

Curriculum Guide to The Ape and the Sushi Master Frans de Waal

About the Author

Frans de Waal is a Dutch primatologist, now working in the United States. He received his Ph.D in Biology from the University of Utrecht 1977. His dissertation research was concerned with aggressive behavior and alliance formation in macaques. In 1977 he began a six-year project observing the colony of chimpanzees at the Arnhem Zoo. Some of this research was presented in his first book, *Chimpanzee Politics* (1982).

In 1981 he moved to the United States after accepting a research position at the Wisconsin Regional Primate Research Center in Madison, Wisconsin. While there, he began observational and experimental studies of reconciliation behavior in monkeys. In the mid 1980s he also began working with chimpanzees at the Yerkes National Primate Research Center and their close relatives, bonobos, at the San Diego Zoo. In 1991 he moved to Emory University, in Atlanta, Ga., where he is the Charles Howard Candler Professor of Primate Behavior and director of the Living Links Center at the Yerkes National Primate Research Center.

His research into the innate capacity for empathy among primates has led De Waal to the conclusion that non-human great apes and humans are simply different types of apes, and that there is little difference between these species. These ideas are the primary material covered in *The Ape and the Sushi Master*.

In a more recent book, *Our Inner Ape* (2005) de Waal examined human behavior through the eyes of a primatologist, using the behavior of chimpanzees and bonobos as metaphors for human psychology.

About this book

Frans de Waal is a very strong proponent of the idea that humans and other animals are all part of the same evolutionary network, as opposed to the idea that humans somehow unique, set apart from other animals by their possession of some attribute, be it tool use, language, aesthetic appreciation, moral codes, culture, or whatever. Over the course of this book he systematically examines and challenges the proposed distinctions, providing information from biologists, ethologists, naturalists, and primatologists to show that there is no clear line, if indeed there is any line at all, between human and animal. This book helps to combat the widespread inclination of seeing the bad habits of humans as exclusively animal and their good ones as exclusively human.

De Waal begins the book by introducing the reader to his field of study, primatology, and providing some historical background. He introduces some of the important individuals who formed the field, and shows how their personal experiences and cultural backgrounds influenced their work, for good and ill. In doing so, he also reinforces his more general argument that behavior must be understood within its context.

Later chapters emphasize the similarities between humans and other primates over their differences. He rejects a rigid avoidance of anthropomorphism, arguing that a sophisticated, animal-centric anthropomorphism serves as a logical starting point when it comes to understanding animals as genetically and evolutionarily close to humans as apes. Using this perspective, he takes the reader on a fascinating journey through the literature on the question of human-animal dualism, examining the cultural and philosophical origins of this belief and using this to illustrate why the idea of animals having culture was more likely to come from Asian (Japanese) scientists than from Western.

Later chapters cover the different domain in which humans are presumed to differ from animals. He combines anecdotes, field research, and experimental evidence, along with a sarcastic wit, to challenge these claims. He proposes a broad definition of culture – the nongenetic spreading of habits and information – and develops a model of evolutionary development that explains how this occurs as the results of what he calls BIOL: bonding and identification based observational learning. He is careful to recognize the differences between what humans and animals are able to achieve, but presents a strong argument that these difference reflect differences in cognitive abilities and environmental demands.

Finally, de Waal argues that nature and culture should not be seen as distinct and competing influences. Culture derives from nature, and they work together to determine behavior.

Note to Teachers

Although this book is written in an interesting style and intended for a general audience, it is still written by a careful and systematic scientist. The text is quite rich with ideas, arguments, and opinions. De Waal's investment and experience in his field sometimes cause him to pile observations on top of ideas on top of theories, seemingly skipping from one topic to another while pursuing a point. This places heavy demands on the reader, for sometimes the connections between topics are not clear to the reader. However, the text returns to the same themes multiple times across the different chapters, so the principal ideas become clearer.

De Waal uses rhetorical devices very effectively. Each chapter begins with one or two well-selected epigraphs that signal the content and themes of that chapter to the reader, Logos appeals predominate, but pathos appeals should be noted when de Waal utilizes sarcasm to dismiss other researchers' theories.

As an expository text, *The Ape and the Sushi Master* can be used to teach the primary rhetorical elements of argument analysis and critique: patterns of organization, evidence and its relationship to assertions, and authorial use of persuasive appeals as these relate to audience and purpose. This text allows students to study philosophical, religious, ethical, and social influences that shape development and to analyze the author's implicit and explicit philosophical assumptions and beliefs about his subject.

Each chapter is summarized in the following pages. An initial synopsis covers the chapter theme in a few sentences. However, because the arguments are complex, an extended summary, covering the major points made in the chapter is also included.

The comprehension and discussion questions at the end of each chapter summary are intended to direct the students' attention to the primary points that are being made, to get them to understand the arguments, and to look behind the information to understand the underlying values and beliefs.

In the biology or psychology classroom this book can serve as a catalyst for discussion of the nature of science and scientific development and allow students to consider how de Waal's arguments represent alternatives to more traditional paradigms. The book, particularly in the later chapters, also contains some observations that would be of interest to those studying ethics or introductory-level philosophy.

The Ape and the Sushi Master easily lends itself to multiple levels of examination and discussion in various grade levels from the upper levels of high school through college. However, There is quite a bit of vocabulary that will be new to the average reader. This can help students to develop their skills at interpreting meaning in context, and remind them of the importance of looking up words that they cannot understand. There are some literary or historical allusions that may not be understood by many students (e.g., "the last Rubicon").

Teaching Ideas

The themes and ideas addressed in this text are complex—the issue of animal-human dualism and its origins in cultural beliefs, the interaction of culture, nature, and environment in determining behavior, the nature of scientific investigation, and the logic of argumentation. Because of this complexity, this text lends itself well to the type of in-depth analysis and research required in the upper levels of high school language arts (as advocated by the National Council of Teachers of English) and science courses as well as college courses in a number of disciplines, including first-year College Composition and Rhetoric, Biology, Psychology, Political Science, or Cultural Studies.

The reading and analysis questions offered in this guide are tailored to the 11th and 12th grade textual analysis curriculum and address the four strands of language arts instruction: reading, writing, communication, and research (Information on the NCTE standards is downloadable at: <http://www.ncte.org/about/over/standards/110846.htm>). Activities that engage students in the examination of language use, specifically de Waal's word choice, his argument style, and his use of examples, offer students opportunities to better understand how authors seek to influence readers.

The questions offered in this guide are predominantly higher order text-based questions. They require students to examine the text closely and to demonstrate comprehension through explanation, inference, and synthesis, rather than rely on mere recall and retelling. Most questions lend themselves well to in-class group work and discussion or can be assigned as homework or as short in-class writing tasks. Others can be used as

prompts for full-length essays.

Projects

On page 7 de Waal notes, “it is the rare thinker who can keep two contradictory thoughts simultaneously in mind.” It would give students some experience with online research to track down the original expression of this idea, to observe the number of inaccurate ascriptions and learn something about the fallibility of the internet as a reference source, and to discuss the differences between the two possible origins.

[For teacher reference, the two sources are:

F. Scott Fitzgerald, in a short story, “The Crack-Up,” published in *Esquire* magazine in 1936, wrote, “*The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function.*”

George Orwell, in *1984* (published 1949), defined “doublethink” as the ability “*to hold simultaneously two opinions which cancelled out, knowing them to be contradictory and believing in both of them.*”]

Which of these possible meanings does de Waal have in mind in his use of the phrase?

William Golding’s novel, *Lord of the Flies*, provides a very different view of human nature from that advanced by de Waal. Students could read this book and contrast the two conceptions of human nature. It might also be interesting to consider how these different ideas about human nature are related to the differences between chimpanzee and bonobo societies.

De Waal’s analysis of Abraham Maslow’s work may not accurately reflect the original theory of human motivation and the hierarchy of needs. Examine what Maslow actually wrote, and see if it is consistent with de Waal’s summary.

Going Beyond the Book

Go to the San Diego Zoo and observe the bonobo colony (the same colony that author Frans de Waal observed to learn about bonobos!). If possible, arrange to have a zoo employee answer questions. Alternatively, you can read about the colony and bonobos at <http://www.sandiegozoo.org/animalbytes/t-bonobo.html>

Bonobos are a critically endangered species. Learn more about the threats that they face, and prepare a report on organizations that work to protect their habitat and preserve the species.

<http://www.zoosociety.org/Conservation/Bonobo/SSP.php>,

http://endangered-species.suite101.com/article.cfm/bonobo_conservation_programs

<http://www.bonobo.org/>

<http://bushmeat.net/writings.html>

For the musically trained student it might be interesting to analyze Mozart’s divertimento, *A Musical Joke*, as an adaptation of starling song as opposed to the more classical interpretation that it was a parody of inept composers.

