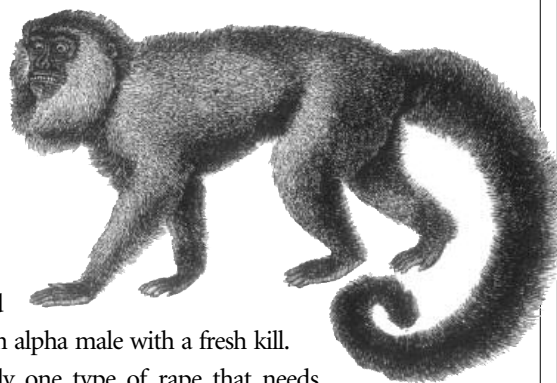


THE PUNDIT OF PRIMATE POLITICS

AN INTERVIEW WITH FRANS DE WAAL

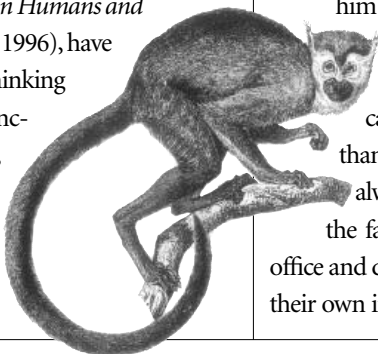
MICHAEL SHERMER



Frans de Waal is no stranger to primate politics, both the human and non-human kind. Although he is a professor of psychology at Emory University, he is also Director of the Living Links Center for the Advanced Study of Ape and Human Evolution. In other words, he doesn't just teach about the psychology of primate politics, he observes it through a wall-size window from his office high above a large chimpanzee enclosure at the center; he also observes it among his primate colleagues in academia. Shortly after this interview was conducted, in the august pages of the *New York Times Book Review*, de Waal rang in on the great rape debate triggered by the publication by MIT press of evolutionary psychologists Randy Thornhill's and Craig Palmer's controversial book *A Natural History of Rape*.

Thornhill and Palmer argue that rape is not an act of dominance and violence (although physical violence is involved), as has been argued for decades by feminists and sociologists. It is an act of sex. Guys don't want to dominate women, they want to have sex with them. Most men use charm, wit, and conversation to get it. But some men use force. Since sex, whether coerced or voluntary, can lead directly to offspring, there must have been a tendency for men who rape to pass along their genes, including those genes involved, directly or indirectly, in the tendency to rape. Thornhill and Palmer are not saying that there is a "rape gene." Rather, they are arguing that there is a genetically predisposed capacity among men to rape, and that certain developmental and environmental circumstances can lead some men to turn to rape to get sex. Thus, women should not put themselves in those circumstances and men should be aware of this biological propensity.

This is an evolutionary argument. Frans de Waal is an evolutionary biologist whose many successful and important books, including and especially *Chimpanzee Politics: Peacemaking Among Primates*, (Johns Hopkins University Press, 1982) and *Good Natured: The Origins of Right and Wrong in Humans and Other Animals* (Harvard University Press, 1996), have included a heavy dose of evolutionary thinking and theory to tease out the many influencing variables in primate behavior. Thus, one might have expected a favorable review of this strongly evolutionary interpretation of rape. Not so. De Waal tore into the authors' arguments and



dismantled them like an alpha male with a fresh kill.

Is there only one type of rape that needs explaining, de Waal asks? No. Date rape on a college campus differs from rape by a complete stranger just as rape by a serial stalker differs from rape during wars and revolutions. Are these diverse and multifarious behaviors, de Waal wonders, all explicable by the same theory? "Isn't it likely that some rapes are mainly sexually motivated and others mainly acts of hostility and misogyny?"

