitimates itself with reference to a metadisclosure . . . making an explicit appeal to some grand narrative, such as the dialectics of meaning, the emancipation of the rational or working subject, or the creation of wealth . . . I define *postmodern* as incredulity toward metanarratives. This incredulity is undoubtedly a product of progress in the sciences: but that progress in turn presupposes it.⁹

This critique of ‘grand’ or ‘meta-narratives’ borrowed from the earlier Anglo-American debate over the place of theory in the social sciences. Lyotard, however, added to that brew the iconoclastic ideas of his fellow Frenchman, the social historian Michel Foucault, whose avowed objective was to expose the way modern societies control and discipline their populations through the knowledge-claims and practices of the human sciences, such as medicine, psychiatry, criminology and sociology. Foucault’s self-declared concern was not with the meaning of particular statements, but with the often concealed social and intellectual rules that permit them to be made in the first place. What he was really interested in was the nature and exercise of power. For him, ‘truth’, so far from having any absolute validity, was simply an effect of certain kinds

⁸ Thomas Docherty, ‘Postmodernism: An Introduction’, in *Postmodernism: A Reader*, ed. Thomas Docherty, Harvester Wheatsheaf, 1993.

⁹ Lyotard, *Postmodern Condition*, pp. xxiii–xxiv.

of language. 'Truth', he writes, 'is a thing of this world: it is produced only by multiple forms of constraint. And it induces the regular effects of power.'¹⁰ (As Bertrand Russell had remarked a generation earlier, 'truth is what you tell the police'!)

But if grand narratives are the stories we tell ourselves to explain the world we live in, such 'explanations' inevitably reach beyond verifiable knowledge into the realm of myth. The word 'myth' is essentially a description not of content but of function. Myths are the stories we tell ourselves to make sense of the disparate and fragmented state of knowledge. It is not their truth but their task that is important. Whether stories of aboriginal rainbow-serpents, Greek gods and heroes, the events of the New Testament, great national figures like Napoleon, or the conquest of disease by an ever-advancing medical science, such stories seek to explain why the world is as it is. A myth is a just-so story.

For Lyotard this makes them essentially a delusion. For him, narratives must always be plural, always in competition with one another. Not merely the great narratives, of the kind provided by Christianity, Darwinism or Freudianism, but, as we have just seen, even the great moral abstractions that have moved mankind in the past, such as 'Justice' or 'Truth', are simply the constructs of whatever group exercised social control at the time. They have no validity beyond that.¹¹ For us, in contemporary post-industrial postmodern society, Lyotard insists, 'the grand narrative has lost its credibility'.¹² (To say 'truth' at this juncture, of course, would be to use a word from just such a discredited grand narrative. 'Credibility', on the other hand, is satisfactorily provisional and subjective.) Indeed, Lyotard's distinction between 'modernity' and 'postmodernity' depends on rejection of all such narratives.

But Lyotard's alternative, scientific knowledge, has its own problems. Whereas narrative (whether personal or collective) is internalized, science is external, objective, and, Lyotard claims, liable to alienate the knower, who cannot feel a part of such knowledge, or make it 'personal' in any way. Nevertheless, as scientific knowledge increases, we become increasingly sceptical of the other grand 'meta-narratives' that once underpinned our world. These include not merely 'Justice' and 'Truth', or the emancipation of the rational and the creation of wealth, but even the meta-narrative of science itself.

¹⁰ Michel Foucault, *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*, ed. Colin Gordon, Harvester, 1980, p. 131.

¹¹ The ultimate victory for Thrasymachus in Plato's *Republic*.

¹² *Postmodern Condition*, p. 37.

Here, however, the argument takes an interesting turn. By the meta-narrative of science, Lyotard, we discover, does *not* mean what one might expect: the idea that were we eventually to know everything to be known about the physical world, it would all add up, perhaps even fall into place as ‘the grand Theory of Everything’, or ‘superforce’, spoken of hopefully by certain cosmologists, such as Stephen Hawking and Paul Davies.¹³ He is, it seems, not interested in science in this sense at all, but in the sociology of science, and in the way scientists, when, for instance, they were interviewed by the media, resorted to an implied ‘epic of knowledge’ in order to gain funding.¹⁴ This is a myth with which the state is happy to collude, he argues, here following Foucault, because this, in turn, can be used for its own end – power. ‘The state spends large amounts of money to enable science to pass itself off as an epic: the State’s own credibility is based on that epic, which it uses to obtain the public consent its decision makers need.’¹⁵ For this purpose the more elitist and therefore more mysterious science becomes, the better. But for Lyotard, of course, such a ‘legitimation’ of science by what amounts to its antithesis, narrative, is utterly *illegitimate* (though where such an idea as ‘legitimacy’ comes from in the first place is far from clear):