The entire piece can be accessed at on YouTube at:

First Movement: <http://www.youtube.com/watch?v=HH0RYCieFUM&feature=related>

Second Movement: http://www.youtube.com/watch?v=QVRa_NUWxp8&feature=related

Third Movement: <http://www.youtube.com/watch?v=Hk0U2qJHQHM&feature=related>

Fourth movement: <http://www.youtube.com/watch?v=S44TxEaAsDA>

(There are numerous recordings of starling song available on the internet.)

About this Guide's Writer

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The Ape and the Sushi Master: Chapter Summaries, Reading Comprehension Questions, and Discussion and Writing Prompts

Prologue

Synopsis: Humans and other animals are products of the same evolutionary processes. The development of culture – the nongenetic spreading of habits and information – is not limited to humans.

Extended Summary: Introduces de Waal’s basic view, that humans and other animals were created by the same underlying processes of evolution. From this perspective it doesn’t make sense to argue that humans are distinctly different, or that human behavior derives primarily from cultural learning whereas animal behavior is determined by their “nature” (genes, instincts, etc.)

De Waal establishes the two central arguments of the book: (1) humans should not be thought of as distinct from other animals, (2) the argument over the extent to which behavior is determined by nature or nurture (or biological determination vs. learning) is senseless – natural selection has produced our species, including our culture.

De Waal argues against the use of culture as a wedge to separate humans from other animals. He asserts that apes learn many behaviors in much the same way that an apprentice learns from a sushi master – by observation of behavior over an extended period of time, rather than by direct instruction. He examines different definitions of culture, both narrow and broad, and offers his own: culture is the nongenetic spreading of habits and information. This is illustrated by examples of social learning in various animals, particularly the great apes. A critical part of this is the identification and description of behaviors that vary across different communities of the same species, to demonstrate that these behaviors are not instinctive, or genetically determined.

Reading and Discussion

What is the purpose of the prologue? What work does it do for the author?

Why is this chapter subtitled “The Apes’ Tea Party”?

Why was it important to ensure that the chimpanzees at the tea party made mistakes?

Why does de Waal object to most definitions of culture?

What is de Waal’s definition of culture? What is needed in order to say that a culture exists?

What is de Waal’s opinion of “armchair primatology”? How does his choice of words indicate that opinion?

How does the title of this book reflect de Waal’s primary theme?

Discussion & Writing

De Waal states (p. 13) that, “Every language captures a distinct way of looking at life.” What are some examples of this? Why is it so difficult for people who know only one language to come up with examples?

The discussion of Susan Mineka’s research (p. 16) implies that fear of snakes is learned. Is this opinion widely shared? What arguments are there against this idea?

Section 1. Cultural Glasses: The Way We See Other Animals

Chapter 1. The Whole Animal: Childhood Talismans and Excessive Fear of Anthropomorphism.

Synopsis: Attacks the exaggerated concern over anthropomorphism in explaining behavior. Proposes an “animalcentric” point of view – explaining behavior in terms of functions and motives for that species.

Extended Summary: De Waal begins by challenging the assumption that scientists are, or should be, totally objective in their study of animals. Instead, they care deeply about those that they study, for it is this closeness that motivates their interest. But this also is thought to create the risk of anthropomorphism, or attributing human characteristics to other animals. De Waal rejects this concern, arguing instead that it is reasonable to consider similarities between humans and other animals as a logical starting point in understanding their behavior, especially those as close to us as the apes.

De Waal criticizes the approach of behaviorists, who attempt to exclude the operation of internal factors like thoughts and emotions in explaining behavior, and points out the ways in which this limits the thinking of its proponents. Behaviorism’s largest failure, however, is the assumption that the same principles (e.g., rewards and punishments) explain the behavior of all animals. Animal behavior, to de Waal, is a function of natural selection: animals learn things that are essential to their survival, and behavior needs to be understood in terms of its utility to that species.

According to de Waal, if you don’t know an animal well you can’t accurately interpret its behavior. The difficulties in understanding animal behavior are illustrated by several examples. De Waal describes the “mark test,” in which chimpanzees react to the reflection in a mirror of marks put on their faces, showing that they are aware it is their own reflection. Behaviorists’ attempts to discredit these findings are dismissed as either lacking or denying an awareness of the differences between species.

De Waal claims that others are concerned about anthropomorphism, not because it interferes with scientific objectivity, but because it acknowledges continuity between humans and animals. He describes some chimpanzee behaviors that seem to suggest planning and intentions, and uses these to introduce an examination of the concept of anthropomorphism, beginning with the original Greek concerns and leading up to Morgan’s Canon: do not explain a behavior in terms of higher mental processes (e.g., planning, intention, fear, affection, etc.) if it can be explained by lower processes. De Waal points out that Morgan did not intend to completely exclude such explanations, especially when an animal species has been shown to be intelligent. He proposes a new term – anthropodenial – for the rejection of perceiving shared characteristics between humans and animals when they do exist. He sees this as an extension of Judeo-Christian beliefs in the separation between humans and animals, a distinction not shared by other religions or cultures. De Waal’s view is that, given the evolutionary and genetic

closeness of humans and apes, it makes more sense to use similar explanations for their behaviors than to insist on distinctly different levels of explanation.

He excludes certain kinds of anthropomorphism from this position, including “Bambification” (i.e., the use of human characteristics and mannerisms in describing animals like Mickey Mouse or Bambi) and “satirical anthropomorphism” (using presumed animal characteristics to mock people -- e.g., stubborn as a mule). He also excludes naïve, or anthropocentric, anthropomorphism (assuming that animals respond as we would in various situations). Instead, he argues that an informed and careful observer should be able to explain behaviors from the perspective of the animal (an “animalcentric” explanation); that is, considering how that animal would react in that situation, rather than assuming that the animal has the same experience and feelings as a human.

De Waal employs this approach to consider the behavior of Binti Jua, a gorilla in a Chicago zoo, who rescued a young boy who had fallen into the gorilla enclosure. An anthropomorphic explanation characterized this as an extraordinary act of compassion; those who are in anthropodenial rejected these attributions and claimed it was just a confused instinct. However, primatologists like de Waal saw it as an example of caretaking and empathy common among apes, unusual only in that the help was given to a human child.

De Waal returns to a description of the two views of humans and animals. One view, consistent with current evolutionary biology, is that natural impulses common to both animals and humans are the basis of social life. In the other view, which de Waal traces back to western religious doctrine, humans are seen as a higher form of life, superior to animals. De Waal rejects this anthropocentric position, noting that it is a mistake to think of evolution as a consistent progression toward “higher” species; organisms differ, but no form is inherently superior. In recent years the evolutionary position and its emphasis on species diversity has become more accepted.

Reading and Comprehension

How do the two epigraphs at the beginning of this chapter function for readers?

Why did de Waal choose the title, *The Whole Animal*, for this chapter?

In the subsection, *Zigzag through the Polder*, de Waal offers an example from his own life. Which point does he seek to illustrate and support by providing this personal example?

What is de Waal’s attitude toward scientists who claim to study animals in an objective manner? How does his choice of words signal that attitude?

De Waal discusses his own and other scientists’ childhood experiences in some detail. Why does he consider these early experiences to be so important?

What is anthropomorphism?

How do the behaviorist and ethological views of behavior differ?

What does the term “tripping over the cat” (p. 61) refer to?

How does the mirror test developed by Gallup demonstrate that animals have a sense of self-awareness? What species have been found to be able to “pass” the mirror test?

What are “bambification” and “naïve anthropomorphism”?

What is an “animalcentric” perspective? How does it differ from an anthropocentric view?

How does de Waal illustrate an “animalcentric” view of behavior?

What does de Waal mean by his new term “Darwistotle”?

Discussion and Writing

What are anthropomorphism, anthropocentrism, and anthropodenial? Which does de Waal consider the greatest danger? Do you agree?

Research the case of Binti Jua, whose rescue of an injured boy is described on pp. 78-81, and other instances where animals are said to have performed rescues (e.g., <http://www.heroicanimals.com/>). What is your interpretation of these incidents? How do you think de Waal would interpret them?