And why, de Waal wonders, would paleolithic rapists leave behind their genes so prolifically? The Environment of Evolutionary Adaptation featured human primates living in small bands of 150-200 hunter-gatherer individuals. If you are the father, brother, or mate of a female who just got raped, are you going to let the perpetrator get away with it; and do so again and again? Why couldn't the "just-so story" of rape's natural history be one where rapists got beaten to a pulp by the families of the victims, or perhaps castrated or even killed, thus permanently removing them from the gene pool? Further, de Waal inquires, "If rape is about reproduction, why are about one-third of its victims young children and the elderly, too young or old to reproduce? Why do men rape lovers and wives, with whom they also have consensual sex?"

Here Frans de Waal demonstrates his capacity as a world-class scientist and critical thinker in considering the disconfirming evidence, not just the confirming evidence, and in following the sage advice of the evolutionary biologist George Williams that "adaptation is a special and onerous concept that should be used only when it is really necessary." De Waal does use it to great effect in his works, but he does so only when really necessary. Because of this, he is something of a thorn in the side of the hyperadaptationists within the new field of evolutionary psychology who praise his work to the hilt and invite him to their conferences, only to hear

him throttle back on adaptationist interpretations. How has he managed to strike a healthy balance between genes and culture, nature and nurture? To find out, we caught up with him at the Living Links Center (and I thank my friend Donna Coles for her assistance and, as always, additional penetrating questions). After a tour of the facilities we settled into his glass enclosed observation office and discussed primate politics as his chimpanzees acted out their own in the background.

Skeptic: At SKEPTIC we are interested in the individual scientists as much as in their ideas, because background and personality often shape how and why science is done in a particular manner. Tell us a little bit about your family background and upbringing in Holland and how this led you to become one of the world's leading primatologists.

De Waal: Sometimes I attribute my interest in aggression in primates to the fact that I am the fourth of six brothers. In most of the literature aggression is presented as a problem that needs to be solved, whereas my experience is that a little bit of aggression is a normal part of human interactions.

As for my upbringing, I was interested in animals for as long as I can remember because my mother's father owned a pet store so I was always with animals. I also had an interest in art so I did a lot of drawing and photography. When I finished high school I seriously considered being an artist. My second choice was physics, which my mother talked me out of because she thought I was best at working with animals. She was completely right.

Skeptic: I'm sure you are familiar with Frank Sulloway's Darwinian model of birth order and family dynamics, where there is competition among siblings for limited parental resources. Did you experience this in your family?

De Waal: Ah, yes, *Born to Rebel*. Well, there is a very social side to my family. My father was very important in the social life of the little community where I grew up. I was raised in an environment where social interactions were important and that is the subject of my research with primates. I like to study the social aspects of primate behavior.

Skeptic: Is social behavior more complex and thus difficult to study?

De Waal: Yes. I can make any tool I want and give it to a chimp and see what they do with it. But if I give them a partner and see what happens, the partner is out of my control.

Skeptic: You grew up in a country that was a real-world testing ground for Calhoun's famous behavioral sink experiments with rats in overcrowded conditions, where they collapsed into violence and abnormal behavior. What was your experience in Holland?

De Waal: I never believed the Calhoun experiments when I first read about them because Holland is a very crowded country and, in fact, you don't see the behavior that Calhoun reported in his research. And when we actually reviewed the liter-

ature for a comprehensive study for *Scientific American* on population densities and murder rates of numerous countries, we found that there was no correlation whatsoever. Then we looked at different subcategories of countries and we found one correlation—for the Eastern block countries. The murder rate was highest among the least populous! Russian is a good example.

Skeptic: Why is that? Intuitively it seems like population density should be related to aggression and violence.

De Waal: I would argue that the intuitive correlation would be the opposite. If you live closely together for many generations you are going to develop rules of conduct that prevent excessive aggression and violence. In Japan, Holland, Bangladesh, and some parts of the U.K., for example, where the population density is high, their murder rates are considerably lower than in low population density countries like the United States. You could argue that in countries where the population density is low people were free to go wherever they wanted, they didn't want the government messing with them, and they didn't like a lot of rules and restrictions on their behavior, so they carried guns and were freer to use them.

