Back to Article page

London Review of Books

The Darwin Show

Steven Shapin

It has been history's biggest birthday party. On or around 12 February 2009 alone – the 200th anniversary of Charles Darwin's birth, 'Darwin Day' – there were more than 750 commemorative events in at least 45 countries, and, on or around 24 November, there was another spate of celebrations to mark the 150th anniversary of the publication of *On the Origin of Species by Means of Natural Selection, or, the Preservation of Favoured Races in the Struggle for Life*. In Mysore, Darwin Day was observed by an exhibition 'proclaiming the importance of the day and the greatness of the scientist'. In Charlotte, North Carolina, there were performances of a one-man musical, *Charles Darwin: Live & in Concert* ('Twas adaptive radiation that produced the mighty whale;/His hands have grown to flippers/And he has a fishy tail'). At Harvard, the celebrations included 'free drinks, science-themed rock bands, cake, decor and a dancing gorilla' (stuffed with a relay of biology students). Circulating around the university, student and faculty volunteers declaimed the entire text of the *Origin*.

On the Galapagos Islands, tourists making scientific haj were treated to 'an active, life-seeing account of the life of this magnificent scientist', and a party of Stanford alumni retraced the circumnavigating voyage of HMS *Beagle* in a well-appointed private Boeing 757, intellectually chaperoned by Darwin's most distinguished academic biographer. The Darwin anniversaries were celebrated round the world: in Bogotá, Mexico City, Montevideo, Toronto, Toulouse, Frankfurt, Barcelona, Bangalore, Singapore, Seoul, Osaka, Cape Town, Rome (where it was sponsored by the Pontifical Council for Culture, part of a Vatican hatchet-burying initiative), and in all the metropolitan and scientific settings you might expect. The English £10 note has borne Darwin's picture on the back since 2000 (replacing Dickens), but special postage stamps and a new £2 coin honoured him in 2009, as did stamps or coins in at least ten other countries.

Darwin had an anniversary Facebook group dedicated to him: its goal was to have 200,000 unique Happy Birthdays posted by 12 February and a million 'friends' by the November anniversary of the *Origin*. The group also planned a mass 'Happy Birthday, Darwin' sing-along, but I don't think this actually happened. Then there were the Darwin-themed

T-shirts, teddy bears, bobbleheads, tote bags, coffee mugs, fridge magnets, mouse mats, scatter cushions and pet bowls; the 'Darwin Loves You' bumper-stickers, the 'Darwin Is My Homeboy' badges, and the 'I ♥ Darwinism' thongs. The opening line of the year's most substantial historical contribution, Adrian Desmond and James Moore's *Darwin's Sacred Cause*, is: 'Global brands don't come much bigger than Charles Darwin.' Quite right.

Darwin freely confessed to late-onset philistinism: 'My mind seems to have become a kind of machine for grinding general laws out of large collections of facts.' He eventually found Shakespeare 'so intolerably dull that it nauseated me'. But the imaginative arts lined up to pay tribute. In Cambridge, Ian McEwan and A.S. Byatt spoke about their 'literary relationship with Darwin'. The joint Yale-Cambridge museum homage, *Endless Forms: Charles Darwin, Natural Science and the Visual Arts* (at the Fitzwilliam in Cambridge and the Yale Center for British Art), rightly called 'the best show of the year', was a brilliant exploration of the impact of evolutionary ideas on painting, photography and the illustrative arts, and of the fecundity of Darwin's responsiveness to the visual impact of nature's richness, diversity and intricacy. The Natural History Museum in South Kensington hosted the cleverly named *After Darwin: Contemporary Expressions* – installations, video, film and literary works inspired by Darwin's late work *The Expression of the Emotions in Man and Animals*. And Darwin's great-great-granddaughter Ruth Padel published *Darwin: A Life in Poems*, evoking the emotional nexus from which the *Origin* emerged:

'I never dreamed
that islands sixty miles apart, made of the
same stone,
of nearly equal height in the same climate,
could have different tenants.' Fast forward
twenty years
and you see him write of this scatter-burst of
rock in open sea,
'We seem brought near that mystery of
mysteries,
the first appearance of new beings on the
earth.'

The Rambert Dance Company produced a new work, *The Comedy of Change*, as their contribution. The ballet's scientific adviser 'gave a lecture about Darwinian ideas', after which she and the choreographer 'did some tango moves' to evoke the mating dances of birds. The University of Birmingham celebrated with *The Rap Guide to Evolution*,

featuring the 'African-American Atheist Rapper Greydon Square', the 'self-styled "Walking Stephen Hawking"'. In Manhattan, the Ensemble Theater produced *Darwin's Challenge* ('On his trip aboard the HMS *Beagle*, Charles Darwin wanders into a cave on Galapagos and finds himself on the set of a 21st-century reality TV show ... He gets kicked off in Act Two') – a play which *Scientific American* dyspeptically summed up as 'maybe the first attempt ever to hijack the life of the theorist of natural selection as a medium for cracking fart jokes'.

Radio 4's *Something Understood* discussed whether geniuses were born or made, taking Mozart and Darwin as exemplars and underlining the case for Darwin with a song called 'Charlie' by the one-time anarcho-punk group Chumbawamba: 'All of nature in its place/By hand of the designer/Comes our Charlie spins the world/From here to Asia Minor/In between the Platypus/And perfect Aphrodite/Charlie come with opposing thumb/To question the Almighty.' And, uncategorisably, 2009's Burning Man Festival, in the vast Black Rock Desert of Nevada, featured the theme of 'Evolution': the 12-metre human shape – burned to extinction at festival's end – rose

> above a 'tangled bank' consisting of irregular wooden triangles ... At night the tangled bank came alive with luminous life forms scratching, crawling and slithering their way through it ... Strange Ur-creatures peep outward from the surface of this primal soup. The central tree supporting Burning Man, beribboned with a double helix, existed in flux: switching on and switching off, changing colours unexpectedly.