A science that has not legitimated itself is not a true science; if the discourse that was meant to legitimate it seems to belong to a prescientific form of knowledge, like a ‘vulgar’ narrative, it is demoted to the lowest rank, that of an ideology or instrument of power.¹⁶

But in the course of this argument, something rather odd has happened to the terminology (and this is not a matter of translation). As it is presented to us here, ‘narrative’ is a necessary, but somehow more primitive, form of knowledge than that represented by ‘science’. It was introduced originally, we recall, as a salutary reminder that ‘scientific knowledge does not represent the totality of knowledge’, and that human ‘equilibrium and conviviality’, those basic emotional needs, were still important. But it is rooted in tradition, rather than in new discovery. ‘Narration’, writes Lyotard, ‘is the quintessential form of customary knowledge.’¹⁷ Our tribal stories, whether conveyed through classical epics, Shakespearean drama, nineteenth-century novels, or even the twentieth-century cinema, have in the past always given us a sense of who we are, where we ultimately belong. But whereas it was once our principle way of knowing, in the postmodern Lyotardian vision this is no longer true.

¹³ See Paul Davies, *Superforce*, Heinemann, 1984.

¹⁴ Lyotard, *Postmodern Condition*, p. 27.

¹⁵ *Ibid.* p. 28.

¹⁶ *Ibid.* p. 38.

¹⁷ *Ibid.* p. 19.

It is therefore impossible to judge the existence or validity of narrative knowledge on the basis of scientific knowledge and vice versa: the relevant criteria are different . . . Lamenting the ‘loss of meaning’ in postmodernity boils down to mourning the fact that knowledge is no longer principally narrative.¹⁸

Such a sense of loss is, however, ephemeral. We soon get used to the absence of the big structuring narratives. Their loss is more a matter of a change of habit than a central cultural collapse.

That is what the postmodern world is all about. Most people have lost the nostalgia for the lost narrative. It in no way follows that they are reduced to barbarity. What saves them from it is their own linguistic practice and communicational interaction.¹⁹

An attentive reader might also remark that if this is so, one reason could well be that whether or not it is correct that knowledge is as fragmented as this would suggest, at least in structural terms, Lyotard has merely replaced positive grand narratives by a negative one. To insist that in contemporary post-industrial postmodern society all grand narratives have lost credibility is not, of course, an empirical statement at all, but a grand epistemological, or even metaphysical, generalization.²⁰ To refute it, presumably all one would have to do would be to find *one* grand narrative that had survived somewhere within a ‘post-industrial post-modern society’, and the thesis would collapse. One might cite, for example, estimates of the number of Fundamentalist Christians in the United States – defining ‘fundamentalist’ here in strictly ‘narratological’ terms of a declared belief in the literal truth of the Genesis account of Creation. These, we are told, amount to as much as forty-eight per cent of the population, or over a hundred and ten million – rather more than twice the entire population of Lyotard’s France.²¹ But to look for actual examples of this kind is to reveal how logically slippery Lyotard’s generalizations

¹⁸ Ibid. p. 26. ¹⁹ Ibid. p. 41.

²⁰ Their vulnerability to the charge of covert metaphysics has made both Lyotard and Foucault understandably sensitive to the word. Here, for instance, is Foucault’s reply to a question from Paul Rabinow about ‘intention’ as a ‘fundamental determining factor’: ‘Nothing is fundamental. That is what is interesting in the analysis of society. That is why nothing irritates me as much as these inquiries – which are by definition metaphysical – on the foundations of power in a society or the self-institution of a society, etc. These are only reciprocal relations, and the perpetual gaps between intentions in relation to one another.’ Interview with Paul Rabinow: ‘Space, Knowledge, and Power’, trs Christian Hubert, in *The Foucault Reader*, ed. Paul Rabinow, N.Y.: Pantheon Books, 1984, p. 247.

²¹ Dennett, *Darwin’s Dangerous Idea*, p. 516; even the more modest estimate by Margaret Talbot would still put the number above sixty million (‘A Mighty Fortress’, *New York Times Sunday Magazine*, February 27, 2000, p. 36).

are. One suspects that for him, by definition, Bible-belt American Fundamentalists, however first-world they might be in their living standards, however much they might be employed in service and communications rather than manufacturing industry, and however much they might surf the Internet in their spare time, would not qualify as 'post-industrial postmodern' people. More significantly, perhaps, even were one to produce a substantial body of working biologists throughout the world who believed in Darwinism and natural selection as the grand narrative that explained all life on earth as well as the actions and interactions of human societies, they would not count either. Lyotard's argument here is better seen as itself a 'grand narrative' than as any kind of testable hypothesis. We cannot treat it with any rigour as a verifiable fact. It is rather a story we tell ourselves to make sense of the disparate and fragmented state of modern knowledge. It is, in short, a myth.

