

Skewed data

A review of:
Life's Grandeur: The Spread of Excellence from Plato to Darwin
 By Stephen Jay Gould
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 1996.

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Harvard professor and well-known evolutionist Stephen Jay Gould is nothing if not erudite. True, he lacks the enjoyably crisp clarity of a Dawkins (unfortunately, some of the best-written science books come from the most ardent defenders of atheism). But I confess that I enjoy his books for the literary experience. He quotes with as much unpretentious-seeming easy familiarity from Shakespeare and Goethe as the King James Bible. His theme is fleshed out with interesting (and relevant) excursions such as great baseball performances and his own diagnosis with allegedly terminal cancer (since defeated).

Gould's recent articles and books, such as *Wonderful Life*, are dominated by the theme which is complemented and carried on in this book. That is, that a consistent, logical understanding of evolutionary theory allows no room for purpose, or even any built-in drive to 'progress'. In this sense, his thought and insights are useful, insofar as they highlight the serious logical weaknesses of attempts to harmonize Christianity (or even any sort of theism) with grand-scale evolution — but more on that later.

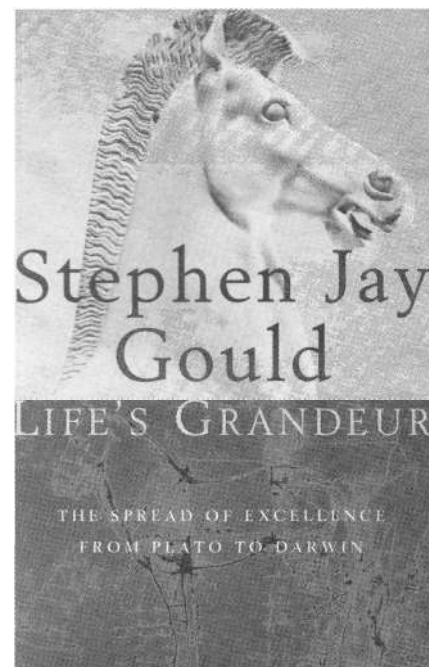
Although not stated in exactly those words, Gould's aim is the complete unseating of mankind from any sort of 'pedestal', as if stamping out the last faint vestigial cinders of the notion that we were created with a special purpose, in God's image.

His aim is referred to as no less than the 'completion of an intellectual revolution' (thus the back cover blurb).

The general outline of this revolution is well-known. First, Copernicus, Galileo and others are said to have demolished the notion that we occupied a special physical place in the universe. Then Darwin persuaded the bulk of humanity that it arose not by some special miracle in Eden, but by a gradual, natural outgrowth from the animal kingdom — a rising ape, rather than a fallen image. Nevertheless, Gould indicates, it was still possible to cling to our concept of ourselves as the 'crown of creation' by seeing all the preceding 'lower' stages as (more or less) just preparations for our soon-coming appearance.

Then along came the notion of geological 'deep time'. The millions of years became billions, and with this, the dawning realization that mankind has occupied only the tiniest, most recent sliver of such alleged vast ages. This struck a serious blow to the idea that all stages were merely preparatory for our appearance, says Gould, though not a mortal one, since in one form or another the idea survives and is a principal target of this book.

It is true that the 'deeper' the notion of 'geological time', the more difficult it is to discern 'divine purpose' in such a reading of the rock record. Those evangelicals who urge acceptance of the 'geological ages' concept in order to try to buy intellectual respectability will increasingly discover they have sold their birthright of biblical authority for a pottage of compromise which makes even less sense to the intellectual than before. Imagine trying to defend the notion of God's 'purpose' in creation when (according to the literal 'geological ages' interpretation of the rocks), for more than two-thirds of the alleged history

