



FRANS DE WAAL

Good natured

THE ORIGINS
OF RIGHT AND
WRONG IN HUMANS
AND OTHER ANIMALS

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The Origins of
Right and Wrong in
Humans and Other Animals

Frans de Waal

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PROLOGUE

In addition to being human, we pride ourselves on being *humane*. What a brilliant way of establishing morality as the hallmark of human nature—by adopting our species name for charitable tendencies! Animals obviously cannot be human; could they ever be humane?

If this seems an almost-rhetorical question, consider the dilemma for biologists—or anyone else adopting an evolutionary perspective. They would argue that there must at some level be continuity between the behavior of humans and that of other primates. No domain, not even our celebrated morality, can be excluded from this assumption.

Not that biologists have an easy time explaining morality. Actually, there are so many problems with it that many would not go near the subject, and I may be considered foolish for stepping into this morass. For one thing, inasmuch as moral rule represents the power of the community over the individual, it poses a profound challenge to evolutionary theory. Darwinism tells us that traits evolve because their bearers are better off with them than without them. Why then, are collective interests and self-sacrifice valued so highly in our moral systems?

Debate of this issue dates back a hundred years, to 1893 when

Thomas Henry Huxley gave a lecture on “Evolution and Ethics” to a packed auditorium in Oxford, England. Viewing nature as nasty and indifferent, he depicted morality as the sword forged by *Homo sapiens* to slay the dragon of its animal past. Even if the laws of the physical world—the cosmic process—are unalterable, their impact on human existence can be softened and modified. “The ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it.”¹

By viewing morality as the antithesis of human nature, Huxley deftly pushed the question of its origin outside the biological realm. After all, if moral conduct is a human invention—a veneer beneath which we have remained as amoral or immoral as any other form of life—there is little need for an evolutionary account. That this position is still very much with us is illustrated by the startling statement of George Williams, a contemporary evolutionary biologist: “I account for morality as an accidental capability produced, in its boundless stupidity, by a biological process that is normally opposed to the expression of such a capability.”²

In this view, human kindness is not really part of the larger scheme of nature: it is either a cultural counterforce or a dumb mistake of Mother Nature. Needless to say, this view is extraordinarily pessimistic, enough to give goose bumps to anyone with faith in the depth of our moral sense. It also leaves unexplained where the human species can possibly find the strength and ingenuity to battle an enemy as formidable as its own nature.

Several years after Huxley’s lecture, the American philosopher John Dewey wrote a little-known critical rejoinder. Huxley had compared the relation between ethics and human nature to that between gardener and garden, where the gardener struggles continuously to keep things in order. Dewey turned the metaphor around, saying that gardeners work as much *with* nature as against it. Whereas Huxley’s gardener seeks to be in control and root out whatever he dislikes, Dewey’s is what we would today call an organic grower. The successful gardener, Dewey pointed out, creates conditions and introduces plant species that may not be normal for this particular plot of land “but fall within the wont and use of nature as a whole.”³

I come down firmly on Dewey’s side. Given the universality of moral systems, the tendency to develop and enforce them must be an integral part of human nature. A society lacking notions of right and wrong is about the worst thing we can imagine—if we can imagine it at all. Since we are moral beings to the core, any theory of human

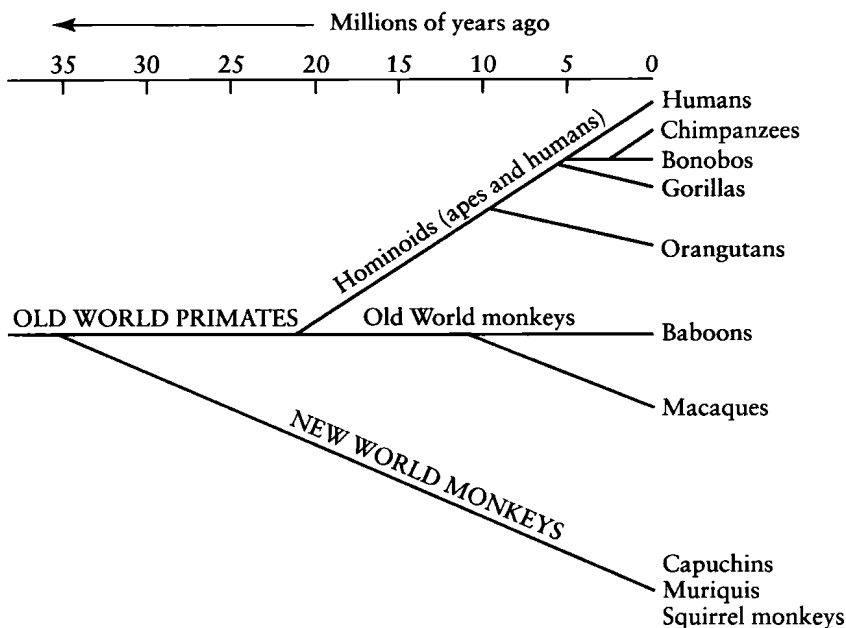
behavior that does not take morality 100 percent seriously is bound to fall by the wayside. Unwilling to accept this fate for evolutionary theory, I have set myself the task of seeing if some of the building blocks of morality are recognizable in other animals.