2. The Fate of Gurus

Synopsis: *Describes two major innovators in the field, Konrad Lorenz and Kinji Imanishi. Each made important contributions, but each created problems for the field. Lorenz developed the field of ethology and focused attention on innate differences in behavior in different species. Imanishi founded the field of ethnography, the study of primates in their natural settings, and emphasized cooperation within and between species, as opposed to the Darwinian view of competition between individuals for survival.*

Extended Summary: Science does not progress in a smooth, linear fashion. Innovators first stimulate research, then guide others, but then may come to be seen as obstacles to progress. De Waal introduces two major figures in animal behavior research, Konrad Lorenz and Kinji Imanishi, whose careers illustrate this sequence.

Lorenz, a German scientist, was a founder of the field of ethology. His observational skills and insights opened a field of research quite different from the American behaviorist school, beginning with the assumption that animal behavior is driven in part by inborn tendencies. He was a charismatic speaker and compelling writer, far ahead of his time, and made major contributions, such as the description of imprinting and his insistence that we pay attention to the natural context of behavior, and his emphasis on the innate determinants of behavior provided an alternative to the behaviorist focus on the idea that all behavior is learned. However, he also was an active member of the Nazi party and supported its ideas of racial improvement in his writings and research. Although he later denied awareness of Nazi policies, his reputation was forever damaged by his association with them.

A Dutch ethologist, Niko Tinbergen, provides a contrast to Lorenz. He was an experimentalist who devised tests of evolutionary hypotheses and carefully gathered data for analysis, in contrast to Lorenz's descriptive approach. Despite political tensions, Tinbergen and Lorenz were able to return to collaboration after the war, and they were jointly awarded the Nobel Prize (with von Frisch) in 1973. Over time the rise of sociobiology, with its emphasis on the individual as the unit of natural selection, shifted interest away from Lorenz's view of the species as the primary unit.

De Waal uses this as the basis for discussion of the sometimes dangerous link between political philosophies and evolutionary thought. In sum, although Lorenz was a giant in establishing the field of ethology, his contributions will always be colored by his political beliefs.

The work of Kinji Imanishi, the father of Japanese primatology, was initially difficult for Western scientists to appreciate, for it derived from a cultural philosophy at odds with Western thought and the Darwinian perspective. Imanishi was a man of many talents and interests, whose observations on animal behavior focused on cooperation rather than competition. De Waal cites two major contributions from Imanishi: the first is the idea of habitat segregation, which suggests that different but related species can share an

environment by selecting distinctive life styles and microhabitats rather than competing for primacy. The second is that his approach to understanding primate behavior was different from Western thought: rather than considering humans as a higher or superior species, the religious and philosophical tenets of Japanese society allowed him to see humans and other primates as products of the same evolutionary process and explainable in terms of the same qualities. He and his students began the field of ethnography, the study of primate societies in their natural settings, emphasizing the individuality of the different group members and observing their interrelationships. Western scientists, like Louis Leakey and Jane Goodall, came to this same perspective only later.

Darwin's theory of natural selection and its focus on competition at the individual level is consistent with, and derives from, Western thought; Imanishi's focus on cooperation within and among species is equally a product of his culture. De Waal argues that both are legitimate enterprises, and it is a mistake for adherents of one view to criticize the other as culturally biased. At the same time, de Waal seems to suggest that Darwinian thought is more powerful, and strives to reconcile Imanishi's ideas with a Darwinian perspective, describing it as a special emphasis within the larger evolutionary framework.

Both Lorenz and Imanishi were giants in the field, making unique and valuable contributions. But in time the ideas of each became obstacles to the advancement of new ideas and paradigms.

Reading and Comprehension

What insights and allusions does de Waal offer through his selection of the epigraph for this chapter?

What does *tabula rasa* mean? How do Lorenz's contributions challenge that notion?

How does de Waal's choice of words communicate his attitude toward behaviorist psychology?

How does de Waal's discussion of armchair primatology and of his meeting with the psychologists from Amsterdam (p.52-53) foreshadow his description of Beverly Halstead's reactions to the work of Kinji Imanishi?

What, in de Waal's opinion, made it possible for Imanishi to avoid the human-animal dualism of Western science? What impact did this have on the way he studied primate behavior?

What is the main claim of the subsection *Between Science and Ideology* and what how does de Waal support it?

Discussion and Writing

De Waal discusses his mixed feelings about Lorenz, contrasting his profound understanding of animals with his pro-Nazi ideology. Can an individual's scientific contributions be evaluated independent of that person's political philosophy? Should they be separated?

How can evolution explain both competitive and cooperative responses between organisms?

3. Bonobos and Fig Leaves: Primate Hippies in a Puritan Landscape

Synopsis: Bonobos, as similar to humans as chimpanzees, offer a different view of what is natural in a society. Rather than the male-dominated, territorial, aggressive behavior of chimpanzees, bonobos are egalitarian or female-dominated, cooperative, and use sex to maintain cooperation.

Extended Summary: This chapter derives from de Waal's work with bonobos, done primarily at the San Diego Zoo. They are as genetically similar to humans as chimpanzees, but show remarkably different behaviors. Whereas chimpanzees are male-dominated, territorial, and aggressive, bonobos are egalitarian, female-dominated, cooperative, and sexual. They serve to remind us that the commonly held view of evolutionary development, derived from observation of chimpanzees and baboons and generalized to humans – that societies and species survive and succeed through competition, warfare, and genocide – is not the only possibility.

It is impossible to understand bonobos without attention to their sex life, for it is the dominant factor in their social relationships, used as a method for dealing with tensions caused by potential competition or for reconciliation after fights.

De Waal argues that bonobos are less well known than chimpanzees in part because of their sexuality. This makes humans, especially Americans, uncomfortable, because our society has such repressive attitudes concerning sexual behavior. These Puritanical attitudes are difficult for Americans to see from the inside, as we have grown up within this culture. Europeans are far less concerned about nudity, and other cultures are even more open and tolerant of sexual activities. But, as English is the dominant language for information flow in the world, this has meant that the bonobo has been neglected out of embarrassment.

De Waal, with photographer Frans Lanting, began writing about bonobos, first in a German magazine, then in an American scientific periodical, and finally in a book published by the University of California Press, with little negative reaction from the public, but some surprising hostility from academics, whose own views were challenged by bonobo behavior. Scientists were uncomfortable about bonobos because their societies were so different from the more familiar chimpanzee groups: females tended to dominate males, to cooperate with each other, and to engage in female-female sexual behaviors. De Waal attributes much of this discomfort to homophobia. Whether in zoo colonies or in the wild, sexual activity of all kinds increases when there is a potential for competition (e.g., for food), and this serves to reduce conflict. Bonobo society also tends to be "matricentric": Mothers are seen as the "core" of bonobo society, influencing their sons, meddling in fights, and determining male status in the group.

The bonobo's female-centered society seriously challenges male-biased evolutionary scenarios, and those invested in such theories have tried to refute these observations, attempting to reinterpret bonobo behaviors in manners consistent with their beliefs. But Japanese primatologists familiar with both species see them as profoundly different.

Rather than try to fit bonobos into the prevailing views of aggressive males and passive females, another possibility is that the prevailing views are mistaken.

Reading and Comprehension

How do the epigraphs at the beginning of this chapter inform the reader of the ambivalent attitudes toward bonobos?

What is the “double handicap” that de Waal feels has restricted public interest in bonobos?

Why are some reasons advanced by de Waal to explain why scientists tend to consider the chimpanzee rather than the bonobo as the model for human behavior?

On p. 138 de Waal describes his requirement “to accept our condition that no censure would be applied” in publishing his book (with photographs by Frans Lanting) on bonobos. Is “censure” the correct word?

What alternative explanations have scientists offered to refute the idea that female bonobos dominate males? What is de Waal’s response to these explanations?

Is there any difficulty or embarrassment in talking about bonobo behavior in your classroom? What does this say about our attitudes toward sexuality?

Discussion and Writing

De Waal writes (p. 134), “The Second Law [of Puritanism] is that sexual repression is harder to see from the inside than the outside.” In general, we see the world through lenses defined by our own culture. What are some other examples of situations where our own cultural training (and the different cultures of others) may create confusion or hostility?

4. Animal Art: Would You Hang a Congo on the Wall?

Synopsis: Considers the question of whether art, or aesthetic appreciation, is unique to humans. Discusses examples of artistic production among birds and apes. Apes do seem to have an aesthetic sense in producing art, but they do not use art to depict reality nor do they value artistic products.

Extended Summary: Art is often presumed to set civilized humans apart from others. It was initially difficult to accept that various indigenous tribes or prehistoric civilizations were able to produce art such as cave paintings or carvings, for they were felt to be too primitive to have conceived of such works. Ultimately, however, the origins of these works were accepted. De Waal argues that we also need to consider animals as capable of aesthetic expression. As an example he discusses the bowerbird, which carefully constructs and decorates his nest. Young males seem to observe and practice these techniques, and there is evidence that bower decorations vary in color and arrangement from region to region, suggesting a culturally transmitted style. Others ask, is this art, or just an inborn program to attract females? De Waal turns the question around, asking that we demonstrate that human art is not the result of an inborn tendency, done for its own sake and not to impress others.

