

## BOOKS &amp; ARTS

## A wonderful life by leaps and bounds

Stephen Jay Gould's idea of evolution by bursts was controversial. But it gave the field of palaeontology a long-overdue boost, explains **Steve Jones**.

**Stephen Jay Gould:  
Reflections on His View of Life**

Edited by Warren D. Allmon, Patricia H. Kelley and Robert M. Ross

Oxford University Press: 2009. 416 pp.  
£18.99, \$34.95

Stephen Jay Gould was one of the world's top six snail geneticists, and the other five of us agreed. Unlike his colleagues — and in the tradition of Edgar Allan Poe and his 1839 work *The Conchologist's First Book: Or, a System of Testaceous Malacology* — he followed the iron rule that nobody who works on snails becomes famous until they give it up. His elegant studies on shell shape in Bermudan land molluscs were succeeded by a series of popular books and essays, some of great brilliance, and, again in the footsteps of Poe, by a set of sonorous but increasingly Delphic statements on the revealed truths of life, the Universe and such things.

*Reflections* is a Festschrift of sorts. But among the praise, there is no shortage of negative comment on the hero's work or polemic about just what he was trying to say. A dozen or more of Gould's ex-students and colleagues assess his science, standing and personality, six years after his untimely death. He emerges as a genius of sorts, but — appropriately for his geologist beginnings — with feet not unmarked by clay.

Much of Gould's *oeuvre* descends from Charles Darwin's dictum that “general and popular Treatises are almost as important for the progress of science as original work”. Gould was central to today's awakening of public interest in the past. He was also an invaluable ally in the fight against creationism, and spared no effort in opposing the endless attempts to insinuate stupidity into US schools. His influence did not, alas, quite make it across the Atlantic.

Some of his imagery may have creaked a little. Yet only Gould could incorporate a picture of himself pushing a luggage trolley labelled *Metaphoros* in a Greek airport to make the point that a metaphor is no more than a means of moving an idea from one place to another. His baseball obsession threatened to become boring — but then his 1996 book *Full House* revealed an unexpected parallel between that baffling sport and life itself. Fans complained that the game was stagnant because batting averages had levelled off, but Gould noticed the equivalent decline in their



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Gould's accessible books were key in sparking popular interest in evolutionary history.

variance, proof that the game had become leaner and meaner as its players pushed the limits of the physically possible. (Cricket, incidentally, shows no such pattern.) From that he wove a tale that incorporated the history of skyscrapers, his chances of surviving the cancer that darkened his later years, and the whole notion of progress in evolution.

Gould held fast to Darwin's maxim that “All observation must be for or against some view if it is to be of any service”, and was among that band who felt that those not for him must be against him — which was not much help in keeping friends. The great biologist John Maynard Smith wrote that most evolutionists saw Gould as “a man whose ideas are so confused as to be hardly worth bothering with, but as one who should not be publicly criticized because at least he is on our side against the creationists”.

Gould was hurt by that acidulous statement, which was without doubt unfair. Whatever the importance of sudden leaps in the fossil record, his notorious idea of punctuated equilibria, nicknamed ‘punk eek’ and referred to as ‘evolution by jerks’ by some of its critics — their own views characterized by Gould as “evolution by creeps” — gave the fossilized field of palaeontology a much-needed kick in the pants. Gould saw punk eek as a “coordinating centrepiece” that “congealed into a coherent critique” of evolutionary theory. Many biologists, by contrast, insist that what look like palaeontological leaps

can be explained by simple Darwinism. To them, an instant in geology may represent almost an infinity in biology, leaving plenty of time for evolution by natural selection to do its normal job. His other great passion, contingency — the notion that evolution goes on with sudden bangs rather than protracted whimpers — has also not held up particularly well. *Wonderful Life*, Gould's 1989 book on the Burgess Shale, suggests that the obscure fauna of the late pre-Cambrian represents a lost universe wiped out by some unknown disaster, but now we know that they have descendants among modern animals. Even so, scientific ideas often change, and that volume, like most of his others, remains a rattling good read. The fact that nature must build on what it has, and not on what it wants, is still at the centre of evolutionary thinking.

Gould remained a dedicated teacher, which few great researchers can claim, but lost his gloss with the years. The teaching fellows on his course at Harvard University recount in the book how praise mutated into complaints about pomposity and intolerance; and I myself attended several lectures that were hard to follow, went grossly over time and were interspersed with rants about flash photography.

In time Gould was promoted from mere scientist to Thinker, and corresponded with President Jimmy Carter about God. As one ex-student reports, some of his colleagues felt that Gould became a caricature of himself.

Backwards ran his sentences, and some of his ideas were equally opaque. In support of punk eek, for example, he wrote that “species are individuals ... by all vernacular criteria”, which is at best obscure, and at worst obscurantist.

