

The Science of Solidarity

Chris Knight of the Radical Anthropology group looks at the 'selfish gene' revolution – and draws some rather different conclusions from moralistic liberals.

In 1844, following a four-year voyage around the world, Charles Darwin confided to a close friend that he had come to a dangerous conclusion. For seven years, he wrote, he had been “engaged in a very presumptuous work”, perhaps “a very foolish one”.

He had noticed that on each of the Galapagos Islands, the local finches ate slightly different foods and had evolved correspondingly modified beaks. In South America, he had examined many extraordinary fossils of extinct animals. Pondering the significance of all this, he had felt forced to change his mind about the origin of species. To his friend, Darwin wrote: “I am almost convinced (quite contrary to the opinion I started with) that species are not (it is like confessing a murder) immutable.”¹

In 1844, belief in transmutation – the idea that species could evolve into one another – was politically dangerous. Even as Darwin was “confessing” his new beliefs, atheists and revolutionaries were circulating penny papers around London’s streets, championing evolutionary ideas in opposition to the established doctrines of church and state. At that time, the best known evolutionary theorist was Jean-Baptiste Lamarck, custodian of the insect and worm displays in the Paris Natural History Museum. Closely identified with atheism and other subversive beliefs held to emanate from republican and revolutionary France, evolutionism in Britain was termed ‘Lamarckism’.

Any ‘Lamarckian’ - any scientist, that is, who questioned the god-given immutability of species - risked being identified with republicans, rioters and insurrectionists. Caught between his cautiously liberal political persona and his private scientific insights, Darwin was so anxious that he made himself ill, concealing and suppressing his findings as if he had secretly committed murder.

The period of revolutionary uprisings culminated in the events of 1848, when workers attempted insurrections in Britain and across Europe. With the defeat of these uprisings, counterrevolution set in. During the subsequent decade, the threat from the left receded. By 1858, another scientist - Alfred Wallace - had independently hit upon the principle of evolution by natural selection; if Darwin did not publish, Wallace would gain the scientific credit. With revolution no longer an immediate danger, Darwin's courage rose and in 1859 he at last published *The origin of species*.²

In his great book, Darwin presented a wholly new concept. Lamarck had explained evolution as the outcome of animals' lifetime striving for self-improvement. Darwin's grimmer, crueller idea was borrowed from the reverend Thomas Malthus, an economist employed by the East India Company. Malthus had no interest in the origin of species - his agenda was political. Human populations, he argued, will always increase faster than the supply of food. Struggle and starvation must inevitably result. Public charities, said Malthus, can only aggravate the problem: handouts will make the paupers feel comfortable, encouraging them to breed. More mouths to feed must lead to more poverty and so to yet further - insatiable - demands for welfare. The best policy is to let the poor die.³

Darwin's genius was to link botany and geology with this politically motivated advocacy of free competition and the 'struggle for survival'. Darwin saw Malthus's laissez-faire morality at work throughout nature. Population growth in the animal world would always outstrip the local food supply; inevitably, then, competition must end in starvation for the unfit. Whereas moralists or sentimentalists might have sought to soften this image of a heartless nature, Darwin followed Malthus in celebrating it. Just as capitalism brutally punished the poor and needy, so 'natural selection' weeded out creatures unable to compete. As the less fit in each generation died out, so the survivors' offspring would be disproportionately numerous, as would any inherited characteristics. Starvation and death, then, contributed positively to an evolutionary dynamic of punishing failure while rewarding success.

In this way, Darwin succeeded in negating the former political implications of evolutionary theory. Far from justifying collective resistance to injustice and exploitation - as historians Adrian Desmond and James Moore explain - Darwin's new evolutionism served a reverse political function:

“Social Darwinism’ is often taken to be something extraneous, an ugly concretion added to the pure Darwinian corpus after the event, tarnishing Darwin’s image. But his notebooks make plain that competition, free trade, imperialism, racial extermination and sexual inequality were written into the equation from the start - ‘Darwinism’ was always intended to explain human society.”⁴

Darwin pictured nature as a world without morals. By implication, this naturalised – hence legitimised – an economic system based on unrestrained competition, free of any misguided ‘moral’ interference from religion or state. Following publication of *The Origin of Species*, the consequent public scandals and controversies pitted natural selection against philosophers, clerics and others – mainly conservative rather than radical – who foresaw Darwin’s vision culminating in the collapse of all social morals.