De Waal wonders if our artistic senses may derive from ancient impulses, biological processes originating very early in evolution, that cause us to enjoy certain sounds, colors, and shapes. If so, wouldn't it be reasonable for similar impulses to influence other animals, given our common evolutionary history?

De Waal then turns to an examination of the interplay between birdsong and human music. Humans prefer some birds' songs over others, and birds show preferences for some composers. Birdsong is influenced by other birds, so that there are regional dialects, and composers have been influenced by birdsong in their compositions. De Waal discusses Mozart's attachment to a pet starling, a bird that is very talented at copying and recombining sounds that it hears, and shows how Mozart duplicated one of his bird's songs in a piano concerto, and suggests that one of his compositions, *A Musical Joke*, was an attempt to memorialize his pet's musical style.

De Waal then turns to an examination of pigeons, noting that they can be trained to identify works by particular painters, even those they have not seen before, or to select works by painters from the a particular movement or school. Apparently pigeons are able to make aesthetic identifications as well as, or better than, many humans.

Can animals produce art? De Waal excludes unintentional art (e.g., sheets of glass broken by an orangutan), but considers several examples, which seem to support the idea that apes do intentionally engage in artistic production. A primary example is Congo, a chimpanzee whose artistic expression was studied by Desmond Morris. Chimpanzees seem to have a sense of artistic design, but without the human tendency to value the finished product. What de Waal sees as the dividing line between human and ape art is

that human art seeks to represent reality and ape art does not. However, ape and human seem similar in the enjoyment of the act of production.

Reading and Comprehension

Why were people initially resistant to the idea that such things as cave paintings were created in prehistoric times, or that rock paintings in South Africa were created by the San, or Bushmen, of Africa?

What does de Waal offer as evidence suggesting that bowerbirds have culturally transmitted styles of nest decoration?

An example of nightingale song (2.5 minutes) can be found at <http://www.freesound.org/samplesViewSingle.php?id=14909>

A longer selection can be heard at

http://www.metacafe.com/watch/yt-BTkZRO-FYTM/nightingale_song/

How pleasing is this to you? What is it that makes this song pleasant to our ears?

What does Shegiru Watanabe's work with pigeons say about the ability of animals to identify the works of different artists?

What evidence is given in support of Desmond Morris's idea that apes have a sense of order and balance in their painting?

Discussion and Writing

Why do humans engage in art? Is this different from what apes seem to do, according to de Waal? How is what humans call art different?

Examine de Waal's description of the bowerbird nest building behavior, and identify words and phrases that imply bowerbirds are intentionally creating works of art. Has de Waal committed an anthropomorphic error here? (Consider the "rider" to Morgan's canon [p. 67] and decide if there are sufficient independent signs of high intelligence in the bowerbird to justify such an interpretation).

Section 2. What Is Culture? And Does It Exist in Nature?

If culture is the transmission of habits and information by social means, then it is widespread in nature. However, there is considerable opposition to this assertion. The rest of the book examines this issue.

5. Predicting Mount Fuji: and a Visit to Koshima, Where the Monkeys Salt Their Potatoes

Synopsis: Theory and observation should facilitate each other, but sometimes theories create selective blindness. Need to use theories flexibly, to guide, but not determine, what is observed. Philosophical and religious beliefs can also create barriers to observation. Recounts the groundbreaking discovery of cultural learning in observations of macaques on Koshima.

Extended Summary: De Waal discusses the nature of theory in the behavioral sciences. In these areas, theory organizes observations more than leading to predictions: the rules are formulated to fit the facts, and are then used to explain the facts. While somewhat circular, the complexity of the field may require this. Theories guide what scientists look for and expect to see. What de Waal objects to is the tendency for these theories to create a kind of selective blindness, a lack of openness to new observations because of preconceived notions. He provides several examples of these problems, such as resistance accepting reports of infanticide among primates. De Waal argues that theory and observation should inspire each other, using Darwin's development of the theory of evolution, based on his earlier observations, as an example

In contrast to Western scientists, Japanese primatologists seemed to observe chimpanzee behavior without being guided by theory. De Waal, however, argues that they were guided by assumptions, and those observations are now part of the conventional wisdom. For example, their observations, based on the underlying assumption that chimpanzees must be social animals, altered the predominant view of chimpanzees as solitary creatures, demonstrating that they live in large, stable communities, in which females migrate between groups.

De Waal proposes that Asians are more likely to see humans and apes as connected, and Westerners more likely to see humans as superior to and distinct from other animals for two principal reasons: (1) Eastern religions include the concept of reincarnation, implying that all beings are spiritually connected, and (2) monkeys are indigenous to India, China, and Japan, making them more familiar and less exotic as in Europe and North America. Japanese primatologists began with the assumption that they could and should focus on the behavior of individual animals; European ethologists at the same time focused on instincts and species-typical behaviors, causing them to ignore individual differences, and American behaviorists were looking for laws of behaviors that even transcended species. Thus, the Japanese were able to see the connectedness among all living things and the relationship patterns in primate groups. Japanese scientists also provided food for the animals they observed, a practice that increased the sense of

connection to the animals they were observing. Initially Western scientists were skeptical of the ability to distinguish between individual members of primate groups, but later came to adopt that practice.

De Waal presents an extended discussion of the macaques on the island of Koshima, whose behaviors came to revolutionize primatology, by beginning discussion of the possibility that animals other than humans could have cultural transmission of behaviors. Students of Imanishi working at a research site noticed that one macaque, Imo, began washing her sweet potatoes in a stream. Subsequent observation showed that this behavior was slowly adopted by other animals, and spread along the network of relationships within the group. Several other behaviors, including a taste for raw fish, have also been observed to spread along kinship lines. These first observations of a kind of cultural transmission of behavior among non-humans overturned many preconceptions, and were challenged by Westerners. De Waal carefully examines the arguments of one such critic, Bennett Galef, and rejects them, concluding that potato washing is an example of a behavior spread along kinship lines by a process of social learning.

Reading and Comprehension

How do the epigraphs that frame Section 5 relate to the content and purpose of this chapter?

What does the phrase “predicting Mount Fuji” refer to?

What is assumed to be the reason for infanticide in animal communities?

Which would de Waal say should come first, theory or observation? What evidence supports your answer?

What factors does de Waal cite as possible reasons why Japanese and other Asian scientists were more likely to see humans and apes as related, rather than distinct?

What facilitated the practice of food provisioning by Japanese scientists observing chimpanzees in field settings?

Why were Western scientists dubious of the ability of Japanese field researchers to accurately identify individual members of chimpanzee communities?

Why is the potato washing by the Koshima macaques considered so important to primatology?

What is de Waal’s attitude toward Bennett Galef’s criticisms of the idea that potato washing was an example of social learning?

In what ways was Mito’s method of feeding inconsistent with Galef’s assumptions?

On p. 183, de Waal says: “the question at hand, then, is what people see, or do not see, as a result of preconceived notions.” How does de Waal answer that question and how does he support his answer?

How does stimulus enhancement differ from imitation? Why is this important?

At the end of *Still Doing It*, what does de Waal refer to when he says “But for me, the air was filled with history”?

Discussion and Writing

How can theories in social science both aid and hinder the discovery of new findings?

What characteristics of the spread of potato washing suggest it is cultural learning?

6. The Last Rubicon: Can Other Animals Have Culture?

***Synopsis:** Examines the question of whether other animals have cultures. Considers the essential elements of culture and offers a broad definition. Argues that animals, like humans, are able to and do learn from each other, in bonding and identification-based observational learning (BIOL). Considers and rebuts several arguments against the idea that apes have developed cultures.*

Extended Summary: De Waal compares the question of whether animals have culture to the question of whether chickens can fly. They can, although not very well. But if they were the only flying animals we would be astounded at what they can do. De Waal argues that animals do have cultures, but not as well developed as humans. To recognize this we need to adopt a more inclusive definition of culture. Culture is not defined by technical achievements or value systems; it is a form of behavioral transmission that does not depend on genetics.

Previously, culture was defined as a uniquely human domain, the achievements that separated man from animals, a victory over nature. The primary critics of the idea of culture in animals are learning psychologists, who question how cultural transmission occurs. In their view the learning of culture requires imitation, teaching, and language; therefore it cannot apply to other species. De Waal, however, proposes a different perspective on the motivation behind the social transmission of behaviors, which has its roots in social emotions and desires to conform rather than reward and punishment.