Skeptic: So in low population countries or small families one does not learn conflict resolution as well.

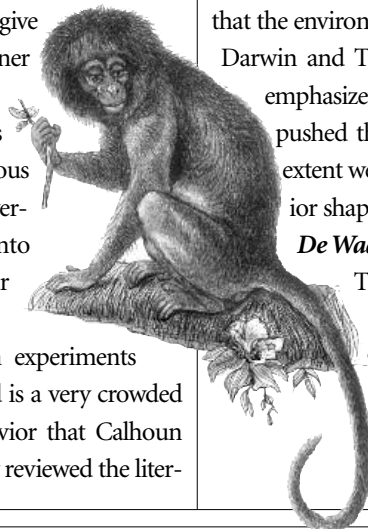
De Waal: That is the argument I make in my book *Chimpanzee Politics*. If you live in a community where you can successfully leave if there is conflict, then you avoid learning conflict resolution. But in crowded areas if you move out you just run into another group who doesn't want you. So in crowded places you need to learn to get along.

Skeptic: Early in your book *Good Natured* you talk about Petr Kropotkin's rather different view of competition and cooperation because of his experiences living in Russia. What I'm getting at is that the environment of scientists helps shape their ideas. Charles Darwin and Thomas Huxley from the ultra-competitive U.K. emphasized competition, whereas Kropotkin from Russia pushed the mutual aid side of natural selection. To what extent were your theories of the evolution of moral behavior shaped by your upbringing in the Netherlands?

De Waal: The Dutch are very consensus-building people. There is an interesting book by Simon Schama where he argues that the Dutch are the way they are because they have a common enemy—the ocean. They live below the ocean so they had to fight against it. If we live in a town where you are on the top of the heap and I am a peasant farmer,



Frans de Waal



if the dam breaks you can't just sit in your castle. You've got to come down and join in helping to fix it. That makes for a more egalitarian society.

Skeptic: So the geography or the environmental/cultural circumstances can shape how competitive or cooperative a people become.

De Waal: Yes, and we can really see that by comparing the Dutch political system with the British. The British monarchy is very isolated from the people, so the British have always had a very different attitude in terms of hierarchy, which is impossible in the Netherlands, where even the Queen needs to show on occasion that she remains one of the people (for example, by riding her bicycle).

Skeptic: Before making sweeping statements about human behavior we have to be careful to consider the context in which the theory of human behavior was created.

De Waal: The way to look at this is to look at the background of the scientist. But that shouldn't be held against your theories, as long as they are testable. If I say that population density has very little effect on aggression, and I have tested it and you have tested it, then it doesn't matter how I devised the idea. The hypothesis is proved right irrespective of the theorist. For instance, there are students with feminist leanings who want to study bonobos because females dominate males. I don't think that is necessarily bad because even though it is a biased reason to study them, it can still result in good science. I personally don't care what kind of background or biases someone brings as long as they present their ideas in an empirical fashion.

Skeptic: Who were your influential mentors? I assume such ethologists as Konrad Lorenz and Niko Tinbergen must have had an influence.

De Waal: Lorenz and Tinbergen were pretty influential on my thinking. Lorenz because he wrote very well and he could really draw you into his books. Tinbergen was not as skilled as Lorenz in that respect, but he was the better scientist. So between the two of them it was a strong combination. But a stronger influence on my thinking was Desmond Morris. He wrote a book in the mid 1960s called *The Naked Ape*, which was about the time that I started my studies. Morris is an excellent observer of behavior and when I read that book I was very impressed by how you can apply knowledge of animal behavior to people. Unfortunately I was at a university that didn't do any animal behavior studies. The biology department there, like most biology departments, was moving toward molecular biology. Then I moved to a university that had animal behavior studies, so I was able to focus on that.

