

In conversation with with Richard Dawkins



Richard Dawkins has been the acknowledged leader of the evolutionary pack since the publication of *The Selfish Gene* in 1976. the evolutionist spoke to him about the difficulties he has faced in getting the evolutionary message across, his views on evolutionary psychology, and how selfish humans really are.

the evolutionist: It's been 138 years since the publication of *The Origin of Species* and over twenty years since *The Selfish Gene*... Why do you think it's taken such a long time for people to accept the idea of evolution?

Richard Dawkins: Well, I'm not a sociologist, I'm not a psychologist, I'm no more qualified to measure the temperature of the zeitgeist than anyone else... but I could make a few guesses I suppose. Part of the problem is, I'm sure, that people see it as conflicting with their religion -- they might be cheered up a bit by the fact that the Pope has come out in favour of evolution. I think there are other barriers to understanding, I think the human brain is equipped by natural selection to understand certain kinds of things better than others. For example, physicists tell us that [this table] is almost all empty space, but we perceive it as a very solid, continuous object without any holes in it. It's convenient for our brains to see it like that. Similarly our brains find it convenient to model the world in all sorts of other ways: we stick colours on things, we stick textures on things in our heads in a sense... and one of the things we are geared to do is to cope with certain time scales better than others. So we can cope with a time scale of minutes or hours or decades or even centuries. But when it comes to millennia we are just pushed to the edge of what we can grasp. We have a kind of spine tingling feeling of awe when we contemplate the Ancient Egyptians and the Babylonians, but on an evolutionary time-scale we haven't even begun when we've got into millennia -- you've got to go into hundreds of thousands or millions of years. We can write down a million years, or a hundred million years, and say we understand it in an arithmetic sense, but we don't *really* understand it. Another problem is that we are so surrounded by man-made artefacts, we get so used to the idea that things that are well-designed for a purpose and have indeed been designed by a designer, it's quite hard to grasp the Darwinian alternative. But I think the main reason is that so many people are not educated in the subject, they just haven't been taught it. This is particularly true in America, where enormous numbers of people have the very haziest idea of what Darwinism is all about. And I think it was almost deliberate policy in America not to rock the boat, because so many people were upset about it for religion reasons.

the evolutionist: Aside from the sections of the brain that can't understand Darwinism, do you think there are any that won't? I'm thinking of Triver's work on self-deception. Do you think some of the ideas surrounding "the selfish gene" are resisted quite actively, quite forcefully by these parts of the brain?

Dawkins: Are you implying, when you say self-deception, that there's a kind of active resistance to comprehending our own motivation? Perhaps you need to explain to me why you think that's plausible. I can't immediately see it. I mean I understand Triver's self-deception idea but that's for social reasons, that's where if you want to deceive someone else you have to deceive yourself first. But I can't quite see why it would be of benefit to deceive ourselves about the nature of the universe or life or ourselves...

the evolutionist: Well, because if people spend a lot of energy convincing themselves of the generosity and altruism of their social presence, they might resist a theory that said that, at some level, this was all self-serving, if it was uncovering some of the selfish motives involved. Even if this was a misconception.

Dawkins: I think I see what you mean. It doesn't immediately hit me as highly plausible. Also, I couldn't say that the brain *hadn't* the capacity to understand, because obviously many of us do. But there is a sort of incapacity, in the same way as we find it even more difficult to understand quantum theory.

the evolutionist: Well, one area that's experienced a lot of resistance is evolutionary psychology. What do you think of that method of applying evolutionary theory to human behaviour?

Dawkins: Well, I'm all for it. Given that you accept Darwinism at all, it seems to me to be obviously a sensible way to think about it.

the evolutionist: Are there any areas of it which you've found particularly interesting?

Dawkins: Not particularly, no. I like most of the stuff by Daly and Wilson, I think it's very good. But I wouldn't like to single out anyone in particular.

the evolutionist: Do you think that's likely to have the same kind of problems getting its message across as you've had getting basic evolutionary theory across?

Dawkins: Yes, I think so. Not just the opposition from religious people, but also the political opposition. It's had opposition since the mid-70s; from then on Wilson and his colleagues, including me, have been attacked by misunderstandings from the Left.

the evolutionist: Surely there's quite a difference between the way evolutionary theory is used in evolutionary psychology, than the kind used in the less sophisticated areas of sociobiology?

