

# The kindness of strangers

Despite switching disciplines - from maths to law to history then the sciences - Robert Trivers profoundly influenced evolutionary biology with his theory that our sense of justice has Darwinian explanations. But he suffered severe mental breakdowns and his career at Harvard was dogged by controversy. After 15 years in genetics he has now turned to anthropology

**Andrew Brown**

**Saturday August 27, 2005**

**[The Guardian](#)**

Robert Trivers could have been one of the great romantic heroes of 20th-century science if he'd died in the 70s, as some people supposed he would. But here he is, loping down the quiet, pale corridors of Harvard's Programme in Evolutionary Development, a powerfully built man about six foot tall, bespectacled, dressed in trainers, narrow blue cord trousers, a black leather jacket and a knitted watchman's cap. His language matches the macho clothes: for an Ivy League professor, he says "fuck" a lot.

In the early 70s, as a graduate student at Harvard with no formal training in biology, he wrote five papers that changed forever the way that evolution would be understood. He came up with the first Darwinian explanations for human cooperation, jealousy and our sense of justice that made genetic sense, and he showed how these arose from the same forces as act on all animals, from the pigeons outside his window to the fish of coral reefs. Then he analysed the reasons why, in almost all species, one sex is pickier about who it mates with than the other; then the ways in which children can be genetically programmed to demand more attention than their parents can provide. Even the way in which patterns of infanticide vary by sex and class in the Punjab is predicted by one of Trivers's papers.

EO Wilson, who coined the term sociobiology, described him as one of the most influential - and consistently correct - theoretical evolutionary biologists of our time. But he was reckless, aggressive and suffered from bipolar disorder which led him into agonising, debilitating breakdowns. His work was politically controversial. Harvard would not give him a professorship and towards the end of the 70s he seemed to vanish. In fact, he went in 1979 to the University of California in Santa Cruz, then a university with a reputation for drug abuse and slackness. "It was a once-in-a-lifetime mistake," he says, "in the sense that I can't afford to make another one like that. I survived, and I helped raise my children for a while; but that was all."

He also switched his attention from theoretical biology to the detailed and difficult study of stretches of DNA and their conflicts within particular bodies. He says: "Call it arrogance, overconfidence, or ignorance; it was mostly ignorance, I think. I naively thought - this was my phrase - I'll whip genetics into shape in three to five years. Fifteen years later, genetics has whipped me into shape. You do not whip genetics into shape within three to five years. It took me eight to 10 to understand what I was reading."

He is bringing out a book, *Genes in Conflict*, written with a younger colleague, Austin Burt, which summarises everything that is known about conflicts within the genome; but at just the point when the two of them know as much as anyone can about this discipline he has switched back to anthropology. His next project is to show that we have evolved the capacity to deceive ourselves because it makes us better at lying to other people.

This kind of wild leap between disciplines has characterised his life. He was born in 1943, the second of seven children born to Howard and Mildred Trivers, who had met at graduate school in

Harvard in the 30s. His father, whom he characterises as clever but ineffectual, had pursued postgraduate studies in German philosophy in Germany, until 1938 when even he noticed it was time for a Jewish student to leave. He was able to do this because his own father, an immigrant from Lithuania, had made a fortune in the rag trade: his gimmick was the two-pants suit, which consisted of a jacket with two pairs of trousers, since they would wear out first.

During the second world war, Howard Trivers worked for the army, and produced the regulations for denazification: he was rewarded with a post in the state department, so Robert Trivers grew up in a diplomatic household, a handicap he has triumphantly overcome: his opponents at Harvard are described as fools, and he says Richard Lewontin, the intellectual leader of the campaigns against sociobiology, grossly underestimated the role that selection plays in the makeup of the genome, while sanctioning all sorts of slanders against his opponents. Trivers says of his old enemy Stephen Jay Gould's theory that the female orgasm was merely a by-product of the fact that the opposite sex has them, "It makes you wonder just how close Steve had ever been to that blessed event if he thought it was a side-effect ..."

He was sent to grand schools - at Phillips Academy Andover, Massachusetts, where the Bushes went, he was regarded as a promising mathematician after he taught himself calculus, in three months, aged 14; and he took two advanced maths courses before he arrived at Harvard. Typically enough, he then lost interest in maths, and decided to be a lawyer instead, fighting injustice, defending people who were minimally criminal. He had grown up in Washington as well as Berlin and Copenhagen, and was keenly aware of injustice and racial discrimination.

In order to become a lawyer, he had to have a humanities degree, so his first studies at Harvard were in American history. They were interrupted by the first, and worst, of his breakdowns, which took the form of spiralling mania - staying up all night, night after night, reading Wittgenstein and then collapsing. He was hospitalised, and treated with the first generation of effective anti-psychotic drugs.