Skeptic: When I was studying ethology in the

mid 1970s the work of I. Eibl-Eibesfeldt was popular, particularly the model of the Sign-Stimulus—Innate Releasing Mechanism—Fixed Action Pattern to describe the activities of innate behaviors. Are these models still useful?

De Waal: I was trained in that too because I studied Dutch ethology, which was begun by Tinbergen. I consider Tinbergen one of the founders of sociobiology, which explains why when sociobiology came along it received enormous resistance everywhere except for the U.K. and Holland. I think this is partly because the thinking that you need to have adaptive explanations for behavior came out of the Tinbergen school, and Tinbergen exported it to the U.K. When the "new" theories of Robert Trivers and William Hamilton came along and were adopted by Edward Wilson, they were not necessarily brand new. As for the models, they are still useful. In fact, I recently attended a conference in Washington D.C. and people were talking about how we need more studies on motivation and they were basically describing studies that had been done 50 years ago by ethologists.

Skeptic: The adaptationist paradigm is back in the news through the "new" field of evolutionary psychology through such writers as Richard Dawkins, E. O. Wilson, Daniel Dennett, and Steve Pinker. Yet evolutionary biologists like Stephen Jay Gould critique the adaptationist perspective, arguing for a pluralistic perspective. You are an evolutionary biologist who constructs evolutionary and adaptive interpretations of behaviors, yet you have also been critical of a lot of sociobiology and evolutionary psychology. Where do you fall on this spectrum?

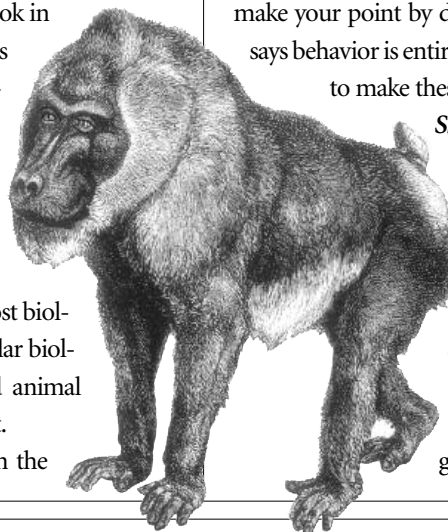
De Waal: I've never liked simple-minded sociobiology. This may be because I don't work with animals that are ants, you know? I believe there is a powerful learning component to behavior, as well as an enormous level of flexibility. One problem here is that most sociobiologists have worked with simple organisms so they develop simple models that apply to them, but not to humans and other complex species. Having said that, however, I do understand that if you are fighting an academic establishment that claims everything is purely cultural in the human species, you tend to make your point by doing exactly the opposite. When one side says behavior is entirely caused by culture, it leads the other side to make these simplistic biological arguments.

Skeptic: So there is a lot of science politics in this debate.

De Waal: Science rhetoric. Certainly now things have changed. Books applying Darwinian thinking are everywhere. Evolution is being discussed openly.

Skeptic: Except for in Kansas.

De Waal: Yes, well, almost everywhere. It is a very popular paradigm and it is growing in the social sciences as well. The



resistance I received 20 years ago to applying the study of chimpanzee behavior to human behavior has disappeared. Back then if you suggested we could learn something about humans from chimps you would have been thrown out of the lecture hall.

Skeptic: In a way your own books have helped open those doors. And speaking of chimpanzees, I'm fascinated by this oft-quoted figure that humans and chimpanzees are 98.5 percent genetically similar. On the one hand it is startling how closely related we are. On the other hand, we certainly do not confuse humans and chimps. So it seems like that one and a half percent matters a lot.

De Waal: This is why we need a chimpanzee genome project! Seriously. People have been talking about doing this because that 1.5 percent difference that exists is more complicated than it sounds. There must be inhibitory genes that affect the expression of other genes. So it's not just 1.5 percent difference. It could be 30 percent difference with those magnifying effects.

Skeptic: You have objected to the concept of selfish genes. Why?