The installation, meant to symbolise the work of evolution, itself instantiates evolution's historical trajectory from counterculture to counterculture, with only a brief stop in between to pick up paying passengers.

Then there were the national and international conferences (scientific, historical, philosophical and literary), the special issues of academic and general-interest periodicals, the television and radio shows, and of course the books, including at least four new biographies specially for children. Darwin Year celebrates something much more diffuse, more general and more consequential than the life and works of a great Victorian naturalist. Darwin has escaped from disciplinary confines, and even from academic ones, because what he did is supposed to have changed 'the way we think' – lots of us, if not all of us – about the world, about ourselves and about how we go about knowing the world. It is a celebration – yet another – of a moment that is said to have 'made the modern world', definitively, exhaustively, irreversibly.

The *New York Times* announced that 'the theory of evolution really does explain

everything in biology,' but that's rather modest in the context of current celebratory hype. In now canonical versions, Darwin's idea of evolution through natural selection – his 'dangerous idea' – was, as Daniel Dennett famously said, 'the single best idea anyone has ever had'. Better than any idea of Newton's or Einstein's, and better than any idea had by Jesus or Aristotle or Hume or that other great 12 February 1809 birthday boy, Abraham Lincoln. It 'unifies the realm of life, meaning and purpose with the realm of space and time, cause and effect, mechanism and physical law'. If T.H. Huxley was 'Darwin's bulldog', the Oxford emeritus professor for the public understanding of science, Richard Dawkins, has been called his unmuzzled rottweiler; according to Dawkins, Darwin's idea wasn't just a great one ('the most powerful, revolutionary idea ever put forward by an individual'), it is essentially the *only* idea you need to explain life and all its phenomena: 'Charles Darwin really solved the problem of existence, the problem of the existence of all living things – humans, animals, plants, fungi, bacteria. Everything we know about life, Darwin essentially explained.' One-stop shopping for the inquiring mind in a hurry, though one can wonder why an idea of such evident and all-encompassing power would – a century and a half later – need this aggressive marketing.

While Dawkins concedes that Darwin 'made some mistakes' – for example, he got genetics all wrong, but so did everyone else in the 19th century before there was any genetics to get right – the sociobiologist E.O. Wilson will have none of that: 'The man was always right.' Uniquely among the sciences, evolutionary biology comes with a patronymic, and so another oddity is why – if we take some of the wilder rhetorical flourishes literally – evolutionary theory is talked about as if nothing much has changed scientifically since Darwin's time. Scientists don't routinely refer to physics as Newtonianism or claim that 'everything we know about physics, Newton essentially explained.'

Put aside for a moment whether any of these extravagant claims about modernity-making is even approximately right: not whether Darwin's specific evolutionary ideas were powerful and broad (which they undoubtedly were) but whether they have marked the world in indelible ways and whether in fact they constitute the universal explanatory tool that some claim they do – whether, as Dawkins says, we 'have no choice' but to concede Darwinian supremacy and whether Darwinian evolution has the power to nail down almost all the problems that have occupied thinkers across disciplines and cultural practices. The evolutionary biologist Theodosius Dobzhansky once said that 'nothing in biology makes sense except in the light of evolution,' and now an anthropologist claims that 'nothing about *humans* makes sense except in the light of evolution.' (*Nothing*.) Under the influence of a scientific rush of blood you get something that sounds like a recommendation that every mode of inquiry other than evolutionary biology and its allied disciplines shut up shop and go home. So we have the evolutionary anthropologist Robert Foley: 'For centuries, humans have wondered about why humans are the way they are, and

they've turned to philosophy and to religion to answer that question.' But humans should stop doing that: Darwin allowed us to set philosophy and religion aside and to see that the answers to such questions either belonged to evolutionary biologists or they were nonsensical. That is, however, a step too far for some otherwise sympathetic scientists. As the geneticist Steve Jones put it, Darwin Year has encouraged 'vulgar Darwinists' in their already souped up tendency misleadingly to treat evolutionary biology as 'a universal solvent that can sort out the most recalcitrant problems of society, consciousness, politics, literature and more'.

Even conceding the more expansive claims for Darwin's genius and influence, we're still some way from understanding what the festivities have been about. There are other claimants for the prize of towering scientific genius, and for 'making the modern world', but none of them has been the occasion for global festivities on anything like this scale. The 400th anniversary of Galileo's birth was 1964, and Descartes's 1996; Newton's *Principia* turned 300 in 1987; Einstein's *Wunderjahr* papers in *Annalen der Physik*, changing the way physicists think about space, time and matter, had their centenary in 2005. All were duly marked, mainly by historians, philosophers and physicists, but there was nothing remotely approaching Darwin 200. Even if we had an unambiguous metric for ranking scientific genius and modernity-making – one by which Galileo, Descartes, Newton and Einstein were chopped liver compared to Darwin – neither genius nor influence would be a sufficient explanation for the events of 2009.

The very idea of paying homage to the great scientists of the past is problematic. Scientists are not widely supposed either to be heroes or to have heroes. Modern sensibilities insist on scientists' moral equivalence to anyone else, and notions of an impersonal Scientific Method, which have gained official dominance over older ideas of scientific genius, make the personalities of scientists irrelevant in principle. Honouring past scientists is therefore a different sort of thing from, say, paying homage to history's generals, politicians or, indeed, imaginative artists. You don't need to subscribe to a strict form of Pascal's theory of history (had Cleopatra's nose ...) to accept, in one way or another, that individuals and circumstances can make a difference to the course of events. Had Lincoln not been president, the Civil War would quite probably have had a different trajectory and outcome; had Bush and Cheney not run the show, it's plausible that Iraq would have not been invaded as a response to 9/11 or that an invasion would have turned out differently; and had Mozart not lived there would have been no *Figaro*. But it's hard to accept that if Watson and Crick – clever and ambitious though they were – had not found the double helical structure of DNA, no one else would have done so.

