

WHY A LOT OF PEOPLE WITH SELFISH GENES ARE PRETTY NICE EXCEPT FOR THEIR HATRED OF *THE SELFISH GENE*

Randolph M. Nesse

THIRTY years ago, Western ideas about human nature bounced off *The Selfish Gene* and changed direction. Responses and related ideas continue to careen into each other with little diminished fury and successful variations are now creating their own lineages. It is a good time to assess both what *The Selfish Gene* accomplished and why so many people still hate it with such passion. The answers to these two questions are intimately related, but an analysis of the argument in *The Selfish Gene* gets nowhere without first acknowledging and seeking the source of its emotional impact.

We don't have to look far. *The Selfish Gene* illustrates, perhaps as well as any book ever written, the power of metaphor. By shamelessly anthropomorphizing genes as independent actors pursuing their selfish interests, Dawkins created wide understanding about how natural selection works that otherwise might still not exist. His use of metaphor is not only shameless, it is blameless, if you attend to the cautions he includes. Over and over again, he warns that genes are not actually actors, that they obviously are not thinking, motivated or conscious, and that the selfishness of genes is just a metaphor. These caveats slowed readers down about as effectively as 'Slow—Work Zone' signs on a deserted highway. Once his metaphor moved genes within range, our built-in capacities for intuitive social understanding snapped over them and reframed readers' minds. From the unassailable

argument that genes create organisms that act in the genes' interests, most readers followed blithely to the implication that individuals made by genes must be naturally and unavoidably selfish. Like a surreptitious inoculation, the selfish gene metaphor slipped a foreign idea into millions of minds where it aroused intense reactions that sped its spread.

For me, like many others, reading *The Selfish Gene* was in equal measures scientifically enlightening and personally disturbing. Like most scientists in the 1970s, I had assumed that selection shaped individuals to do what is good for the species. I thought that helping the group was natural and this explained guilt and other moral passions. The metaphor of the selfish gene pierced my complacency. I saw suddenly that selection shapes actions that advance the interests of genes no matter what the effect on groups, species, or even individuals. Much altruism of which I was personally proud was suddenly reframed as just another way my genes get me to do what benefits them. Selfish robots lumbered about in my dreams for a month.

My restless nights were not mine alone. Many readers experienced the book as a psychic trauma. It turned their moral worlds upside down. The reviews on Amazon.com include many poignant personal reports from readers, some of whom say the book induced persisting depression. Many scientists and authors soon began wrestling with these emotionally charged ideas. Richard Alexander, Robert Boyd, Helena Cronin, Janet Radcliffe-Richards, Peter Richerson, Matt Ridley, Robert Wright, and a dozen others wrote books on evolution and cooperation.¹⁻⁷ This has now become a flourishing research industry.⁸ These intense efforts were energized not just by curiosity, but by the moral challenge posed by *The Selfish Gene*. Dawkins' passionate writing was, I will wager, a response to that same moral challenge. He, like the rest of us, was deeply disturbed by the moral implications of a major advance in evolutionary theory.

That advance was, of course, the demise of naive group selection. In retrospect, it is astounding that the error was not recognized much sooner than the 1966 book *Adaptation and*

Natural Selection, by George Williams. With clear logic and vivid examples, this now classic book showed that genes for helping the group can't persist if they decrease the individual's survival and reproduction. It killed off naive group selection at a single stroke. At almost exactly the same time, William Hamilton provided the missing explanation for much helping behavior that was made otherwise mysterious by the demise of group selection. Hamilton recognized that relatives share genes that are identical by descent, so a gene that leads to helping relatives can become more common because of benefits to their children who are likely to have the same gene.

At first, these discoveries were little appreciated outside of specialized scientific circles. The 1975 publication of Edward O. Wilson's *Sociobiology* brought wide interest in evolution and animal behavior, but was not mainly about group selection and human altruism. Instead, it was *The Selfish Gene* that brought the fall of group selection and the power of kin selection to wide attention. In a display of utterly unselfish scholarship, Dawkins repeatedly gives credit to others for originating these core ideas.

