

*Cooperation and Altruism:
An Evolutionary Perspective*

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Abstract

Conflict, aggression and violence have been common themes throughout much of human history, and are often attributed to a natural competitive or aggressive instinct and the Spencerian concept of “survival of the fittest.” Ever since Darwin, however, the source of cooperative or altruistic behaviors has been the subject of debate in both the biological and social sciences. Recent research has supported conflicting theories to explain this type of behavior, and to reconcile how cooperation fits in with man’s competitive drives.

This paper reviews some of the theory and research regarding cooperation and altruism in both the biological and social sciences. From Charles Darwin’s *Descent of Man* and Petr Kropotkin’s *Mutual Aid* to Steven Pinker’s *The Blank Slate* and Robert Wright’s *The Moral Animal*, the battle over human nature and our future survival continues. Analysis of these differing views reveals that there is common ground, and it is in this common ground that we can find guidance in how to ensure the future survival of humankind.

Cooperation: Nature or Nurture?

Over the years many disciplines have sought to understand the strange paradox of human behavior – the seeming conflict between competition and cooperation, aggression and nurturing, condemnation and compassion, greed and altruism. Since Darwin’s theory of evolution, we’ve understood the role of competition, but explanations for cooperation and altruism have been more elusive. Is cooperative or altruistic behavior somehow part of our natural instinct for survival? Or is it a product of culture and socialization? Scientists have studied brains and genes and hormones, looked at bones and fossils and artifacts, observed and analyzed the behavior of other social animals, and compared and contrasted a variety of environmental conditions, all seeking to understand the nature of human behavior and human motivation.

Early Writings on Cooperation as an Evolutionary Factor

Petr Kropotkin, an admirer of Darwin who conducted extensive studies of animal life in Siberia and northern Eurasia, wrote: “... I failed to find – although I was eagerly looking for it – that bitter struggle for the means of existence, *among animals belonging to the same species*, which was considered by most Darwinists (though not always by Darwin himself) as the dominant characteristic of struggle for life, and the main factor of evolution” (1902: vii). Kropotkin instead observed, after studying a variety of animals attempting to survive in the harshest of conditions, “Mutual Aid and Mutual Support carried on to an extent which made me suspect in it a feature of the greatest importance for the maintenance of life, the preservation of each species, and its further evolution” (1902: ix). He noted the same type of behavior in both animals and humans, based not on love or sympathy, but what he believed to be “an instinct that has been slowly developed among animals and men in the course of an extremely long evolution” (Kropotkin 1902: xiii).

Kropotkin's views are not incompatible with those of Darwin. Contrary to some interpretations, Kropotkin did not attempt to negate the existence of competition and individual self-assertion as an evolutionary factor. He observed two types of struggle: (1) struggle between individuals for limited resources (leading to competition), and (2) man's struggle against the environment (requiring cooperation for survival). Darwin himself acknowledged that both competition and cooperation were factors in evolution (Gould 1997). Kropotkin did believe, however, that competition had been overemphasized by Darwinists such as Thomas Huxley and Herbert Spencer, to the complete neglect of the cooperative aspects of evolution. Some students of Darwinism have provided support for Kropotkin's views: "Darwin in *The Descent of Man* did not emphasize a struggle for existence between separate individuals, but insisted that it was not the physically strongest nor, the most cunning who survive, but those whose struggle is replaced by cooperation" (Swomley 2000).

Competition and Overpopulation

Why has competition, rather than cooperation, been the focus of Darwin's followers? One theory was postulated by Stephen Jay Gould (1997): "Darwin based his theory of natural selection on the dismal view of Malthus that growth in population must outstrip food supply and lead to overt battle for dwindling resources ... his loyalty to Malthus and his vision of nature chock-full of species led him to emphasize the competitive aspect." Darwin lived in Great Britain during the early part of the Industrial Revolution, when urban crowding and poverty were rampant and Malthusian ideas were hotly debated (Cartwright 2002). Darwin was influenced by the environment in which he lived and by the ideas of Malthus, Thomas Hobbes and Adam Smith. In contrast, Kropotkin and other Russian researchers lived and studied in harsh environmental conditions where populations were relatively sparse. Where overpopulation was

not an issue, cooperation -- not competition -- appeared to be more typical.