Dawkins: So you say; it's not obvious to me. Sounds like just a new name for the same subject. What do you think's the difference?

the evolutionist: The main difference is surely the emphasis on psychology. While there's always been some connection between genes on the one hand and psychology on the other, evolutionary psychologists have got a big brain in the middle which is 'doing' the behaviour...

Dawkins: I think that was always there. If you read *On Human Nature*, or *Sociobiology* itself actually, I think there's been a brain in the middle all along.

the evolutionist: I remember reading *On Human Nature* and being mentally jarred by the leap from one to the other: "This behaviour is adaptive... so there must be a gene for it."

Dawkins: It would have been mad to suggest that the intermediary between the genes and the behaviour was anything but the brain, so it's not a major advance to stick it in explicitly. I don't see how you could have made a behavioural genetics argument remotely plausible without going via psychology. What I detect as slightly new to me, in people who call themselves evolutionary psychologists, is the idea of the brain as a composite of semi-separate psychological organs or modules. Again, it had to be like that, but I find that shift of emphasis moderately helpful. But I think it's awfully easy to exaggerate the difference between evolutionary psychology and sociobiology. I've always assumed the reason for the new name was public relations. A whole lot of people have been brought up to think that sociobiology is a dirty word, so we'd better have a new word. The phrase "behavioural ecology" was invented for exactly the same reason: to distance the subject from sociobiology, which in ignorant circles has been taken up as a sort of red-rag word.



the evolutionist: The subtitle of *The Adapted Mind* is "evolutionary psychology and the generation of culture". Do you think there's any kind of analogy between the notion of culture being an expression of these type of psychological mechanisms, and your idea of the extended phenotype?

Dawkins: I'd rather not push it I think.

the evolutionist: Then what do you think are the differences? Surely the argument is that there are various genetically based bits of brains that do things which the rest of us are witness to.

Dawkins: I find that my kind of paradigm examples are things like beaver dams and birds' nests, where I'm trying to shake people into realising that you could have a "gene for" a certain shape of birds' nest, just as surely as you could have a certain shape of beak. You could selectively breed for nest shape. You could do a Mendelian experiment. You could do an artificial selection experiment. You could take a hundred generations to breed weaver birds that make nests of a different shape. But if you take a cultural thing -- say different styles of architecture around the world -- I doubt very much that they are due to genetic differences, and I wouldn't find it persuasive to suggest you could breed for different styles of architecture. Whereas I do think you can breed different styles of birds' nests.

the evolutionist: But there's a lot of "cultural" things in-between a bird's nest and a Greek temple; like language. If language has a hard-wired "deep structure", wouldn't you expect to see the same kind of thing?

Dawkins: Yes, and I'm sure that must have happened in the evolution of language. But that's not so much an extended phenotype, that's just a phenotype. So suppose you imagine breeding over some stage in our ancestry; natural selection breeding for the ability to do a certain kind of grammatical construction. Perhaps there was an intermediate stage of language evolution when sentences consisted of verb-noun, noun-verb, but no "if's" or "then's", no questions. If that's true and it happened by proper genetic evolution, then one would wish to call the ability to do certain types of grammars a phenotypic effect of genes. That's an ordinary phenotypic effect. An extended phenotypic effect would be something that's outside the body. But I'm getting uncomfortable using the phrase "extended phenotype". I'd rather keep it for things like birds' nests where there is a more or less straightforward mapping between genes and the extended phenotype itself.

the evolutionist: Can you think of anything that humans can do or have done that might map onto that model?

Dawkins: Well, I suppose stone arrow heads might be a possible example. It would have to be the case that if there exist two kinds of arrowhead, and when you consistently breed from individuals who have made type 'A' arrowheads, and consistently don't breed from individuals who have made arrowheads of type 'B', then after many generations of such breeding you have people being born who spontaneously produce type 'A'. Of course they will have to be given some schooling in making arrowheads generally, one's prepared to allow that... but I don't think it's a fruitful line of enquiry. I don't believe that's what it would be like. The difference between type 'A' and type 'B' arrowheads would probably turn out to be a cultural difference.

the evolutionist: Isn't that one of the lines of enquiry of evolutionary psychology? It's trying to find the general abilities -- not necessarily the architecture but the ability to imagine the architecture.

