

## **The Prince And The Great Debate. Don't Turn Your Back on Science**

- An open letter from biologist Richard Dawkins to Prince Charles'

Observer, Sunday May 21, 2000

Richard Dawkins is Charles Simonyi Professor of the Public Understanding of Science at Oxford University

Your Royal Highness,

Your Reith lecture saddened me. I have deep sympathy for your aims, and admiration for your sincerity. But your hostility to science will not serve those aims; and your embracing of an ill-assorted jumble of mutually contradictory alternatives will lose you the respect that I think you deserve. I forget who it was who remarked: 'Of course we must be open-minded, but not so open-minded that our brains drop out.'

Let's look at some of the alternative philosophies which you seem to prefer over scientific reason. First, intuition, the heart's wisdom 'rustling like a breeze through the leaves'. Unfortunately, it depends whose intuition you choose. Where aims (if not methods) are concerned, your own intuitions coincide with mine. I wholeheartedly share your aim of long-term stewardship of our planet, with its diverse and complex biosphere.

But what about the instinctive wisdom in Saddam Hussein's black heart? What price the Wagnerian wind that rustled Hitler's twisted leaves? The Yorkshire Ripper heard religious voices in his head urging him to kill. How do we decide which intuitive inner voices to heed?

This, it is important to say, is not a dilemma that science can solve. My own passionate concern for world stewardship is as emotional as yours. But where I allow feelings to influence my aims, when it comes to deciding the best method of achieving them I'd rather think than feel. And thinking, here, means scientific thinking. No more effective method exists. If it did, science would incorporate it.

Next, Sir, I think you may have an exaggerated idea of the naturalness of 'traditional' or 'organic' agriculture. Agriculture has always been unnatural. Our species began to depart from our natural hunter-gatherer lifestyle as recently as 10,000 years ago - too short to measure on the evolutionary timescale.

Wheat, be it ever so wholemeal and stoneground, is not a natural food for Homo sapiens. Nor is milk, except for children. Almost every morsel of our food is genetically modified - admittedly by artificial selection not artificial mutation, but the end result is the same. A wheat grain is a genetically modified grass seed, just as a pekinese is a genetically modified wolf. Playing God? We've been playing God for centuries!

The large, anonymous crowds in which we now teem began with the agricultural revolution, and without agriculture we could survive in only a tiny fraction of our current numbers. Our high population is an agricultural (and technological and medical) artifact.

It is far more unnatural than the population-limiting methods condemned as unnatural by the Pope. Like it or not, we are stuck with agriculture, and agriculture - all agriculture - is unnatural. We sold that pass 10,000 years ago.

Does that mean there's nothing to choose between different kinds of agriculture when it comes to sustainable planetary welfare? Certainly not. Some are much more damaging than others, but it's no use appealing to 'nature', or to 'instinct' in order to decide which ones. You have to study the evidence, soberly and reasonably - scientifically. Slashing and burning (incidentally, no agricultural system is closer to being 'traditional') destroys our ancient forests. Overgrazing (again, widely practised by 'traditional' cultures) causes soil erosion and turns fertile pasture into desert. Moving to our own modern tribe, monoculture, fed by powdered fertilisers and poisons, is bad for the future; indiscriminate use of antibiotics to promote livestock growth is worse.

Incidentally, one worrying aspect of the hysterical opposition to the possible risks from GM crops is that it diverts attention from definite dangers which are already well understood but largely ignored. The evolution of antibiotic-resistant strains of bacteria is something that a Darwinian might have foreseen from the day antibiotics were discovered. Unfortunately the warning voices have been rather quiet, and now they are drowned by the baying cacophony: 'GM GM GM GM GM GM GM!'

Moreover if, as I expect, the dire prophecies of GM doom fail to materialise, the feeling of let-down may spill over into complacency about real risks. Has it occurred to you that our present GM brouhaha may be a terrible case of crying wolf?

Even if agriculture could be natural, and even if we could develop some sort of instinctive rapport with the ways of nature, would nature be a good role model? Here, we must think carefully. There really is a sense in which ecosystems are balanced and harmonious, with some of their constituent species becoming mutually dependent. This is one reason the corporate thuggery that is destroying the rainforests is so criminal.

On the other hand, we must beware of a very common misunderstanding of Darwinism. Tennyson was writing before Darwin but he got it right. Nature really is red in tooth and claw. Much as we might like to believe otherwise, natural selection, working within each species, does not favour long-term stewardship. It favours short-term gain. Loggers, whalers, and other profiteers who squander the future for present greed, are only doing what all wild creatures have done for three billion years.

No wonder T.H. Huxley, Darwin's bulldog, founded his ethics on a repudiation of Darwinism. Not a repudiation of Darwinism as science, of course, for you cannot repudiate truth. But the very fact that Darwinism is true makes it even more important for us to fight against the naturally selfish and exploitative tendencies of nature. We can do it. Probably no other species of animal or plant can. We can do it because our brains (admittedly given to us by natural selection for reasons of short-term Darwinian gain) are big enough to see into the future and plot long-term consequences. Natural selection is like a robot that can only climb uphill, even if this leaves it stuck on top of a measly hillock. There is no mechanism for going downhill, for crossing the valley to the

lower slopes of the high mountain on the other side. There is no natural foresight, no mechanism for warning that present selfish gains are leading to species extinction – and indeed, 99 per cent of all species that have ever lived are extinct.

The human brain, probably uniquely in the whole of evolutionary history, can see across the valley and can plot a course away from extinction and towards distant uplands. Long-term planning - and hence the very possibility of stewardship - is something utterly new on the planet, even alien. It exists only in human brains. The future is a new invention in evolution. It is precious. And fragile. We must use all our scientific artifice to protect it.

It may sound paradoxical, but if we want to sustain the planet into the future, the first thing we must do is stop taking advice from nature. Nature is a short-term Darwinian profiteer. Darwin himself said it: 'What a book a devil's chaplain might write on the clumsy, wasteful, blundering, low, and horridly cruel works of nature.'

Of course that's bleak, but there's no law saying the truth has to be cheerful; no point shooting the messenger - science - and no sense in preferring an alternative world view just because it feels more comfortable. In any case, science isn't all bleak. Nor, by the way, is science an arrogant know-all. Any scientist worthy of the name will warm to your quotation from Socrates: 'Wisdom is knowing that you don't know.' What else drives us to find out?

What saddens me most, Sir, is how much you will be missing if you turn your back on science. I have tried to write about the poetic wonder of science myself, but may I take the liberty of presenting you with a book by another author? It is *The Demon-Haunted World* by the lamented Carl Sagan. I'd call your attention especially to the subtitle: *Science as a Candle in the Dark* .