



# Sexism and Science

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*Author of Woman's Evolution*







*Evelyn Reed's scientific inquiries have been combined with her active participation in the women's movement since its inception. She has lectured on campuses and at feminist meetings across the United States, Canada, Australia, New Zealand, Japan, Ireland, England, and France. Her Problems of Women's Liberation (1969), widely used as a text in women's studies classes, has been published in eight languages. Reed's major work, Woman's Evolution (1975), the product of over twenty years of research, is now in its fifth printing.*

# SEXISM • & • SCIENCE

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• EVELYN REED •

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# Introduction

Science, by definition and tradition, is supposed to be totally objective and free of bias. However, this is the ideal, not the reality.

The activities and theorizing of the scientific community do not proceed in a vacuum. They are subject to all the biases current in the established social system; these affect, and sometimes warp, their conclusions.

The influence of prejudice tends to be strongest in those branches of science that are closest to human life and its history and values. Among them are biology, sociology, anthropology, and the two younger sciences called sociobiology and primatology. These are the disciplines discussed in this book.

The essays in this compilation do not disparage the genuine discoveries and advances made by workers in these various fields. They seek rather to show in what specific respects the infiltration of pseudoscientific notions distort the facts and obscure the truths to be found in them.

Much has been written in recent years about the racism to be found in the conclusions of certain geneticists and other writers. Less attention has been paid to the presence of sexist stereotypes in the biological and social sciences dealt with in this book. Some of these are being brought to light by partisans of women's liberation, who are more likely to be sensitive to them and aware of the harm they do both to the pursuit of scientific truth and the cause of social progress.

The first three essays in this book are primarily concerned with the newer sciences of sociobiology and primatology, the last five with the status of anthropology. All of them are by-products of the same workshop in which my major work, *Woman's Evolution*, was fashioned; this collection can be regarded as a sequel and supplement to *Woman's Evolution*.

Evelyn Reed  
November 1977

# Primates and Prejudice

## (1977)

Primates is a new term for a special branch of science, the study of monkeys and apes. The study itself is not new; it has been going on to some extent ever since Darwin brought forward the primate origins of humankind. The word *primatology* came into use in the early 1960s with a sudden sharp rise in the collection of data on the habits of these animals.

This spurt of interest took off in two main directions, with some overlapping between them. On the one hand, it was hoped that experimental research on laboratory specimens would yield useful information for biochemistry, medicine, physiology, psychology, etc. On the other hand, field studies of primates in the wild were expected to shed light on human behavior through a greater understanding of primate life. Such observations would be of great service to anthropologists and others concerned with what is usually called the "science of mankind," which must necessarily begin with the transition from ape to human.

Unfortunately, primatology was born amidst great difficulties. Steady encroachment by humans on their former habitats had reduced the number of "wild" animals in the world; the free-roamers had been pushed onto ranges or reservations. To one degree or another they had been altered, some by crowding, others by contact with humans. Along with these practical problems was the serious theoretical deterioration which affected the science of anthropology and cast its shadow over the newly emerging primatology.

The majority of twentieth-century anthropologists, hostile to the evolutionary method of the nineteenth-century founders of the science, had long since replaced any comprehensive theoretical approach to their discipline with descriptive field studies. Many primatologists followed the same narrow empirical course, side-stepping general theory and restricting themselves to particular studies of different species of primates.

Empirical studies are essential for the development of any

science; they furnish the evidence required to sustain, verify, or invalidate a thesis. However, these cannot become a substitute for a systematic theoretical outlook. As Stuart A. Altmann points out, "There is a certain danger, in the present rash of primate field work, for empirical work to progress unreasonably faster than the theoretical." He adds, "The moral is obvious: the empirical and theoretical work should proceed in parallel" (*Social Communication Among Primates*, pp. 375-76).

The evolutionary method is fundamental to any theoretical exposition of the emergence of humans from primates. Primatologists who avoid this approach can easily give the misleading impression that contemporary primates are equivalent to ancient primates. A million years ago, when only a tiny number of humans existed, the world was preponderantly populated by wild animals, including large numbers of primates. Today that ratio has been drastically reversed. There are nearly four billion humans in the world. Wild animals, however, are so shrunk in numbers and hemmed in by civilization that a great many are in the category of endangered species. It would be unscientific to equate the behavior of the few surviving primate species today with their own animal ancestors, much less with humans.