Dawkins: Yes, I could easily imagine you could breed for skill in making flint arrowheads. If for a hundred generations you teach all the children how to make arrowheads and breed from the best ones, that would have an evolutionary effect. But I wouldn't call that an extended phenotype, I'd just call it a phenotype.

the evolutionist: Well, I was going to ask you how the evolutionary psychology approach to culture compares to the 'memes' approach, but... Just for the record, what is the 1997 line on memes? Was it meant as an example of general Darwinism, or as the basis of a theory of culture?

Dawkins: Well, in 1976 it was the first version. But I must say I blow hot and cold on the whole idea. I sometimes think it has an interesting contribution to make to the understanding of human culture, and other times I just think it's a way of explaining to people that you don't have to have DNA, all you need is something that's self-replicating. There are times when I think it is quite a helpful way of explaining certain aspects, certain foibles of human culture -- I think that when I look at crazes in children's schools, which have a very epidemiological feel to them. Or clothes fashions for example.

the evolutionist: Are they really self-replicating things, or is that a product of kids wanting to look like their friends?

Dawkins: Well I'm sure it's both. If you accept that it is memetic, then you've then go to ask Why do certain memes spread rather than others? The answer to that is going to be "wanting to look like their friends" or whatever it might be. "Wanting to look like your friends" is the mechanism of transmission, analogous to gene replication.

the evolutionist: But it's being done outside the memes. If the meme is "turning round your baseball cap", the mechanism isn't contained within the baseball cap itself..

Dawkins: Yes, that's true... but of course, DNA has a lot of help. There is a confusion in my mind over whether the meme is the baseball cap itself or something in the brain that corresponds to it. There's quite a voluminous literature on memes now, especially on the internet, and there's clear confusion there. When I've even come close to thinking about it clearly I've thought that the meme is going to be the analogy of the gene it ought to be something in the brain. The baseball cap is the phenotype, the manifestation of it.

the evolutionist: Is it an "extended memotype"?

Dawkins: Well, I think probably all memotypes are extended.



the evolutionist: At the end of *The Selfish Gene*, and in several of your lectures, you seem to be quite "hard" on genes, not very fond of them and the process that creates them...

Dawkins: Well there are two aspects to that. One is what we've just been talking about, which is that replicators don't have to be DNA. Darwinism has to have replicators at its base, but they don't have to be DNA. So I'm hard on genes in that purely academic sense -- I want people to understand that you can have Darwinism going on in computers, or on Mars, without DNA. The other sense in which you could say I'm hard on, not so much on genes, but on Darwinism, is when you begin to talk about morals and politics and so forth. I find it quite ironic -- amusing -- the thought that if you did build a politics or an ethical system on Darwinism, people like you and me would hate it. It really would be a very unpleasant world in which to live.

the evolutionist: What would it look like?

Dawkins: Oh, it would look like Hitler's Germany, or extreme Thatcherite Britain, only much more so. In America the extreme right - the very people who ought to love Darwinism from a political point of view - are the ones who hate it from a scientific point of view. And so I quite enjoy pointing out this irony. You've got to be pretty thick to think that because "I am a Darwinian in my academic outlook" I

must be an advocate of selfishness in humans. But there are people, like Steven Rose, who are almost constitutionally incapable of making the separation between what one believes academically, scientifically, and what one thinks "ought" to happen, politically. So it is sometimes necessary to kind of over-react - but it shouldn't be necessary to even say: "I am a may be a Darwinian and I may believe in selfish genes but I'm not an advocate of a politics of selfishness." It shouldn't be necessary, but it is, because of the misunderstandings that have happened.

the evolutionist: I find that kind of mistake even less easier to understand given all the work that's gone into understanding the evolution of co-operation, and all the "nice" things that genes do...

Dawkins: Well that's a separate matter, because that again shouldn't make any difference one way or the other. As academic scientists we can look at the evolution of co-operation, and we can work out the circumstances in which genetic tendencies to co-operate will spread, and the circumstances in which they won't, and that's all very interesting. But none of that tells you how you should live your own life.

the evolutionist: You don't think so?

Dawkins: No.

the evolutionist: What if you recognized that you were a member of a social species, and that in order to feel better than otherwise, it would be a good idea to co-operate?