De Waal: A gene cannot be "selfish," of course, so this is just a metaphor. But it shows you the danger of metaphor when people start thinking of genes as "selfish." The genome of humans has produced a very complex psychology that includes loyalty, solidarity, cooperation, pure altruism, and all that present in humans, chimpanzees, and other social animals. Yes, genes have been selected to produce behavior that serves the owner, and so on. All of that is true. In that sense, genes have been selected to be self-promoting and to be at the service of the organisms that carry the genes. But that does not mean that genes produce a selfish psychology. Selfish psychology is there in humans, but there is also an unselfish psychology. Now, it is true that in the long run that kind of psychology has served us and these other social animals because they live in groups and they survive by mutual aid and cooperation. But to reduce all that to selfish genes, and to then argue that we are selfish by nature is in my mind wrong.

Skeptic: Along those lines, pleiotropy—the capacity of genes to code for more than one trait—means that when genes are selected for one or more characteristics they can carry along with them a whole cadre of other genes that code for something else entirely, and this has nothing to do with the adaptation originally selected. This is what Gould and Elizabeth Vrba call "exaptations." In your research how do you tease apart adaptations from exaptations, or for that matter, nature and nurture?

De Waal: Unless you work with fruit flies you can't. With primates I cannot do that sort of research. There are chimpanzee twins, but usually one of them does not survive, so we have a hard time even doing basic behavioral genetic research like that done on humans in the Minnesota twins study.

Skeptic: What I'm getting at here is the criticism hurled against

evolutionary psychologists that they are telling just-so stories.

De Waal: I don't go so far as Gould, who is opposed to any adaptationist type of thinking. It is fine to think in terms of adaptations as long as you don't think that everything is narrowly selected to go a particular way. For example, in primate studies we are increasingly interested in culture. At the moment we are looking at tool-use culture—which sticks do they use, which chimpanzees crack nuts, and so on. Even in that relatively simple domain we find enormous variability. I think that with social life we see much more. Even in a small group of chimpanzees one individual varies considerably from another, and one group varies from another group. Yet people will study one chimp or one group of chimps and generalize to all chimpanzees, or even to all humans, then write a big book about the dark side of human nature or whatever.

Skeptic: In other words, a bell curve describing behavioral variability is much wider than most of the narrowly focused adaptationist explanations, like the book *The Natural History of Rape* by Randy Thornhill and Craig Palmer, where they offer an adaptationist explanation for rape as primarily an act of sex, not violence or dominance.

De Waal: That's a perfect example. I just reviewed that book for the *New York Times*. Why would we want to compare the rape committed by a Serbian soldier to the rape committed by a strange intruder to the rape committed by a date or spouse? How can we have one explanation for all these cases? I argue that rape has an aggressive, domineering, intimidating component to it, as well as a sexual component. Maybe in some cases sexual explanations apply. Maybe in other cases dominance explanations apply. And these explanations themselves will apply to different degrees for different individual cases. Why would you want to choose between the two? Trying to simplify human rape by using analogies with scorpion flies is inappropriate. Maybe rape in scorpion flies is simple and rape in humans is not.

Skeptic: This brings us to the is-ought, naturalistic fallacy. Clearly we cannot argue that, say, because rape is "natural" therefore it is moral. But what can we say about how we ought to behave from our evolutionary heritage? And what sort of correctives can be offered using this knowledge? For example, most crimes are committed by young men in their 20s, in part it seems, because of high levels of testosterone coupled with, (as social hierarchical primates) the need for initiations, competition for females, struggles for power with other males, etc., that lead to such problems as crimes. Can evolutionary biology inform our discussions and debates on moral issues?

De Waal: I think evolutionary biology does not inform moral decisions. It can help us understand why we have moral systems and how they operate. That is more or less at a theoretical level. But I would never say "that's how chimps do it so we should too."

