THREE

The Paradox of Feminist Primatology:
The Goddess’s Discipline?

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How has primatology come to be beloved by many feminist science scholars? Has feminism truly helped to engender the field of primate studies as it exists today, or is this a case of mistaken attribution? Many science analysts have remarked favorably upon the feminist transformation of primate studies that has occurred over the past twenty-five years, and so widely accepted is the view of primatology as a feminist enterprise that Hilary Rose asks whether it has become “the goddess’s discipline.”¹ Donna Haraway, in her influential analysis of the history of primatology, and the authors of lesser known analyses (e.g., Rosser’s application of the “six stages of feminist transformation” to primatology) have argued for a shift in primatology toward the values and practices of feminist science.² But what makes this case curious and paradoxical is that most primatologists vehemently deny that theirs is a feminist science. Only a small handful of primatologists are self-declared feminists, albeit scholars whose work has been very influential—Jeanne Altmann, Sarah Hrdy, Jane Lancaster, Barbara Smuts, and Meredith Small, for example. And one need only peruse a few of the strongly negative reviews by practicing scientists of Haraway’s book on primatology (“infuriating” is a common reaction)³ or attempt to casually interject the word “feminism” into a discussion with primatologists or ask them outright if they consider themselves feminists to uncover the strength and depth of their denial. In this chapter I explore how primatologists have responded to the feminist critique of science by becoming more gender inclusive and by using “tools of gender analysis,”⁴ and I suggest why so many primatologists carry out work that closely adheres to the tenets of feminism while at the same time denying the appellation. I argue that this contradiction
is much more than a “label problem”—rather that these primatologists see themselves as operating from vastly different underlying assumptions and models of science than those of feminists.

An attempt to understand the paradox of feminist primatology is important for several reasons: it offers insights to those who want to know how and why a science changes over time; it can help to establish better communication and working links between scientists and science analysts; it exemplifies one discipline’s solution to the “women in science problem”; and it sheds some light on the central issue of this volume: What useful changes has feminism brought to science? It does take some audacity for me to even try to address the last issue since many will feel that Donna Haraway definitively answered the question of how feminism has affected primatology in her comprehensive and multifaceted analysis of the subject. But Haraway herself would surely advocate multiple voices and diverse perspectives on this topic. And I have puzzled for some time over the deeply negative reactions of my fellow primatologists to Haraway’s interpretation of primatology as a “genre of feminist theory,” and over the extent to which some of my scientific colleagues mistrust the label of feminism even while practicing feminist virtues. I have also pondered the question of what type of evidence would convince scientists that feminism has brought useful changes to their practices. I cannot claim to have definitive answers, but perhaps I can bring to bear on this matter the multiply “situated knowledges” of a practicing primatologist, a feminist, and an interested reader of science studies.

Both Haraway and Hrdy have argued that it is not simply a coincidence that primatology in North America began to develop along feminist lines in the 1970s at the same time that the second wave of the women’s movement was cresting in American society. Primatology is a quantitative and empirical science, and thus, for many practitioners, the most convincing evidence of the impact of feminism on primate studies would be to demonstrate directly through experiment or observation that the feminist critique of science can cause (or has caused) primatologists to change their practices. It would also be convincing if a substantial proportion of primatologists stated that their work has been influenced by feminism. It seems to me that neither of these scenarios is likely to be enacted and that we will therefore have to rely on indirect evidence. In a previous paper, I decided to set aside the issue of which primatologists self-identify as feminists and asked instead, What would a feminist science look like? and Does primatology look like this? I identified six features that many models of a feminist science hold in common (reflexivity; taking the female point of view;
cooperation with, rather than domination of, nature; moving away from dualisms and reductionism; humanitarian applications of science; and greater inclusiveness of formerly marginalized groups) and argued that the field of primatology has increasingly exhibited these features over the past twenty-five years. From this circumstantial case, I concluded that primate studies can be called a feminist science or that, at the very least, it has been significantly changed by the women’s movement and the feminist critique of science.

Since writing that paper, I have come to think that what is unusual and instructive about the case of primatology is not that it can (arguably) be labeled a feminist science but rather the rapidity and the extent to which it “self-corrected” in response to the feminist critique of science. By this I mean that many disciplines have been the subjects of feminist critiques (e.g., archeology, biology, cultural anthropology, history, physics), but few, if any, others moved so quickly, so extensively, and so willingly to rectify the previous androcentric aspects of their practices. Therefore, in this paper I want to bypass the probably irresolvable debate as to whether or not primatology is a feminist science and instead begin to detail some of the myriad ways in which primatologists have become increasingly gender sensitive and gender inclusive over the past twenty-five years. I will attempt this documentation through the heuristic device of what Londa Schiebinger has called “tools of gender analysis.” Schiebinger has advocated a move away from prescriptive visions of feminist science and suggested that we instead highlight a set of tools of gender analysis that have been used in many different sciences for designing woman-friendly research along feminist lines—tools that do not “create some special, esoteric ‘feminist’ science, but rather . . . incorporate a critical awareness of gender into the basic training of young scientists and the work-a-day world of science.”8 Schiebinger cautions that these analytic devices are not peculiar to feminists, and I will provide many examples of primatologists using these devices—some of whom do, and some of whom do not, call themselves feminists. Then I will return to the paradox laid out in this introduction and suggest several reasons why many primatologists carry out research along feminist lines even while they distance themselves from any such association.