Some scholars have warned against these pitfalls. In a joint paper, S. L. Washburn and D. A. Hamburg point out, "A central problem in the study of the evolution of behavior is that contemporary monkeys and apes are not the equivalents of human ancestors." They further caution against making field studies a replacement for the evolutionary approach or substituting studies of animals for the "direct study of man." In a rebuke to certain of their colleagues they write, "we echo Simpson's 1964 statement, '100 years without Darwin are enough'" ("Aggressive Behavior in Old World Monkeys and Apes," in *Primates*, p. 459).

By contrast, let us examine the theoretical fundamentals laid down by earlier scholars, even before primatology received its name.

### Theoretical Fundamentals

By virtue of their evolutionary approach, naturalists, anatomists, and biologists were able to establish the sequence of stages in animal life, leading from the fish—the earliest vertebrate species—up to later and higher mammals, with the primates standing at the peak of the purely animal line of

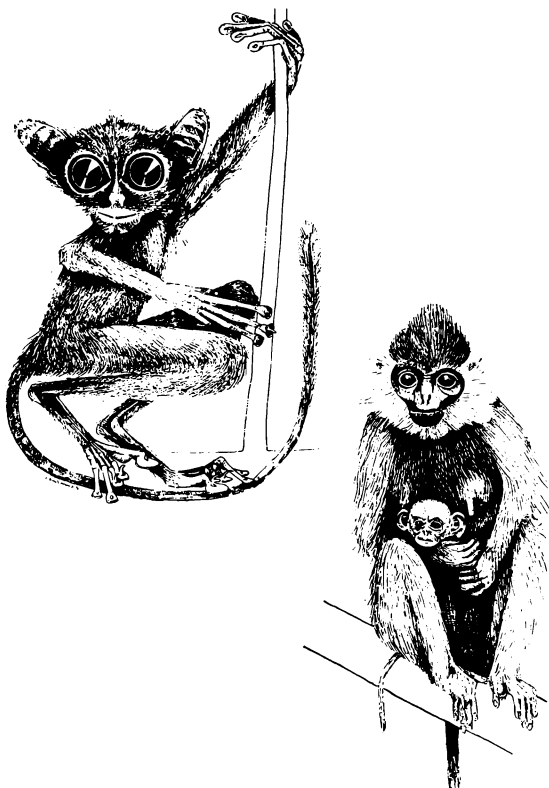
development. Within the primate order, anthropoids, or apes, stand higher than monkeys. At the same time, the four existing species of apes—the gorilla, chimpanzee, orangutan, and gibbon—are only remote cousins to the ancestral apes that gave rise to humans.

The pioneers in primatology also pinpointed the key biological organs and environmental factors that had developed over many millions of years of animal evolution to show how and why humans could not have emerged from any species lower than the higher apes.

Foremost among the biological prerequisites was the freed hand—that indispensable organ required for the tool-making human. While four-footed mammals “nose” their way around, the primates developed upright posture and a separation between the functions of the hands and feet. Instead of seizing food on the ground with their teeth, primates can pluck edibles and convey the food to the mouth. They can manipulate objects, such as sticks and stones, in a manner suggestive of tool-use. The impressions gained through the use of the hand stream into the brain, making these animals superior in intelligence to all lower species. The British anatomist F. Wood Jones has spelled out in detail how the activities of the hand led to the superior brain of the ape (*Arboreal Man*).

W. E. LeGros Clark, of the British Museum of Natural History, traces the evolution of primates from the tree shrew (the earliest form) through monkeys such as the lemur and tarsier to the macaque and up to the gibbon and chimpanzee. At the same time he cautions his readers against taking “a linear sequence of evolution,” as though contemporary primates are the same as the ancestral stock or that humans are in the direct line of any of the existing species. He writes, “It must not be inferred, of course, that Man was actually derived from a chimpanzee ancestor, or that a monkey ever developed from the sort of lemur which exists today” (*History of the Primates*, p. 47).

Along with the hand and brain, another key factor contributing to the biological superiority of the primates was the extended period of mother-care provided for the offspring as contrasted with lower mammalian species. Rats or rabbits give birth to litters of from four to twelve offspring at a time. They reach sexual maturity in six to eight months and are full-grown in a year. A baboon monkey bears one offspring at a time, which reaches sexual maturity at three and is full-grown at five. At the



An adult female tarsier (left). The development of the hand through arboreal life goes back to this species, which preceded the monkeys and apes. Female langur (monkey) and offspring (right). Maternal care is highly developed among the primates, especially the higher apes.

top of the scale are the higher apes; a gorilla mother gives birth to one child, which reaches sexual maturity at about eight to ten and is full-grown at twelve to fifteen. This slow rate of development is closer to humans than to monkeys; a human child reaches sexual maturity at thirteen and is full-grown at twenty to twenty-five.