We can see this, for instance, even more clearly in his formula for the 'science' of the future:

Postmodern science – by concerning itself with such things as undecidables, the limits of precise control, conflicts characterized by incomplete information, *fracta*, catastrophes, and pragmatic paradoxes – is theorizing its own evolution as discontinuous, catastrophic, nonrectifiable, and paradoxical. It is changing the meaning of the word knowledge, while expressing how such a change can take place . . . And it suggests a model of legitimation that has nothing to do with maximized performance, but has as its basis difference understood as paralogy.²²

We will deal with that curious word 'paralogy' in a moment, but we need first to address this Lyotardian notion of what should constitute 'post-modern science'. While there is indeed an increasing trend towards the study of discontinuities and 'catastrophe theory' in some areas of contemporary science, to suggest that *most* science is concerned with such problems – or even that its future lies in that direction (note how post-modernism typically uses an unknown future to legitimize a theorized present) – once again leaps from an observable trend to a blanket generalization. This is in fact 'meta-narrative' on the grand scale: nothing less than a predictive theory of theories. Legitimate observation of detail becomes covert grand narrative.

And this brings us to a second feature of the Lyotardian idea of 'narrative'. Nature, as ever, abhors a vacuum. If the dismissal of grand narratives functions, despite its author's declared intentions, as itself a kind of grand narrative, then perhaps narrative, even in this limited and

²² Lyotard, *Postmodern Condition*, p. 60.

even ‘primitive’ sense, is more important than the argument would at first sight suggest. The Lyotardian idea of ‘paralogy’ is a key term in this transformation, and it takes us right to the heart of the problems inherent in a postmodern world of ontological pluralism. ‘Paralogy’ is not a new word in either English or French – the *Oxford English Dictionary* (*OED*) cites the first use in 1599 – but Lyotard gives it a wholly new connotation. The original meaning is ‘to reason falsely’ – usually from an unconscious logical error. For Lyotard, however, such ‘breaks’ in logic serve to reveal not the falsity of the reasoning, but rather the falsity of the expectation that things shall cohere at all. So far from breakdown, for him such errors often provide a breakthrough. He writes:

Paralogy must be distinguished from innovation: the latter is under the command of the system, or at least used by it to improve its efficiency; the former is a move (the importance of which is often not recognised until later) played in the pragmatics of knowledge. The fact that it is in reality frequently, but not necessarily, the case that one is transformed into the other presents no difficulties for the hypothesis.²³

The fact that such paralogical ‘leaps’ may not cohere with each other or with the larger picture is not merely unimportant, it may be a positive advantage, since it is our expectation of universal coherence that must be jettisoned. As Fredric Jameson argues, Lyotard’s ultimate vision of science and knowledge today is as a search

not for consensus, but very precisely for ‘instabilities’, as a practice of *paralogism*, in which the point is not to reach agreement but to undermine from within the very framework in which the previous ‘normal science’ had been conducted.²⁴

Once again, narrative rather than science is crucial. Quantum theory, or even big bang cosmology, have indeed destabilized much of traditional (if not ‘normal’) science, and both present narratives of a kind – though whether chemical engineering can be read as ‘narrative’ seems much more doubtful. But as we have seen, Lyotard is not actually interested in the content of scientific knowledge at all. He is interested in its structures – and these, even where they constitute ‘instabilities’, are essentially narrative. Thus grand narratives are contrasted with what he calls the ‘little narratives’ (*petits récits*) which, he argues, remain ‘the quintessential form of imaginative invention, most particularly in science’.²⁵

²³ Lyotard, *Postmodern Condition*, p. 61.

²⁴ *Ibid.* Foreword by Fredric Jameson, p. xix.

²⁵ *Ibid.* p. 60.

It is the words ‘imaginative invention’ that are the give-away here. As we shall see, they belong to what looks at first sight like a quite different associative set – that of nineteenth-century German Romanticism, which, following Kant, was perhaps the first intellectual movement to claim that science itself was an imaginative restructuring of the world in precisely the same way as a work of fiction, even if it obeyed different rules.²⁶ In case we should miss the point of his argument, Lyotard cites a passage from P. B. Medawar: ‘*having ideas* is the scientist’s highest accomplishment’, adding ‘there is no “scientific method”’: a scientist is before anything else a person “who tells stories”.²⁷ What Lyotard is admitting, in effect, here is that so far from science being a fundamentally different form of knowledge from narrative, the supposed ‘objectivity’ of science is in fact itself actually *composed* of a multitude of minor (and presumably ‘subjective’) narratives.

Such a reversal should not be that surprising. As in the case of Foucault, the problem with absolute relativism, of course, is that it results in the notorious ‘Cretan paradox’ – exemplified in the Greek story of the Cretan who says ‘all Cretans are liars’. If the Cretan is telling the truth, then he himself must be lying . . . As one critic has put it: ‘If what Foucault says is true, then truth is always relative to discourse; there cannot be any statements which are true in all discourses, nor can there be any statements which are true for all discourses – so that on Foucault’s own account, what he says cannot be true!’²⁸ Lyotard’s own arguments about narratives as power, based as they are not on internal evidence of the disciplines involved, but on his pre-conceptions about the nature of power in general, suffer from the same logical flaw.

