

Coda

QJM

Darwin's dangerous idea

Most educated people nowadays know that we share over 98% of our DNA with chimpanzees. It does not disconcert us. The Victorians may have reacted with outrage to the proposition that we share our ancestors with the great apes, but we now live comfortably with the knowledge of our cousinhood.

We also share 50% of our DNA with bananas. This is a little harder to come to terms with. We cannot know how the bananas feel about it, but many humans may experience a *frisson* on learning this fact. The *frisson* may only be a faint echo of the existential horror that Darwin's contemporaries had to deal with. All the same, it gives us some sense of the blow that he delivered to their self-esteem.

Modern doctors have a somewhat peculiar relationship with Darwinism and evolutionary biology. The problem is not one of disbelief. Only a small minority of doctors still have anti-Darwinian views about the origin of species or the descent of man. No doubt they continue to defend these in the same way that the Inquisition challenged Galileo: by arguing that God wants to test our faith by scattering plausible illusions around the universe. However, most of us find little appeal or logic in the idea of a celestial Paul Daniels, or a transcendent Tommy Cooper.

The problem for doctors is perhaps more one of inattention. Evolutionary biology is like a background hum. It is always there but we never quite stop in order to hear it. We busy ourselves every day with its myriad manifestations—*anatomy, physiology, molecular genetics or whatever*—without noticing their implications. We may believe that we are thinking about the grander picture, but probably we are not.

Our attitudes to bacteria are a good example. As doctors we respect bacteria, both as adversaries and as commensals. We acknowledge that we cannot live without them, and that sometimes we cannot live with them either. Yet we systematically suppress the memory that they are something else as to us well. For a start, they spent several thousand million years manufacturing the atmosphere that made all later life forms possible. Then, they

became the common ancestors for ourselves, chimpanzees, bananas and everything that grows and crawls on our planet. The microbiology reports that sit on our desk each morning are in fact the latest gossip about our distant grandparents, and tell us whether we and they are hitting it off. From the bacteria's perspective we are probably fulfilling our allotted role in the family pretty well, since we each carry around more of their cells than we do of our own.

We seem to have a similarly selective understanding of biochemistry too. At medical school we all learn the Krebs cycle. Later, it becomes a familiar litany or falls a victim to embarrassing amnesia. Either way, we scarcely pause to reflect that it too is only part of a much wider interactive picture: it has its inescapable counterpart in plant photosynthesis. Neither our cycle of phosphorylation nor theirs of photo-phosphorylation could survive without the other. As animals, we nourish ourselves on the waste gases of vegetables—bananas included—and they do on ours.

Why do we not hold these things in mind more often? Partly, it may be because of their enormity. For example, we can only make sense of the evolutionary time scale by likening it to a human life—with the earth as a 46-year-old person, and human civilization as the last two hours. In the same way, we can only concentrate on the effects of genetic mutations by turning our gaze away from the distant supernovae that, millions of years before, spat out the particles that caused those mutations.

The enormity is an intellectual one but it is an emotional one too. Psychoanalysts talk of the 'nameless dread' that every infant has to learn to contain in order to develop a coherent sense of self. It is a dread of fragmentation, of annihilation, of not-being. If we ever re-encounter this dread as adults (and most of us probably do at times) it may be when we try to assimilate the unassimilable. This must surely include any attempt to apprehend our position as a species in time and in space.

Darwin's readers had difficulty in accepting his evidence because it was inconsistent with their

understanding of the past. Our own true difficulty with evolutionary biology may have more to do with the challenge it poses to our expectations about the future. So far as we know, we are the only species ever to have had foreknowledge of our own inevitable extinction, collectively as well as individually. We now know that we are not equipped to survive even the planetary glaciations that occur with breakneck frequency in evolutionary terms—let alone the cosmic collisions that have regularly wiped out 70% or more of all earthly creatures.

I sometimes find it puzzling that we do not insist on medical school applicants having biology even at GCSE, let alone at A level. Yet perhaps it is not so surprising. In spite of our apparently relaxed view of Darwin, we may not want to examine the implications of his discoveries, any more than the disgusted bishops and furious pamphleteers of his time. He posed theological challenges that still remain to be addressed. Thinking about them too much may take our minds off the job.

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