Group selection

Following Darwin’s death in 1881, many influential thinkers attempted to blunt the force of Darwin’s apparently harsh, amoral reasoning. In Russia, the anarchist thinker, Peter Kropotkin, published *Mutual Aid*, a factor in evolution, arguing that cooperation, not competition, is nature’s law. The phrase, ‘survival of the fittest’ – so others came to argue – referred to conflict between groups or species, not individuals. According to this line of reasoning, individuals of any given species were destined to cooperate among themselves. For example, this explained sex – it was there to perpetuate the species. Males and females had to cooperate to reproduce; if they selfishly avoided this obligation, their species would become extinct.

From the early 1900s, this idea became popular because it resonated with then fashionable currents of political philosophy. Nations were associated with ‘races’ and likened to animal species. Each species, race or nation was supposed to be engaged in a life-and-death competitive struggle against its rivals. Those whose members cooperated with collective requirements might survive; those whose members acted ‘selfishly’ risked extinction.

Eugenics became widely fashionable, featuring centrally in German Nazi ideology. In the 1940s, pioneering ethologist Konrad Lorenz delighted Nazi propagandists by arguing that warfare is natural – as illustrated when male elephant seals or caribou bulls compete violently for access to females. This, argued Lorenz, is a healthy mechanism for eliminating weaklings, thereby preserving and improving the quality of the race. In Britain, Winston Churchill had

earlier been an enthusiastic supporter of eugenics, telling Asquith in 1910: “The unnatural and increasingly rapid growth of the feeble-minded and insane classes, coupled as it is with a steady restriction among the thrifty, energetic and superior stocks, constitutes a national and race danger which it is impossible to exaggerate.” Churchill urged the British government to start compulsorily sterilising “the feeble-minded and insane classes”, deeming this necessary to preserve the vigour of the race.⁵

The ‘species-advantage’ or ‘group selection’ theory of evolution received its most sophisticated and explicit formulation in 1962, when the Scottish naturalist, VC Wynne-Edwards, published a book entitled *Animal Dispersion in Relation to Social Behaviour*. For Wynne-Edwards, the fundamental problem faced by any biological population or species was unrestrained breeding. This would lead to shortages, followed ultimately by starvation on a potentially catastrophic scale. What was the solution? According to Wynne-Edwards, the species as a whole needed to develop mechanisms limiting its own fertility.

On the basis of this theory, Wynne-Edwards sought to explain certain otherwise puzzling features of animal and human life. In particular, he reinterpreted human practices such as cannibalism, infanticide and warfare, presenting them in a positive light as mechanisms for culling excess population. Many naturalists had observed instances of birds in large colonies destroying one another’s offspring, or lions biting and killing little cubs. All this, said Wynne-Edwards, could now be explained. The killers were not just being selfish. They were helping the species by keeping the population in check. In the human case, warfare served a similar function, since it was necessary to keep population levels down.

Wynne-Edwards’ theory – nowadays known as ‘group selection’ – remained influential within Darwinism until the 1970s. But precisely by formulating it in such strident, explicit terms, Wynne-Edwards unwittingly exposed its logical flaws. As soon as scientists started thinking about the alleged ‘population-reducing mechanisms’, it became clear that they could not possibly work. A gene for lowered reproductive success is simply a contradiction in terms. Regardless of any future group-level benefits, it would not and could not get passed on.

William Hamilton⁶ defined ‘fitness’ as success in perpetuating one’s genes, rendering the eugenicists’ classic ideological arguments curiously irrelevant. To take an example, imagine that the lower

classes in Churchill's Britain really were – as he feared they were – breeding more prolifically than the rich. In 'selfish gene' terms, this would make them especially 'fit'. Preventing the lower classes from breeding would have been absurd by any Darwinian standards. 'Fitness' can be measured by reference only to the success of genes – not that of 'races', 'classes' or 'species'. In future, therefore, racist and other reactionary politicians would have to propound their theories without endorsement from evolutionary science.

As Robert Trivers observes, "Species-advantage reasoning has some important consequences. First, it tends to elevate one individual's self-interest to that of the species, thereby tending to justify that individual's behaviour. In our example [infanticide by male langur monkeys], the adult male's self-interest has been elevated to that of the species: it is given a new name. What he is concerned with is population regulation, something that is beneficial to all. By contrast, the viewpoint of natural selection should make us suspicious of the notion that one individual's self-interest is the same as that of the species. Instead, we expect individuals to act in their own self-interest. In a verbal species such as our own, we also expect individuals to represent these actions as being in everyone's self-interest.

"Secondly, group-selection reasoning distracts our attention from conflict within social groups and from manoeuvres that have evolved to mediate such conflicts. Hence, unconsciously such reasoning tends to render other individuals powerless. 'The male has the power and the power is good for the species.' Such reasoning prevents us from predicting female counterstrategies and from seeing the limits to male power. By contrast, an approach based on natural selection demands these counterstrategies. We expect to find them, and we analyse any social interaction from the standpoint of each of the individuals affected by it."⁷

These new understandings ushered in one of the most momentous upheavals in recent scientific history, with profound and exciting implications not only for biology, but also for anthropology and the social sciences. If Marx and Engels were alive today, they would certainly be placing themselves at the head of such developments.