Artists create; scientists discover. That's our usual understanding of the thing, and scientists – together with some of their philosophical allies – have been in the van of insisting so. (That's one way in which 'relativism' and 'social constructivism' are commonly

opposed.) If science is discovery and not invention, then it follows that discoverers' relation to what they reveal is different in both intellectual texture and moral resonance from Mozart's relation to his operas, Shakespeare's to his plays, and even Bush's to his wars. You couldn't say of *Figaro* or *Lear* or the Iraq war that they were waiting there to be 'discovered'. 'Something of that sort' may well have come into being, but an example of 'something like' *Figaro* is Salieri's *Axur, Re d'Ormus* or even Abba's 'Waterloo'. You don't necessarily have to construct counter-factual histories to support this sort of sensibility. Scientists are often said to hit on 'the same' (or 'nearly the same') idea at about 'the same' time: Galileo, Scheiner and several others on sunspots; Leibniz and Newton on the calculus; Priestley and Scheele on oxygen; Steven Weinberg and Abdus Salam on electroweak gauge theory; and, of course, Darwin and the undercelebrated Alfred Russel Wallace on evolution by natural selection. Every instance of what has been called 'simultaneous discovery' lends credence to the notion that the individual does not matter in the course of science, or matters in a very different sort of way from authorial mattering in the creative arts. Homage to the scientist and to the artist sits astride one of our great cultural faultlines. What is owed to reality, and what to the creative work – even the imaginative, literary and political work – of those who are said to lift the veil of reality's structural and dynamic secrets?

You can still say, with perfect accuracy, that the *Origin* is much more than its 'essential' theory of natural selection: it is a book, a magnificent theatre of persuasion, 'one long argument' (as Darwin called it), supported by masses of arduously compiled evidence, ingeniously organised and vouched for by a special individual, with known special virtues and capacities. (Historical reactions differed even on the recognition of the *Origin*'s literary qualities: George Eliot sourly considered the book 'ill-written and sadly wanting in illustrative facts', lacking 'luminous and orderly presentation', and Karl Marx complained about 'the clumsy English style'.) As Richard Horton observed in a special issue of the *Lancet*, Darwin's fame, unlike that of today's scientists, was 'based on books ... His books were neither summaries nor simplifications: they were the core of his originality.' Writing books was not, for Darwin, an irritating obligation to report on discoveries: reporting and persuading were, for him, seamlessly joined creative acts. He liked writing and took enormous pains in composition; he cared deeply about its power and effects on readers. Whatever might be meant by the 'essence' of evolution by natural selection is something you could say was discovered: the text called the *Origin* was composed, in exactly the same sense that *Figaro* was composed, artfully put together, invented. Wallace's 1858 paper 'discovering' evolution by natural selection stung Darwin into a frenzy of long pent-up composition, so it's plausible to identify at least two discoverers of the theory but only one author of the *Origin*. Wallace himself was well aware that it was one thing to come up with a theory but a much greater thing to make it credible: he thought of himself as a mere 'guerrilla chief' of evolution while Darwin was 'the great general', mapping out the grand

literary and political strategy to make natural selection stick in the culture.

Paradoxically, this year's events have been a celebration of a historical figure and his historical work in which specifically historical interests have been notably marginal. The party is one in which the present, with its pressing present concerns, processes fragments of the past in roughly the same way that assorted blocks of white fish, bulked out with filler, are processed into fish fingers. Myths have a market; myth-busting has a small one; setting the historical Darwin in his Victorian intellectual and social context has practically none at all.

Barry Werth's *Banquet at Delmonico's* – a fine popular book on Herbert Spencer's American success that has been rather swamped by 2009's Darwinmania – underlines the fact that, successful as the *Origin* was, large numbers of 19th-century readers got their understanding of 'evolution' from Spencer's very different, teleologically orientated works. Countless others took in their evolutionism from the progressivist *Vestiges of the Natural History of Creation*, a 'Victorian sensation' anonymously published in 1844 by the Scottish journalist Robert Chambers and abominated by Darwin as just the sort of thing that was bound to vulgarise evolution and to make it scientifically disreputable. As James Secord shows in the introduction to his edition of *Evolutionary Writings*, *Vestiges* was, at the time Darwin wrote, 'the one evolutionary book that all English-speaking readers could be expected to know'.

The historical road to recognising the significance and the power of Darwinian natural selection has been neither straight nor smooth. Just after the Darwin commemorations of 1909, the *New York Times* blandly announced that natural selection

> has ceased to be regarded as the key to all the biologies; so that it is probable that his fame in this regard reached its acme last year ... The general attitude of contemporary biologists towards the great achievement of Darwin differs considerably from the chorus of universal acceptance which was current in the 1870s and 1880s. Instead of having solved the problem of the origin of species, Darwin, it is now recognised, only raised the question.

That is to say, natural selection as 'the key' to organic change needed to be synthesised with Mendelian genetics, and this was an achievement of the period from the late 1920s to the 1950s, vital contributions to which were made by the English statistician R.A. Fisher, a eugenicist and a devout Christian who saw biological progress as evidence of God's active and continuing role in nature, and whose centenary in 1990 was not a significant media event.

You could point out that Darwin would have been regarded as a very great naturalist and

considerable geologist even if he had not published the *Origin*, given the extent and meticulousness of his work on, among other things, barnacles, coral reefs and volcanic islands, insectivorous and climbing plants, the sex life of orchids, the role of earthworms in making vegetable mould, domesticated plants and animals, the expression of animal and human emotions, and polymorphic botanical species (about which Darwin said that nothing in his scientific life 'has given me so much satisfaction'). All of these have been pushed far into the background in the current celebrations. You could also say that a lot more was going on in the *Origin* than the versions of 'natural selection' celebrated by present-day evolutionists and their fan clubs. And that too would be correct. The voices of historians of science have been scarcely audible in Darwin Year, sometimes organising their own conferences, more often being wheeled onstage by those with other agendas, like 'attendant lords ... to swell a progress, start a scene or two ... Deferential, glad to be of use.'