First of all, we have a very different society. Even though we are so closely related to chimps, we have rather different kinds of societies. Even within human groups societies vary considerably, along with their moral systems. For example, when I was researching and writing *Good Natured* I thought I would find some human moral universals. I talked to anthropologists about this, figuring that there must be at least a few, such as not killing your parents. Well, they gave me plenty of example of cultures who sanction the killing of parents. Killing infants? Nope, lots of cultures allow the killing of infants. Even incest is allowed, sometimes encouraged, in some cultures. Human universals are very hard to find. In fact, they couldn't come up with one.

Skeptic: At the end of *Sociobiology* Edward O. Wilson says we need to take morality out of the hands of the philosophers and biologize it. You have stated that science can only tell us where morality comes from but not how we should act morally. How, then, should we determine how we should act?

De Waal: The decision on how we should act is a consensual decision we make as a society. Now, in that decision enters human nature—we have tendencies of sympathy, reciprocity, parent-child relationships, aggression, or whatever. For example, if you set up a society that is in direct conflict with one of these basic human needs you are setting yourself up for failure.

Skeptic: Like the Israeli kibbutz where children were separated from their parents and raised by the group? This social experiment failed in the sense that mothers still wanted to be with their own children.

De Waal: Yes. You work within the constraints of human nature.

Skeptic: And there science can inform us. Thornhill and Palmer, for example, do this when they tell women that they should not wear suggestive clothing as this may act as a stimulus for men.

De Waal: For that example I would like to see the research showing that certain types of clothing lead to more rape and other types of clothing lead to less rape; and that would need to be controlled for other influencing variables. I don't think such research exists. This is a just-so story with a just-so behavioral recommendation that has no foundation in science whatsoever.

Skeptic: Why are evolutionary explanations of human behavior becoming so popular in recent years?

De Waal: The social sciences have to take some blame for this.

When sociobiology came along they screamed and shouted and said evolution has nothing to do with behavior. But in the meantime, over the last 25 years, they haven't offered us much in the way of an explanation that is superior to the evolutionary model. Plus, the genetic revolution has found genes for all sorts of things and these discoveries have supported sociobiological models. In the 1960s and 1970s you had all these people saying you could be whoever you wanted to be. And that just isn't true.

Skeptic: Politics has always influenced science. Why do evolutionary explanations of human behavior make so many people

nervous, from right-wing fundamentalists and creationists to left-wing post-modernists and deconstructionists?

De Waal: I did a piece for *Scientific American* on this. On the left there is the fear that Darwinian models of human behavior will lead to Nazi eugenics programs, so they lean toward environmental models. And on the right there is the fear that purely environmental explanations lead to communist-type behavior-modification programs where all human behavior can be shaped according to the state's desire, like Skinner's *Walden Two*. So yes, this nature-nurture issue is very political and both sides have to take responsibility for the problems generated by both extremes. Just like social scientists must take some of the blame for the

extremism of Skinnerian-type utopias, evolutionary biologists must be held accountable for some of the abuses done in the name of biological determinism.

Skeptic: Complex models are harder to get our minds around. We prefer simple models. For example, Sarah Hrdy's new book, *Mother Nature*, is 500 pages and filled with nuances and complexities. Although it is purportedly an evolutionary interpretation of women and motherhood, it doesn't read at all like some of the more extreme evolutionary psychology works. I asked her, for example, whether day care is a good or bad idea. The answer is that it depends on a lot of different variables because, ultimately, there is not just one correct way to raise a child. The so-called nuclear family has never been the only or even primary way to raise children.

De Waal: Sarah Hrdy is a good example. She is an evolutionary thinker but she has an anthropological background so she doesn't fall into that type of simplistic reasoning. She knows that some variables work under certain circumstances, whereas other variables work under different circumstances. So she wrote a complex book that I have absolutely no problem with and I respect her greatly. Some people will say that she just doesn't want to be



Frans de Waal on the grounds of the primate center.

pinned down. But I say what's wrong with that? The reason is because these issues are complex and that you usually cannot just give a simple answer.