Although I share the curiosity of evolutionary biologists about *how* morality might have evolved, the chief question that will occupy us here is *whence* it came. Thus, after due attention in this book's first chapter to theories of evolutionary ethics, I will move on to more practical matters. Do animals show behavior that parallels the benevolence as well as the rules and regulations of human moral conduct? If so, what motivates them to act this way? And do they realize how their behavior affects others? With questions such as these, the book carries the stamp of the growing field of *cognitive ethology*: it looks at animals as knowing, wanting, and calculating beings.

As an ethologist specialized in primatology, I naturally turn most often to the order of animals to which we ourselves belong. Yet behavior relevant to my thesis is not limited to the primates; I include other animals whenever my knowledge permits. All the same, I cannot deny that primates are of special interest. Our ancestors more than likely possessed many of the behavioral tendencies currently found in macaques, baboons, gorillas, chimpanzees, and so on. While human ethics are designed to counteract some of these tendencies, in doing so they probably employ some of the others—thus fighting nature with nature, as Dewey proposed.

Because my goal is to make recent developments in the study of animal behavior accessible to a general audience, I draw heavily on personal experience. Interacting with animals on a daily basis, knowing each of them individually, I tend to think in terms of what I have seen happen among them. I am fond of anecdotes, particularly those that capture in a nutshell social dynamics that would take a thousand words to explain. For the same reason, this book is liberally illustrated with photographs (which, unless otherwise specified, are mine).

At the same time, vignettes do not constitute scientific proof. They tease the imagination and sometimes hint at striking capacities, yet cannot demonstrate them. Only repeated observations and solid data allow us to compare alternative hypotheses and arrive at firm conclusions. The study of animal behavior is conducted as much behind the computer as at the observation site. Over the years, my students and I have recorded large amounts of systematic data on group-living primates, mostly in outdoor enclosures at zoos and research institutions. In addition, a host of colleagues have been assiduously working



Evolutionary tree showing the main branches of the primate order: the New World monkeys, the Old World monkeys, and the hominoid lineage that produced our own species. This diagram reflects recent advances in DNA analysis that place the African apes (gorillas, chimpanzees, and bonobos) much closer to humans than previously thought.

on related issues, both in the laboratory and in the field. In an attempt to integrate these approaches, at least half of the material presented herein concerns research by others.

Because my writing alternates between stories, theories, and hard-won data, it risks blurring the line between fact and speculation. To help readers distinguish between the two and explore certain topics at greater length, the book includes technical notes as well as an extensive bibliography. Although by no means exhaustive, this additional material makes clear that rigorous scientific methods can be and are being applied to some of the questions at hand.

Western science seems to be moving away from a tidy, mechanistic worldview. Aware that the universe is not necessarily organized along logically consistent lines, scientists are—ever so reluctantly—beginning to allow contradictions. Physicists are getting used to the idea that energy may be looked at as waves but also as particles, and

economists that free-market economies can be beaten at their own game by guided economies such as that of the Japanese.

In biology, the very same principle of natural selection that mercilessly plays off life forms and individuals against one another has led to symbiosis and mutualism among different organisms, to sensitivity of one individual to the needs of another, and to joint action toward a common goal. We are facing the profound paradox that genetic self-advancement at the expense of others—which is the basic thrust of evolution—has given rise to remarkable capacities for caring and sympathy.

This book tries to keep such conflicting thoughts simultaneously aloft. The one is not easily reduced to the other, although attempts have been made, most prominently the proposition that deep down, concern for others always remains selfish. By denying the existence of genuine kindness, however, these theories miss out on the greater truth emerging from a juxtaposition of genetic self-interest and the intense sociality and conviviality of many animals, including ourselves.