The writings of Edward O. Wilson in his 1978 book *On Human Nature* may shed some light on the differences in observations:

Most kinds of aggressive behavior among members of the same species are responsive to crowding in the environment. ... Other species, in contrast, seldom or never run short of the basic necessities of life. Their numbers are reduced instead by the density-dependent effects of predators, parasites, or emigration. Such animals are typically pacific toward each other, because they rarely grow numerous enough for aggressive behavior to be of any use to individuals (Wilson 1978: 102-103).

Impact of Evolutionary Theory of Human Behavior

The view of competition and selfishness as a dominating factor in human behavior was pervasive prior to the twentieth century: Hobbesian philosophy, Adam Smith's economics, Freud's psychoanalytic theory, and Marx's political and economic theories all focused on competition. Cooperation -- if addressed at all -- was only a competitive strategy; altruism was an anomaly that could not be adequately explained. Laland and Brown report that Darwin himself was puzzled by the altruistic behavior of workers in colonies of ants, bees, and wasps:

In *The Origin of Species*, Charles Darwin described the presence of these workers as 'the one special difficulty, which at first appeared to me insuperable, and actually fatal to my whole theory' (1859, p. 257) (Laland and Brown 2002: 75).

All of this might seem relatively harmless; after all, it's only theory. But theory stirs up controversy not only because it may contradict what we WANT to believe, but because it often serves as the basis for social and political policy. One chilling example is how Hitler twisted

biological theory to support his concept that there existed a “superior race”. Unfortunately, he was not inclined to leave proof of that to “natural selection,” choosing instead to substitute his own judgment of fitness for survival to rationalize mass genocide of Jews.

Fear of “another Holocaust,” an increasing intolerance for racial and sexual prejudice, and a strong focus on cultural and environmental factors in shaping human behavior meant that biological theories of evolution were not well received in the 1960's, 70's or 80's. Edward O. Wilson, when he first published his book *Sociobiology* in 1975, was attacked -- even by his own colleagues, including Stephen Jay Gould -- as a biological determinist whose work could be used to support racism, sexism, and other forms of discrimination. In reality, Wilson is neither a biological determinist or a racist (Douglas 2001). In retrospect, Wilson was attacked because of the possibility that his ideas could be manipulated by those with less than noble motives, which might contradict the social and political philosophy of the times. He may also have been attacked because he was a biologist treading on the territory of social scientists (Laland & Brown 2002; Douglas 2001).

A Fresh Look at Cooperation and Altruism

Study in a variety of fields over the past few decades has provided support for Kropotkin's notion that cooperation is as important as competition.

Sociobiology and Evolutionary Psychology

Much of the theory of the evolution of human behavior has been based on studying the social behavior of animals, ranging from social insects such as ants and bees, to primates such as chimpanzees and gorillas. Darwin's own theories were based on the study of animals.

Before 1960, cooperation was largely ignored as a subject of research (Axelrod 1984). It wasn't until 1964 that evolutionists finally came up with a plausible biological explanation for altruism. It was in that year that a British graduate student named William Hamilton proposed that altruism can be explained by the concept of "kin selection." His theory was that individual members of a species will sacrifice themselves, not to perpetuate the group or the species as had been previously believed, but in order to perpetuate their shared genes. Hence we are more altruistic toward relatives than strangers. While Hamilton had a hard time getting approval for his PhD thesis on the topic, other researchers in the field, including E. O. Wilson, hailed his work as an important contribution to evolutionary theory (Laland and Brown 2002; Caporael 2001).

In 1971, Robert Trivers of Harvard expanded the theories on altruism to include the concept of "reciprocal altruism". Reciprocal altruism explains altruistic behavior between unrelated individuals, suggesting that altruism in these cases is based on the concept that the benefactor will receive reciprocal benefits in the future. Those who cheat and fail to reciprocate will not be trusted again, and will not be the beneficiaries of future acts of altruism (Laland and Brown 2002).

Edward O. Wilson discussed these ideas in his books on sociobiology, most notably in *On Human Nature* (1978). Kin selection is seen by Wilson as the explanation for altruistic suicide observed in ants and bees, as well as certain behavior by humans; this type of altruism he refers to as "hard-core". Reciprocal altruism between strangers is a more human phenomenon, one that he refers to as "soft-core". While one might view reciprocal altruism as more individualistic and more selfish (done primarily for personal gain), Wilson suggests that this type of altruism is the key to society. In a passage from *On Human Nature*, Wilson observes:

... pure, hard-core altruism based on kin selection is the enemy of civilization. If human beings are to a large extent guided by programmed learning rules and

canalized emotional development to favor their own relatives and tribe, only a limited amount of global harmony is possible. .. My own estimate of the relative proportions of hard-core and soft-core altruism in human behavior is optimistic. Human beings appear to be sufficiently selfish and calculating to be capable of indefinitely greater harmony and social homeostasis. This statement is not self-contradictory. True selfishness, if obedient to the other constraints of mammalian biology, is the key to a more nearly perfect social contract. (Wilson 1978: 157)

Despite allegations that Wilson was a biological determinist, he clearly supports the concept of what today is called “gene-culture evolution,” or the idea that humans evolve both genetically and culturally, with cultural evolution being somewhat constrained by our genetic limitations.

