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

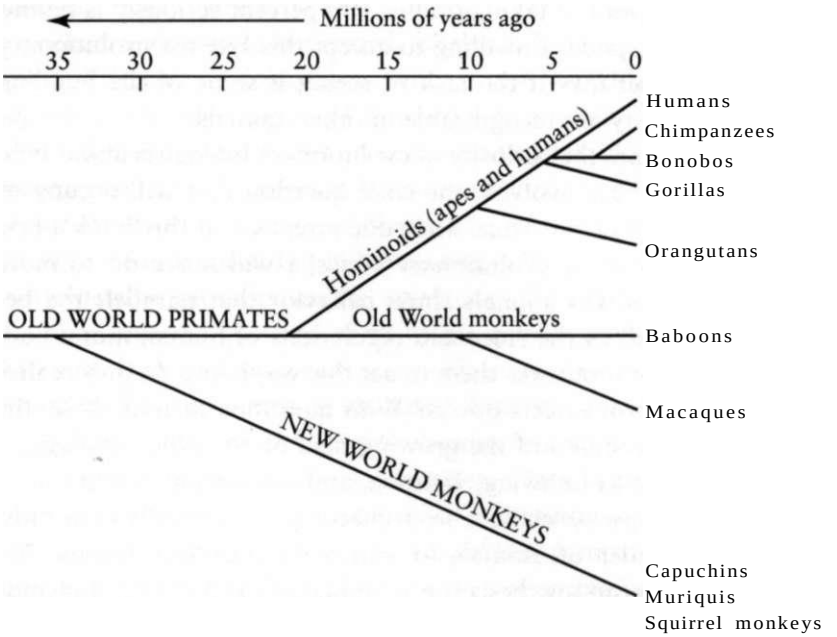
behavior that does not take morality 100 percent seriously is bound to fall by the wayside. Unwilling to accept this fate for evolutionary theory, I have set myself the task of seeing if some of the building blocks of morality are recognizable in other animals.

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.