If you were historically minded, you might find it interesting that while the first-year sales of the *Origin* were good – 1250 copies of the first printing (sold out to the trade on day one) and 3000 of the rapidly produced 1860 second edition – books offered for sale by the publisher John Murray at the same time included 7600 copies of an account of the Arctic explorer Sir John Franklin and 3200 copies of Samuel Smiles's *Self-Help*. From 1860 to 1865, the monthly sales of 'the book that made the modern world' were less than 30, although a cheap edition of the *Origin* pushed its total British sales to 16,000 by the mid-1870s. 'Considering how stiff a book it is, this is a large sale,' Darwin noted. That said, *Vestiges* had sold 24,000 copies by the time *Origin* appeared; Darwin's 1881 volume on earthworms was a much greater initial publishing success than the *Origin*; and 60,000 copies of the natural theological tracts making up the *Bridgewater Treatises* – whose design argument Darwin sought to destroy – had been sold between 1833 and 1860.

You might also observe that the historical *Origin*, as opposed to either the modern textbook cut-and-paste version or its celebrated 'essence', advanced natural selection as one, admittedly powerful, engine of organic change, but also quite explicitly allowed for the role of the 'direct action' of the 'external conditions of life' and the inherited 'effects of use and disuse' (i.e. what are commonly called 'Lamarckian' forces), and what Darwin called the 'laws of growth' (or developmental constraints causally connecting changes in one part of an organism to another part): 'I am convinced,' Darwin wrote, 'that natural selection has been the main but not the exclusive means of modification.'

A man regarded in 2009 as an avatar of atheism had originally intended to become a clergyman and, even after he had fallen away from any semblance of Anglican orthodoxy, agreed with the Reverend Charles Kingsley and the Reverend William Whewell, master of Trinity College, Cambridge, that it was just as 'noble' a conception of God that he worked through divinely instituted natural laws as that he used his powers directly to create each species. Four years after the *Origin* appeared, Kingsley wrote that 'God's greatness,

goodness and perpetual care I never understood as I have since I became a convert to Mr Darwin's views.' Darwin insisted that he saw no good reason why evolution by natural selection 'should shock the religious feelings of anyone'. Nor do those now using Darwin to power up secularism have much time for the historical figure whose funeral at Westminster Abbey was the occasion for the archdeacon to praise Darwin for having read 'many hitherto undeciphered lines in God's great epic of the universe'. Disbelief, Darwin wrote, eventually 'crept over' him, but that disbelief is less accurately categorised as atheism than as an unstable mix of agnosticism and a robust form of deism not uncommon among clerics of the Victorian Church of England. Even in America, many late 19th-century Protestant theologians had no great problem reconciling evolution with a rational and purified Christianity. (The strong assimilation of human beings and their mental capacities to the animal model was a sticking point for many – but then it still is.) Nor was biblical fundamentalism nearly as much a feature of Victorian opposition to Darwin as it is of the early 21st century. There are almost certainly more 'young earth creationists' – those claiming that the world was created in exactly six 24-hour days somewhere between 5700 and 10,000 years ago – among the educated and semi-educated classes now than there were in Darwin's time.

The historical Darwin is only a spectral presence at his own commemoration. The *Origin* as a complex literary and scientific performance was not a focus of the global festivities, nor was Darwin's own understanding of what he had and had not done, still less the full range of his scientific concerns. What has just been celebrated is not the historical specificity of a mid-19th-century text, or the Victorian author of works on earthworms, orchids and insectivorous plants, but the founding of a particular intellectual lineage, a lineage that led from 1859 to some version of the gene-theory-augmented 'modern evolutionary synthesis' that is valued today. Darwin did not discover or invent modern evolutionary biology and its intellectual fellow travellers; at most, he was at one end of a genealogy whose latest members he would scarcely have recognised.

There's no need to be pedantic about this. If what has happened has only something to do with the historical Darwin, it has a lot to do with us, and what some of us choose to construe and to celebrate as present-day 'Darwinism'. Those are considerable facts in their own right. A phenomenon as widely dispersed as the Darwin commemorations is bound to have had many causes, serving many purposes. 'Every age moulds Charles Darwin to its own preoccupations, but the temptation is hard to resist,' Philip Ball noted in the *Observer*. 'In the early 20th century, he became a prophet of social engineering and the free market. With sociobiology in the 1970s, Darwinism became a behavioural theory, while neo-Darwinist genetics prompted a bleak view of humanity as gene machines driven by the selfish imperatives of our DNA.'

One inescapable present concern is, of course, the resurgence of biblical fundamentalism.

Polls and attitude surveys can give you all sorts of results depending on how the questions are phrased and posed, but in 2008 a Gallup poll found that 44 per cent of US adults accepted that 'God created human beings pretty much in their present form at one time within the last 10,000 years or so,' while only 14 per cent agreed that 'human beings have developed over millions of years from less advanced forms of life, but God had no part in this process.' America is at one extreme among developed countries – 62 per cent of Egyptians and 73 per cent of South Africans seem never to have heard of Darwin or his theory – but Britain too has many doubters: Dawkins has claimed that four in ten Britons believe in creationism, though in June 2009 a British Council survey less alarmingly found that nearly a quarter of Londoners were creationists while a little less than half agreed that there was enough scientific evidence to support Darwin's evolutionary theory. It isn't clear, however, what that response means in light of the finding that only 45 per cent of British adults claimed to have heard of Darwin and to know 'at least a little' about his theory.