Instead of human nature's being either fundamentally brutish or fundamentally noble, it is both—a more complex picture perhaps, but an infinitely more inspiring one.

1

DARWINIAN DILEMMAS

Be warned 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.

*Richard Dawkins*¹

Why should our nastiness be the baggage of an apish past and our kindness uniquely human? Why should we not seek continuity with other animals for our 'noble' traits as well?

*Stephen Jay Gould*²

Famous in her country as the star of several nature documentaries, Mozu looks like any other Japanese monkey except for missing hands and feet and an arresting countenance that appears to reflect lifelong suffering. She roams the Shiga Heights of the Japanese Alps on stumpy limbs, desperately trying to keep up with more than two hundred healthy group mates. Her congenital malformations have been attributed to pesticides.

When I first visited Jigokudani Park in 1990, Mozu was already eighteen years old—past prime for a female macaque. She had successfully raised five offspring, none of whom showed abnormalities. Given the extended period of nursing and dependency of primate young, no one would have dared to predict such a feat for a female who must crawl over the ground, even in midwinter, to stay with the rest. While the others jump from tree to tree to avoid the ice and snow covering the forest floor, Mozu slips and slides through shoulder-high snow with an infant on her back.

One thing that the monkeys in Jigokudani Park have in their favor is hot-water springs, in which they temporarily escape from the glacial temperatures, grooming one another amid clouds of steam. Another

factor that makes life easier is food provisioning. Modest amounts of soybeans and apples are distributed twice daily at the park. Care-takers say they give Mozu extra food and protect her when she encounters competition from other monkeys. They try to make up for the trouble she has obtaining food, yet stress that Mozu does not dally at the feeding site. She is really part of the troop. Like the rest, she spends most of her time in the mountain forest, away from people.

Survival of the Unfittest

My first reaction to Mozu was one of awe: “What a will to live!” The connection with morality came later, when I heard how much paleontologists were making of the occasional survival into adulthood of Neanderthals and early humans afflicted with dwarfism, paralysis of the limbs, or inability to chew. With exotic names such as Shanidar I, Romito 2, the Windover Boy, and the Old Man of La Chapelle-Aux-Saints, the fossil remains of a handful of cripples were taken to mean that our ancestors supported individuals who could contribute little to the community. Survival of the weak, the handicapped, the mentally retarded, and others who must have posed a burden was depicted as the first appearance on the evolutionary scene of compassion and moral decency. Cavemen turned out to be communitarians under the skin.

Accepting this logic, should we not also include Mozu’s survival as an example of moral decency? One might counter that the artificial food provisioning at Jigokudani Park disqualifies her, since we do not know if she would have made it without the extra food. Moreover, if active community support is our criterion, Mozu can be eliminated right away because there is no shred of evidence that other monkeys have ever gone out of their way to assist her in her monumental struggle for existence.

Exactly the same arguments have been raised against the Shanidars and Romitos of the human fossil record. According to K. A. Dettwyler, an anthropologist, it is possible that these individuals lived in rich environments in which the sharing of resources with a few impaired community members posed no problem. In return, the handicapped individuals may have made themselves useful by collecting firewood, baby-sitting, or cooking. Dettwyler also argues that there is a wide gap between mere survival and being treated well. She

describes cultures in which mentally retarded people are stoned, beaten, and jeered at for public amusement, or in which people afflicted with polio do not receive any special consideration ("adult women crawled on hands and knees with children tied to their backs").³ As for Western society, we need only think of the filthy asylums of the not-too-distant past, and the chained existence of the insane, to realize that survival does not necessarily imply humane conditions.

Without knowing the precise similarities and differences between Mozu and the human fossils, I do not think these fossils prove moral decency any more than does Mozu's survival. Only a relatively tolerant attitude toward the handicapped can be inferred in both cases. Mozu is certainly well accepted by her group mates, a fact that may have contributed to her survival. If what happened in 1991 is any measure, Mozu may even enjoy a special level of tolerance.

In the spring of that year, the troop of monkeys at Jigokudani had grown so large that it split in half. As usual during fissioning, the dividing line followed the backbone of macaque society, the matrilineal hierarchy (female kin are closely bonded and united in their battles with nonkin, the result being a social order based on matrilineal descent). One piece of the troop consisted of a few dominant matriarchs and their families; the other included subordinate matriarchs and their families. Being of low rank, Mozu and her offspring ended up in the second division.