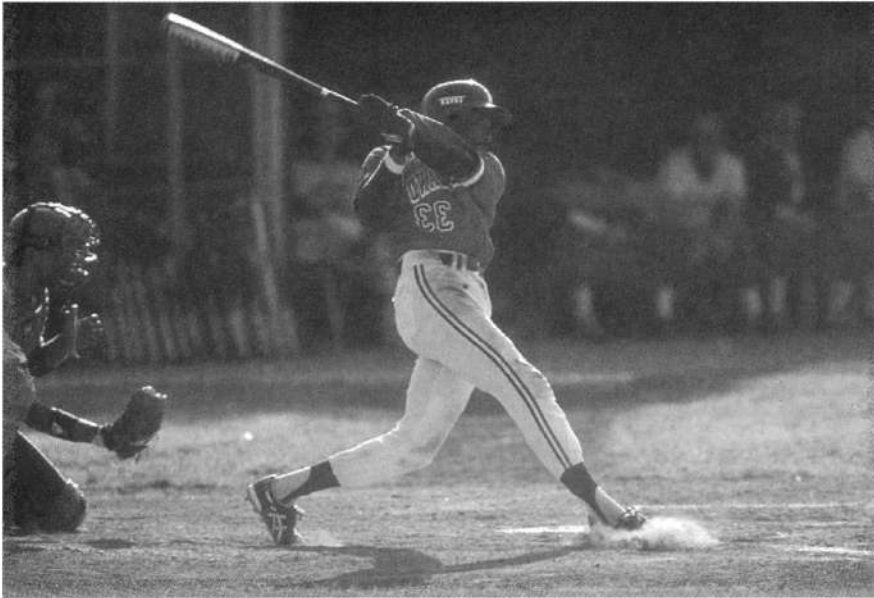


of life on earth, nothing more complex than bacteria appeared on this planet. And for fully half the remaining one-third, life remained one-celled.

But, for all the imagined freedom from accountability to God implied by these stages in the 'revolution' (read rebellion?) modern man has been unwilling to 'bite the bullet', to take this revolution to its logical, full extent. The one thing man is still loathe to relinquish, says Gould, is the cherished (albeit often subliminal) concept that evolution implies some idea of inherent progress, some notion that our own appearance on the evolutionary stage was inevitable, thus we are still 'special'.

From my own limited experience among evolution-persuaded thinkers in the general population, it would appear to be true that very few are really totally atheistic in practice, i.e. willing to take evolution as far as it logically implies. Instead, some (often somewhat 'new-agey') idea of a purposive 'force' still lingers.

It is as if mankind is grateful to the idea of evolution for enabling them to escape the notion of the biblical God who made us (because this implies ownership and accountability, hence the potential for



The disappearance of .400 baseball batting averages is linked to Professor Gould's notion of evolution as a 'random walk' (see text).

judgement), but loathe to let go of the pseudo-comfort of some form of fuzzy 'purpose' to our existence. Sometimes Christians think that this is a good thing; better to have *some* concept of divine purpose to work with, they think, some 'starting point', rather than total godlessness, in the supposed targets of evangelism. But I think that in practice, it more often serves to immunize *against* the Gospel. If more people came to grips with the bleak, nihilistic meaninglessness which their acceptance of evolution logically implies, evangelism might be a little easier, not harder.

Instead most people, says Gould, in order to retain this deep, cherished cultural myth of 'we're here for a purpose', see 'evolution' as a process which inevitably leads to higher and higher forms, until there appears either man (or some species with intelligence and consciousness much like us).

Gould's writings have persistently made the well-supported claim that neither the proposed Darwinian mechanism nor the fossil record gives us any reason to believe in the notion of the inevitability of the appearance of man (or any form of intelligent life) — i.e., in 'purposive'

evolution. However, a theistic (or 'new-age') evolutionist could justly point out that no matter how little it was suggested by the data of paleontology, it is in theory impossible to disprove the notion that people were 'meant' to evolve.