De Waal recounts some of his experiences in observing chimpanzees, whose imitative behaviors appear to show an empathic understanding of the situations of others. He lists the conditions considered necessary to say that an ape has learned to perform behaviors modeled by another: (1) identification, which would lead to attention and interest in the behavior, (2) goal understanding, to know what the behavior can achieve, and (3) background knowledge, to comprehend the process underlying those behaviors. Apes certainly show the ability to imitate human behaviors, but don't seem to grasp the reasons behind those actions. That is, they can copy behaviors, but not with the level of understanding shown by human children.

The problem, de Waal feels, may be that our methods are wrong: the comparisons we use do not allow a fair test. Apes raised by humans (e.g., in language labs), which would increase their identification with the human models, turn out to be as good at imitating humans as two-year-old humans. But critics argue that these apes are enculturated – exposed to an environment that brings out abilities that these apes normally don't have. De Waal proposes that apes have evolved to be imitators, but they imitate the species that has raised them. Human-raised apes imitate humans; those raised in nature imitate, or learn from, other apes.

De Waal says the central idea in imitation is that one individual adopts a behavior, that it probably would not have performed without exposure to a model performing that behavior. He recounts numerous examples of such imitation in apes, and focuses on

chimpanzees learning how to use stones to crack open oil-palm nuts. Young chimps learn this skill slowly, needing three or more years to become successful. This argues against the idea that chimps learn this only to receive reinforcement, for there is little or no reward for an extended period of time. Instead, de Waal proposes that social learning is socially motivated, by identification with, and a desire to be like, others. De Waal calls this BIOL (Bonding- and Identification-based Observational Learning), born of a desire to be like others, rather than for tangible rewards. He offers several examples of both chimpanzee and macaque communities where activities that are not reward-related (e.g., stone rubbing, drinking styles) are copied by others in the group.

De Waal agrees that there is some question as to whether primate imitation involves understanding of what the behavior can achieve (second of the three criteria above). The critical question is whether that eliminates them from the culture domain. Some primatologists argue that it does, claiming that imitation plays no role in the transmission of information in non-human primates; they claim that the imitation seen in human-raised chimpanzees is a result of enculturation – adaptation to this unnatural environment. De Waal counters by asking why other animals, such as dogs, do not show a similar imitative ability when raised by humans. Instead, he argues, primates are educable because they need to be – enculturation to human models is another example of cultural learning.

He also questions another claim made by those who oppose the idea of primate culture. They argue that nothing important in chimpanzee behavior has changed in all the time that we have spent studying them. De Waal notes that according to anthropological records, prehistoric human culture sometimes showed no change in such activities as tool design over hundreds of thousands of years. Chimps have only been carefully observed for about forty years. Also, speed of change is not what defines a process like culture.

Many definitions of culture seem intended to draw a line between humans and animals. De Waal considers and rejects the assertion that culture represents the triumph of (human) free will over (animal) instincts, noting that culture can restrict our freedom as much (or as little) as biology does. Cultural capacities, he asserts, arise from the same source as the so-called instincts. Given that learning and cognition are so conspicuous in the lives of chimpanzees, how can we call everything they do instinctive? He also argues that, if culture is limited to imitative problem-solving, then many obviously cultural items (e.g., clothing, religion, food preferences, art and music) are not cultural, as they do not seem to have much to do with problem-solving. Culture exerts a broad set of influences on our customs, tastes, habits, and sensitivities.

De Waal prefers Imanishi's definition of culture as nongenetic behavioral transmission. Learning a culture is not about rewards, but about fitting in.

Reading and Comprehension

How do the two quotations used as epigraphs for this chapter inform the reader of the conflict to be discussed?

What is the meaning of the chapter title, “The Last Rubicon”?

How did Kinji Imanishi broaden the definition of culture?

What is de Waal’s criticism of most prior studies of the imitative ability of apes?

At the start of *The Urge to Be Like Others*, how does the first paragraph reveal de Waal’s attitude about imitation?

What is de Waal’s own claim about imitation and how does he support it?

What specific objection does de Waal anticipate by inserting the qualifier: “I am not saying...”?

What, in de Waal’s opinion, would “level the playing field” in comparing the imitative abilities of apes and human children? What criticism have other scientists made of studies that match de Waal’s suggestion?

How do the nut-cracking practices of chimpanzees in Guinea and the stone rubbing of Japanese macaques refute reinforcement theories of learning?

What does BIOL mean? What motivates this type of learning?

What is “enculturation”? How is that used to discredit the idea that apes are capable of developing culture? How does de Waal argue that it actually supports this idea?

How does de Waal answer the question posed by the section subtitle, “Can Other Animals Have Culture? And how does he support his answer?”

Discussion and Writing

De Waal states (pp. 236-237) that such things as clothing, religion, cuisine and food preferences, music, art, and dance, and social styles do not have much to do with problem solving. Do they? How can the development of clothing styles, or regional cuisines, or art, be seen as solutions to problems?

What are some examples of BIOL can you see in your school and among you and your classmates? How do these observations make you feel? Is your reaction different from how de Waal thinks you should feel?

7. The Nutcracker Suite: Reliance on Culture in Nature

***Synopsis:** Discusses behaviors in several ape communities that are consistent with the idea of cultural development, including nut-cracking and grooming behaviors. Discusses examples of observational learning and direct instruction. Considers the complex connection between genetic and cultural transmission and introduces the idea of dual inheritance, the passing on of genes and of behavior, both of which enhance survival and reproductive success.*

Extended Summary: It used to be maintained that tool use separated humans from animals, but multiple examples of tool use by chimpanzees have eroded that distinction. One of the best examples is the way some chimpanzees use stone tools to crack nuts, much like humans. De Waal takes issue with those who continue to maintain a distinction by claiming that tool use is critical to humans, but not to the lives of chimpanzees. He rejects this argument, pointing out that the use of nutcracking tools is critical, as it enhances the welfare and survival of chimpanzee communities. He also points out that there are no known wild chimpanzee communities without tools, so they seem to depend on them as much as humans do.

De Waal then discusses another, apparently trivial, chimpanzee behavior that seems to be culturally transmitted: hand clasping while grooming each other. This was first observed in the wild; the report noted that it was common in one community, but was not seen in a nearby but separate community. De Waal observed a similar behavior originate in his captive community, and recorded how this behavior spread through the community and even continued after the removal of the animal that had initiated it. Hand clasping spread slowly, along social lines, until it was being performed by every adult member of the community. De Waal argues that this behavior may even have become the defining symbol of membership in this particular group.

Other examples of cultural transmission include hand-clapping and “games” invented by bonobos at the San Diego Zoo, use of sticks to catch ants by chimpanzees at the Yerkes Field Station, and development of distinct call patterns by chimpanzees at different zoos. Similarly, there are reports of a variety of different tools being developed by different chimpanzee groups in the field. There is also mounting evidence to suggest that chimpanzees have learned to use plants to self-medicate. Some bitter plants seem to be used by chimpanzees to treat intestinal disorders, in the same way that these plants are used by some African tribes. A number of chimpanzee communities have been observed swallowing leaves that may serve to eliminate internal parasites. How these behaviors were learned is unclear; how they are transmitted to others is important for research on chimpanzee culture. De Waal argues that the usual laboratory method for studying transmission – having a human demonstrate an action to an ape and seeing if the ape imitates it – is flawed: if observational learning is related to bonding and identification, then the best models for behaviors would be those that the subjects typically bond with – mothers, peers, and other social companions — not a different species.

De Waal then considers the example of blue tits (chickadees) in England apparently learning how to open bottles of milk to eat the cream. He considers this to be an example of learning that did not require observation, and hence is not cultural transmission. However, the behavior of some rats, which have learned to strip pine cones to eat the nuts inside, is argued to be cultural: adult rats from the same species do not develop this behavior in the laboratory, despite the presence of pine cones, and young rats from mothers that do strip pine cones do not perform that behavior if they are foster-reared by other mothers that do not. These findings suggest that the behavior is learned by young rats that observe it on foraging trips with their mothers.

Orangutans have been found to learn new methods for obtaining food by observing others in their group and duplicating what they do. De Waal asserts that this emphasizes the importance of tolerance in social learning; if lower ranking animals can observe what the more advanced tool users are doing, without fear of attack, the possibility of cultural learning is enhanced.