According to Ichirou Tanaka, a Japanese primatologist who has worked at the park for years, the fission posed a serious problem for Mozu. The dominant division began to claim the park's feeding site for itself, aggressively excluding all other monkeys. Faced with this situation, Mozu made a unique decision. Whereas female macaques normally maintain lifelong bonds of kinship, Mozu ignored the ties with her offspring and began making overtures to individuals in the dominant division. Despite occasional attacks on her, she stayed at the periphery, seeking contact with age-peers, females with whom she had grown up nineteen years before. She made repeated attempts to groom them (without fingers, Mozu's rather clumsy grooming still served to initiate contact). Eventually her peers began to accept her presence, and to return Mozu's grooming. Mozu is now well integrated into the dominant troop, once again enjoying the feeding site, yet having paid for this advantage with permanent separation from her kin.

In no society worthy of the name do the members lack a sense of belonging and a need for acceptance. The ability and the tendency to construct such associations, and to seek security within them, are products of natural selection found in members of species with better survival chances in a group than in solitude. The advantages of group life can be manifold, the most important being increased chances to find food, defense against predators, and strength in numbers against competitors. For example, it may be of critical importance during a drought to have older individuals around who can lead the group to an almost-forgotten waterhole. Or, during periods of heavy predation all eyes and ears count, especially in combination with an effective warning system. Each member contributes to and benefits from the group, although not necessarily equally or at the same time.

Mozu's case teaches us that even though primate groups are based on such give-and-take contracts, there is room for individuals with little value when it comes to cooperation. The cost to the others may be negligible, but their inclusion is remarkable, given the realistic alternative of ostracism.

Noting that Japanese monkeys can be quite aggressive, at times demonstrating what he calls murderous intent, Jeffrey Kurland described the following concerted action against a particular matriline at a site far from Jigokudani.

A female of the top matriline started a fight with a low-ranking female named Faza-71. The attacker and her supporters (a sister, a brother, and a niece) made so much noise that the alpha male (the troop's most dominant male) was attracted to the scene. By the time he arrived, Faza-71 was high in a tree, a position from which she was forced to jump 10 meters to the ground when the male climbed up and cuffed her. Fleeing from her pursuers, Faza-71 saw no escape other than an icy, fast-streaming river. Her attackers wisely stayed on land, but for a long time prevented the frantically swimming Faza-71 from coming back on the riverbank. In the meantime Faza-71's family, powerless to help, fled over a dam across the river.

But for a small pile of sand under a chilly waterfall, Faza-71 would have drowned. Bleeding and apparently in shock, she waited to join her family until the attackers had dispersed. The entire encounter lasted less than half an hour; but it took more than a week for Faza's matriline to rejoin the troop, and many months for them to relax in the presence of the dominant matriline.⁴

Biologizing Morality

Social inclusion is absolutely central to human morality, commonly cast in terms of how we should or should not behave in order to be valued as members of society. Immoral conduct makes us outcasts, either here and now or—in the beliefs of some people—when we are turned away from the gates of heaven. Universally, human communities are moral communities; a morally neutral existence is as impossible for us as a completely solitary existence. As summed up by Mary Midgley, a philosopher, “Getting right outside morality would be rather like getting outside the atmosphere.”⁵ Human morality may indeed be an extension of general primate patterns of social integration, and of the adjustment required of each member in order to fit in. If so, the broadest definition of this book’s theme would be as an investigation into how the social environment shapes and constrains individual behavior.

No doubt some philosophers regard morality as entirely theirs. The claim may be justifiable with regard to the “high end” of morality: abstract moral rules can be studied and debated like mathematics, almost divorced from their application in the real world. According to child psychologists, however, moral reasoning is constructed upon much simpler foundations, such as fear of punishment and a desire to conform. In general, human moral development moves from the social to the personal, from a concern about one’s standing in the group to an autonomous conscience. While the early stages hardly seem out of reach of nonhuman animals, it is impossible to determine how close they get to the more rational, Kantian levels. Reliable nonverbal signs of thought in humans do not exist, and the indicators that we sometimes do use (staring into the distance, scratching the head, resting the chin on a fist) are commonly observed in anthropoids. Would an extraterrestrial observer ever be able to discern that humans ponder moral dilemmas, and if so, what would keep that observer from arriving at the same conclusion for apes?