Skeptic: How have your own science and politics evolved over the past quarter century since you've been doing primate politics?

De Waal: I have become more evolutionary over time, that's for sure, in the sense that I was trained as an ethologist and my main task was observing animals and analyzing their behavior. This is still my job, but I've become much more interested in evolutionary thinking and a lot of the models I test in my laboratory have something to do with evolutionary models. For example, the main phenomenon we are studying now is reciprocal altruism—I'll scratch your back if you'll scratch mine.

I've also moved to doing more empirical tests of these evolutionary ideas. I'm now mainly interested in laboratory testable hypotheses. For

example, right now we are training chimpanzees to operate a joy stick for a facial recognition task. And we are doing experiments in cooperation and food sharing, where we show how cooperative behavior between two primates leads to greater food sharing after the task in which the cooperation occurred.

Skeptic: In your behavior models these behaviors of cooperation and reciprocal altruism are the rudiments of human morality. Do you consider these primates to be moral animals?

De Waal: I would not call chimpanzees moral animals. But I do think they have many of the elements of moral behavior.

Skeptic: Premoral animals?

De Waal: The way I would put it is that our moral systems have made use of a much older psychology. Some moral philosophers might think that we have invented human morality, but that's not the case. Human morality is built on top of a psychology that can be seen in other primates.

Skeptic: To what extent can the study of primate morality inform us about the evolution of human morality? For example, when we think of the Yanamamo people studied by Napoleon Chagnon we like to think that perhaps we are getting a glimpse of how our paleolithic ancestors lived. By studying the behavior of chimpanzees, our closest living primate relatives, are we getting a peek into our common ancestor's past?

De Waal: Every anthropologist will tell you that such extrapolations are very dangerous because there is so much variability. For example, most hunter-gatherers are very egalitarian and relatively peaceful, whereas the Yanamamo are called the fierce people. So if you make the argument that our ancestors were also fierce people, you have to contend with the counter examples of the hunter-gatherers who are peaceful and egalitarian. Or if we compare our behaviors to primates we also have to be careful because of the great variability between species. Chimpanzees and bonobos are

quite different. Which one are we more like?

Skeptic: Regarding the issue of directionality in evolution, there are those who claim that if "we" (anatomically modern humans) had gone extinct, the Neanderthals would have evolved into a global socially dominant species. And if not the Neanderthals, it would have been another hominid, or perhaps chimps, gorillas, orang-

utans, or one of the old or new world monkeys would have evolved into a global, socially dominant species. Were these primate species "on the way" to becoming us, or were they simply well-adapted for their local environments?

De Waal: The belief that evolution is moving in a particular direction is hard to defend. Directions change. Most evolutionary biologists do not believe in directionality because it is a type of teleology. I think it is not supported by the data. As for Neanderthals, we are not sure why they died out. Maybe we caused their extinction, but maybe they died for other reasons. In any case we should not be making the argument that they, or any other species, is on its way to becoming us. It is like people who come up to me after a lecture and say "if these chimpanzees are so smart why aren't they becoming more like people?" As biologists we understand that chimpanzees are perfectly well adapted for the environment in which they live. There is no pressure for them to move in any direction. As for humans, we do not fully understand how we became what we are today—bipedal, big brained, etc. Obviously it must be related to a change in environment: perhaps the forests dried up so we had to move out of the trees and do different things to survive, find different foods to eat, and so on. That's how these things happen.

Skeptic: Richard Dawkins, William Hamilton, Robert Trivers,



De Waal on the observation tower at the Living Links Center for the Advanced Study Of Ape and Human Evolution.

and others are hyper-critical of group selection arguments. David Sloan Wilson and Elliot Sober argue for a modified version of group selection in *Unto Others*. Ernst Mayr argues for group selection only for social species, particularly primate social species à la Darwin's argument for the evolution of cooperation. What is your opinion of group selection?