As *Reflections* portrays, its hero showed an increasing regard for style over content, and was resistant to the notion that anyone should dare to edit his writings. The pinnacle — the very summit, crown and peak — of his great Olympus of orotundity was his last voluminous volume, *The Structure of Evolutionary Theory*, published in the year of his death. All the authors agree that this is not a book to be lightly tossed aside, but their motives for saying

so vary. Its reviews are quoted with a certain relish: “an elephantine opus”; “pathological logorrhoea”; “billowing clouds of verbal flatulence” — but Gould had no doubt of its value. In it he came out with the idea of life as a series of interlocking hierarchies and of a grand unification of its sciences into some post-Darwinian concision, comprehensible only to the chosen.

Poe was much the same. His last substantial work, *Eureka: A Prose Poem*, published just before his own demise, discusses the relationship of man to God, and to “the Material and Spiritual Universe: of its Essence, its Origin, its Creation, its Present Condition and its Destiny”. It was seen by Poe as replacing

Newton’s ideas about gravity. Poe wrote that “What I have propounded will (in good time) revolutionize the world of Physical and Metaphysical science”. Some see in it a presage of the Big Bang and of modern astronomy, but others ridicule its pretensions, its rambling nature and its overblown prose. Nine decades later, Albert Einstein described *Eureka* as a “beautiful achievement of an unusually independent mind”. Perhaps, one day, the same will be said of Gould. ■

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## Does genius breed success?

### Outliers: The Story of Success

by Malcolm Gladwell

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256 pp/320 pp. £16.99/\$27.99

Thomas Edison’s insight more than a century ago that genius is 1% inspiration and 99% perspiration is often quoted, yet few seem to believe it. The common notion of genius is that we are either born with it or we’re not. This seductive idea enables us to hold up successful people as exotic, propelled to triumph by talent alone. More than that, it reinforces the impression that those who are masters of one field are masters of many. Hence the widely held assumption, recently disproved, that financiers who have been successful in one market are expert in all; or that the 76 Nobel science laureates who endorsed Barack Obama’s electoral campaign were worth listening to in matters of politics.

Malcolm Gladwell aims in his book *Outliers* to dismantle the idea of innate genius once and for all. His main point is that it is nonsense to explain someone’s success solely in terms of their own actions and choices. Culture, family environment, opportunities and, above all, hard work count far more than any inherited quality. “It’s not enough to ask what successful people are like,” he says. “It is only by asking where they are from that we can unravel the logic behind who succeeds and who doesn’t.”

Gladwell follows the formula that worked for him in his previous bestsellers *The Tipping Point* and *Blink*, weaving psychological and sociological theory into a compelling narrative. He asserts that few stars of any field succeed without putting in at least 10,000 hours of practice, including ‘prodigies’ such as Mozart.

Similarly, few make it to the top without being handed a life-changing opportunity early in life, generally one they neither deserved nor earned. Both Bill Joy, founder of Sun Microsystems, and Bill Gates, creator of Microsoft, for example, learned to program computers as a result of attending a university or private school with unrivalled equipment. Gladwell argues those early opportunities enabled Joy and Gates to improve beyond their peers and take advantage of opportunities down the line. They were talented, but they were also fortunate.

Gladwell is convincing — almost too convincing. Psychological and sociological theories of behaviour are never tidy, and the reader may sense that they are being manipulated by clever selection of data. Presumably, Gates and Joy had classmates who spent similar amounts of time in front of computers but never became billionaires. Gladwell claims that the key to The Beatles’ success was the time they spent in Hamburg in early 1960s Germany, where they performed 270 five-hour gigs in 18 months. Clearly this improved their technical proficiency, but surely what set The Beatles apart was their songwriting, another skill entirely. Many other musicians put in long playing hours but don’t become famous. The question is not so much whether Gladwell’s thesis rings true — it does — but whether it is as comprehensive as he makes out, which is unlikely.

The book suffers another flaw, one of structure rather than argument. After 158 pages on the ‘ecology’ of genius, Gladwell shifts his focus to the effect of culture on people’s behaviour. He includes a chapter on how flight crews from cultures that emphasize hierarchy and deference,

such as South Korea and Colombia, are more likely to crash their planes because co-pilots and flight engineers are less inclined to challenge the captain when they think he is making an error. Although this discussion is interesting and broadly about success, it seems to fall some way from where the story began.

*Outliers* is probably Gladwell’s most important book yet. Unlike his previous two, it has implications for public life. His demonstration that intelligence, above a certain threshold level, has no bearing on future success should turn university selection policy on its head. To win a Nobel prize, you need to be smart enough to get

into a decent university, nothing more. His most graphic example of how intelligence above a certain level is irrelevant to achievement is an experiment by psychologist Lewis Terman. Terman failed in his attempt to nurture the future elite of the United States by selecting people

for their very high IQ; although many of his ‘geniuses’ did well, very few went on to become nationally recognized.

Gladwell also asks why Asian students tend to be so much better at maths than their western counterparts. He reckons it is firstly because the regularity of the Asian number system means that basic tasks such as addition can be done more easily, and secondly that Asia’s rice-growing culture, involving hours of dedication in the fields, has imbued its people with a dogged attitude essential for tackling mathematical problems. Although that might sound far-fetched, his suggestion that underachieving children in the West could transform their performances if they studied during the holidays makes sense. That’s what Gladwell does best: he gives you a new way of seeing the world, and it’s worth taking him seriously for that. ■

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