The centre of gravity of Darwin Year has been a celebration of secularism, a crusade against rampant religiosity and 'public ignorance of science'. Darwin has been figured as the Scourge of the Godly. The National Secular Society notes that 'Darwin's 200th birthday has become a rallying point for scientists opposing creationism.' 'Is it important to celebrate Charles Darwin today?' the *Independent* asked, answering that 'Darwin's legacy is threatened by proponents of creationism. By commemorating him we defend it ... No advance has so upended our worldview since the realisation that the world was not flat' – a claim that sits awkwardly alongside complaints about the limited grip of Darwinism on modernity's collective 'worldview'. Dawkins, who has led the troops out of the trenches in the war against scientific ignorance and religious credulity, has a wonderfully tautological answer for that: Darwin is 'controversial among people who don't know anything, but if you talk to people who are actually educated, he's not really controversial'. And: 'In order not to believe in evolution you must either be ignorant, stupid or insane.' In Dawkins's *The God Delusion* (2006), Darwin's own stated agnosticism wasn't nearly good enough: the Old Testament God – one of the ones who don't exist – is famously described as 'a misogynist, homophobic, racist, infanticidal, genocidal, filicidal, pestilential, megalomaniacal, sadomasochist, capriciously malevolent bully'. 'My dream', Dawkins said, was that his own work 'may help people to "come out" as atheists'. Presiding over Channel 4's *The Genius of Charles Darwin*, Dawkins recruited the great agnostic naturalist as a paladin of atheism, in theology as in science less like the historical Darwin than like Dawkins himself.

The International Darwin Day Foundation, acting as publicist and clearing house for hundreds of the year's global events, is administered by the American Humanist Association, a secularist pressure group which defends the civil liberties of the endangered species of the American godless, and hands out annual awards to its chosen 'Humanist of

the Year' (past winners include Richard Dawkins, Daniel Dennett, E.O. Wilson and Steven Pinker). For the Darwin Day Foundation (whose advisory board includes Dawkins, Dennett, Wilson and Pinker), as for other sponsors, Darwin Day is less about a historical figure than an occasion for extending versions of scientific materialism and rationalism to ever new cultural domains, encouraging an appreciation of 'science and the role of humans in developing the Scientific Method that permitted the acquisition of an enormous amount of verifiable scientific knowledge, that is now available to modern humans'.

The offensive against the atavistically religious and the misunderstanders may not be quite what it seems, or at least not quite as straightforwardly targeted as it seems. There *is* little public understanding of evolutionary theory, but there is little public understanding of physical chemistry or thermodynamics or bio-informatics. It would be nice if there were more scientific literacy – just as it would be nice if more Britons and Americans knew a foreign language – but ignorance of evolution is not an indication of hostility to science, which remains remarkably highly thought of despite public ignorance of its content and methods. Whatever public hostility there is to evolution is plausibly seen as a regrettable special case, with little carry-over to other forms of science. And if the Darwin events are indeed a defence of science against the ignorant, then there is some apparently inconvenient evidence that has been little mentioned by the celebrants. A survey published in *Nature* in 1997 found that 40 per cent of American scientists professed belief in an immortal soul and a prayer-answering God, a figure basically unchanged since 1916. More tellingly still, another survey found that when the claim 'Man has developed over millions of years from less advanced forms of life, and no God participated in this process' was put to them, only a bare majority (55 per cent) of American scientists agreed and 40 per cent believed that a Creator was involved in evolutionary change.

To say that nothing in biology makes sense except in light of Darwinism cannot be the same thing as saying that to be a competent biologist is to have command of, or to agree with, any specific version of evolutionary theory, such as those favoured by Dawkins and Dennett. I have taught many talented biology students, both in the US and the UK, who could not give a coherent account of evolution by natural selection – teleology remains strikingly popular – and while it may or may not be the case that evolution provides the conceptual 'foundation' of life science, it is certainly not the case that biologists need to have command of any such theory to do competent work, for example, on the sex life of marine worms, on algal photosynthesis, or on the nucleotide sequence of breast cancer genes. Lots of practitioners of lots of modern expert practices turn out not to be very good at articulating their practices' supposed foundations.

So there is some basis for scepticism as to whether the sole, or even major, target of the Darwin Year polemics is, indeed, the godly and the ignorant. Academic attacks on barbarians outside the university are often at least as much about the heretics in one's own

department. The academic wagons are more commonly circled to control the battle within than to repel attacks from without. Take the tensions internal to evolutionary theory. All is indeed well with modern evolutionary theory when set against creationism and intelligent design, but biologists themselves are not now singing from the same evolutionary hymn-sheet, and you might not know that from some of the enthusiastic accounts of Darwinism as 'fact'.

'Adaptationists' take it as securely established that organic change proceeds through the natural selection of individual traits, each of which improves the organism's reproductive chances, that each trait's evolutionary end-point represents an optimum, and that no other process is needed for an evolutionary lineage to move along through time. But adaptationism has distinguished critics within biology departments – Richard Lewontin, Niles Eldredge and the late Stephen Jay Gould among them – and they have argued that there is a difference between asserting adaptation as a possible means of getting smoothly from evolutionary point A to point B and establishing that this is in fact how organic change has occurred. Maybe there are developmental constraints on how traits change, and change with respect to other traits; maybe some traits are accidental by-products of changes in other traits; maybe evolutionary change is in fact discontinuous; maybe there is a dialectical causal relationship between organisms and the environmental niches to which they 'adapt'; maybe processes other than adaptation are at work but we just don't know much about them yet. The adaptationist camp includes Dawkins, Dennett and Pinker – some of the most enthusiastic Darwin Year celebrants. Adaptationists tend to give spectators a misleading picture of the scientific state of play, while at the same time laying claim to a founding father who in fact had reservations about the power and sufficiency of natural selection. There is a struggle among scientists for Darwin's soul. It is understandable that modern evolutionists should configure history as best suits present purposes, but truth in advertising should be part of the exercise.