Dawkins: Yes, you could do that. It would be analogous to being filled with sexual lust but deciding for other reasons not to give in to it. You could think: "It would be irresponsible for me to succumb to these powerful sexual feelings." Academically I have a very clear understanding of why I feel these temptations and lustful desires. But morally or socially, or for all sorts of other reasons, I've elected to hold them in check. There's no problem about that, we do it all the time. There's no reason why we shouldn't do the same thing with our academic understanding of why we are sometimes selfish and sometimes co-operative.

the evolutionist: What if that academic understanding leads you to an appreciation of why you hold certain things in check, and not others, in different circumstances?

Dawkins: Well, it probably might. But I don't think that stops you doing it, checking yourself. You can always regress one stage further back and say: "Yes, I understand now why I'm keeping my lustful feelings in check because I've been educated in this way, because I come from long historical tradition..." There's no limits to how much you can analyse and understand why you're behaving in a certain way. I don't see a problem with that.

the evolutionist: So there's absolutely no overlap between a biological or scientific understanding of what makes people tick, and any moral or political or policy decisions you might make?

Dawkins: I suppose the factors that add up to someone's moral or political stance are very

complicated. And they will include all kinds of things like, every book you've ever read, all sorts of experiences and lessons you've learned from your parents and example from admired friends... so these all add up, and it would be very surprising if in that melting-pot of opinion forming causal factors, your scientific knowledge and understanding wasn't in there somewhere as well. All I'm saying is that's it's just part of that melting pot, it's not a straight-forward equation... that which would be good for my selfish genes is what I ought to be doing in my own life.

the evolutionist: But presumably you're doing that automatically anyway, so you don't have to think about it?

Dawkins: I don't think you are doing it automatically.

the evolutionist: Isn't that what your body and brain are "doing"?

Dawkins: No. Because... if I really wanted to spread my selfish genes I wouldn't waste time writing books, giving lectures... I'd be simply trying to reproduce myself as hard as I could with as many females as I could.

the evolutionist: That's a very risky strategy though. Surely there's more than one way to skin a cat... in terms of getting yourself replicated?

Dawkins: Are you suggesting that when one devotes one's life to writing books, that one is maximising one's reproductive success?

the evolutionist: No, because things you might be doing in the 1990's wouldn't necessarily be aimed directly at those ends. But the kinds of brains that are doing that were brains that had existed...

Dawkins: So something equivalent to writing books would have been a generative act, in the Pleistocene? The sort of argument that says we have this urge to get rich, and it would have turned itself into reproduction once upon a time?

the evolutionist: Mmmm... yeh. Obviously, behaviours might not have the same consequences today, but the fact that we have certain dispositions to do certain kinds of things would perhaps indicate that at some point those dispositions were good to have.

Dawkins: Yes, I believe that. I've frequently made arguments to that effect. I don't think we're really disagreeing about that. But what I was talking about was the point about having got a cognitive understanding of what this is all about, having understood what inclusive fitness means and so on, we could if we wanted to, sit down with a pencil and paper and calculate what was the best way to propagate your genes in 1997, in urban England. And it certainly wouldn't be writing lectures and so on, it would be something very different, like becoming a sperm donor. Or we could sit down and decide to maximise something else. Some people want to maximise the sum of human happiness which has nothing to do with inclusive fitness, it's almost antithetical. You can elect to direct your goal-

seeking machinery towards maximising something different from that which it was originally set up to maximise. We've got goal-seeking machinery, we've got function-maximising machinery, and we're subverting it. Instead of maximising inclusive fitness we're now maximising different things. Different people may be maximising different things.

the evolutionist: So when you're saying we need to "rebel" against our selfish genes and thwart their schemes, what kinds of things do you have in mind?

Dawkins: Well, contraception for a start - a very concrete feat of rebellion...

the evolutionist: Is it a rebellion against genes though? Do we have any cognitive modules to make us fear contraception... ? It's such a novel thing. Unless you're talking at a different level...

Dawkins: Cognitively we've taken the decision to rebel, taken the decision to have fewer children that we're economically capable of doing... We've set up a welfare state, we take care of the elderly, we take care of non-humans, we give money to charity. There are all these sorts of things one can interpret, if you like, as misfirings...

the evolutionist: Are they really misfirings? Are all the "good" things we do nothing to do with genes but are cultural, and all the bad things we do are to do with genes, selfishness... Is it really that clear cut?

Dawkins: I doubt it. No.

the evolutionist: ... especially considering the work on co-operation, altruism; or kin selection giving you an insight into families or "brotherly love". I just wondered how much of it was, "genes in the bad corner" and culture in the good.