Two other examples of transmission of grooming behaviors are reported by de Waal. One is the observation that grooming skill seems to be culturally transmitted: not all chimpanzees are equally good at this, and the difference seems to be the family you were raised in (and whom you learned grooming from) rather than age (and grooming experience). The other is back scratching before grooming among chimpanzees seen at one field station: given that scratching benefits only the recipient and not the performer, how did this develop? De Waal interprets this as suggesting a degree of empathy and perspective taking – understanding how good the back scratch feels to the recipient, and using that behavior to ingratiate oneself to another.

De Waal then considers an even more advanced form of social transmission: active teaching, which includes being able to take the perspective of the other to know what they need to learn. Mother chimpanzees have been observed performing behaviors that suggest they are teaching their young how to crack nuts, performing the actions slowly while making certain their offspring are watching and seeming to correct their errors in nutcracking technique. Orcas (killer whales) have also been observed apparently teaching their young how to hunt seals.

De Waal concludes the chapter with a discussion of memes and genes. Memes are an attempt to explain cultural transmission in a manner similar to genetic transmission: they are packages of cultural information that spread through generations in much the same way that genes replicate themselves. De Waal considers the parallel to be wrong. Genes transmit instructions that are passed from parents to children; culture is more like suggestions that are spread in all directions at once. Rather than trying to make cultural transmission fit a flawed metaphor, students of animal behavior should treat culture as a phenomenon with its own dynamics.

At the same time, de Waal thinks that there is a complex connection between genetic and cultural transmission. Genetic predispositions feed into culture, culture affects survival, and survival and reproduction determine which genotypes spread in a population. He says

that the chief task for ethologists and zoologists is to show that this dual inheritance is not limited to humans, but includes other animals as well. He includes not just the studies of cultural learning by individuals discussed so far, but also comparisons of entire groups or communities – a “cultural biology.” As an example he cites the increasing sophistication of bears in seeking food from humans: they seem to have learned that they can pull the windows out of some vans, and they can pop open the doors on certain compacts by jumping up and down on the roof. These techniques seem to spread rapidly through bear populations, in a way that suggests cultural learning. He suggests that there may be more cultural learning than we realize, citing the case of a population of capuchin monkeys that have learned to use stones to crack open nuts, like the chimpanzees described earlier.

Recent efforts to compare behaviors across populations of chimpanzees have received increasing attention, and have resulted in new findings of cultural variations across a number of different behaviors, supporting the idea that they have an amazing ability to invent new customs and technologies, and that they pass these on socially rather than genetically. Although he feels that chimpanzees will be the central focus of studies of animal culture, de Waal wants to extend this to other species as well – whales, dolphins, elephants, and the other great apes, citing several examples of group differences in behavior of various whale communities. These can all serve to illustrate what he terms dual inheritance (e.g., transmission of genes and behaviors, both of which enhance survival) and the connection between culture and nature.

Reading and Comprehension

From the quotation in the epigraph, what would you say is Barry Allen’s opinion of the idea that chimpanzees possess culture?

What is de Waal’s definition of a tool?

How does de Waal use language (word choice, tone, type of argument) to challenge Allen’s view of tool use by animals?

On p. 244, why, to what effect, does de Waal use the series of rhetorical questions he poses?

Why is the observation of a behavior that appears in one community, but not in another, important for the claim of cultural transmission?

Why does de Waal say that blue tits’ learning how to open milk bottles is not an example of cultural transmission?

How does “active teaching” differ from imitative learning?

What is a meme?

What is de Waal’s opinion of the concept of memes? How does he signal that opinion?

What does de Waal mean by the term “dual inheritance”?

Discussion and Writing

What three elements are critical to saying that a behavior has been culturally transmitted? *[social transmission, observation in some communities and not in others, continuation after the originator is no longer present]* Describe some cultural practices in your own school and show how they meet these criteria.

What is Lamarckism, or Lamarckian evolution? How well does it explain biological evolution? How well does it describe cultural evolution?

8. Cultural Naturals: Tea and Tibetan Macaques

Synopsis: Culture and nature are not separate and exclusive influences; they operate together to determine behavior. Behaviors consistent with genetic tendencies are “cultural naturals,” are common in different groups, and are easily maintained. Emphasis on cultural differences may obscure the underlying, biologically consistent, similarities.

Extended Summary: The principal idea in this chapter is that, although we pay more attention to the differences between cultures, the underlying common features reflect the importance of biology in determining cultural practices. For example, we notice that Chinese drink tea, French drink wine, and the Dutch drink coffee, but fail to notice that all of these satisfy a need for water, the underlying common denominator. Culture needs to be seen as part of a larger context; it builds on, rather than replaces, universal human tendencies. The same is true for animal culture; it creates variety in behaviors, but always within the particular needs and nature of a species.

De Waal discusses the problem of understanding “species-typical” behaviors. If all members of a species perform a behavior, does that mean it is biologically determined? He rejects this idea, and uses this chapter to show how cultural learning plays a role in such behaviors. As a counter-example, he points out that all human societies control and use fire, but we don’t think of this as biologically determined.

Tibetan macaques provide an example for his discussion of the interplay between biology and culture. Although Tibetan macaques differ from other macaques in terms of biology and behavior, they share certain critical similarities. De Waal discusses some of the differences and considers both biological and cultural learning explanations, then points to a common characteristic of all macaque species – matrilineal hierarchy -- and illustrates how this is influenced and maintained by individual learning, showing how a given female’s position in the hierarchy can be altered experimentally.

He then discusses important research on cross species transfers that demonstrate the interplay between biology and cultural learning. Two species of baboons show different mating behaviors: hamadryas baboons form harems, dominated by a single male who forces female fidelity by neck bites; savannah baboons are less harem oriented, and females have greater freedom. If you introduce a female hamadryas baboon into a savannah baboon community she initially attaches herself to a single male as if she is part of his harem but, after learning that he does not physically attack her for straying, begins to have relations with other males. Conversely, after savannah females are introduced to a hamadryas community they adapt to male dominance to avoid neck bites, but still tend to seek freedom and may be rejected from the community. Other examples show how cultural learning can change species-specific behaviors: combative rhesus monkeys become more cooperative when raised by more peaceful stump-tail macaques, even when returned to a rhesus community.

Cultural naturals demonstrate that it is incorrect to think of culture and nature as separate and exclusive influences. As defined by de Waal, cultural naturals are expressions of natural tendencies that are shaped and maintained by learning. Attempts to alter a society, or to change behavior in ways that go against these cultural naturals seemed doomed to failure. As examples, de Waal points out the failure of collective farms (which deny what he sees as human economic nature) and the failed attempt of the sexual revolution to eliminate stable family arrangements (which denied the existence of jealousy). The incest taboo provides another example of the interconnection between culture and nature. Originally thought of as a cultural imperative to avoid sexual relations with genetically related individuals, it may actually express a more basic tendency to avoid relations with individuals with whom we grew up, whether genetically related or not, as discovered in studies of the kibbutzim of Israel; on these communal farms all of the children were raised collectively, but when they became adults almost none of them chose to marry partners from their own kibbutz. (he returns to the discussion of incest in Chapter 11).

Reading and Comprehension

How does the epigraph to this chapter indicate the material to be discussed?

What is a “species-typical” behavior? How does de Waal argue that species typical behaviors are not necessarily biologically determined?

Why does de Waal say that the matrilineal hierarchy in macaque societies is a combination of inborn and learned behaviors?

What is a “cross species transfer experiment”? Why are these experiments important to show that behaviors are not biologically determined?

How did de Waal’s discussion of the failure of cooperative farms in China (pp. 277-278) foreshadow his discussion of cultural naturals?

Discussion and Writing

What do you think would happen if a male Tibetan macaque were raised in a community of stumptail macaques, as de Waal suggests? Would a similar thing happen if a male stumptail were raised in a community of Tibetan macaques?

Can you think of any other examples of societies or cultures with traditions or practices that seem contrary to natural demands? How do societies get people to behave in the “unnatural” ways?

Chapter 9. Apes With Self-Esteem: Abraham Maslow and the Taboo on Power

Synopsis: Challenges the assertion that animals seek power and humans seek self-esteem. These are expressions of the same basic drive for dominance in all species and societies. Power is defined by social relationships, not by individual traits, and is basic to understanding social behavior. Humans feel uneasy about social inequalities, so we avoid discussions of power in our own behavior.

Extended Summary: Discusses the drive for power, and considers reasons for the desire to dominate others. The benefits of power are important to the understanding of all primates. De Waal says that power increases sexual appeal and reproductive success for males, but that these are not as related for females. He refers to work by Abraham Maslow, who considered the drive for dominance as a personality trait, and failed to realize that it is a social phenomenon, and resides in the relationships, not in individuals. In de Waal's view, human behavior is always understood in relation to the behavior of other animals. Like other animals, we seek dominance. However, unlike other animals, we are uncomfortable about admitting to these desires.