JUST-SO STORIES

But if Lyotard’s arguments appear to turn themselves inside out, his conclusion is not one that would surprise most practising, ‘coal face’ scientists, who, unlike him, are performing real experiments rather than theorizing about their sociological implications. In this sense, such narratives take their place among others that purport to explain aspects of experience. But even the telling of stories carries with it a hidden freight whose implications are far-reaching. As Daniel Dennett succinctly puts

²⁶ See below, pp. 62–71; 121–7.

²⁷ In fact, this is a position Medawar specifically disclaims. See P.B. Medawar, *The Art of the Soluble*, 6th edn, Methuen, 1967, p. 116. (Lyotard, *Postmodern Condition*, p. 60).

²⁸ Mark Philp, ‘Michael Foucault’, in Skinner (ed.), *The Return of Grand Theory*, p. 70.

it, ‘there is no such thing as philosophy-free science; there is only science whose philosophical baggage is taken on board without examination’.²⁹

The French physicist, Bernard D’Espagnat, for instance, so far from seeing science as providing an adequate account of the world, insists that such descriptions can never be more than partial – or in his terms ‘veiled’. Like Gribbin and Gould he insists that we must never lose sight of the narrative impulse in science: even to put what are essentially mathematical concepts in language is to create narratives – or in his terminology, to ‘allegorize’ them. ‘Texts in which the early stages of the Universe are described in terms of thermal agitation of particles in collision, but with no indication that such language is purely and simply allegorical, are unacceptable’, he insists, ‘even when written by eminent physicists.’³⁰ Nor is he afraid to take this to its logical conclusion: ‘I cannot see on what basis we could maintain that religion and myth are not themselves also ‘models’, giving us – in a manner equally indistinct and uncertain – access to *other* features of the real.’³¹

Gould has no problems in seeing science as one among several narrative forms describing the world, but he also recognizes that narrative is not a neutral medium, and may have its own agenda, allowing the intrusion of what he sees as ‘unconscious literary assumptions’ into his ‘just-so stories’.

Astute scientists understand that political and cultural bias must impact their ideas, and they strive to recognise these inevitable influences. But we usually fail to acknowledge another source of error that might be called literary bias. So much of science proceeds by telling stories – and we are especially vulnerable to constraints of this medium because we so rarely recognise what we are doing. We think we are reading nature by applying rules of logic and laws of matter to our observations. But we are often telling stories – in the good sense, but stories nonetheless.³²

For an example of just such a ‘story’, we need look no further than one of Gould’s favourite topics: the evolution of the horse over the past fifty-five million years. This has been a favourite example of evolutionary ‘progress’ ever since it was first used in a lecture by T.H. Huxley in 1870. In a classic series of drawings made for that lecture by Othniel C. Marsh,

²⁹ Dennett, *Darwin’s Dangerous Idea*, p. 21.

³⁰ Bernard D’Espagnat, *Reality and the Physicist: Knowledge, Duration and the Quantum World*, trs J.C. Whitehouse and Bernard D’Espagnat, Cambridge University Press, 1989, p. 127.

³¹ *Ibid.* p. 189.

³² Stephen Jay Gould, ‘Literary Bias on the Slippery Slope’, *Bully for Brontosaurus: Reflections in Natural History*, London: Hutchinson Radius, 1991, p. 251.

and widely reproduced since in works as diverse as biology textbooks and Arthur Mee's *Children's Encyclopedia*, we are shown the steady increase in size from the cat-sized *Hyracotherium* (or *eohippus*) to the modern *Equus*. The sequential pictures of the changes, such as the reduction of toes to a single hoof, for faster galloping, and the steady increase in the size of molars, as they became more specialized grass-eaters, combine to give a very clear impression of the evolutionary 'development' of the modern horse. The problem with this splendid narrative, as Gould points out, is that it gives a totally misleading picture of the many-branched evolutionary 'bush' from which it was drawn. So far from being a triumph of evolutionary success, the genus *Equidae* is in fact practically extinct. In Gould's ironic phrase, it is 'life's little joke' that 'we choose horses because their living species represent the endpoint of such an unsuccessful lineage'. Though it was once widespread, with dozens of species, across almost every continent of the world (with the exception of Australia), it died out of both North America (where ninety per cent of the known fossils have been found) and South America. All that is left is a number of relatively minor branches, including three zebras, four donkeys and asses, and the horse (*Equus caballus*) which, having evolved in North America, unaccountably survived only in the Old World. Because, and only because, it is the main survivor, however, *Equus caballus* had to be placed at the top of our narrative 'ladder' as the final supreme achievement of the genus.³³

Gould's story of the creation of the 'story of the horse' is an excellent illustration of our capacity for apprehending a loose mass of data in terms of a narrative. Indeed, it is clear that for him our tendency to tell stories may be one of the *conditions* of consciousness and intelligence itself. It is, quite simply, the way the human mind works.