The clear perception of human aggressive behavior as a structured, predictable pattern of interaction between genes and environment is consistent with evolutionary theory... On the one hand, it is true that aggressive behavior, especially in its more dangerous forms of military action and criminal assault, is learned ... But the learning is prepared ... we are strongly predisposed to slide into deep, irrational hostility under certain definable conditions... The products of this neural chemistry are aggressive responses that are distinctly human. (Wilson 1978: 106)

Wilson further notes the role of ethnocentrism in organized aggression, the phenomenon of dehumanizing others in order to rationalize killing them, and the role of culture in determining the form that aggression takes.

While E. O. Wilson adopted the concepts of reciprocal altruism and kin selection, these ideas were made popular by Richard Dawkins in his 1976 book *The Selfish Gene*. Because

Dawkins was careful to avoid suggesting that human social policy be based on his theories, he was able to avoid some of the wrath that had been directed at Wilson. Dawkins took the focus away from the recent trends to explain evolution as group or species adaptation, instead focusing on a more individualistic view of natural selection based on “selfish genes.” Under this view, it is genes that adapt in order to perpetuate their own survival; those that adapt the best are passed on and eventually predominate within the species (Dawkins 1976).

Dawkins adopted Hamilton’s kin selection and Trivers’ reciprocal altruism, postulating that cooperation and altruism are part of an organism’s competitive strategy to survive, or “evolutionarily stable strategy.” Such strategies, if adopted by a population, will become standard behavior (Laland and Brown 2002). This view has been widely adopted by neo-Darwinists and by many who today call themselves evolutionary psychologists.

Archaeology and Cultural Anthropology

While sociobiology and related disciplines were discussing “selfish” genes and explaining cooperation in terms of its competitive advantages, research in archaeology and cultural anthropology was turning up evidence that suggested that cooperation is not a recent adaptation or strategy of modern man, but has been a stable characteristic of human species for the past 100,000 years. In fact, archaeological findings now suggest that human aggression against other humans may have only begun occurring within the last 7,000 years of human existence (Ury 1999).

These recent works indicate that the image of our hunter-gatherer ancestors as bloodthirsty, vicious savages -- a view promulgated by anthropologist Raymond Dart in 1948 -- was not necessarily correct. This view had been based on the finding of bones of *Australopithecus* which showed massive skull mutilations, which Dart attributed to interspecies

violence (Ury 1999).

Richard Leakey, in his 1981 book, *The Making of Mankind*, explains how -- upon reexamination by scientist Bob Brain -- the bashed-in skulls of early humans were determined not to be the result of violent death at the hands of their fellow man (as previously believed), but the natural result of pressure from the earth covering those remains. Other defects could be explained as the result of being attacked and killed by animals, not humans. Even Dart ultimately conceded that his “killer ape” theory had been wrong (Ury 1999). Leakey then cites new interpretations and recent discoveries of ancient cave paintings that suggest that cooperation played a strong role in the survival of hunter-gatherer societies. In his more recent book, *Origins Reconsidered: In Search of What Makes Us Human*, Leakey writes:

The two-million-year heritage of a hunting-and-gathering life, rudimentary at first but ultimately superbly refined, left its mark on our minds just as much as it did on our bodies. On top of the technical skills of planning, coordination, and technology, there was, equally important, the social skill of cooperation. A sense of common goals and values, a desire to further the common good, cooperation was more than simply individuals working together. It became a set of rules of conduct, of morals, an understanding of right and wrong in a complex social system. Without cooperation—within bands, among bands, through tribal groups—our technical skills would have been severely blunted (Leakey 1992: 304).

Leakey reports that archaeological evidence of warfare is virtually absent prior to the development of agrarian societies, where defense of territory became important. While he acknowledges that “absence of evidence cannot be taken to be evidence of absence,” he believes it to be a reasonable inference.