De Waal discussed the drive for dominance in chimpanzees in an earlier book, *Chimpanzee Politics*, based on his observations at the Arnhem Zoo. He describes a number of social strategies that chimpanzees use to maintain or acquire power, which he saw as quite similar to the strategies that humans use. Although these were anecdotal rather than statistical observations, they were informative about the importance of alliances and social support for contenders for power. As an example, he relates a story about two chimps, Yeroen and Dandy, who formed an alliance to depose the alpha male, Nikkie. Their success resulted in the death of Nikkie, and their alliance fell apart shortly after that. However, when the colony was shown a film of Nikkie a year later, Dandy jumped into Yeroen's lap for support. Recognizing the image of their departed rival revived the alliance.

Social organization is constantly changing, in chimpanzee colonies and human societies, as new individuals rise and fall in status and power. De Waal argues that the same motivations drive both humans and other animals, but desire for power is not considered socially acceptable by humans. So humans resort to euphemisms, referring to a desire for responsibility, to help others, to maintain pride and self-esteem, etc., as the motivating force. De Waal questions these claims, saying that feeling good about oneself has no value unless it means that we receive more privileges and benefits from others. Maslow, he claims, had it wrong: self-esteem it is not an internal experience, but a social process; without the esteem of others, self-esteem is hollow.

De Waal believes that because we are uncomfortable with the idea of social inequalities we have placed a taboo on discussions of power, even though the evidence of hierarchies and social inequalities are everywhere. De Waal prefers the more direct expression of dominance in chimpanzees, not hidden behind denials or cover-ups. Dominance is not driven by a desire to feel good about oneself, but about subjugating others and exerting

one's will, the product of a long history of resource competition. He argues that if we were more honest we would see that this is true in human relationships as well.

De Waal then considers another book, *The Nurture Assumption*, which challenges the common belief that child development is determined primarily by parental influence. Instead, that author argues, the two major factors are the child's own innate tendencies and influence of the peer group. This interests de Waal because the author used chimpanzee examples to help make her argument. But he feels that the animal evidence was adjusted to make the case, and points out how the extremely close contact between chimps and their mothers, coupled with the lengthy developmental period of chimpanzees, would make them more influenced by their mother than by their peer group. The problem, as de Waal sees it, is that people continue to separate research on human behavior from animal research. They use animal research selectively, to support their preconceived notions, rather than in an attempt to see the complexities and contradictions that make them similar.

Reading and Comprehension

Why did then Speaker of the House, Newt Gingrich, put de Waal's book, *Chimpanzee Politics*, on the reading list for newly elected representatives?

Why does de Waal feel that pride and self-esteem are insufficient explanations for humans seeking positions of power?

Why is there a taboo around the term, power, in describing human activities, according to de Waal?

Why does de Waal say that he is grateful that he studies inequality in chimpanzees rather than in humans?

What is de Waal's main argument in section 8 and how does the epigraph relate to it?

Discussion and Writing

De Waal states (p. 298) that "Self-esteem as a goal has absolutely no meaning in a harsh world of survival." Is this a refutation of Maslow's ideas about the importance of self-esteem or a misunderstanding? Look at Maslow's "hierarchy of needs" theory and the idea of deficiency needs to answer this question. (Hint: are those who are trying to survive, or to satisfy their deficiency needs, concerned about self-esteem?)

This chapter presents two views of dominance. One view is that it is an individual drive for power over others. The second proposes that dominance depends on the cooperation and support of others. Present an argument for one view or the other.

De Waal suggests that voters would be less likely to elect someone if he or she stated that they enjoyed having power. Do you agree? Why or why not?

Chapter 10. Survival of the Kindest: Of Selfish Genes and Unselfish Dogs

Synopsis: *Challenges the assertion that only humans can overcome the individual struggle for survival and behave altruistically. Evolution is not an actively “selfish” or adaptive process; it is a more passive consequence of reproductive success. Helping others can benefit both individual survival and reproductive success. In social animals helping may become genetically programmed. Need to consider both function (e.g., helping) and motive (desire to help) of behaviors. Recounts anecdotes of helping in multiple species, suggesting that animals may become emotionally invested in helping.*

Extended Summary: Addresses the issues of selfishness and altruism: given that much of nature is an individual struggle for survival, why do animals help others? De Waal uses the unusual case of a mother dog that had raised tiger cubs in a zoo as a test of explanations.

Two possible reasons for altruism have been proposed: kin selection and reciprocal altruism. Kin selection implies that we help those who share the same genes, and explains much behavior, but cannot explain why the dog nursed the tigers. Reciprocal altruism, or helping those who have helped us, explains other, nongenetic acts of helping, but it is not clear what the reciprocity is in the case of the dog and the tiger cubs. De Waal’s answer is that there is a basic motivation to nurse young, regardless of relatedness. Usually this functions to nurse one’s own offspring, but if we interfere with nature we can separate motive and function.

De Waal then considers the use of metaphors in biology, particularly the concept of the “selfish” gene and the idea of organisms “adapting” to their environment. The idea behind the selfish gene is that genes strive to replicate themselves; de Waal rejects this description – some genes are more successful than others because the traits they produce are more successful. So it is the genes that are being selected, rather than doing the selection. The same holds for adaptation: it is the result of the elimination of less successful forms, not an active process of changing to fit the environment. An organism cannot be said to act selfishly unless it knows the consequences of an act and intends to act in that way. So the question becomes – do animals possess the knowledge to act selfishly? De Waal claims that they do not. Spiders spin webs and squirrels store nuts, not because they understand the consequences of these actions, but because the motivations driving these behaviors made their ancestors more likely to survive. Similarly, he argues, the healthy appetites of children and pregnant women serve a need for growth, but they are driven by hunger, not by knowledge of nutrition. Evolution has not operated on single acts, but on entire organisms at once, creating whole repertoires of behavior. Animals make choices, learn what behaviors work, and solve problems within a framework of natural tendencies that have proven their value over ages. To say that genes, the building blocks, determine behavior is like saying that a Rembrandt is nothing but fabric and paint; the important thing is not the separate elements, but their organization.

De Waal then examines the question of whether animals behave altruistically, or out of a desire to help others. He asks if we can assume that organisms understand their behavior

will help others (i.e., that it is intentional, rather than functional, altruism), and asserts that this only seems possible among the largest-brained animals. As examples, he recalls the story of Binti Jua, who appeared to rescue a young boy who had fallen into the gorilla enclosure, and relates an anecdote of dolphins protecting a human from sharks. De Waal has observed numerous instances of what he terms consolation (giving aid and comfort the victim of attack) in chimpanzees, but never among monkeys. This suggests that chimpanzees may be able to see the world from another's perspective. Another researcher reported that she could elicit helpful concern from her chimpanzee by pretending to cry. Among bonobos there are numerous examples of aid to others, both within species and with others (e.g., trying to help a bird to fly). Overall, evidence suggests that apes have a capacity to assist others insightfully. Do other animals? De Waal reports the observations of a female fruit bat that appeared to assist another in birthing, seemingly demonstrating the correct position to give birth.

We recognize helping, because examples are abundant in human behavior. But is help, whether by humans or other animals, counter to evolution? It may be that these behaviors evolved in group life, as such actions either benefited relatives (i.e., kin selection) or helped individuals who could repay the favor (reciprocal altruism). But often the impulse to behavior gets separated from the consequences that shaped its evolution, such that it becomes genuinely unselfish.

Situations where we see animals doing normal things in abnormal circumstances can tell us what drives their behavior, e.g., geese following their mother seemed to imply that they have maternal affection, but Lorenz's work with imprinting showed otherwise). Similarly, we assume that stickleback fish are trying to defend their territory when another male stickleback approaches, when in fact they are only reacting to the color red on the male's stomach. These behaviors are useful under normal circumstances, and only become unusual when we tinker with the situation, or separate function from motive.

De Waal then examines rescue dogs. Why do they risk their lives to rescue others? Is it simply because they have been trained to act this way, and are simply seeking rewards from their trainer? De Waal thinks not. He points out that search and rescue dogs, taught to seek out survivors in the rubble after catastrophes, appear to become depressed if they only find dead bodies, and eventually stop looking, stop eating, and do not want to return to the task. But if they are given the opportunity to once again find a live human in the rubble they are ready to work again. De Waal says this shows they are only partly doing the task for rewards; they are also emotionally invested in the outcome. So, de Waal concludes, in some cases we seem to be dealing with true altruism – a good deed done and intended.