Darwin Year has also been a moment in the hardening-up of the human sciences and even the humanities, especially in the United States. Take what's become known as 'literary Darwinism'. 'There is no work of literature written anywhere in the world, at any time, by any author, that is outside the scope of a Darwinian analysis,' Joseph Carroll wrote in his contribution to *The Literary Animal* (2005). *Pride and Prejudice* becomes evidence for sexual selection, and the 'truth universally acknowledged' is not to do with the customs and concerns of the Regency gentry but with the way people propagate their genes most advantageously into the next generation. Mrs Bennet is past child-bearing age, but is obsessively interested in her daughters' prospects because of the genes they have in common. (It's said that J.B.S. Haldane was once asked whether he would give up his life for his brother. 'No,' he said, doing the sums, 'but I would to save two brothers or eight cousins.') So much for the idea of aesthetic universals; so much for the invocation of

particular social and cultural contexts; and so much for deconstructionism. If you want to know why anyone would write such a thing as *Pride and Prejudice*, or indeed produce any work of art at all, you are referred to the inescapable truth that the art-making organ is a product of evolution, and so there must be some selective advantage to *Pride and Prejudice*-writing, or to something so similar to *Pride and Prejudice* as makes little difference. Darwin indeed said that language might be thought of in part as an 'instinctive tendency', but he knew from his own experience that writing was an art and that writing as well as he hoped to do was a matter of work, discipline, skill and passion.

Literary Darwinism draws a great deal of its strength from evolutionary psychology, and leading practitioners of EP have been much in evidence this last year. If the mind is evolved, then all of the mind's products must be too, along with all of the social arrangements put in place by the collective of evolved minds. Nature beats up nurture all the time. Take a cold, hard look at any institutionalised social arrangement, cultural production or widely distributed turn of mind, and there is an evolutionary story that explains why it is as it is. There are, sadly, the people that EP Thought Leader Steven Pinker calls 'the intellectuals' – the deconstructionist and postmodernist sort in particular – who refuse to face Darwinian facts. Intriguingly, the explanation for their views is not evolution but error. But you can't, as Louis Menand has pointed out, identify a 'biological foundation' for one set of intellectual dispositions – say, the ones you approve of – and deny them to another: say, the ones you would like evolution to make go away but which it hasn't yet got around to doing.

More diffusely, the anniversary celebrations have fastened on Darwin as Green Hero. The *Origin* closes with Darwin's lyrical evocation of 'an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth'. The editorial in *Nature*'s issue on 'Biodiversity in Crisis', published in the week of the 150th anniversary of the *Origin*, argued that

> were he alive today, Darwin would have cause to be less rhapsodic. The modern version of his bank might well be dominated by invasive shrubs, having been denuded of most native plants by deforestation, and nearby streams would probably be polluted and filled with sediment from excess run-off ... The rich pageant of life, which inspired Darwin and his work, is now suffering.

The BBC launched its Darwin season with *Charles Darwin and the Tree of Life*, and what David Attenborough wanted us to understand was that 'Darwin has shown us that we are not apart from the natural world – we do not have dominion over it. We are subject to its laws and processes, as are all other animals on earth to which indeed we are related.'

Defending the environment and biodiversity is the goal; the celebration of Darwin is one of the means: 'We have reached a stage in human history where we're confronted with the need to react to these particular propositions. Before, you could look away, but now we're really up against it. We have to deal with these things.' Darwin was similarly enlisted in Andrew Marr's BBC series *Darwin's Dangerous Idea*. Marr discovered that 'Darwin's ideas are helping us to save ourselves and all life on earth from extinction ... Charles Darwin is the father of ecology. The modern environmental movement was built upon his insight that all life on earth is linked by a delicate web of connections.' It is indeed a 'delicate web of connections' that has got us from a mid-19th-century enthusiastic shooter of birds and other small animals to an early 21st-century saviour of planetary life.

Those connections are easier to make because Darwin was such a nice man. On his birthday, the *New York Times* said that Darwin 'makes an easy hero'. He was 'a humane, gentle, decent man, a loving husband and father, and a loyal friend ... He was, in other words, one of those rare beings, as likeable as he was impressive.' To Darwin's biographer Janet Browne, Darwin was 'basically a good man, humble and kind, and always did his best to act according to the traditional values he had learned as a child'. 'It was his very ordinariness,' she writes, 'that captivated people expecting to meet a sage.' He lived, as much as he could, a quiet life and was content with his lot. He was generous to enemies as well as allies; he was good to the servants; he loved his wife; he cared deeply about her religious sensibilities and feared his work would create a rift in their marriage; he grieved for the loss of a daughter in a way that few Victorians matched. He shrank from controversy; he did everything he could to avoid it. Preparing the *Origin* for the press and thinking about its reception made him physically ill: the book was published while he was taking a water cure at Ilkley, his face badly broken out in eczema. (In fact, the *Origin* was, on the whole, well received. In his *Autobiography*, he wrote that he had 'almost always been treated honestly by my reviewers', and that even those who had misrepresented his views did so, 'I believe, in good faith'.) Darwin knew the significance of what he had achieved, but he approached his task with modesty and received celebrity with humility. To Dawkins, 'Darwin was an immensely gentle man, as well as a gentleman,' and we're to understand that Dawkins considers this a good thing.