Any definition of this (human) uniqueness, embedded as it is in our possession of language, must involve our ability to frame the world as stories and to transmit these tales to others. If the propensity to grasp nature as story has distorted our perceptions, I shall accept this limit of mentality upon knowledge . . .³⁴

Nor is this acceptance of the place of storytelling as a way of shaping our world confined to fiction, mythology and science. This is, for instance, clearly also theological ground, and theologians have not been slow to move in to the field now technically entitled 'narrative theology'.

³³ Stephen Jay Gould, 'Case Two: Life's Little Joke', *Life's Grandeur: The Spread of Excellence from Plato to Darwin*, Cape, 1996, pp. 57-73.

³⁴ *Ibid.* p. 252.

For theologians like scientists, Lyotard's distinction between the kinds of narrative created by science, and the kinds of internalized narrative that have always structured our individual and social lives, does not arise. Practising science is as much a matter of 'telling stories' as the plays of Shakespeare or the cycles of the Old Testament. They are simply different kinds of stories, not a different kind of knowledge. But for Nicholas Lash, for instance, though all our knowledge may be rooted in our 'story-telling soil', that is no reason to return to the grand narratives of the past:

... theologians engaged in the growth industry of 'narrative theology' ignore, at their peril, developments which reflect philosophically that declining confidence in the possibility of large-scale, purposive, 'plot-linear' narrative unity which has been one of the hallmarks of the story of the novel for nearly a hundred years. Our world is, in a phrase of Frank Kermode's, 'hopelessly plural', disconnected, disorientated, fragmentary. We work (as Gadamer would say) within 'horizons'. And though horizons may be expanded, we fool ourselves if we suppose them ever to extend very far.

Cosmologists and theologians, however, not only tell stories, but have the impudence to tell stories of the *world*. And even if the cosmologists would claim that their stories are of set purpose, plotless, it seems to me that both groups could reflect with profit on the problem, not simply of what is meant by claiming that some particular story of the world is *true*, but rather of what *kind* of story a 'story of the world' might be. Who could tell it, what would it be announcing, and how would it be told?³⁵

Unlike Lyotard who, as we have seen, is peculiarly uninterested in the actual content of science as distinct from its role as a form of social control, Lash is acutely concerned with the *content* of the narratives created by both science and theology. Though for him there is no essential difference between the narratives presented by the two disciplines *as narratives*, he is uncomfortably aware that to describe any explanation as being a 'story' raises almost as many problems as it solves. Though he is no post-modernist, Lash shares all the postmodern suspicion of grand narratives and unifying explanations.

In particular, he recognizes the degree to which our notion of narrative has been historically conditioned by the pre-eminent role of the novel, as an art-form, in the last 200 years. Some have questioned whether the nineteenth-century novel, with its omniscient narrator, and its tendency to explain and tie up all the loose ends in its denouement has conditioned us to expect a similar neatness from real life – which possesses no such order or 'conclusion'. Others have argued that only fictional heroines,

³⁵ Lash, *The Beginning and End of Religion*, pp. 84–5.

such as Catherine Morland and Emma Bovary, have been so seduced. But even those who would agree with Humphrey Bogart, that 'Life writes lousy plots', might still note that to think of life in terms of plots at all, is to allow art to influence life.

But if both Gould and Lash are aware, in ways that neither Foucault nor Lyotard appear to be, that what we might call 'narrative perception' inevitably shapes the way in which we structure the world around us, none of these seem fully aware of the way in which language and culture influence not merely the way stories are told, but the way in which we read them. It is not entirely clear, for instance, how Gould, by any account one of the most 'literary' of contemporary science writers, is using the word 'literary' in the passage quoted earlier. Does he mean by it our innate desire to shape what he calls the 'bush' of facts into a coherent 'story'? Does he mean that the pressure to order science into a narrative automatically means that we will choose some kinds of words rather than others to tell his story? What exactly are these 'constraints of the medium' which he both values and fears? Similarly, what precisely does Lash mean by querying the 'kind of story' that a theologian – or a cosmologist – might tell about the world?