Leakey was not the only researcher to make these observations based on archaeological

data. In 1987, Riane Eisler further challenged stereotypes of ancient man with her book, *The Chalice and the Blade*. Eisler's book was hailed by Ashley Montagu (an anthropologist and social biologist, who also wrote the preface to the recent republication of Kropotkin's *Mutual Aid*) as "the most important book since Darwin's Origin of Species." Eisler presents evidence of early hunter-gatherer societies that were based on what Eisler calls "the partnership model": cultures in which men and women, while having different roles, were viewed as equally valuable; cultures in which cooperation was valued over competition; cultures in which humans had the capability of making weapons but chose not to. Eisler uses these findings to suggest that male dominance, aggression and competition are not necessarily a fact of human nature, as typically believed, but a behavioral choice. (Of course, the fact that these cooperative societies were eventually overrun by more aggressive tribes appears to lend credence to the argument that cooperation is not necessarily the key to survival in all circumstances.)

Both Leakey and Eisler look not just to archaeological data, but make reference to modern-day hunter-gatherer tribes that have been studied by anthropologists. Perhaps one of the most studied tribes in recent years are the !Kung of Africa, who have been of interest to anthropologists due to the reportedly low levels of conflict and violence within their society. Characteristic of the !Kung and other low-conflict societies are the following: (1) psychocultural practices that promote feelings of security and trust (including warm and affectionate child-rearing, lack of gender differentiation, extensive affection, and little overt gender-based conflict); (2) strong identification with the wider community, which includes "generalized reciprocity" (sharing of resources and responsiveness to requests for assistance from others); (3) joint problem-solving practices; (4) third-party assistance in resolving conflict; (5) harmonious social relationships; (6) a viable exit option (physically separating disputants); and (7) conflict avoidance strategies (Ross 1993).

Comparing these views of hunter-gatherer societies with Kropotkin's observations, an interesting pattern emerges. In societies where species are struggling against the environment, and where there is not a heavy concentration of population, cooperation tends to be the rule, just as Kropotkin observed in the harsh environments of Siberia. As populations become more sedentary, more territorial, and increase in population, levels of conflict, competition and overt aggression increase.

The Evolutionists Strike Back

In more recent research, linguist Steven Pinker argues that evidence of nonviolent tribes is virtually nonexistent, indicating that "Margaret Mead's descriptions of peace-loving New Guineans and sexually nonchalant Samoans were based on perfunctory research and turned out to be almost perversely wrong" (Pinker 2002: 56). Pinker cites the work of Derek Freeman as evidence, but fails to note that Freeman "studied a different village than that studied by Mead, and studied it four decades later than Mead, during which time a U.S. military base had influenced the behavior of Samoans who worked on the base" (Dusek 2002).

Pinker also suggests that the !Kung, that peaceful hunter-gatherer tribe so commonly studied by anthropologists, in reality have violence rates far higher than found in the United States, citing statistics from a 1996 article in support of this proposition. And yet Leakey reported as early as 1978 that the !Kung's lifestyle was beginning to change from that of the nonviolent, egalitarian hunter-gatherer to a more sedentary agrarian society, and with this change came greater division of labor, less equality between the sexes, and more contact with the outside world. Changes also included less physical contact, more accumulation of material wealth, more domestic violence (because a husband could take his wife into their private house and beat her without interference from the community), and more pressure on children to work and adopt

more defined sex roles than before. The more sedentary lifestyle was also contributing to higher birth rates, keeping women at home more and even more clearly delineating sex roles. Those studying the !Kung over time noted definite changes in the level of conflict and violence within !Kung society, corresponding with the change in lifestyle (Leakey 1978; Ross 1993).

Game Theory: A Mathematical Model of Competition and Cooperation

Sociologists, social psychologists and mathematicians have focused their efforts on game theory – studying competition and cooperation not as a biological adaptation, but as a social strategy. Game theory provides a mathematical analysis of the processes of cooperation and competition. Robert Axelrod cautions:

One point worth stressing at the outset is that this approach differs from that of sociobiology. Sociobiology is based on the assumption that important aspects of human behavior are guided by our genetic inheritance (e.g., E. O. Wilson 1975). Perhaps so. But the present approach is *strategic* rather than *genetic*. It uses an evolutionary perspective because people are often in situations where effective strategies continue to be used and ineffective strategies are dropped. (Axelrod 1984: x)

Research in game theory suggests that in single encounters, competitive strategies typically win out over cooperative strategies, but in repeated interactions, cooperation often yields the best results. Most conflicts involve complex interactions, multiple interests, and an intricate web of behaviors that may include a mixture of competitive and cooperative behaviors and strategies (Axelrod 1984).