Darwin insisted on his intellectual ordinariness. He wanted it publicly understood that his native endowments were no more than average, that he had to overcome a youthful tendency to sloth and self-indulgence, that he had wasted his time at university, that becoming a serious naturalist owed much to good luck, that he had achieved what he had mainly through close observation, discipline, hard work and a genuine passion for science. The publication of the *Origin* and Samuel Smiles's *Self-Help* on the same day and by the same publisher was just right: the notion of genius was still kicking around in the culture, but mid-Victorian sensibilities were moving towards an acceptance that whatever had been

ascribed to genius might more plausibly be put down to effort and discipline. The bourgeois virtues which had been attached to domestic life and business were now being recognised in the scholar's study, the artist's garret and the scientist's laboratory. Darwin was already being elevated in his own lifetime as a secular saint, with a reputation for 'unassailable integrity and candour'. But he publicly advertised deficiencies in his character and regretted the decay in his aesthetic sensibilities that had turned him into someone who was 'nauseated' by reading Shakespeare. 'I have,' he said, 'a fair share of invention, and of common sense or judgment, such as every fairly successful lawyer or doctor must have, but not, I believe, in any higher degree.' His enormous intelligence was real, but it was on a human scale, contained within a human frame. (Among the more engaging of this year's productions is the publication of *Mrs Charles Darwin's Recipe Book*. Her husband had a notably sweet tooth: the arrowroot pudding seems bland even for Darwin's taste, but the gooseberry cream sounds nice.) He had faults; he worried about his youthful keenness for slaughtering innocent animals; he smoked cigarettes.

Darwin was as independent as he was likeable, and the two were connected. Summing up his circumstances, he noted the importance of having had 'ample leisure from not having had to earn my own bread'. The greatest scientist of the 19th century was an amateur – one of the last great scientific amateurs. He did it for love and not for money. The resources Darwin inherited from his father (accumulated largely in mortgage brokerage), augmented by his wife's assets, were more than sufficient. He acquired farms and later invested heavily in the new railways. Settled at Down House in Kent, he and his wife commanded assets worth at least £80,000, with an annual income of more than £3000, and both capital and rentier income kept growing. Just before his death, he reckoned he was worth more than a quarter of a million pounds, maybe £13 million in present money. He was, as Adrian Desmond and James Moore's 1991 biography nicely put it, 'a gentleman with capital'. He closely monitored sales of his books as a mark of acceptance and esteem, but, given the scale of his investments, Darwin's income from science was modest. (Proceeds from the first-day sell-out of the *Origin* were £180 and from the second a little less than £600. Late in his life, Darwin estimated that he had made about £10,000 from all of his books – to put that in perspective, Trollope had made £70,000.) Though he didn't flaunt his wealth, Darwin was more than comfortable: set for both life and work. That alone makes him a fascinating figure for us in an age of entrepreneurial, increasingly commercialised and politicised science, an age in which scientific inquiry has long been identified with the remunerated career, in which the 'amateur' is equated with the incompetent. But we also increasingly worry about the loss of integrity that accompanies a money-inducement to produce specific forms of scientific knowledge, and the texture of Darwin's life in science becomes for us an object of nostalgia, partly admirable, mostly inconceivable.

Think of some scientific geniuses. My guess is that many people's list will include Galileo,

Newton and Einstein. Those are the names that are known across the sciences, in history, philosophy and the pantheon of the general culture. There are others whose reputations are skewed towards the country that claims them as their own – Pasteur in France, for example – and still others whose fame has scarcely spread from their particular discipline, in modern physics perhaps Paul Dirac and Richard Feynman. Darwin stands apart, not for the size of his intellect or for the effect of what he achieved – who can confidently assess either? – but because he alone seems to count for us as both human-scaled and unambiguously sympathetic. In present-day scientific biography, personal warts are rarely neglected: Newton is ascetically 'wholly other', bent on destroying intellectual competitors; Galileo is a manipulator of patronage, cutting his cloth to suit his career; Einstein is a man who loved humanity in general but treated his wives and his daughter as disposable appendages; Pasteur is a Machiavellian politician of science; Dirac is just 'the strangest man'; Feynman is a philistine, a sexual predator, an over-aged adolescent show-off. This is what has now become of towering genius, of those who discover nature's secrets. First we make them into icons and then we see how iconoclastic we can be. Darwin alone escapes whipping.

Darwin's virtue, it is now said, was as much political as personal. Desmond and Moore argue energetically for the biographical significance of his well-known revulsion to slavery. Abolitionism was a family inheritance and his hatred of the institution was reinforced by what he had seen during his voyage on the *Beagle*. In Brazil, he lived near an old lady who kept instruments of torture to crush the fingers of her female slaves. 'I have stayed,' Darwin wrote, 'in a house where a young household mulatto, daily and hourly, was reviled, beaten and persecuted enough to break the spirit of the lowest animal ... It makes one's blood boil, yet heart tremble, to think that we Englishmen and our American descendants, with their boastful cry of liberty, have been and are so guilty.' How could one do that to a fellow human being, to a member of one's own species? The Quaker abolitionist slogan of the late 18th century was 'Am I Not a Man and a Brother?' – and it was made into the famous jasperware cameo by Darwin's grandfather Josiah Wedgwood.

Not only did he detest slavery, but – Desmond and Moore argue – abolitionist sentiment was a 'moral fire' in Darwin, pervasively and profoundly shaping his science. Their new book is a masterful achievement. It establishes the range and reach of early to mid-19th-century scientific concerns about slavery and the races of man. And it argues not only that Darwin's abhorrence of slavery informed his insistence on the common ancestry of human races but also that his thinking moved from concern with the common descent of forms of our own species to the idea of common descent for all species. It is an explosive claim. It makes the general theory of evolution an outgrowth not just of a special theory of human evolution but of moral sensibilities and a political agenda. It leaves in tatters a notion of a protected apolitical and amoral domain inhabited by Darwin's science. The first question

raised by Desmond and Moore's provocative exercise is whether it is, or might be, correct; the second is why the answer should matter so much.