While recovering, he took courses in art, and was hired to illustrate, and then to write, a series of textbooks for high schools. Despite his history degree, it was obvious to his supervisors that he knew little about human biology, so he was given the animals to write about, and started to learn modern Darwinian biology. He fell in love with the logic of evolution. In the flow of genes through generations, and the steady, inexorable shaping of behaviour by natural selection, he saw a geometry of time, as beautiful as the geometry of space that Newton and Galileo had discovered. His mentor was an ornithologist called Bill Drury, whose memory he venerates. Drury was an expert on herring gulls. Trivers says: "He knew enough that if God had made him a herring gull, he would have known 90% of what he needed to survive."

Drury became very close to his pupil and his trust was reciprocated: "Bill and I were walking in the woods one day, and I told him that my first breakdown had been so painful that I had resolved that if I ever felt another one coming on, I would kill myself. Lately, however, I had changed my mind, and drawn up a list of 10 people I would kill first in that event. I wanted to know if this was going forwards or backwards. He thought for a while, then he said 'Can I add three names to that list?'. That was his only comment."

The textbook series was meant to be as influential as the new mathematics, and to transform the teaching of biology, which meant that Trivers himself had to get a thorough understanding of animal behaviour. In the event, it was killed by Christian conservatives. It taught evolution as fact, and examined human behaviour as an anthropologist might, so the states where it might have sold in millions would have nothing to do with it. It sold 50,000 or 60,000 copies where it might have sold five or six million.

Trivers determined to take a doctorate in biology; but university protocol meant that Drury could not be his adviser. Instead, he chose the curator of herpetology, Ernest Williams, who derailed his original plan to study monkeys in favour of going to Jamaica to study lizards. Trivers admits: "I was also quite frankly, interested in the women. When we flew to Jamaica I took one look at the women and one look at the island and decided to become a lizard man if that's what it took to go back there." Since that first epiphany, he has lived for about 13 years in Jamaica, off and on; he has married two Jamaican women.

Though he no longer studies lizards, he still has a long-term project going on the island, which studies symmetry in growing children. Symmetry is important in Trivers' theories because it is a measure of fidelity to the genetic masterplan, and so of health and desirability. More symmetrical children should appear more attractive to their peers, even if the differences are not consciously discernible.

Some of the experiments that have arisen from this are extraordinary. They have measured which way round children cuddle dolls; it appears that the more closely your ears resemble each other, the more likely you are to hold a doll (or a baby) with its head to the left. The theoretical justification for this is that the left ear feeds into the right side of the brain, which is normally where most information about feelings is processed. But a child with asymmetrical ears is more likely to have an unusual distribution of tasks between the two sides of the brain - both traits being expressions of a disturbance in the normal growth of the head and brain.

The asymmetries Trivers is measuring in a very detailed fashion are very small, quite undetectable in normal life, yet we seem to be unconsciously very sensitive to them. Symmetrical children are consistently judged to be the best dancers, which is also a measurement of sexual attractiveness. Theory would predict that women measure attractiveness more closely than men do. Sure enough, the gap between those judged best and worst dancers was greatest among the boys.

Unlike the other founders of sociobiology, Trivers was more interested in human than in animal behaviour. The founding genius of sociobiology, Bill Hamilton, was a naturalist and romantic who felt himself ill at ease in the modern world, and had a passion for insects, especially wasps. EO Wilson loves ants and arranged his office at Harvard so that there were ant colonies in perspex all around the walls, and the visitor might think he was inside a gigantic ants' nest. Wilson added one final chapter on humans to his book *Sociobiology* almost as an afterthought, though this caused a bitter feud that has divided the Harvard biology faculty to this day. Trivers, however, started his theories from what he could observe of human behaviour, and then went looking for genetic causes whose logic would apply across the whole living world.

It seemed to some biologists in the 60s that the central problem of their discipline was why animals are nice to each other. Previous generations had explained this as an adaptation for the good of the species but there seemed to be no mechanism that could make this true. If I sacrifice myself for you, this may very well benefit the tribe to which we both belong, It may even benefit humanity as a whole. But this is an act, other things being equal, which will increase the number of your descendants, not of mine. So your genes, less eager for sacrifice, will spread through the population and eventually the species will consist entirely of members who do not cooperate with each other. How, then, do we account for the obvious and widespread fact that the world is full of cooperative species, whose members will sacrifice their own immediate interests for others?

One answer had been encapsulated in a pub joke by the British biologist (and communist) JBS Haldane, who was asked, in the 50s, whether a man should lay down his life for his brother. "For two brothers," he said, "or four cousins." In other words, genes that benefit your relatives are likely to spread through the population, even if they damage the bearer sometimes, because the relatives will be likely to carry their own copies. This insight was reached independently by Bill Hamilton, as a student, who worked it out in mathematical detail in 1963, and showed how it

could explain the behaviour of ants and bees, whose curious pattern of reproduction means that females are more closely related to their sisters than to their offspring.