Thirty years later, *The Selfish Gene* still provokes admiration, astonishment, and rage. The admiration is easily explained by the lucid prose, the astonishment by the startling ideas. But why such enduring rage? The anger arises, I think, because the main thesis of *The Selfish Gene* is not mainly about genes, it is about the behavior of individuals. The book reassesses big ancient questions about human nature in the light of the demise of group selection and gives simple unwelcome answers. Are we humans naturally good, or naturally evil? Answer: we are evil, or at least unredeemably selfish. If we are fundamentally selfish, then what explains altruism? Answer: tendencies to help others exist only if they help our genes, so helping behavior is therefore actually selfish, and true altruism is impossible or at least unnatural.

These are not abstract matters. Whether or not our attempts to help other individuals are actually altruistic or somehow covertly selfish is an emotionally charged personal issue. Almost everyone

has a strong reaction. Some experience *The Selfish Gene* as a personal accusation of secret selfishness and respond with indignant rage. Others find a justification for their selfish impulses. In a book about the evolution of the capacity for commitment, I have written about twelve ways that people cope with this trauma.⁹ Some try to ignore it, others attempt to show that it is false, or they attack the bearer of the news. Some try to resurrect group selection. Still others embrace it as a pure truth, long suppressed.

Like many scientists, my own habitual mechanism for coping with such traumas has been to try to figure things out. I went over Dawkins' logic again and again and couldn't see a problem. However, his conclusion didn't fit with my everyday experience, especially my work as a psychiatrist where I see so many people who spend nearly every waking minute trying to please others and feeling guilty at any hint of selfishness. To reconcile the theory and my observations, I began reading everything relevant I could find, collecting a whole shelf of books on evolution and morality, and eventually teaching a course on evolution and ethics with the moral philosopher Peter Railton. Gradually, it all worked. I finally feel I have come to grips with the challenge Dawkins posed. It has not been easy. I recommend *The Selfish Gene* to my students as a superb introduction to natural selection, but I warn them to be critical about the leap from selfish genes to selfish individuals. I hope this chapter will help them and others to take in the core message of *The Selfish Gene*, while providing some protection from undue emotional upset, and from reframing human nature as more ruthless even than it is.

I first turned to history. Sure enough, most of these ideas have bubbled over before. In 1893 T. H. Huxley published an essay on 'Evolution and Ethics', reprinted in 1989 by Williams and Paradis with their own modern commentaries.¹⁰ What an eye-opener to find that the ethical implications of evolution have provoked consternation for over a century! And the position of my mentor George Williams is dramatic: anything shaped by natural selection is necessarily selfish so that goodness is not only not natural, it is the exact opposite of what is natural. This is very reminiscent of

Dawkins' call to 'rebel against the tyranny of the replicators'. His deductions from evolutionary theory to dark implications for human nature are in a direct line with the conclusions of some of the world's other finest thinkers.

As I ruminated about the contradiction between theory and observation, it gradually became clear that the core of *The Selfish Gene* is not a theory, a prediction, or even an observation but a logical sequence that must be true, given what we know about how selection works. Genes that make individuals with brains that give rise to behaviors that result in having more than the average number of surviving offspring will tend to become more common; individuals should, therefore, tend to behave in ways that maximize their number of offspring and reproductively successful relatives, even if those behaviors harm the group or the species. Put more succinctly, individuals are shaped to do what is best for their genes. This is incontrovertible.

What about calling such genes and behaviors 'selfish'? Genes make individuals who act to get as many of their own genes as possible into the next generation, at the expense of other individuals' genes, so that sure seems selfish. And, a gene that leads to actions that benefit others' genes more than one's own would be selected against, so such altruism seems impossible.

But pause for a moment. Are the interests of the individual really the same as those of the individual's genes? Hardly. The emotional power of the metaphor conceals the vast differences between our interests and those of our genes. This is horribly vivid in the clinic. I see scores of people who realize full well that their lusty wishes will lead to disaster, but cannot help themselves. Many others are all too aware that they have become slaves to status competition that is ruining their lives, but they persist nonetheless. Even the body's physiology reflects genes that pursue their own interests at costs to individuals, such as the shorter lifespan of males compared to females and the speed of aging. The untold story is how selfish genes give rise to emotions, behaviors, and physiological tendencies that harm the interests of the individual.

Pause again. Do our intuitions about whether an action is

altruistic or selfish depend on whether the action benefits our genes? Not at all. When a mother rushes into a burning building to rescue her child, this does not seem very selfish. Conversely, many selfish actions harm our Darwinian fitness. You don't even have to attack someone to be killed socially; in some circles, simply taking the last cookie is enough to make you a hopeless outcast. Our intuitive notions of altruism and selfishness have little to do with whether our genes benefit more than those of others. Instead, we rate actions as more altruistic in proportion to the cost of helping divided by the likelihood and amount and speed of repayment.