This slow maturation of infants occurs only where mother-care is prolonged, as it is among the higher apes. This is of paramount importance in the development of their advanced traits. In the lower animals, where mother-care is of short duration, the offspring are obliged to mature rapidly to become self-supporting. Among primates, which mature much more slowly, the young animals can learn from imitation and experience, modify their behavior patterns, and acquire greater reasoning abilities and intelligence.

Robert Briffault has analyzed in detail the prime importance of prolonged mother-care in developing these traits. (*The Mothers*, vol. I.) More recently, Washburn and Hamburg make the same point. They write that monkeys and apes "mature slowly and there is strong reason to suppose that the main function of this period of protected youth is to allow learning and hence adaptation to a wide variety of local situations" ("Aggressive Behavior in Old World Monkeys and Apes," in *Primates*, p. 464).

But there is another side to this prolonged period of mother-care—its effect upon the females themselves. The more extensive functions of the females in providing for and protecting their infants, together with the longer periods in which they exercise these functions, make the females the more intelligent, capable, and resourceful sex. This aspect has also been dealt with by Briffault. It may explain why females are so often selected for intelligence tests and experiments. As one writer complains, "all the intensively studied individual chimps, including those in the language experiments, are females. It is time that male chimps demand equal treatment" (Joseph Church in a review of Ann J. Premack's book, *Why Chimps Can Read*, *New York Times Book Review*, April 11, 1976).

Tracing the line of continuity from lower to higher forms of animal life enabled the evolutionary biologists to show how and why humans ascended from a branch of the anthropoid species and no other. However, to appraise human life it is necessary to go beyond the *continuity* of animal evolution as such to the point at which a definitive *discontinuity* occurred—when a jump was

made into a totally new kind of evolution—human social evolution.

Many scholars slur over this vital distinction between biological and social evolution. For example Jane B. Lancaster writes that “mankind has evolved and expanded in accordance with the same major evolutionary processes as have other species of animal life” (*Primate Behavior and the Emergence of Human Culture*, p. 1). However this applies to human evolution only up to that point where the ape became hominid.

George Gaylord Simpson has emphasized that unlike all animal species, which have evolved through only one kind of evolution (organic, or natural evolution), humans have evolved through a wholly new kind—social evolution (*The Meaning of Evolution*). Moreover, the new social evolution increasingly displaced the old biological evolution, to the point that today humans have lost virtually all their ancestral animal patterns of behavior and instincts. These have been replaced with their own socially conditioned reactions.

In other words, to understand what a human being is, it is not sufficient to analyze the biological *preconditions* required for humanization. It is also necessary to uncover the special and, indeed, unique *conditions* upon which human life rests, and without which it cannot survive. This problem was first clarified by Frederick Engels in his essay, “The Part Played by Labor in the Transition from Ape to Man” (*Origin of the Family, Private Property, and the State*). Our branch of the higher apes, equipped with hands, began to make and use tools in systematic labor activities. Production and reproduction of the necessities of life—which no other animals are capable of—became the prime conditions for human survival and progress. This remains so to the present day.

Tool-making and labor activities, therefore, represent the starting point for differentiating between humans and animals since these activities represent the foundation for social life. As Kenneth P. Oakley puts it, “Man is a social animal, distinguished by ‘culture’: by the ability to make tools and communicate ideas” (*Man the Tool-Maker*, p. 1). More recently, John Napier, emphasizing the significance of this title, wrote, “Probably the most generally accepted definition of man at the present time is that of man-the-toolmaker” (“The Locomotor Functions of Hominids,” in *Classification and Human Evolution*, p. 178).

Even the biological structure of humans changed under the

impact of their laboring activities. They lost their hairy coats, acquired full upright posture, and developed hands with a completely opposable thumb. Behavior patterns changed too. Humans were obliged to curb and suppress their former animal individualism and competitiveness, replacing these traits with the social and cultural rules required for the establishment of human life.

The most important long-range result of the emergence of humans is that they alone have been able to transcend the barriers that keep animals within biologically circumscribed limits. It took scores of millions of years for the fish to evolve into the mammal and more millions of years to reach the higher-ape species. Yet at the end of this billion-year process, all animals, including the more flexible apes, remained chained to their biological limitations. Only one branch, our own, was able to break these fetters and acquire the *unlimited* possibilities inherent in the human capacity for labor, for changing themselves, and for developing new capabilities as they secure ever greater mastery over nature.