A problem is that behaviors have origins at multiple levels. When there are so many levels to be considered, the different perspectives used to characterize a behavior may create confusion. What one person describes as a self-serving behavior, another may see as altruistic, and another as simply the operation of hormones in the brain. Each may be right, within its own framework. Biologists try to resolve this difficulty by separating proximate (direct causation) and ultimate (adaptive value) explanations, but other

disciplines have not adopted this. The contradictions are clear in the case of the dog nursing the tiger cubs: in this act she can be seen as generous and helpful, but also as doing what she is genetically programmed to do.

Reading and Comprehension

What seems to be the relationship between the two epigraphs that precede this section? To what extent are the statements congruent or oppositional?

What is altruism?

What is intentional altruism? How is this different from functional altruism?

What does de Waal mean when he says (p.319) that “unnatural arrangements ... expose the disjunction between motive and function”?

Why is it a mistake to describe genes as “selfish”?

What is consolation behavior? How do apes and monkeys differ in terms of consolation behavior?

What was amazing about the behavior of the “midwife bat”?

What made the search and rescue dogs get depressed? How did the trainers get them to return to work? What does this imply about why they search for people in catastrophes, according to de Waal?

Discussion and Writing

Suppose your house is on fire, and your spouse and your child are both trapped inside. Whom would you try to save if you could only save one? What does this say about the kin selection and reciprocal altruism (“You scratch my back, I’ll scratch yours”) explanations for altruism?

Why does altruism seem to present a problem for traditional views of evolution? How does de Waal argue that it is consistent with evolution?

Chapter 11. Down With Dualism! Two Millennia of Debate About Human Goodness

Synopsis: *Challenges the argument that moral behavior is distinctly human and morality is strictly cultural, or the perspective that “natural,” or animal behavior is amoral and humans are moral. Defends Westermarck’s proposal that the avoidance of incest is a product of biology and developmental learning rather than an imposition of a cultural taboo. Argues that morality and ethical behavior have developed naturally as a part of evolution and are not uniquely human.*

Extended Summary: Considers the question of “Why are humans good?” and discusses the contributions of Edward Westermarck in answering this question. Westermarck argued that humans naturally developed a cooperative and sympathetic nature through living in social groups. His views were attacked by two more prominent scientists, Sigmund Freud and Claude Levi-Strauss, who both felt that humans had to be taught to behave morally. As an example, Freud and Levi-Strauss felt that the incest taboo was the ultimate cultural blow against nature – without it we would rampant, selfish, sexual beasts. Westermarck instead saw the nuclear family as the age-old reproductive unit, and proposed that early association within this unit (as is usually found between parents and offspring or between siblings) kills sexual desire. This of course has adaptive value in that it prevents the problems introduced by inbreeding.

A test of these two views was made possible by an analysis of data from Taiwan, comparing marriages of women who had lived within their husband’s family since childhood (following a Chinese marriage custom) with those who had not. These data showed that those raised with their future husbands resisted the marriage, were more likely to divorce, and had fewer children, consistent with Westermarck’s theory. Observations of primates show similar inhibitory patterns. Many prevent inbreeding by migration of one sex or the other, and close kin who stay together avoid intercourse, even among the sexy bonobos. Rather than having to create cultural prohibitions against incest, this outcome is a combination of nature and nurture: it has a developmental side (learned sexual aversion), an innate side (the way early familiarity affects sexual preference), a cultural side (most family arrangements lead to sexual aversion among relatives), a likely evolutionary reason (suppression of inbreeding), and direct parallels in animal behavior.

De Waal says it is not surprising that Westermarck’s view was rejected at the time, as it flew in the face of western dualism. But, he asks, why is it still ignored today? Surprisingly, some early Darwinians were proponents of a dualism that Darwin never supposed. Thomas H. Huxley, known as “Darwin’s Bulldog,” argued that ethics represented humanity’s cultural victory over the evolutionary process. Like Thomas Hobbes before him, he argued that humans are made fit for society by education, not by nature. De Waal wonders, if we are naturally selfish competitors, how and why did we ever decide to become model citizens?

Freud’s writings also argued for the separation of human society from the process of evolution. He saw civilization rising out of renunciation of instinct and gaining control

over the forces of nature. More recent writers have continued this perspective, arguing that humans have overthrown Darwinism in establishing their political and social worlds. De Waal points out the contradiction in these ideas: on the one hand these writers are saying that our genes control our lives, yet at the same time they say that we are free to act differently. De Waal argues, in contrast, that we are not divided into two halves, part defined by nature and part by culture, but are an integrated whole. We are not selfish competitors who are only acting in a prosocial manner, we are beings who are capable of being both helpful and selfish, and these capabilities are a function of our evolution, our culture, and our current situation.

De Waal reports behaviors reflecting what Westermarck termed the moral emotions in chimpanzee communities, and proposes that human morality is simply a natural outgrowth of ancient social tendencies. Westermarck's distinction between emotions and moral emotions rests on the notion of "disinterestedness." Emotions, like gratitude and resentment, are directly concerned with one's own interest; moral emotions deal with good and bad, not in terms of personal impact, but in terms of abstract principles. This, de Waal notes, is an area where humans are much farther advanced than other primates. In sum, Westermarck and Darwin share the belief that the development of morality is consistent with evolutionary principles, deriving from social instincts and affections.

De Waal cites ancient Chinese writings to show that questions of the origins of human kindness and ethics have been asked across cultures for millennia. While many agree with the idea that sympathy, or distress for the pain of others, is a natural rather than a learned reaction, this conflicts with a modern view that children must be taught to behave morally, and that without such training they would never develop such tendencies. However, de Waal notes, children can distinguish between moral principles and cultural conventions, and, by one year of age, spontaneously comfort people in distress. Morality, he proposes, is not counter to evolution, it is part of evolution.

Reading and Comprehension

How do the quotations at the beginning of this chapter help to prepare the reader?

What does de Waal say is the main reason why the work of Edward Westermarck is little known today?

What did Westermarck believe was the basic unit of humanity? How did this differ from the views of Freud and Lévi-Strauss?

Who are "the terrible Toms"? What was their view of the original state of humankind?

Who seems to be right about the reasons for the incest taboo, Freud or Westermarck?

What is the "Westermarck effect"? In what way does it rest on a combination of nature and nurture?

What are retributive emotions?

What is the difference between punishment and revenge?

What does “disinterestedness” mean?

Discussion and Writing

This chapter considers the question of whether humans are basically good, basically bad but learn to be good, or bad and only pretend to be good. How does de Waal resolve this argument? What are your thoughts on this issue?

How does the concept of disinterestedness determine the difference between emotions and moral emotions in Westermarck’s view? What are some other examples of moral emotions?

Epilogue: The Squirrel's Jump

Synopsis: Claims that humans are special, distinct from other animals, are doomed to failure. The behavior of all animals is a product of genetic tendencies, learning, and environmental demands. Humans are animals that have developed certain capacities a step farther.

Extended Summary: How can we reconcile the two different versions of ourselves, the ape and the sushi master, the animal and the human, the force of nature and of culture? One line of thinkers has no problem with this question; these thinkers see humans and animals as parts of the same evolutionary process. Another school sees humans and other animals as distinct, because only humans have the mind and free will to develop culture and bend their nature to their will. The difference between these two positions is so fundamental that it cannot be resolved by simply appreciating both. It boils down to a point of whether we are naturally or artificially moral, whether we are the only animals on earth able to create our own idea of ourselves. De Waal feels that human claims to uniqueness are like advertisements for squirrel-proof bird feeders: no matter how complicated the feeder, squirrels seem to make the one impossible jump. Some may see the claim that animals have culture as just such a jump, but it has been made, and there is no going back. Animals and humans share a common evolutionary process. Instead of trying to demonstrate that we are unlike other animals, we should realize that we are animals that have taken certain capacities a step farther. The ape and the sushi master fit the same picture. Both have learned from handed-down knowledge, or culture. And not only them: the world is full of animals, both birds and mammals, that learn from one another.

Reading and Comprehension

How does de Waal's word choice in the opening paragraphs of this section refer the reader back to prior chapters?

How does the Epilogue function in relation to the whole book? What is its purpose?

What is the main argument de Waal puts forth in the Epilogue?

What does de Waal say became the widely accepted key to our (human) special success?

How is the claim of human uniqueness like the advertisements for squirrel-proof bird feeders?

What is "symbolic culture"?

Discussion and Writing

Has your thinking on the difference between humans and animals been changed by reading this book? In what ways?