Virtually all evolutionary scientists are today in agreement that Wynne-Edwards' 'group selection' theory was wrong. The idea that sex, violence or any other form of genetically transmitted behaviour can evolve 'for the good of the species' is now completely discredited. Animals do not practise sex 'to perpetuate the species': they do it for a

more down-to-earth reason - to perpetuate their genes. No gene can be designed to minimise its own self-replication. In a competitive world, it would quickly be an ex-gene.

Suppose a lion generously opted to kill its own cubs so as to help reduce the overall population, in accordance with the earlier 'group selection' theory. Relative to other lions, that particular animal would have low reproductive success. Regardless of what eventually happened to its group, all individuals in any future population would be exclusively descendants of the more 'selfish' reproducers - those lions designed to immortalise their own genes at the expense of their competitors.

Once this point was grasped on theoretical grounds, scientists set out to re-examine the evidence in the light of their new theoretical understanding. It soon transpired that lions killing young cubs were in fact targeting not their own offspring but exclusively those sired by rival males. The same applied to other instances of so-called 'population regulation'. In every case, it could be shown that those responsible were acting selfishly, their instincts serving to replicate their own genes.

Selfish gene

Group-selectionist thinkers had persistently dressed up infanticide, violence or aggression as 'moral' in that it served the wider interests of 'the nation' or 'the group'. Genocidal murderers and war criminals were conceptualised by Wynne-Edwards as guardians of wider interests, culling excess population or eliminating weaklings 'for the greater good'.

'Selfish gene' Darwinism put an abrupt end to all this. The new approach made it impossible any longer to elevate one individual's self-interest to that of the species. No longer could animal populations be likened to nation-states, pictured as cohesive, morally regulated wholes. Instead, animals were expected to pursue their fitness interests, as if designed to immortalise their genes. They were expected not only to cooperate but also compete, with males recurrently pitted against females, siblings competing against one another and offspring often striving to exploit their own parents.

This stress on struggle and conflict brings modern Darwinism into convergence with at least one aspect of Marxism: its focus on conflict and struggle. Both Darwinism and Marxism see social life as

cooperative on some levels, but on other levels divided by class, sex and other forms of conflict. Where harmony exists or is successfully established, this has to be explained, not assumed.

Once group selection theory was overthrown, scientists were forced to look at life anew, addressing, clarifying and often solving an array of scientific puzzles in the process. How did life on earth first begin? When and why did sex evolve? How did the social insects become so cooperative? Why, like all living organisms, do we get ill and eventually die? From now on, every theory had to demonstrate its consistency with the relentless, uncompromising 'selfishness' of genes.

The result was a spectacular series of intellectual breakthroughs, amounting to a genuine revolution in the life sciences which is still under way. In 1976, Richard Dawkins' book, *The Selfish Gene*, announced the revolution to widespread scientific acclaim. Unfortunately, it was also met with equally vociferous condemnation from middle class academics and moralists, who had apparently read no further than the title.

Rather as Karl Marx and Frederick Engels opposed utopian theories of socialism, modern Darwinians are vigorous in opposition to all misty-eyed, unrealistic theories about the benevolence of human nature or the inevitability of social progress. "Be warned," Dawkins wrote in 1976, "that if you wish, as I do, to build a society in which individuals cooperate generously and unselfishly towards a common good, you can expect little help from biological nature. Let us try to teach generosity and altruism, because we are born selfish. Let us understand what our own selfish genes are up to, because we may then at least have the chance to upset their designs, something that no other species has ever aspired to."

Dawkins concluded *The selfish gene* with these words:

"The point I am making now is that, even if we look on the dark side and assume that individual man is fundamentally selfish, our conscious foresight - our capacity to simulate the future in imagination - could save us from the worst selfish excesses of the blind replicators. We have at least the mental equipment to foster our long-term selfish interests rather than merely our short-term selfish interests. We can see the long-term benefits of participating in a 'conspiracy of doves', and we can sit down together to discuss ways of making that conspiracy work.

We have the power to defy the selfish genes of our birth and, if necessary, the selfish memes of our indoctrination. We can even discuss ways of deliberately cultivating and nurturing pure, disinterested altruism -

something that has no place in nature, something that has never existed before in the whole history of the world. We are built as gene machines and cultured as meme machines, but we have the power to turn against our creators. We, alone on earth, can rebel against the tyranny of the selfish replicators.”⁸

Distancing himself from Malthus and by implication from Darwin as well, Dawkins, then, is unwilling to let nature run its course. While Dawkins is no revolutionary socialist, his determination to distinguish what is natural from what is moral is a position which Marx and Engels would have endorsed.