EIGHT TOOLS OF GENDER ANALYSIS

Tool 1: Scientific Priorities

Schiebinger argues that one of the most important gender analytics looks at scientific priorities—given limited resources, how are choices
made about what we want to know and what we will fund for researchers to study?" The funding world of primatology is dominated by issues that granting-agency review panels believe to be of grave concern to human society. Almost every young primatologist must learn to answer the question, How is your research relevant to humans? That is one of the reasons why Haraway chose to analyze primatology as a science—because it intersects with so many vital human social issues, for example, mother love and male aggression, colonial and postcolonial impact on the tropical nations where primates occur, race, class, sex, politics, war, peacemaking, conservation, views of nature, views of human nature, and the list goes on. Many people approach the study of our primate relatives as if these animals will provide us with nature's true blueprint for human nature. Primatology thus becomes what Haraway variously calls a "trading zone" or "zone of implosion" where researchers from many backgrounds vie for high stakes—the right to propound their vision of how we humans were meant to behave and to live together. And in this context what we choose to study, how we study it, and what we choose not to study become crucial.

From the 1930s until the mid-1970s, it was quite common in North American and European primatology to consider females only in the role of mothers and as passive resources for males. The publication of the prescient article by Jane Lancaster entitled "In Praise of the Achieving Female Monkey" heralded the beginning of a new era. Primatologists began to rescue the "hidden females" from their shadowy, secondary roles and to bring them onto center stage. Some researchers, such as Jeanne Altmann, Sarah Hrdy, Thelma Rowell, Meredith Small, and Barbara Smuts, have talked about how they deliberately chose to factor sex differences into their studies, as well as to study females, and to take the "female point of view" as part of their feminist approach; many others have done so without commenting on what thinking lay behind the process.

I would argue that there are at least three ways in which primatologists over the past twenty-five years have deliberately shifted their priorities about what we study in relation to gender issues. One fundamental shift has been simply to provide more funding for research that fleshes out the picture of what female primates do, apart from bearing and rearing offspring—the patterns that are part of what Jeanne Altmann has called "dual career mothering." This shift paralleled the drive in many other fields to ensure that women formed part of the study sample, for example, in psychology and medical research. A second early change in primatological priorities was to turn standard re-
search questions around and ask them from the female's perspective. One telling example comes from the study of size and shape differences between males and females of the same species. For over a hundred years, since Darwin first posed the question in print in 1871, evolutionary biologists have puzzled over sexual dimorphism and asked themselves, Why are male mammals usually bigger than the females of the species? It was not until the late 1970s that scientists began to ask, What might be the adaptive advantages to female mammals of being smaller than the males of their species? This simple inversion of the question changed our entire perspective on the conundrum—we went from talking about how males need to be large in order to protect females to examining the different bioenergetic demands on female and male mammalian bodies.

But the third, and probably the most telling, example of how primatologists have shifted their priorities about the types of research questions that are asked and funded is the increasing study in the 1980s and 1990s of gender-related issues that clearly concern women when they arise in the human context. For example, Smuts has published both empirical research and theoretical papers on topics such as male aggression and sexual coercion of females, male-female friendships, and male dominance and its repercussions for females. Hrdy has studied why male primates sometimes kill infants, how females compete with other females, and why parents favor sons over daughters. Lisa Rose and I embarked on a series of papers addressing the issue of why female primates live with males on a year-round basis—examining what benefits males provide and in what ways males are a liability for females. Small has published books about women primatologists studying female primates, about the processes by which females choose their sexual partners, and about the evolution of female sexuality. Lancaster has published extensively about parental care and its evolution in the primate order and about the evolutionary biology of women. There are many more examples, but these should suffice to show that we have created a new vision of the female primate in large part by simply choosing to find out more about her and her relations with the others of her species from her own perspective.

**Tool 2: Representative Sampling**

As pointed out by Schiebinger, one of the basic tools of gender analysis is to make scientists aware of the appropriate inclusion of females as subjects of research and of women as the conductors of research. To some extent, I covered the issue of females as subjects of research above, but here I will briefly describe two ways that sampling patterns
have been recognized by primatologists to have implications for the conclusions we draw about sex and gender.