The causal argument leading from bred-in-the-bone abolitionism to Darwin's general evolutionary theory is a huge stretch. There are all sorts of problems with evidence and inference. Professed intentions are lacking. The timing isn't right in the notebooks: Darwin's apparent recognition of organic common descent came before any analogy between 'family likeness' in human beings and 'the classification of animals'. There is little if any support for the notion that Darwin thought common descent was a decisive abolitionist tactic or that the institution of slavery depended on a belief that the human races had different ancestries. Darwin hated human bondage, but he nevertheless held views of racial hierarchy quite sufficient to justify slavery if, indeed, one wanted a justification. Darwin knew that there was a 'scale of civilisation' and that the natives of Tierra del Fuego, for example, were near the bottom. He experienced 'disgust at the very sound of the voices of these miserable savages'. He knew that individual Fuegians could rapidly be brought to an English civilised condition, but he also knew that 'the more civilised so-called Caucasian races have beaten [other races] hollow in the struggle for existence. Looking to the world at no very distant date, what an endless number of the lower races will have been eliminated by the higher civilised races throughout the world.' Do you need the idea of separate descent to justify slavery, genocide or racial cleansing? Maybe it helps, but people have done horrible things to those considered to belong to their own species, even their own nation and race.

All this is supposed not to matter. Sometime between Darwin's death in 1882 and Max Weber's 1917 lecture on 'Science as a Vocation', it became common to read that we must not expect intellectual insight to be accompanied by moral virtue. Moral philosophers told us that it was a logical mistake to move from an 'is' to an 'ought'; scientific naturalists, following Darwin's own evolutionary thought, brought into being the 'disenchanted world' that Weber could take for granted; and scientists themselves largely agreed that it would be wrong to expect natural knowledge to be produced by people possessing special virtue, or that science could deliver recipes for personal or political virtue. So neither Darwin's person nor his political programme should – from this point of view – matter to the status and worth of his science. And yet one of the lessons of Darwin Year is that it still seems to matter very much. The amoral and impersonal sermons have been preached, but we have evidently been sleeping in the pews. The Death of the Scientific Author was prematurely announced. Darwin Year has made it clear how closely our culture still links the man and the matter, and what virtues we admire in those who tell us nature's truths. The 'man who made the modern world' was conventional in his fibre; the man whose works were used to justify ruthless competition was retiring, reticent and generous; one of history's greatest books was written by someone who insisted that his own mental abilities were only

middling. Quietly tending the plants in his greenhouse, Darwin cast us out of Eden for the second time.

Books consulted in the writing of this piece:

Darwin's Luck: Chance and Fortune in the Life and Work of Charles Darwin by Patrick Armstrong (Continuum, 216 pp., £25, February 2009, 978 1 84725 150 3)

Mrs Charles Darwin's Recipe Book by Dusha Bateson and Weslie Janeway (Glitterati, 192 pp., $35, November 2008, 978 0 9801557 3 0)

Monkey Trials and Gorilla Sermons: Evolution and Christianity from Darwin to Intelligent Design by Peter Bowler (Harvard, 272 pp., £13.95, April 2009, 978 0 674 03220 0)

Angels and Ages: A Short Book about Darwin, Lincoln and Modern Life by Adam Gopnik (Quercus, 224 pp., £16.99, April 2009, 978 1 84724 929 6)

Darwin: A Life in Poems by Ruth Padel (Chatto, 160 pp., £12.99, February 2009, 978 0 7011 8385 1)

Darwin's Sacred Cause: Race, Slavery and the Quest for Human Origins by Adrian Desmond and James Moore (Penguin, 484 pp., £12.99, January, 978 0 141 03220 7)

Evolutionary Writings by Charles Darwin, edited by James Secord (Oxford, 544 pp., £12.99, November 2008, 978 0 19 920863 0)

The Young Charles Darwin by Keith Thomson (Yale, 288 pp., £18.99, March 2009, 978 0 300 13608 1)

Evolution: The First Four Billion Years edited by Michael Ruse and Joseph Travis (Harvard, 1008 pp., £25.95, February 2009, 978 0 674 03175 3)

Evolution in the Antipodes: Charles Darwin and Australia by Tom Frame (New South Wales, 368 pp., $39.95, January 2009, 978 1 921410 76 5)

Charles Darwin: The Concise Story of an Extraordinary Man by Tim Berra (Johns Hopkins, 144 pp., £11, January 2009, 978 0 8018 9104 5)

Natural Selection and Beyond: The Intellectual Legacy of Alfred Russel Wallace edited by Charles Smith and George Beccaloni (Oxford, 512 pp., £32, November 2008, 978 0 19 923916 0)

Endless Forms: Charles Darwin, Natural Science and the Visual Arts edited by Diana Donald and Jane Munro (Yale, 288 pp., £40, February 2009, 978 0 300 14826 8)

Banquet at Delmonico's: Great Minds, the Gilded Age and the Triumph of Evolution in

America by Barry Werth (Random House, 362 pp., $27, January 2009, 978 1 4000 6778 7)

Vol. 32 No. 1 · 7 January 2010 » Steven Shapin » The Darwin Show (print version)
pages 3-9 | 8850 words

Letters

Vol. 32 No. 2 · 28 January 2010

From Allen Esterson

Steven Shapin (*LRB*, 7 January), perhaps taking his cue from tendentiously truncated quotations from Darwin's letters in Adrian Desmond and James Moore's *Darwin's Sacred Cause*, writes: 'Preparing the *Origin* for the press and thinking about its reception made him physically ill: the book was published while he was taking a water cure at Ilkley, his face badly broken out in eczema.' In fact for nearly 20 years *any* arduous work had exacerbated Darwin's chronic illness; for instance, in a letter of 24 February 1849 Darwin told Owen he had 'lost for the last 4 or 5 months at least 4/5 of my time' and that he intended to spend two months trying out the water cure at Malvern, which 'will cause a sad delay in my Barnacle work'. A close examination of Darwin's letters and diaries shows no correlation between his severe bouts of illness and work on his transformation theory.

Allen Esterson
London W6

Vol. 32 No. 3 · 11 February 2010

From John Fletcher

'It has been history's biggest birthday party,' Steven Shapin writes (*LRB*, 7 January). 'On or around 12 February 2009 alone – the 200th anniversary of Charles Darwin's birth, "Darwin Day" – there were more than 750 commemorative events in at least 45 countries.'

Has he never heard of Christmas?

John Fletcher
Pilton, Somerset

 ^ Top