Utopian socialism failed because it never got to grips with capitalism. It never explained how you could get from A to B – from the competitive logic of capitalism to its socialist antithesis. Instead, the utopian dreamers just counterposed their idealistic visions to the harsh realities of contemporary life, never bothering to fathom or explore the contradictions within capitalism itself. In a comparable way, prior to the ‘selfish gene’ revolution in the life sciences, biologists had appealed to cooperation in the animal world as an explanatory principle, without explaining how it could be reconciled with Malthusianism or ‘survival of the fittest’.

The great value of the new Darwinism is that it is not utopian. When animals are found to be assisting one another or even risking their lives for one another – as often happens – then this too has to be explained rather than just assumed. Above all, any altruism on the level of social behaviour must be reconciled with the inevitable ‘selfishness’ of genetic replication as such.

From this standpoint, the new Darwinism might almost be termed the ‘science of solidarity’. Selfishness is easy to explain. The real challenge is to explain why animals are so often not selfish. This is a particular challenge in the case of humans, who – perhaps more than any other animal – can engage in extraordinary acts of courage and self-sacrifice for the benefit of others. There are well authenticated accounts of how soldiers during World War I would throw themselves on to an exploding hand grenade, thereby saving their comrades’ lives. Kamikaze pilots and suicide bombers may be accused of ‘fanaticism’, but hardly of personal selfishness.

Must such courage be laboriously learned or drilled into humans, or can powerful instincts be drawn upon? If we take it that people have it in themselves to be naturally cooperative and even heroic, then this sets up an intellectual paradox. Why do the genes for heroism – those

courageous instincts which in times of crisis can override our more cowardly, selfish drives – not become eliminated over evolutionary time? The man who dies in battle will have no more offspring. By contrast, the coward may leave many descendants. On this basis, would we not expect each generation to be less heroic – more selfish – than the one before?

Kin selection

The utopian theory of ‘group selection’ obfuscated this problem by proposing an all-too-easy answer. Heroism, it was said, enhanced the prospects of the group. The problem was that this failed to explain how such courage could be part of human nature, passed on from one generation to the next. It was precisely this difficulty which prompted George Williams, Bill Hamilton, Robert Trivers, Richard Dawkins and their colleagues in the 1960s and 1970s to come up with a better answer. When the solution was found, it became the cornerstone of modern evolutionary science.

The solution to the puzzle lay in Bill Hamilton’s idea of ‘kin selection’ or ‘inclusive fitness’. Bravery in battle rests on instincts not radically different from those motivating a mother to take risks in defending her children. It is precisely *because* her genes are ‘selfish’ – not despite this ‘selfishness’ – that a mother’s courage can draw on deep instinctual resources. In effect, the mother who instinctively takes risks for her children is including these children as part of her ‘self’. In genetic terms, this is realistic because her children share her genes. We can easily see why a mother’s ‘selfish’ genes can prompt her to put her children first. A comparable logic might prompt sisters and brothers to behave selflessly toward one another.

Far back in the evolutionary past, humans evolved in relatively small-scale kinship-based groups. Any person with whom you worked, or with whom you bonded closely, had a good statistical chance of sharing your genes. The genes would have been saying, in effect, ‘Replicate us by taking risks to defend your sisters and brothers.’ We humans are designed to help one another – even die for one another – provided we have first had a chance to form a bond. Today, even under conditions where we are much less likely to be kin-related, these instincts keep on prompting us as powerfully as ever.

Dawkins is right to warn against reliance on nature as a force for good. Yet the ideal of brotherly solidarity is not wholly dependent on external, social factors, such as education or propaganda. It does not

have to be forced upon us in defiance of our nature. Solidarity is part of an ancient tradition – an evolutionary strategy – which long ago became central to human nature itself. It is one priceless expression of the replicatory ‘selfishness’ of our genes.

Notes

1. A. Desmond and J. Moore, *Darwin*. London 1992, p. 314.
2. The same, pp. 467-81.
3. See T. R. Malthus, *An essay on the principles of population* 1798, www.econlib.org/library/Malthus/malPop1.html.
4. Desmond and Moore, *Darwin*, p. xix.
5. M. Lind, ‘Churchill for dummies’ *The Spectator* April 2004.
6. W. D. Hamilton, ‘The genetical evolution of social behaviour.’ *Journal of Theoretical Biology* 7: 1-52.
7. R. Trivers, *Social Evolution*. Menlo Park, CA 1985, pp. 77-78.
8. R. Dawkins, *The Selfish Gene*. Oxford 2006, pp. 200-01.