Where Does Biology Stop and Culture Begin?

While none of the theories reviewed here deny that both biology and culture play a role in

human behavior, it is unclear in many cases whether competition and cooperation are really biological adaptations, or whether they are cultural adaptations chosen in response to biological instincts. Since Darwin's concept of evolution is based on biological adaptations, it makes sense to look at what the latest research in human biology has to offer.

Genetic research has exploded in recent years, but – to date – no gene for aggression (or sociability) has yet been discovered. It is possible that multiple genes may interact to predispose individuals to this behavior, but data is still sketchy. Twin studies suggest that there may be some genetic influence (Filley, Kelly and Price 2001).

Brain anatomy is another promising area of study. As stated in a recent article in *The Scientist*:

Whereas no “violence center” exists in the brain, the limbic system and the frontal lobes are areas most implicated. The limbic system is the neuroanatomic substrate for many aspects of emotion. The structure most often implicated in violent behavior is the amygdala; placidity has been described in humans with bilateral amygdalar damage, whereas violence has been observed in those with abnormal electrical activity in the amygdala. The frontal lobes are regarded as the repository of the most advanced functions of the brain. In particular, the orbitofrontal cortices allow for the inhibition of aggression. Individuals with orbitofrontal injury have been found to display antisocial traits (disinhibition, impulsivity, lack of empathy) that justify the diagnosis of “acquired sociopathy”, and some have an increased risk of violent behavior (Filley et al 2001).

Hormonal and chemical influences have also been documented, implicating testosterone, serotonin and norepinephrine as possible contributors to aggression and violence. Effects of

testosterone appear to be particularly strong in nonhumans, but to date this has not been established in humans. Serotonin appears to inhibit aggressive behavior, while norepinephrine appears to be associated with higher levels of aggression (Filley et al 2001).

There is little question that aggressive instincts have a source in the brain – when humans perceive a threat, the hypothalamus triggers the infamous “fight or flight” response that aids in our survival. At the same time, however, humans – like other animal species – typically have a natural inhibition against killing members of their own species. It is through the process of rationalization – being able to “dehumanize” individuals or even whole groups of individuals – that we overcome this inhibition (Donahue 1985). Is this an adaptive strategy, necessary for our survival? An argument could be made that it is. Others would argue that this means of overriding our natural instincts could ultimately lead to the destruction of the human race.

While some may be more predisposed toward aggression than others, is there evidence of a genetic preference for more competitive individuals? To date, research has not addressed this question; it may not be possible to do so. There is no real way of knowing what the levels of testosterone or serotonin were in our ancient ancestors. The development of the frontal lobe, the “newest” part of the brain in evolutionary terms, suggests that from an evolutionary perspective, inhibiting aggression may be more adaptive than perpetuating it. At the same time, this area of the brain has helped lead to the more advanced “rational” thinking that has allowed us develop weapons of mass destruction and rationalize the killing of our own species, a process that may actually override our natural instincts.

Implications for Future Behavior and Social Policy

In an interesting analysis of some of Darwin’s unpublished writings, Robert Wright

reports that Darwin didn't actually expect his ideas to catch on, and in fact was concerned about what would happen if they did. Wright illustrates an interesting paradox:

There are at least two ways to respond to the growing body of evidence that biochemistry governs all. One is to use the data, perversely, as proof of volition ... Because if biochemistry negated free will, then *none* of us would have free will.... The second response to dehumanizing biochemical data is Darwin's – complete surrender. Give up on free will; no one really deserves blame or credit for anything; we are all slaves of biology. We must view a wicked man, Darwin wrote in his notes, “like a sickly one.” It would “be more proper to pity than to hate & be disgusted.” ... The hatred and revulsion that send people to jail and to the gallows are without intellectual foundation. Of course, they may have a *practical* foundation ... That's why Darwin took comfort in the hope that his insights would never become common (Wright 1994: 353).

In other words, if we are to accept Darwin's theories, this negates the concept of free will and personal responsibility, part of the foundation of human civilization. We are, in essence, just victims of our biology.