This qualitative distinction was emphasized in a review in the April 1977 *Scientific American* of a recent book on the Kalahari hunter-gatherers, edited by Richard B. Lee and Irven DeVore, which made the following point: "The food and water of the /Gwi are won in those [barren] months chiefly by the digging stick. Hard work retrieves from the cool subsoil two species of tubers that provide food and a bitter tuber that yields water. The clever baboons that dwell in most of the desert cannot live hereabouts, because they are not masters of the digging stick; only the much cleverer human beings can survive."

Gordon Childe hypothesizes why only one branch of the higher apes was propelled into this revolutionary change from animal to human. The coming of the Ice Age about a million years ago produced catastrophic changes in climate affecting virtually all species on earth. The struggle for survival took on gigantic proportions. Some species were completely wiped out. Our branch of the anthropoids may have been too far advanced biologically for any further animal adaptations, because it was at this point in time that the first tool-using hominids made their appearance on earth. As Childe writes, "The most curious of all the species emerging was, however, Man himself" (*What Happened in History*, p. 29).

The same point is made by William Howells, of the American

Museum of Natural History, who writes, "It is extraordinary that the sudden, severe Age of Ice, a mere pinpoint in time, should have coincided with the very period, also short, when man at last was rapidly becoming what he is today" (*Mankind So Far*, p. 113). Our ancestors met the severe challenge of nature by making tools and working for a living, thereby passing over from primate existence to a human mode of life.

These theoretical fundamentals were established by various scholars before primatology came into existence as a distinct science. This raises the question: to what extent have these guidelines furnished the background for the interpretations made by primatologists of the animal behavior they are studying? The answer is that while some have adhered to the genuinely scientific approach, many have not. The latter appear to be heavily influenced by the antievolutionary attitudes that dominate anthropology today. This leads them to cater to two erroneous themes: humans are little more than primates; and females have always been the inferior sex, dominated by males. Let us examine both of these propositions.

### **Are Primates Tool-Makers and Meat-Eaters?**

For a time scientists tried to find the "missing link" between apes and humans by comparing fossil bones and skulls. When this purely anatomical test failed because the differences during the transition were so minor, they made tools the criterion by which to distinguish between the two. If human-made artifacts were found in the same deposits as the bones and skulls, this provided evidence of "Man the Tool-Maker."

Engels, however, did not leave the matter at this point. He explained that tools were the instruments of labor activities; therefore in its most comprehensive sense, labor activities represent the point of departure from animality to humanity. Stephen Jay Gould, a Harvard geologist, recently called this proposition the "missing link." At the same time he admitted that "few scientists were ready to recognize the 'missing link' when we found it" ("Posture Maketh the Man," in *Natural History*, November 1975).

The labor theory of social origins was ignored by those who were determined to blur the dividing line between humans and primates. Irritated perhaps by the important role this discovery gave to "lowly" labor activities, some investigators began to

undermine even tool-making as the distinctive acquisition of humans. K. R. L. Hall writes that "the criterion of tool-using is no longer used by anthropologists to signalize a supposedly critical stage in the transition of ape to human" ("Tool-Using Performances as Indicators of Behavioral Adaptability," in *Primates*, p. 144). He attributes this to a "tendency to overestimate the significance of such performances . . . largely because of the urge to discover equivalences to stages in human evolution" (*ibid.*, p. 146).

Thus, the denial by academic anthropologists that humans had passed through a sequence of stages in social evolution was extended to primatology. The importance of tool-using and tool-making began to be downgraded under pressure to conform to this antievolutionary doctrine. This retreat has gone further as some primatologists have begun to overestimate the ability of primates to manipulate sticks and stones and have equated them with human tool-makers. In both instances, these represent attempts to liquidate the qualitative distinction between humans and animals.

Jane van Lawick-Goodall became most famous in this attempt to elevate primates to tool-makers. She began her studies of chimpanzees in the Gombe Stream Chimpanzee Reserve in Tanganyika in the early 1960s. By the end of the decade she made headlines with her proposition that not only man but primates were users and makers of tools. This wasn't all. She also suggested that meat-eating, like tool-making, was a trait shared by humans and primates alike. This was sensational because scientists had hitherto regarded both tool-making and meat-eating as the two major acquisitions of humans *after* their departure from animality. As E. Adamson Hoebel wrote, the carnivorous diet "more than any other single trait distinguishes [man] from his vegetarian anthropoidal relatives" (*Man in the Primitive World*, p. 102). Goodall was expressing a contrary view.

