

God's gift to Kansas

Richard Dawkins

An abridged version was published in The Times (London) May 21, 2005 as 'Creationism: God's gift to the ignorant'
<http://www.timesonline.co.uk/article/0,,592-1619264,00.html>

As the religious right fights the teaching of evolution in Kansas, **Richard Dawkins** speaks up for scientific logic

Science feeds on mystery. As my colleague Matt Ridley has put it, "Most scientists are bored by what they have already discovered. It is ignorance that drives them on." Science mines ignorance. Mystery – that which we don't yet know; that which we don't yet understand – is the mother lode that scientists seek out. Mystics exult in mystery and want it to stay mysterious. Scientists exult in mystery for a very different reason: it gives them something to do. Maybe we don't understand *yet*, but we're *working* on it! Each mystery solved opens up vistas of unsolved problems, and the scientist eagerly moves in.

Admissions of ignorance and mystification are vital to good science. It is therefore galling, to say the least, when enemies of science turn those constructive admissions around and abuse them for political advantage. It is worse than galling. It threatens the enterprise of science itself. This is exactly the effect creationism or 'intelligent design theory' (ID) is having, especially because its propagandists are slick, superficially plausible and, above all, well-financed. ID, by the way, is not a new form of creationism. It simply is creationism disguised, for political reasons, under a new name.

It isn't even safe for a scientist to express temporary doubt, as a rhetorical device before going on to dispel it.

"To suppose that the eye with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, and for the correction of spherical and chromatic aberration, could have been formed by natural selection, seems,

I freely confess, absurd in the highest degree."

You will find this sentence of Charles Darwin quoted again and again by creationists. They never quote what follows. Darwin immediately went on to confound his initial incredulity. Others have built on his foundation, and the eye is today a show-piece of the gradual, cumulative evolution of an almost perfect illusion of design. The relevant chapter of my *Climbing Mount Improbable* is called 'The fortyfold path to enlightenment' in honour of the fact that, far from being difficult to evolve, the eye has evolved at least forty times *independently* around the animal kingdom.

The distinguished Harvard geneticist Richard Lewontin is widely quoted as saying that organisms "appear to have been carefully and artfully designed." Again, this was a rhetorical preliminary to explaining how the powerful illusion of design actually comes about by natural selection. The isolated quotation strips out the implied emphasis on 'appear to', leaving exactly what a simplemindedly pious audience – in Kansas, for instance – wants to hear.

Deceitful misquoting of scientists to suit an anti-scientific agenda ranks among the many un-Christian habits of fundamentalist authors. But such *Telling Lies for God* (book title of the splendidly pugnacious Australian geologist Ian Plimer) is not the most serious problem. There is a more important point to be made, and it goes right to the philosophical heart of creationism.

The standard methodology of creationists – indeed, all their arguments are variants of it – is to find

some phenomenon in nature which, in their view or even in reality, Darwinism cannot readily explain. Darwin said

“If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down.”

Creationists mine ignorance and uncertainty, not as a spur to honest research but in order to exploit and abuse Darwin’s challenge. “Bet you can’t tell me how the elbow joint of the lesser spotted weasel frog evolved by slow gradual degrees?” If the scientist fails to give an immediate and comprehensive answer, a *default* conclusion is drawn: “Right then, the alternative theory, ‘intelligent design’, wins by default.” Notice, first, the biased logic: if theory A fails in some particular, theory B must be right! We are encouraged to leap to the default conclusion without even looking to see whether the default theory fails in the very same particular. ID is granted (quite wrongly as I have shown elsewhere) a charmed immunity to the rigorous demands made of evolution.

Notice, second, how the creationist ploy undermines the scientist’s natural – indeed necessary – rejoicing in uncertainty. Today’s scientist in America dare not say:

“Hm, interesting point. I wonder how the weasel frog’s ancestors *did* evolve their elbow joint. I’m not a specialist in weasel frogs, I’ll have to go to the University Library and take a look. Might make an interesting project for a graduate student.”

No, the moment a scientist said something like that – and long before the student began the project – the default conclusion would become a headline in a creationist pamphlet: “Weasel frog could only have been designed by God.”

I once introduced a chapter on the so-called Cambrian Explosion with the words, “It is as though the fossils were planted there without any evolutionary history.” Once again this was a rhetorical overture, intended to whet the reader’s appetite for the explanation that was to follow. Sad hindsight tells me now how predictable it was that my remark would be gleefully quoted out of context. Creationists adore ‘gaps’ in the fossil record.

Many evolutionary transitions are elegantly documented by more or less continuous series of gradu-

ally changing intermediate fossils. Some are not, and these are the famous ‘gaps’. Michael Shermer has wittily pointed out that if a new fossil discovery neatly bisects a ‘gap’, the creationist will declare that there are now *two* gaps! But in any case, note yet again the unwarranted use of a default. If there are no fossils to document a postulated evolutionary transition, the default assumption is that there was no evolutionary transition: God must have intervened.

It is utterly illogical to demand complete documentation of every step of any narrative, whether in evolution or any other science. Only a tiny fraction of dead animals fossilize and we are lucky to have as many intermediate fossils as we have. We could easily have had no fossils at all, and the evidence for evolution from other sources, such as molecular genetics and geographical distribution, would still be overwhelmingly strong. On the other hand, evolution makes the strong prediction that if a single fossil turned up in the *wrong* geological stratum, the theory would be blown out of the water. When challenged by a zealous Popperian to say how evolution could ever be falsified, J B S Haldane famously growled: “Fossil rabbits in the Precambrian.” No such anachronistic fossils have ever been found, despite discredited creationist legends of human skulls in the Coal Measures and human footprints interspersed with those of dinosaurs.

The creationists’ fondness for ‘gaps’ in the fossil record is a metaphor for their love of gaps in knowledge generally. Gaps, by default, are filled by God. You don’t know how the nerve impulse works? Good! You don’t understand how memories are laid down in the brain? Excellent! Is photosynthesis a bafflingly complex process? Wonderful! Please don’t go to work on the problem, just give up, and appeal to God. Dear scientist, don’t *work* on your mysteries. Bring us your mysteries for we can use them. Don’t squander precious ignorance by researching it away. Ignorance is God’s gift to Kansas.

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