Conclusions and Thoughts

If we look at the human brain, it would seem logical to conclude that aggressive instincts, centered in the more “primitive” part of the brain, are evidence of our true human (or animal) nature. Some researchers see these ancient instincts as no longer being adaptive in modern society. “In sum, the best guess about valor in wartime is that it is the product of mental organs that once served to maximize inclusive fitness and may no longer do so. But the organs persist, ready to be exploited by, among others, political leaders who profit from war”

(Wright 1994: 391). But we do not always act on our aggressive instincts, and human behavior is far more variable than that of animal behavior, often involving complex mechanisms that we do not yet fully understand. It's not clear that we can make generalizations about humans based on "animal instinct".

On the other hand, if we accept that human aggression and violence towards our own species is a relatively recent phenomenon in human history (as suggested by the social sciences), is this a sign that more competitive genes are winning the evolutionary war with more altruistic or cooperative genes? Not necessarily. In fact, one could argue that the recent development of aggression against others is partially a result of the development of increasingly rational thought processes in the brain, processes which override our natural instincts.

Our biological makeup in terms of brain structure and chemistry appears to have developed with both the instinct to protect ourselves (fight or flight) and the inhibition against killing our own species. Cooperation and competition are situational behaviors, with aggression and violence coming into play only in response to specific perceived threats, such as the need to defend oneself or one's territory (Wilson 1978). While such behaviors are responses to biological triggers, the choice of response is based largely on our perception of the nature of the threat. When the threat is from the environment, our natural tendency in order to enhance our own survival is to work with others against the external threat. It is only when we perceive the threat to be other people that we switch from cooperation to competition. Arguably, this could be taken as part of our "instinct" for survival, or it could be construed as a chosen strategy in response to the situation. Again, our choice of strategy – and even our biological response – is dependent upon our perception of threat.

Regardless of the explanation or perspective, most theorists acknowledge that both genes

and culture influence our behavior (Wilson 1978; Pinker 2002), and that we do have some ability to determine the future course of our existence. Strategies can be developed to promote cooperation, changing our perception of others as the “enemy” to that of “fellow human.” Many of these strategies have been employed in the field of conflict management, and research in this field suggests that such strategies can be successful (Ury 1999; Ross 1993).

The development of cross-cutting ties (ties with many different groups) has been found to be one means of helping to reduce conflict by blurring the distinctions between “us” and “them” or in-groups and out-groups (Ross 1993). “To provide a more durable foundation for peace, political and cultural ties can be promoted that create a confusion of cross-binding loyalties ... it will become discouragingly difficult for future populations to regard each other as completely discrete on the basis of congruent distinctions in race, language, nationhood, religion, ideology, and economic interest” (Wilson 1978: 120). This would suggest that as we perceive ourselves to be part of a larger, more global community, we can become less competitive and more cooperative. Evidence of this can be seen even today – one example that comes to mind is the International Space Station. Now a cooperative effort between U.S., Russian, and other international scientists, this is a concept that would have been unthinkable during the Cold War era.

This changing perspective is also evident in the business world, where negotiators have embraced the strategies espoused in the bestselling book *Getting to Yes*. This book outlines a method of “principled negotiation” that moves away from the mindset of negotiation as a competitive process, and instead focuses on viewing a negotiation as an exercise in joint problem-solving; rather than “you vs. I,” negotiators take the perspective of “you and I vs. the problem.” This approach has been proven to be phenomenally successful and has become the foundation of numerous negotiation courses throughout the country. (My own students have

used these principles with a great deal of success, as well as the principles from Dale Carnegie's *How to Win Friends and Influence People*, another book that focuses on cooperation rather than competition as a means of getting what you want.)

These strategies shift our way of perceiving the world from the competitive fight-each-other-for-survival view of Malthus to the fight-together-for-survival view of Kropotkin.

Are cooperative strategies selfish? Maybe. Is that bad? Not necessarily. We tend to see selfishness as a bad thing, something that somehow negates cooperation. Perhaps, rather than debating the moral basis of cooperation, we need to focus on what is the best strategy for human survival. Ultimately, competition, aggression and violence do NOT favor social living -- unchecked, they would result in destruction.

It is because we need to survive that we have such a complex brain, one that recognizes the need to defend ourselves against threats, yet also recognizes the need to bond with others. Each of these is part of our survival instinct, along with hormones and neurotransmitters, levels of which fluctuate based on circumstances and perceptions of threat. It is part of survival that we have the urge to reproduce, and that we have a natural inhibition against killing our own species. Beyond that, much of our behavior seems to be based on what we, as individuals, determine to be the most appropriate for the situation. Arguably, those that are best adapted for survival are those who make the best choices, taking into account both long-term and short-term consequences of their behavior.

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