According to Emily Hahn, both of Goodall's propositions "came as a surprise to the world of anthropology" (*On the Side of the Apes*, p. 154). Whether greeted with surprise or delight, Goodall's views showed the powerful influence of the antievolutionary anthropologists upon the nascent science of primatology.

This point was made explicit by Maggie Scarf in an article-interview published in the February 18, 1973, *New York Times Magazine*. "What is the explanation for Goodall's widespread appeal?" she asks. Her answer is that "Goodall's work has led

many scientists to reassess the 'great gulf' which has been believed to separate the animal and human worlds." Scarf writes that according to Irven DeVore, Goodall's data "strongly suggests that the gradation between what might have been our chimp-like ancestors and a very early hominid or true human represents a small step rather than a great leap." Yet it was precisely that "small step" taken at a critical juncture of evolution which became the starting point of the vast—and still growing—gulf separating humans from animals.

Goodall, who acknowledges that she undertook her studies with a mind "uncluttered" by theory, confines herself to descriptive observations. Thus, she found that some chimpanzees could defoliate a twig, insert it into a crevice to get at termites or ants, and then convey the insects on the stick to the mouth. This "stripping off of the leaves," she says, shows "a wild animal not merely *using* an object as a tool, but actually modifying an object and thus showing the crude beginnings of toolmaking (*In the Shadow of Man*, pp. 6, 37). Other performances include the crumpling of a leaf to make a "natural bowl" to lift water to the mouth.

It has long been recognized that apes, with their flexible hands, are capable of manipulating various objects, and that in captivity or under human influence they can be very clever at these practices. Frederick Tilney, citing observations of chimpanzees made by Wolfgang Köhler during World War I, writes that those chimps usually ate insects by rolling their tongues over them, but sometimes they "used straws and twigs as we use spoons." They also used straws to suck water up to their mouths. However, as Tilney points out, "the handling of everyday objects by the chimpanzee comes almost entirely in the nature of play" and not through any necessity to use these objects as tools (*The Master of Destiny*, p. 190).

These playful performances cannot be characterized as tool-use or tool-making in the proper sense. Ape survival does not depend either upon eating insects or using twigs to get at them. Ape survival, past and present, depends upon a sufficiency of fruits and vegetation and upon the hands with which to grasp the food and convey it to their mouths. Eating insects and defoliating twigs is only incidental and episodic in the life of an ape. By contrast, under the lash of drastic environmental changes, our progenitors were forced to make and use tools—to labor—in order to survive. Labor activities remain the elementary basis of survival for humans to the present day.

Goodall's observations of apes provide useful clues as to how humans became tool-users. But they do not alter the fact that no other primates, past or present, can be regarded as identical with the species that alone bridged the gulf between the animal and the human. As Jane Lancaster, an admirer of Goodall's work, observes, "The evolution of skilled tool-using marks a major change from the kind of tool-use that is incidental to the life of a chimpanzee to the kind that is absolutely essential for survival of the human individual" (*Primate Behavior and the Emergence of Human Culture*, p. 53).

The same holds true for the human diet of regular meat-eating. Most animal species are rigidly restricted not only to specific habitats but to particular sets of foods, and they cannot survive on any other. Carnivores cannot subsist on grass or other vegetation and ruminants cannot eat meat. Even under human influence, they cannot change their diets. Although primates are vegetarian animals, they are more adaptive than the lower species. In captivity or through changes in their environment, some can assimilate meat. Here again we have a clue about how our ancestral branch became the first omnivorous species—human hunters and meat-eaters. But this doesn't alter the fact that primates are vegetarian animals, most of them eating no meat at all.

Even among those which are most adaptive in this respect, meat constitutes only a tiny morsel of their diet. The data on this is unambiguous. Robert M. Yerkes wrote of chimpanzees as naturally and primarily vegetarian—their staple diet consisting of fruits, seeds, blossoms, leaves, shoots, and the bark of many African plants. They also eat eggs and small organisms. In captivity, however, an "occasional specimen may become omnivorous or carnivorous" (*Chimpanzees, A Laboratory Colony*, p. 222).

More recently George B. Schaller wrote of the gorilla, "I never saw gorillas eat animal matter in the wild—no birds' eggs, insects, mice, or other creatures—even though they had the opportunity to do so on occasion. . . . In captivity, however, gorillas readily eat meat" (*Year of the Gorilla*, p. 180). Emily Hahn remarks about her pet, "Chimpo ate meat whenever I did" (*On the Side of the Apes*, p. 154). According to Biruté Galdikas-Brindamour, "wild orangutans have never been known to eat meat," although "they have been observed munching insects and birds' eggs" (*National Geographic*, October 1975, p. 468).