Again, the story of the horse is revealing. Though presumably neither Huxley nor Marsh would have endorsed the idea in so many words, the narrative of development told in Marsh's pictures is one of hierarchy and 'progress'. In other words, an idea of *purpose* has been illegitimately smuggled into a series of changes which should be seen as the products of strictly random variation coupled with enhanced survival and reproduction for a tiny number of those mutations – the process of 'natural selection'. The fact is that it is very difficult to talk about natural selection *without* using purposive language. Almost any evolutionary writing (including Gould's own) is full of purposive language and metaphors. I was myself guilty of it when I wrote above that the evolution of the hoof was 'for galloping faster'. It was, of course, 'for' no such thing. By strict Darwinian theory, each stage in the evolution of the hoof was the result of random mutations which had the entirely fortuitous result of allowing the possessor to move faster and for longer periods over open grassland, and so to escape potential predators, and so produce more similarly fleet-footed descendants. Now it is possible to argue, as some have done, that such 'purposive' language to describe evolution is merely a convenient shorthand. It enables us to make a point in three words rather than three carefully colourless sentences. This is very likely true, but to distinguish between mere 'shorthand' and a way of thinking

that is irredeemably purposive is not easy. We like a story to have a point, a meaning, a moral – or, at the very least, an ending. Unlike ‘the story of the story of the horse’, as told by Gould, which, because it has a point to make, provides fascinating reading, ‘the story of the horse’, told in properly sober and correct Darwinian terminology, has none of these things. Strictly speaking, there is no ‘meaning’ to the sequence of events, merely a number of contingent influences that we can only guess at.

But that is not, of course, how the story gets told. Consider these statements from a recent and highly regarded book on sociobiology, Matt Ridley’s *The Origins of Virtue* (all italics are mine):

When a T cell starts to multiply it is conscious of nothing and it is certainly not motivated by some urge to kill the invader. But it is, in a sense, *driven by the need* to multiply: the immune system is a competitive world in which only those cells thrive that divide when they get the chance . . . So attacking the foreign invader is, for these cells, a by-product of the normal business of *striving to grow* and divide. The whole system is *beautifully designed* so that *the self-interested ambitions* of each cell can only be satisfied by each cell *doing its duty* for the body.

In the early 1970s, a biologist rediscovered the Alchian-Williams lesson. John Maynard-Smith had never heard of the prisoner’s dilemma. But he saw that biology could use game theory as profitably as economics. He argued that, just as rational individuals should adopt strategies like those predicated by game theory as the least worst in any circumstances, so *natural selection should design* animals to behave instinctively with similar strategies.

*Natural selection has chosen it to enable us to get more from social living*³⁶

That Ridley does not mean us to take the italicized statements literally is made clear by the first sentence of the first extract. But from there on the anthropomorphic phrases flow thick and fast, and we are rapidly left floundering as to the exact boundary between metaphoric and literal. If, for instance, we feel on firm ground in recognizing that natural selection ‘designing’ or ‘choosing’ is metaphorical, what of those competitive T cells being ‘driven by a need’? My point is not that Ridley is writing badly – quite the contrary. In fact, he makes his points vividly and clearly. His dilemma is a universal one. To illustrate the problem, try re-phrasing each of those passages in totally non-purposive, non-metaphorical language.

This is a point that Daniel Dennett, as a philosopher of science, is prepared to face and tackle head-on. For him, we use the language of intention and purpose in biology because such metaphors represent

³⁶ Matt Ridley, *The Origins of Virtue*, Viking, 1996, pp. 45–6; 59; 66.

something that is *really there*. It comes, however, not from God, or even from ourselves, but from the blind emergent forces of nature.

... intentionality doesn't come from on high; it percolates up from below, from the initially mindless and pointless algorithmic processes that gradually acquire meaning and intelligence as they develop. And, perfectly following the pattern of all Darwinian thinking, we see that the first meaning is not full-fledged meaning... But you have to start somewhere, and the fact that the first step in the right direction is just barely discernible as a step towards meaning at all is just what we would expect.³⁷

Dennett is a rigorously monistic evolutionist. Since, he insists, all values must come by the same evolutionary source from which we, and all life, ultimately sprang, there is nothing incongruous in reading back our own notions of purpose into the non-sentient and thoughtless mechanisms by which life developed. His metaphor for this is 'reverse engineering'. Just as rival car-makers may strip down one of their opponents' new models to see how it works, and question the purpose of every new piece of engineering they encounter, so biologists are similarly entitled to question the 'purpose' of each new genetic modification. Surprisingly, Dennett seems unaware of how close this argument is to that of one of his most despised opponents,³⁸ the French Jesuit, Teilhard de Chardin, who argued that mind was implicit (or, as Dennett would say, 'emergent') in matter.³⁹

But for many of us, this attempt to read metaphors of purpose, not as *metaphors*, but *literally*, solves the problem only by blurring it. We shall be looking at Dennett's main arguments later, here I just need to put down a marker to the effect that his notions of blind 'purpose' and emergent 'meaning' involve using those words in a quite different way from that in which they are normally used. The word 'purpose', for instance, normally implies the *opposite* of chance, and is *not* a synonym for it. Such fundamental problems over the terminology of evolution have led one literary scholar, A.D. Nuttall, to offer his own, not entirely tongue-in-cheek, 'refutation' of Darwinism. It goes like this. There are actually *two* forms of Darwinism currently in circulation, a 'strong' form and a 'weak' one. The 'strong' form is the correct account we have just outlined. It is rigorously non-directional and purposeless, not to mention exhaustive in the sense that it claims to account for all living phenomena. The 'weak' pays lip-service to the 'strong' form, but quietly allows that

³⁷ Dennett, *Darwin's Dangerous Idea*, p. 205. ³⁸ *Ibid.* pp. 320–1.