De Waal: I don't have a problem with it under certain conditions. If we have isolated communities that do different things genetically, and if one of them can become more successful than the other, then that would be group selection. But as soon as you get a lot of traffic between the communities—a lot of gene flow—group selection disappears. That's always been my problem with the primate data, because all primates have an enormous amount of migration. For example, in chimpanzees all the females travel around and join other groups. In baboons, all the males travel and join other groups. Even in humans, it is very rare for individuals to stay in the same community their entire lives. In fact, too much in-group breeding can be deleterious. It is good to have gene flow between groups, but this will necessarily negate group selection effects. I'm sure Sober and Wilson have answers to all this, but it seems to me that there is so much genetic transmission going on between groups in primates and humans that I find it hard to believe group selection effects can really be going on. They may argue that the selection is at the population level and that the group selection effects are to be found between populations of groups.

Skeptic: But certainly you would agree that there is some selective advantage for cooperative behavior?

De Waal: In that regard I'm an old fashion evolutionist looking for what's in it for the individual and his or her close kin, rather than looking at the group level. In principle I'm not against group selection. There may be selection at various different levels. There may be selection at the gene level, although I'm not a big believer in the gene-centered view. I think selection is mostly at the individual level, then kin groups, then populations of groups, and so on. Given the right circumstances there may be some group selection effects, but I think they are uncommon.

Skeptic: What is the relationship between the origins of morality and the origins of religion?

De Waal: I haven't thought that much about the evolution of religion. But certainly religion has appropriated morality and sells it as its own. But religion is much younger than morality. The major religions of today go back a few thousand years, but morality goes back tens of thousands of years.

Skeptic: Before there were political states and social constitutions, and laws and regulations, there was religion as the social structure that reinforced cooperation, punished excessive competition and selfishness, and generally enforced the rules of the social group.

De Waal: Yes, that's how I look at it. You have moral systems where you design the rules as a community and say "you should never do this because God is going to be angry." It is more powerful to say that God will be angry with you than it is to say that I or the group will be angry with you. It is a way of formalizing and enforcing the rules. It is not a divisive way of enforcing the rules, as it would be if I or you decided which rules should be enforced, and decided who should be kicked out of the community for wrong doing. If it is integrated into the religious system. And so it is a way of enforcing the rules without dividing the community. This is a smart system.

Skeptic: Let's look at Peter Singer's expanding circle of sentiments, or my own pyramid of hierarchical amity: how far do we go in offering rights to animals? Primates only? Marine mammals? If as you show there is a continuity between primates and humans in intelligence, cognition, emotions, even moral behavior, why not extend to them moral rights?

De Waal: What I argue in *Good Natured* is that this expanding circle is actually a closing pyramid, in the sense that you do what you can afford. If we are all starving we don't care much about animal rights. We will do what we have to do to survive and eat anything we can put our hands on. And so my view of morality is very pragmatic. We can care about people and animals outside of our circle only in so far as we are satisfied and have a good life. As soon as you have drought or warfare or famine you get different moral rules. In that sense I am a bit of a cynic, or maybe a realist. I love animals. But I eat them as well. The idea of an expanding circle of sentiments is all very nice but is constrained by what we can afford.

Chimpanzees in biomedical research is a good example. It used to be that chimps were used freely in research and no one gave it a second thought. Now we are much more conservative about using them and we have moral discussions about it. But this is, in part, driven by the fact that we don't need them for research as much as we used to. We can afford to lose chimpanzees from biomedical research.

Skeptic: What is the proper relationship between science and religion?

De Waal: I was raised Catholic. Atheism is such a bad word in America that I don't use it. I usually just say I am not very religious, which is a euphemism, of course! I like Ursula Goodenough's attitude of getting inspiration from science. That's a position I think I can follow.

Skeptic: Thank you for an enlightening interview. □