What about *genes* being selfish? Yes, they do everything possible to advance their own interests. But do they cheat at the expense of the whole organism? Only rarely. This is best illustrated by the few that try. Examples such as t-haplotypes in mice and segregation distorters in fruit flies manage to get themselves disproportionately represented in sperm or eggs by complex machinations often involving a pair of genes, one of which kills off cells that don't have the other half of the pair. Now *that* is nasty. It also is profoundly harmful to the individual organism and its overall reproductive success. Lawrence Hurst has even suggested that chromosomes cross over and recombine with the other paired chromosome just before creating an egg or sperm in order to separate such super-selfish gene pairs. Altruistic genes may be impossible, but cooperative ones are ubiquitous, and truly selfish genes are rare, for very good reason.

A gene gains nothing by going off selfishly on its own. Its only route to the next generation is via contributions to what Leigh has called 'The Parliament of the Genes'.¹¹ Genes would pursue their interests selfishly if they could, but they can't. Success comes only from cooperating with other genes to benefit the whole organism. One could write a whole book about 'The Cooperative Gene'. In an article with that title, Peter Corning notes that Dawkins is fully aware of all of this: '[Genes] collaborate and interact in inextricably complex ways, both with each other and with their external environment . . . Building a leg is a multi-gene co-operative enterprise'.¹²

This cooperation is possible and necessary because all the cells in the body start off genetically identical. Muscle, bone, and skin cells have no chance of becoming eggs or sperm, so they are selected to do only what benefits the individual. Ensuring this genetic consistency is likely a major reason why life cycles reduce at one point to a single cell with a single set of genetic information and why that information is kept in a germ line sequestered from the body's other cells. Reproduction does not have to work that way. It could start with a whole cluster of cells. But it doesn't.

What about individuals? They are not genetically identical the way cells are, so they should compete to reproduce more than others in the group. They certainly do. The competition is ruthless and individuals do whatever works. But does selfish behavior work to advance the goal of maximizing reproduction? Not very often. A person who acts flagrantly selfishly even once may be ostracized for months. Conversely, a person who acts altruistically in cooperative ventures may gain huge benefits in the very long run. Game theory studies point out that altruists are subject to exploitation, but being perceived as selfish is an equal danger. Genes that make individuals who are indiscriminately selfish or generous are soon eliminated by natural selection. Like genes, individuals do whatever they can to increase the representation of their genes in future generations. Like genes, individuals accomplish this mainly by cooperating. Calling this cooperation selfish because it advances the interests of genes obscures the important differences between selfish and cooperative social strategies.

There is also an important distinction between helping that arises from calculated self-interest and helping that arises from selfless motives. We attribute much of our own helping not to calculations of how to get maximal gain, but to emotions of love, duty, and guilt. We want friends who help us out of friendship and loyalty, who do more than simply trading favors. Evidence that a supposed friend is pursuing self-interest ruins everything. If a friend gives you a ride to the airport and on the way you say, 'Well, now I owe you one ride to the airport, but only at a time of day when I am not busy and the traffic is light,' your offer will never be

taken up, you will never get a ride anyplace again, and your single sentence gaffe may become the subject of wide-ranging gossip. At least that is how things are here in the Midwest of the USA. The whole point of friendship is that you don't keep close score and your motives for helping are feelings, not expectations of gain. This is one reason why so many people hate an evolutionary view of human behavior. They think it implies that friendships are just exchanges, and they conclude from this that evolutionary psychologists are selfish beasts who just don't get it. The usual social response to someone who seems to be advocating selfishness is attack and social exclusion. Many authors have exercised themselves to provide such attacks and much important evolutionary science remains excluded from social sciences where it is badly needed.

Many evolutionary theorists are fully aware, however, that some human relationships involve more than kinship and reciprocity. I am particularly impressed at several comprehensive reviews of research on economic games by Ernst Fehr, each of which ends with the conclusion that we are missing something.¹³ One missing concept is commitment [9]. People make and keep commitments, sometimes even when there is no real enforcement mechanism. Furthermore, making commitments to do things that are not in your interests can be a powerful strategy of social influence. The challenge, of course, is to convince others that you will do something that is not in your interest, such as staying with and helping a spouse 'in sickness and in health'. This usually requires actually doing costly things to help others when there is no guarantee of reward. The conclusion is profound but a bit counterintuitive. People with a capacity for making and keeping commitments to do things that will not be in their interests have a strategy of social influence that gains them advantages not available to those whose behavior is predictably self-interested. These advantages are selection forces that may have shaped a capacity for commitment and moral passions to enforce them.