³⁹ See, for instance, *The Phenomenon of Man*, trs Bernard Wall, Collins, 1959.

other factors might also have an effect. In practice it permits purposive language and imagery in its narrative, and is thus much more intelligible and easy to apply. As we see in the examples above, it is, in fact, the form in everyday use, not merely with the general public, but even among working biologists when off-guard. The problem with this ‘weak’ version is that it is not really Darwinism at all. It is a covertly purposive theory which depends on and is validated by the ‘strong’ theory which it actually undermines.

But it is important to stress that the problem highlighted by Dennett, Gould, Nuttall and Ridley is not part of a modern misuse of Darwin by journalists and popularizers. It originates from an ambiguity deep within Darwin’s original thought. In order to deny a creative role to God, as conceived within the Protestantism he had been brought up with, he adopted a strict materialism which reduced the workings of nature to the operation of blind laws and chance. But this, in effect, denied his own basic intuitions of the living processes of nature.⁴⁰ Time and again a vitalistic language creeps back into his writing. With his usual candour, he struggles with the problem himself:

The term ‘natural selection’ is in some respects a bad one, as it seems to imply conscious choice; but this will soon be disregarded after a little familiarity . . . For brevity’s sake I sometimes speak of natural selection as an intelligent power . . . I have, also, often personified the word Nature; for I have found it difficult to avoid this ambiguity; but I mean by nature only the aggregate action and product of many natural laws – and by laws only the ascertained sequence of events. With a little familiarity such superficial objections will be forgotten.⁴¹

But they did not prove so easily forgettable, and no subsequent reworking of Darwinism has been able to eliminate them. Far from being superficial, they actually seem to be endemic to the whole argument, so that what looked like a minor linguistic problem has turned into something much more deep-rooted and central to the whole theory. Whether or not we regard it as a flaw in Darwinism, however, depends on how far we expect our scientific paradigms to be unambiguous and unironic. As we shall see in the next chapter, there seem to be good reasons to assume that they are neither.

Whether one accepts that this constitutes another example of what might be called ‘the constraints of the medium’ is another matter. But

⁴⁰ See Rupert Sheldrake, *The Presence of the Past: Morphic Resonance and the Habits of Nature*, Collins, 1988, p. 272.

⁴¹ Darwin, *The Variation of Animals and Plants Under Domestication*, John Murray, 1875, pp. 7–8.

there are other factors at work conditioning our responses to narrative in ways in which it is now very difficult for us to be fully aware. In a provocative and stimulating essay, *Take Read*, the American theologian Wesley Kort has argued that our relationship to the written text (and therefore to 'narrative' in our present sense) goes back to the Calvinistic attitude to the written word.⁴² In Calvin's *Institutes* the reader is urged to study the Scriptures with minute intensity, weighing and pondering the meaning of every word or phrase, for on discovering its inward meaning for him or her hung Salvation itself. For a world only just liberated into a minimal literacy by the printing press, such an attitude to the word was revolutionary. This intense self-searching and self-constructing relationship to the text, argues Kort, has shaped our world historically in that this very 'sacramental' relationship was subsequently transferred first to the 'book' of Nature (i.e. science), then to the idea of history, and finally to the reading of literature. For him, postmodernism, with its denial of the possibility of an inherently value-laden text, has thus broken a chain of implicit valorization of the word stretching back in effect almost to the dawn of literacy.

The detail of history is not, alas, always as neat as such a summary narrative might suggest, but if one sees this movement not as a matter of one stage of reading replacing another, but, as it were *augmenting* the stages that had gone before, the model is helpful. Certainly there was a concerted effort in the late seventeenth and early eighteenth centuries to produce a 'scientific' Christianity, giving it all the demonstrable certainty that Newton had apparently given to our knowledge of the cosmos. In 1668, John Wilkins, Dean of Ripon and a Fellow of the Royal Society, published an *Essay Towards a Real Character and a Philosophical Language* advocating a totally unambiguous scientific language of his own invention. In the course of what he nicely calls 'a digression' he offers his own reconstruction of Noah's Ark, from the information given in Genesis Chs. 6–8, showing that it was fully seaworthy, and would hold all the animals then known as well as those discovered later, together with precisely the right amount of foodstuffs, including an appropriate surplus of 1,888 extra sheep to feed all the carnivores during the forty-day voyage. In 1699, John Craig, a mathematician and later prebendary of Salisbury, published his *Theologicae Christianae Principia Mathematica*, presenting the whole of Christian doctrine as a series of a priori mathematical propositions reasoned from first principles. As we shall see in the next