But there is cooperation in many species which do not have these patterns of relatedness; also between animals which are not closely related, nor even members of the same species. Even among humans, as Trivers observed, many people will more readily sacrifice themselves for their friends than for their relatives - an observation easy to make among the rebellious youth of the 60s. So a more general kind of rule than Hamilton had supplied was needed. Trivers came up with the notion of reciprocal altruism. In plain language, this said that self-sacrifice could be understood as self-interest providing there was a chance the beneficiary would repay the deed in the future.

The example he gave in the first paper was that of a man who sees someone drowning and rescues him. Providing, says Trivers, that the benefit of being saved is much greater than the cost of rescuing the swimmer, then it makes sense to dive in and play the lifeguard because the person you rescue from drowning may do the same for you some day. This example became extremely famous, and has been held up to scorn on the grounds that anyone likely to drown is not someone you would choose as the lifeguard when you are yourself in danger. But in the original paper, Trivers side-stepped this objection by suggesting either that the swimmer was in difficulties because of a sudden cramp or that they were being rescued with a branch extended from the bank.

It may seem absurd that people devoted so much effort to arguing about what was only meant to be an illustration of a more general principle, but the stakes were high. Before writing the paper, Trivers attempted, and failed, to get a grasp of the state of moral arguments about altruism. "What was missing from the papers was exactly what was missing from the discipline itself: any functional understanding of the behaviours that they were discussing. Why did it make sense for the organism to [behave unselfishly]? This was, of course, what evolutionary biology, and myself in particular, was set to provide."

Of course the idea that we have moral sentiments because they are useful and profitable seems to many people to misunderstand or deny the nature of morality. The whole point of altruistic behaviour is that we do it without thought of reward - sometimes, without any thought at all, as when rescuing people from drowning, or pulling them back from an oncoming car. There are less dramatic examples, however, which include sharing food, helping the sick, the very young, and the old, even when we are not related to them, and sharing tools and knowledge. All these are nearly universal human habits; in fact we describe societies where they don't happen as inhuman.

This kindness became part of human nature, Trivers argued, because kind instincts were rewarded and this happened because our ancestors lived sufficiently long lives in small stable groups to keep track of who owed whom favours. The great originality of the theory is not that it says that we are under certain circumstances naturally benevolent. Plenty of people had made that observation before. What no one had seen was that this benevolence requires a very strong sense of fairness if it is to become an established instinct. Fairness, or justice, has its roots for Trivers in the determination to see that other people are not cheating us, and taking favours without giving anything in return.

From abstract notions about the flow of genes he had come up with concrete and testable ideas about the ways our minds work; and it turned out to be demonstrably true that we find it much easier to solve logical puzzles if they are framed as if they are about cheating rather than an emotionally neutral subject, even though the two ways of putting the problem are logically equivalent.

The paper on reciprocal altruism, written before he had even gained a doctorate, has been enormously influential. Robin Dunbar, the professor of behavioural ecology at Liverpool University, says Trivers played a fundamentally important role in the development of modern evolutionary studies of behaviour and ecology. His four key early papers spawned (and continue to spawn) research in the study of both animals and humans. The importance of his contribution is beyond question. The modern field of behavioural ecology (the name under which sociobiology now travels) would simply not have been the same had he not written these papers.

Trivers' early work set the foundation for a biologically based system of ethics, in which a preference for some sorts of justice was part of our nature. Matt Ridley, whose book *The Origins of Virtue* is largely an expansion and restatement of Trivers's argument, says that when he was a student at Oxford, and got a postcard from Trivers asking for a reprint of one of his papers, "It was like getting a postcard from God"; and the whole line of popularising Darwinian books from Richard Dawkins all the way down to Steven Pinker descends from Trivers's insights.

There is a paradox here. Ridley, a former science editor of the *Economist*, takes the moral of Trivers's work to be distinctly Thatcherite, and in general the attacks on sociobiology, as well as the defences of it, have taken it to be a Right-wing construction, and a way to defend power and privilege by showing they are part of human nature. Even fairly left-wing Darwinists like Daniel Dennett tend to discover from their study of human nature that the perfect way for humans to live is that favoured by professors at good universities on the East Coast. But Trivers, one-time friend of the Black Panthers, loathes the Bush regime more than most forms of authority.

He thinks biology teaches us to be wary of the idea that any particular individual could be perfectly designed by evolution: "You're always facing a new world to which you're poorly adapted. So if you look at any given individual, and ask how the hell did [they] survive for 4.5bn years, then it is helpful to think of all these error-prone processes: sexual reproduction ensures that there is lots of variation in the population, and most of it will be less than optimal."