Dawkins: No, let's not call it that. I agree with you about that. It's not that straightforward.

the evolutionist: So what kinds of things would be in the "manifesto" of rebellion against the genes?

Dawkins: Well, I think I would prefer not to stress the rebellion aspect of it. I think I'd rather say let's understand how various impulses, lusts and fears and things come to be. But then, having understood them, when we decide what to do, we neither go against them nor for them -- we decide independently what we think would be a good thing. We don't have a blanket rule that says "genes are bad, culture's good". We don't give value judgements to the entire category, we simply look at each individual policy decision, and decide on "other grounds" -- moral philosophic grounds or political philosophic grounds -- what we think is a good thing. We decide whether we want to live in the sort of society that has a national health service. You decide whether you want to live in a society that cares for the old when they're no longer useful or productive. And the grounds on which we make that decision... it's not entirely clear to me where they come from. Our brains are the way they are because of our heritage to some extent, so doubtless that does influence the decisions that we take.

the evolutionist: Well, going back to the Triver's argument about the evolution of a sense of fairness, or moral outrage, embarrassment, guilt and shame being emotions that police reciprocal altruism... even when you go back to relying on moral philosophy or things that are "outside" this biological stuff... it's an area still covered by evolutionary theory. Even the reasons why you might find not having a NHS fair or unfair... isn't that within the same confines?

Dawkins: Yes I suppose in a way... If you get really sort of smart about it you could probably, with sufficient ingenuity, explain just about anything...

the evolutionist: That'd be quite a good trick to pull off wouldn't it.

Dawkins: Yes. But then I keep coming back to saying having discovered, as you think, the Darwinian explanation of why we do so-and-so, that doesn't mean we should immediately write a political manifesto saying, "Ah, we understand this now, therefore we should do it!" It doesn't follow that you go from having understood scientifically why something happens to making it into a political creed. When you decide what to do, when you decide shall I vote Tory or Labour, do I think we should go into the common market or not, you don't say "now what would my selfish genes want?" I think that's all I'm saying.

the evolutionist: Well you don't need to...

Dawkins: ... because they do it anyway. Well, yes OK. Well they can't really because otherwise everybody would make the same choice...

the evolutionist: Well they're quite flexible... But when people are outraged by cuts in the NHS or something, isn't it those kinds of cognitive mechanisms that are being sparked off. Isn't it those "modules" for fairness or moral outrage that motivate people to make those choices. It could go either way of course...

Dawkins: Maybe, yes.

the evolutionist: It seems to make a lot of sense to say, all these nasty things that genes do, we can stop, or put obstacles in their path -- we're intelligent beings, we can do that. But what will be the opinion when the nicer things that genes do become more widely known?

Dawkins: You mean the co-operation and altruism... So what's the question about that then?

the evolutionist: Well I think you've answered really... you can't have a blanket response to what genes do.

the evolutionist: What would you add to a hypothetical third edition of *The Selfish Gene*?

Dawkins: Well, I suppose Matt Ridley's *Origins of Virtue* is something like... If I was asked to do a

"Selfish Gene" specifically about humans it might look something like Matt Ridley's book...

the evolutionist: In what sense... because it had virtue in the title?

Dawkins: Well no, not that. But one thing that strikes me is the idea - which is not his he got it from somebody else - that one of the reasons why we're so nice to each other is that we've got good at finding out who is a likely prospect for co-operation. So people get reputations for being the kind of person you can trust, the kind of person with whom its worth entering into a reciprocal deal. There is a kind of "meta-niceness", which is more than the technical definition of never being the first to defect, but the kind of person that other people can see is likely never to be the first to defect.

the evolutionist: I like the way you can go from the hard, calculating model of how these things work to thinking about how it happens in humans, nicely sloshed around with "generosity" or "charm" or "friendliness"...

Dawkins: Yes.

the evolutionist: What else would be in the third edition on humans?

Dawkins: Probably a bit more about memes. Maybe go and talk to advertising people about their techniques for spreading memes around. They've got quite sophisticated at that.

the evolutionist: You didn't do too badly with "selfish gene". Maybe you could teach them a thing or two.

Dawkins: I think *The Blind Watchmaker* is a better title.

the evolutionist: Thank you.

the evolutionist



(The interview was conducted at Richard Dawkins' home in Oxford, February 4, 1997.)