But in this volume, Gould takes careful aim at a related notion associated with the idea of 'purpose', namely 'progress' as a central theme of the fossil record. At first glance, nothing could be more obvious (at least, to those who deny the global Flood and read the rock record as a sequential record of vast ages) than the idea of progress in the history of life. Billions of years ago there were only bacteria. A few hundred million years ago, nothing more complex than fishes, and today we have human beings with their intricate brains, consciousness, and the like. This would seem to imply not only that there has been progress, but that it is natural and logical to think that this is what evolution is 'all about' — things becoming gradually (and seemingly inevitably, since it just kept on happening) more complex.

But, says Gould, this notion is profoundly misleading, and is based upon our culturally biased way of looking at the data. In patient

schoolteacher mode, he spends considerable time explaining how a similarly misleading way of considering baseball batting averages has led virtually everyone astray. (A special section of this UK version of the book is devoted to explaining baseball to those brought up on cricket.)

The phenomenon in question is the disappearance of .400 batting averages. This has been almost universally seen as a decline in batting skills or similar, but Gould carefully shows that it is in fact a result of an overall increase in baseball performance. The error arises from considering a statistical average as a 'thing' in itself, when in fact one should be looking at the full spread of variation (the 'full house' of his American book title). When this is done, it is clear that what has happened is that the spread of variation has contracted, and there has been a 'right shift' of the whole curve closer to what he calls the 'right wall', the absolute limits of human performance.

Evolutionists looking at life's history have similarly looked at things incorrectly, he argues. Instead of considering the whole spread of variation, they have looked at archetypes, ideals or 'essences', a hangover from Plato. (One learns that the sub-title refers less to the time-span between Plato and Darwin as to the contrast between two different ways of looking at life. Gould argues that Darwin, much more than most of his followers, saw life's 'full hand' of 'grandeur', focusing more on the total spread of variation rather than on any archetypal 'core' ladder of progress.) In order to see the 'big picture' in evolutionary history, we need to look at the 'full house', the full spread of variation. When this is done, he argues (persuasively, I would say, if thinking within the standard interpretation of paleontology), the data do not support any notion of a trend to progress in complexity, or even size, at all.

Since there is this continual cultural bias towards the idea that our humanity, or at least its idealized Platonic essence, was fore-ordained after a fashion, we automatically focus our attention on those elements of the evolutionary story which feed into this bias, seeing these as the 'core', as what evolution is 'all about'. Thus, museum panoramas refer to the 'Age of Fishes', later the 'Age of Reptiles', then finally the 'Age of Man'. But, says Gould, this is curiously unrepresentative pageantry. Invertebrates are not assumed to have stopped evolving once fishes appeared, nor fish once animals allegedly invaded the land, and so on. Again granting grand-scale evolution purely for the sake of following the argument, it is not hard to buy his point here.

When we focus on the full statistical curve of distribution, we realize something fascinating (again, within an evolutionary thought-mode). Since the first life form was a single cell, one does not need to accept any form of direction (or drive to complexification) within evolution in order to explain the appearance of fishes, reptiles or people. All that has to be accepted is the notion that evolution is able to generate substantial novelties while producing an unending array of adaptations to local environments (which of course begs the question in a creationist analysis, but that is not the issue here). Given this, complex things like horses, frogs and magnolias will appear *even when there is no trend to complexification at all in the evolutionary process itself*. The reason is disarmingly simple: since life starts at a minimal level of complexity (against the 'left wall' in Gould's statistical jargon), then given the above criteria, there is only one net, overall direction in which it can vary — away from the wall, into the direction of greater complexity.

The pageant on which we like to focus, says Gould, of fish becoming amphibians, then reptiles, then

people, is not the 'main game' at all — it is an artefact of our cultural blinkers while looking at a distribution of life which by its very nature must be a 'right-skewed' one (because it has to expand away from a left wall of minimal complexity).

Figure 1 explains this notion better. Assume that for any given 'branching' process occurring through time, there is an equal tendency for it to move to the left or right, but there is a 'left wall' which prevents motion past a certain point, then overall there will be a trend to

the right. If 'right' represents greater complexity, then the diagram can be taken to illustrate Gould's point. Looking at the panorama of fish, reptiles and so on up to man, we are merely looking at the extreme tail of a right-skewed distribution, while the main game was elsewhere - the continued dominance of life by its single-celled (bacterial) mode.