His second big idea was parental investment. Parents and children would have differing genetic interests, he saw, because a parent would wish to spread its investment of energy and time over all its children, to guard against the possibility of any one of them dying, whereas any individual child would want more than the parent should optimally give. As a baby mammal, it is to your advantage to suckle for as long as possible, but your mother may leave more grandchildren if she weans you in favour of a younger sibling.

Three more classic papers followed before a second breakdown, in 1972. After that, his interests shifted away from social theory in animals. He got married, for the first time, to Lorna Staples, with whom he had four children, including twins; and grew increasingly frustrated with Harvard's refusal to give him a properly paid job. He attributed this to Lewontin, so he took particular pleasure, earlier this year, in being invited back to Harvard to lecture Lewontin's own students. "It's like killing those fuckers and stealing the young away from them."

He has also quarrelled with his own side. He had written a foreword to the first edition of Richard Dawkins's *The Selfish Gene*, a book which popularised many of his ideas when it appeared in 1976; but it did not appear in the translation and when the book was republished in 1989, the foreword was dropped altogether, and replaced by a second author's preface, a breach of academic etiquette which made Trivers angry. Dawkins says that dropping the foreword was an accident and that he hopes to reinstate it. Trivers was disinclined to allow it to be published: "My first wife, a wonderful woman, used to refer to Dick as the Selfish Gene, just because of the way he acts"; however, he has now relented and Dawkins confirms it will appear in future editions.

In Santa Cruz in the 80s, Trivers formed a fast friendship with Huey Newton, the Black Panther, whom he described as an untutored genius, but one who was also in some respects unteachable.

The two men planned a book on deceit and self-deception. Newton, Trivers says, was an expert on both. His youngest daughter was Newton's god-daughter. A baby photograph of her, taken for her first passport, hangs in his office at Harvard, and with it comes a story about Newton: "We said to Huey, if she were going to be the judge at your trial, would you do the crime? And he looked at the picture for a while, and said, no. So we had it blown up and framed, and he hung the picture above his bed to remind himself not to do the crime. Did it work? I'm not sure it helped at all, because he was basically someone who did whatever he felt like doing."

Trivers also wrote a textbook of animal behaviour, which failed in its purpose of assuring him of a small income for life, but proved influential in the way the subject was taught. In 1995, he moved back to Rutgers University, in New Jersey, as a professor of anthropology and biology, but continued to work on the conflicts that can arise within the genome. Although this required him to master an entirely new field of science he felt it was related to his earlier studies. They had concentrated on conflicts that appear within species once you realise that the unit of self-interest is the individual. Now he was looking at conflicts within individuals, which arise when genes inside an organism are in conflict.

He says: "There are people who say to me, you never would have done it if you thought it would take you 15 years. And I say, no, of course I wouldn't. So they say, well self-deception, namely blinding yourself to the cost, is adaptive. Then I say, you cannot prove that, because you never know what I would have accomplished with those 15 years not devoted to genetics. Maybe I'd have made major insights into psychology ... The general trajectory in academia is to do ever easier things, so you start with social theory based on natural selection. Then you do deceit and self-deception, if that's really easier - at least it's vaguer; then you do religion, then you do your autobiography.

"So in retrospect I did something unusual, which is very rewarding." *Genes in Conflict* by Robert Trivers and Austin Burt will be published by Harvard University Press in November.

### **Robert Trivers**

**Born:** February 19 1943, Washington DC.

**Education:** Phillips Academy, Andover; Harvard (1965 BA history, '72 Phd biology).

**Married:** 1974-1988 Lorna Staples (three daughters: Natasha and Natalia (twins), Alelia, one son Jonathan); '97-2004 Debra Dixon (one daughter, Aubrey).

**Occupation:** Harvard 1971-72 instructor in anthropology; '73-75 assistant professor of biology; '75-78 associate professor of biology; '78-94 professor of biology, University of California, Santa Cruz; '94- professor of anthropology and biological sciences, Rutgers; 2005 (spring) visiting professor of psychology, Harvard.

**Selected publications:** 1985 *Social Evolution*; 2002 *Natural Selection and Social Theory: Selected Papers of Robert Trivers*.

The Kindness of Strangers is a 2019 internationally co-produced drama film, written and directed by Lone Scherfig. It stars Andrea Riseborough, Zoe Kazan, Tahar Rahim, Bill Nighy, Caleb Landry Jones, and Jay Baruchel. It had its world premiere at the Berlin International Film Festival on February 7, 2019. Andrea Riseborough as Alice. Tahar Rahim as Mark. Zoe Kazan as Clara. Bill Nighy as Timofey. Caleb Landry Jones as Jeff. Jay Baruchel as John.