Biologists take the back door to the same building that social scientists and philosophers, with their fondness for high-flung notions, enter through the front door. When the Harvard sociobiologist E. O. Wilson twenty years ago proclaimed that “the time has come for ethics to be removed temporarily from the hands of philosophers and biologized,”⁶ he formulated the same idea a bit more provocatively. My own feeling is that instead of complete reliance on biology, the best way to generate fresh air is simultaneously to open both front

and back doors. Biologists look at things in a rather functional light; we always wonder about the utility of a trait, on the assumption that it would not be there if it did not serve some purpose. Successful traits contribute to “fitness,” a term that expresses how well adapted (fitted) an individual is to its environment. Still, emphasis on fitness has its limitations. These are easily recognized when paleontologists hold up the fossil remains of an ancestor who could barely walk, declaring it a defining moment in human prehistory when the unfit began to survive.

To understand the depth of these limitations, one need only realize the influence of Thomas Malthus’ essay on population growth that appeared at the beginning of the nineteenth century. His thesis was that populations tend to outgrow their food supply and are cut back automatically by increased mortality. The idea of competition within the *same* species over the *same* resources had immediate appeal to Charles Darwin, who read Malthus; it helped bring his Struggle for Existence principle into focus.

Sadly, with these valuable insights came the burden of Malthus’ political views. Any help one gives the poor permits them to survive and propagate, hence negates the natural process according to which these unfortunates are supposed to die off. Malthus went so far as to claim that if there is one right that man clearly does *not* possess, it is the right to subsistence that he himself is unable to purchase with his labor.⁷

Although Darwin appears to have struggled more with the moral implications of these ideas than most of his contemporaries, he could not prevent his theory from being incorporated into a closed system of thought in which there was little room for compassion. It was taken to its extreme by Herbert Spencer in a grand synthesis of sociology, political economy, and biology, according to which the pursuit of self-interest, the lifeblood of society, creates progress for the strong at the expense of the inferior. This convenient justification of disproportionate wealth in the hands of a happy few was successfully exported to the New World, where it led John D. Rockefeller to portray the expansion of a large business as “merely the working-out of a law of nature and a law of God.”⁸

Given the popular use and abuse of evolutionary theory (comparing Wall Street to a Darwinian jungle, for example), it is not surprising that in the minds of many people natural selection has become synonymous with open, unrestricted competition. How could such a harsh principle ever explain the concern for others and the benevo-

lence encountered in our species? That a reason for such behavior does not follow readily from Darwin's theory should not be held against it. In the same way that birds and airplanes appear to defy the law of gravity yet are fully subjected to it, moral decency may appear to fly in the face of natural selection yet still be one of its many products.

Altruism is not limited to our species. Indeed, its presence in other species, and the theoretical challenge this represents, is what gave rise to *sociobiology*—the contemporary study of animal (including human) behavior from an evolutionary perspective. Aiding others at a cost or risk to oneself is widespread in the animal world. The warning calls of birds allow other birds to escape a predator's talons, but attract attention to the caller. Sterile castes in social insects do little else than serve food to the larvae of their queen or sacrifice themselves in defense of their colony. Assistance by relatives enables a breeding pair of jays to fill more hungry mouths and thus raise more offspring than otherwise possible. Dolphins support injured companions close to the surface in order to keep them from drowning. And so on.

Should not a tendency to endanger one's life for someone else be quickly weeded out by natural selection? It was only in the 1960s and 1970s that satisfactory explanations were proposed. According to one theory, known as *kin selection*, a helping tendency may spread if the help results in increased survival and reproduction of kin. From a genetic perspective it does not really matter whether genes are multiplied through the helper's own reproduction or that of relatives. The second explanation is known as *reciprocal altruism*; that is, helpful acts that are costly in the short run may produce long-term benefits if recipients return the favor. If I rescue a friend who almost drowns, and he rescues me under similar circumstances, both of us are better off than without mutual aid.

Wilson's *Sociobiology: The New Synthesis* summarized the new developments. It is an influential and impressive book predicting that all other behavioral sciences will one day see the light and convert to the creed of sociobiology. Confidence in this future was depicted in an amoebic drawing with pseudopods reaching out to devour other disciplines. Understandably, nonbiologists were piqued by what they saw as an arrogant attempt at annexation; but also within biology, Wilson's book provoked battles. Should Harvard be allowed to lay claim to an entire field? Some scientists preferred to be known as behavioral ecologists rather than sociobiologists, even though their theories were essentially the same. Moreover, like children ashamed