To explain still further, the author uses the illustration of a drunk walking along a footpath with a wall on one side, and the gutter at the other. Although his walk is

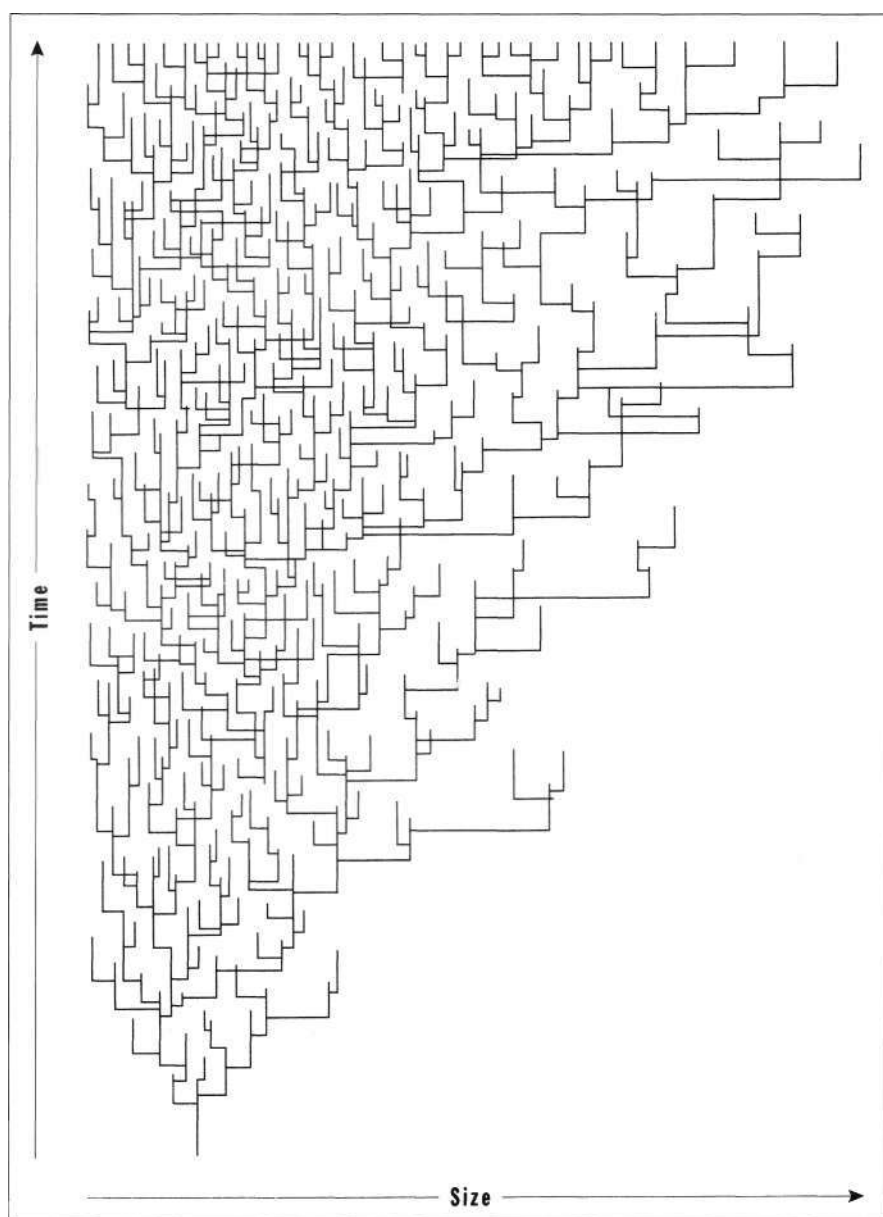


Figure 1. The 'left wall' prevents motion past a certain point so the trend is to the right — to greater complexity (from Gould, 1996. *Life's Grandeur*).