Such forces of social selection can shape tendencies for true altruism. By social selection I mean new forces of natural selection

that emerge automatically from the dynamics of social groups.¹⁴ This is not group selection or trait group selection or cultural group selection. It is regular natural selection at the individual level by selection forces that arise from the actions of other individuals. A simple example is the tendency to conform to social norms. The norm might be something significant such as not having sex with your cousin, or it might be just greeting others with the right hand instead of the left. Individuals who deviate from the norm are excluded. This is a potent selection force, one that I think shapes our deep human tendencies to try to figure out what others expect from us and to please them as best we can. Excessive social fears are vastly more common than lack of conscience. The complexity of human social groups gives rise to social selection that shapes human capacities for sociality different from that of other animals. Social selection seems to me to be the missing force of natural selection that explains our moral capacities, to say nothing of much interesting animal behavior. This is one of my main areas of current work.

Can natural selection really shape tendencies for true altruism as I claim above? If altruism is defined by consequences that harm the interests of one's genes, this is impossible. But selection can shape tendencies to altruistic helping that do not involve calculations or expectations of gain. True altruism provides its benefits from partnerships with others who also seek committed relationships, not exchange partners. One could try to undermine this argument with cynical reframing of such commitment as selfish. But people who believe that all others are selfish live in a social world in which that is true for them. In the clinic this is vivid. People's beliefs create social realities that repeatedly confirm the beliefs. Changing such beliefs is difficult, even if you want to and even with the help of a good therapist.

This brings us full circle to the emotional challenge posed by *The Selfish Gene*. People live by schemas based on their views of human nature, and they fight to preserve their world views, especially those close to the moral core of their identities. For many people, that makes it difficult to recognize the important truths at

the center of *The Selfish Gene*. Perhaps this essay will help just a bit. If my thesis is correct, however, it won't help much.

ENDNOTES

- 1 R. D. Alexander, *Darwinism and Human Affairs* (Seattle: University of Washington Press, 1979).
- 2 R. D. Alexander, *The Biology of Moral Systems* (New York: Aldine de Gruyter, 1987).
- 3 R. Boyd and P. J. Richerson, *Culture and the Evolutionary Process* (Chicago: University of Chicago Press, 1985), viii, 331.
- 4 H. Cronin, *The Ant and the Peacock: Altruism and Sexual Selection from Darwin to Today* (New York: Cambridge University Press, 1991), xiv, 490.
- 5 J. Radcliffe-Richards, *Human Nature After Darwin* (Walton Hall, UK: Open University, 1999).
- 6 M. Ridley, *The Origins of Virtue: Human Instincts and the Evolution of Cooperation* (New York: Viking, 1st US edn., 1997), viii, 295.
- 7 R. Wright, *The Moral Animal: The New Science of Evolutionary Psychology* (New York: Pantheon Books, 1994).
- 8 P. Hammerstein, *Genetic and Cultural Evolution of Cooperation* (Cambridge, MA: MIT Press in cooperation with Dahlem University Press, 2003), xiv, 485.
- 9 R. M. Nesse, *Evolution and the Capacity for Commitment*, Russell Sage Foundation series on trust (New York: Russell Sage Foundation, 2001), vol. 3, page 334.
- 10 J. G. Paradis, T. H. Huxley, and G. C. Williams, *Evolution and Ethics: T. H. Huxley's Evolution and Ethics with New Essays on its Victorian and Sociobiological Context* (Princeton: Princeton University Press, 1989), viii, 242.
- 11 E. G. J. Leigh, 'How does selection reconcile individual advantage with the good of the group?', *Proceedings of the National Academy of Science USA*, 74 (1977): 4542-4546.
- 12 P. A. Corning, 'The Co-Operative Gene: On The Role of Synergy in Evolution', *Evolutionary Theory*, 11 (1996): 183-207.
- 13 E. Fehr and U. Fischbacher, 'The nature of human altruism', *Nature* 425/6960 (2003): 785-791.
- 14 Nesse, *Evolution and the Capacity for Commitment* (2001).