⁴² Wesley A. Kort, *Take Read: Scripture, Textuality and Cultural Practice*, Pennsylvania State University Press, 1996.

chapter, there was nothing inconsistent with Newton about Craig's incorporating in his title that of Newton's most famous work. Arguments from design, proving the existence of God from the intricate structure of His Creation were common in the early years of the eighteenth century. A long tradition of apologetic by clergyman-scientists includes John Ray's *Wisdom of God in the Creation* (1701), William Derham's *Physico-Theology* (1713) and *Astro-Theology* (1715), culminating at the end of the century with William Paley's best-sellers *Evidences of Christianity* (1794) and *Natural Theology* (1802).

Similarly we can perhaps see in Hegel's philosophy a historicizing of religion, just as Darwinian science represents a historicizing of science. With yet another paradigm-shift, of which this book is clearly a part, the twentieth century has certainly seen a progressive aestheticizing of religion, science and history. Unfortunately the chronology of these moves refuses such neat periodization. Thus, as we shall see, the origins of this progressive aestheticizing of the grand narratives of religion, science and history lie in German Romanticism at the end of the eighteenth century – the very matrix that was also to produce such great historians as von Ranke and Niebuhr, who were to give Europe its new and dynamic sense of history. But there is little doubt that, whatever its causes, and however loosely we care to date it, through some such transference the Western tradition has acquired a peculiarly strong and resilient sense of narrative.

NARRATIVE AND IRONY

But before we accede to the suspicions which both Gould and Lash seem to hold about the pressures of narrative on human thought, it may be worth noting that it is precisely this narrative tendency that makes possible the kind of imaginative leap we most value in both science and the arts. However much he may disagree with Gould over the principles of Darwinism, Daniel Dennett is as clear as Gould that even before it is science, Darwinism is first and foremost a narrative – and a compelling, all-embracing narrative at that.⁴³ Similarly, as Gillian Beer writes in her stimulating study of evolutionary theory, *Darwin's Plots*, 'reading *The Origin* is an act which involves you in a narrative experience'.⁴⁴ Nor is this simply

⁴³ Dennett, *Darwin's Dangerous Idea*, p. 12.

⁴⁴ Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction*, Routledge & Kegan Paul, 1983, p. 5.

a matter of finding in science a narrative experience analogous to that of literature. There are, she argues, much closer and more direct links:

Lyell, . . . uses extensively the fifteenth book of Ovid's *Metamorphoses* in his account of proto-geology, Bernard cites Goethe repeatedly, and – as has often been remarked – Darwin's crucial insight into the mechanism of evolutionary change derived directly from his reading of Malthus's essay *On Population*. What has gone unremarked is that it derived also from his reading of the one book he never left behind during his expeditions from the Beagle: *The Poetical Works of John Milton*.

. . . the organisation of *The Origin of Species* seems to owe a good deal to the example of one of Darwin's most frequently read authors, Charles Dickens, with its apparently unruly superfluity of material gradually and retrospectively revealing itself as order, its superfecundity of instance serving as an argument which can reveal itself only *through* instance and relations.⁴⁵

Not merely are there direct literary influences on both the structure and content of Darwin's ideas, but it is easy to miss that our whole way of 'reading' evolutionary theory is essentially literary. As the titles of Gould's books so often remind us, we are entering a world of dramatic contrasts, comic, ironic and sometimes occasionally tragic. Even to enter into its vastly superhuman time scales involves some kind of 'willing suspension of disbelief.' 'Evolutionary theory,' writes Beer, 'is first a form of imaginative history. It cannot be experimentally demonstrated sufficiently in any present moment. So it is closer to narrative than to drama . . .'⁴⁶

Evolutionism has been so imaginatively powerful precisely because all its indications do not point one way. It is rich in contradictory elements which can serve as a metaphorical basis for more than one reading of experience: to give one summary example – the 'ascent' or the 'descent' of man may follow the same route but the terms suggest very diverse evaluations of the experience.⁴⁷

It may be that these 'diverse evaluations' go some way to answering Lash's question about the kinds of story it is *possible* to tell about the world. On closer examination such stories do not apparently present the kind of monolithic grand narrative assumed, but never examined, by Lyotard. In reality they display much of the diversity, disjunctions, and contradictions favoured by postmodernists in their *petits récits*. A similar phenomenon is noticeable if we look at one of the most famous and influential attempts ever made to tell the story of the world: the Book of Genesis. Any reader coming to the text afresh, and taking it not as a series

⁴⁵ Ibid. pp. 7–8.

⁴⁶ Ibid. p. 8.

⁴⁷ Ibid. pp. 8–9.