'random', with no bias favouring the gutter, he will inevitably end up in the gutter; whenever he starts to go to the wall, he just bounces off. Thus, evolution is a totally 'random walk'; the only reason we had mammoths and magnolias as well as microbes is because it had no choice but to expand away from the left wall.

By itself, this might explain the right skewed distribution which we observe, but would not prove that there was no directionality towards greater complexity. A look at the data might show otherwise — after all, a given evolutionary lineage could 'start' at some point a fair way from the 'left wall', and so subsequent variation might indeed show a bias, preferring to veer to the right. The 'progressive complexification' notion might be right, after all.

Such ideas can be tested to some extent in the fossil record. Here Gould approvingly cites the work of McShea and others (which we did also, in *Creation* 20(2):32, 1998). This seems to indicate that whenever one attempts to objectively measure complexity trends in the fossil record (using presumed ancestor-descendant pairs), there is no trend to complexification at all.

This, of course, powerfully shores up Gould's thrust, i.e. all who believe in evolution should accept that we are not the result of some purposive ladder of progress, but are a fortuitous twig on a massive bush. Thus, he argues, our life has no purpose or meaning apart from that which we construct for ourselves.

The importance of this work for creationists is not just in helping us understand the thought of leading evolutionists. I think it starkly reinforces the futility of compromise for the Christian tempted to toy with evolutionary notions, in a vain effort to maintain respectability with the secular intelligentsia.

For one thing, it shows that there is no logical stopping point to such compromise. Accept the standard scientific arguments for evolution/

long geological ages, and step by logical step you will, if you are rigorous and consistent in your thought, be drawn further away from not just the biblical framework of truth; you will eventually be confronted with the yawning abyss of total meaninglessness to the universe, without even any vague, fuzzy, theistic evolutionary god-notion to cling to.

For obvious reasons, promoters of belief in 'evolution by God' have more reason than anyone to want to see evolution as a demonstrably progressive process. Thus, it is very significant that detailed analyses of complexity within that framework to date are rapidly *empirically falsifying* the notion of evolutionary 'progress'. Reject the biblical Flood, and accept the 'standard model' of paleontological interpretation, and there is no empirical reason to believe in any vector of progress at all. I wish all those 'intelligent design' theorists who think they will win the battle against materialism in science while ignoring or rejecting the historical 'big picture' given in God's Word, would sit up and take notice.

Another upside to this work which creationists should take note of (and delight in) is the increasing recognition of randomness in patterns within the fossil record. Creationist models of Flood geology would find it very difficult to explain a widespread tendency to increasing complexification with decreasing depth in very similar creatures. Thus the documented absence of such a trend, despite being comfortable for Gould's 'random walk' notion of evolution, is a happy result for creationists as well.

Life's Grandeur does not touch upon the issue of the 'missing links', the drastic shortage of transitional lineages in the fossil record. However, consistent with his more recent works, Gould repeatedly emphasizes the 'bushiness' of his view of evolution, rather than the traditional 'tree' — a motif which has been used by some anti-

creationists to muddy the waters in regard to 'links'. However, 'bushiness' does not really let evolutionists off the hook at all in this matter, because no matter how 'bushy' the alleged evolutionary bush, one still has to postulate a single line of descent from one population of fishes, for example, to one population of amphibians, and so on.

Almost as a footnote, I would add that I was puzzled by the way Gould more than once treated the alleged extinction of the dinosaurs by a single impact event as a historical 'given'. Puzzled, that is, considering the amount of contrary evidence amassed by a fellow Skeptic and an evolutionary geologist colleague of Gould's (as reviewed in *CEN Tech. J.* 12(2): 154-158, 1998). Perhaps it is because it suits his punctuationalist and self-confessed Marxist/revolutionary view of evolution all too well. It is, after all, Gould himself who has for decades been at the forefront of pointing out how all of us are influenced by such biases in the way we view data.