The first example is the landmark and now canonical 1974 paper by the primatologist Jeanne Altmann on appropriate methods for sampling animal behavior.\textsuperscript{23} Although she is sometimes mistakenly credited for having invented these sampling methods, what Altmann did was to codify, clarify, and label the methods used by ethologists to sample behavior up to that time and to authoritatively evaluate their relative strengths and weaknesses for different research designs. The influence of this paper is enormous: it standardized sampling practices in ethology and because it is still referenced in most methods sections of ethological publications, some credit it with being the most cited paper in the modern literature on animal behavior.\textsuperscript{24} It also discredited for most purposes what is called “ad lib sampling”—the practice of opportunistically recording whatever strikes the observer’s eye and gains one’s attention. In particular, Altmann established that it is inappropriate to use such opportunistic sampling to compare rates of behavior between individual subjects or between males and females, for example. What this meant for primatologists is that we stopped watching only the larger, more swashbuckling males and started to also sample for representative periods of time the less prepossessing subordinate males, the females, and the immature individuals of the groups. Altmann made no mention in this famous publication that she was dissatisfied with the previous bias toward observing male primates more than females—rather, what she did was to convince scientists, through the use of their own methodological tools, to raise their standards of evidence, a task for which she was well qualified by her background training as a mathematician. Elsewhere, she did state that her involvement in the feminist movement contributed to her awareness of and dissatisfaction with previous androcentric sampling practices.\textsuperscript{25}

Another way in which primatologists realized that sampling can have implications for gender is the process by which we choose which species to study. For example, out of approximately two hundred primate species, the male-dominant savannah baboon was long the favorite species for modeling the evolution of human life.\textsuperscript{26} In the 1950s and 1960s, a large contingent of North American primatologists, influenced by Sherwood Washburn, believed that we should be able to document something they called the “primate pattern,” a code term for the basic “nature” of primates.\textsuperscript{27} Aspects of what was then presented as baboon behavior, such as male bonding and aggression and rigid male dominance hierarchies, were generalized to all nonhuman primate species as representing the primate pattern, and from there to
the human species as well. The first criticisms of this “baboonization” of primatology came as early as the 1970s. Initially, the baboons were replaced by other single-species models, such as the chimpanzee model for hominid evolution, but today it is realized that no one species will provide a sufficient model for early human behavior. Although primatologists are now largely aware of the biases introduced when we generalize from one (or even a few) species to the entire order, we still make many assumptions about primate nature on the basis of the species we have studied (mainly Old World monkeys and apes), and we are finding these assumptions challenged as new data roll in on the less well studied species. With so many species of primates, there are examples of almost every type of social system and relationship between the sexes that one could think of, and it makes a great deal of difference to our picture of human evolution and gender relations which species we choose to study and to emphasize.

**Tool 3: Dangers of Extrapolating Research Models from One Group to Another**

Schiebinger gives examples of the dangers of extrapolating to women research models designed for men. There are some parallel examples in primatology, such as the study of sexual dimorphism mentioned earlier. One of the stumbling blocks that hindered scientists from asking why female mammals might be selected to be smaller than males was their initial neglect of the repercussions of gestation and lactation. In primatology, it was sometimes assumed that the principles that apply to body size differences between species, such as those between chimpanzees and gorillas, could be applied willy-nilly to body size differences between the males and females of a species. Thus, it was not at all uncommon in the early days of primate ecology studies to read that the larger males of dimorphic species need to eat more and use a larger share of resources than do the females. However, a female primate spends most of her adult life gestating or lactating and may have feeding and metabolic rates up to 200 percent greater than a nonreproducing female of the same size. Today, primatologists are very aware of the different physiological, reproductive, and life history processes of male and female animals and much more careful about extrapolations from one sex to the other. If anything, primatologists sometimes follow the lead of those evolutionary theorists who suggest that the males and females of a given species can be so different in their biology and behavior as to be almost “two different species.”

But where I think that primatologists have become the most aware of the dangers of extrapolation from one group to another is in the
projection of Western gender role stereotypes onto animal patterns and onto our human ancestors. We can see this projection most clearly in some of the Victorian scenarios that nineteenth-century Euramerican anthropologists and natural historians imagined for monkeys and for early human social life, in which females were described as domestic, reluctant, and coy, whereas males were thought to be assertive, competitive, and mobile. But even in the 1960s and 1970s, when field reports on primates were first published, we began with many assumptions specific to the gender relations of our own time and place. For example, male monkeys and apes were sometimes referred to as “owning” their females,\textsuperscript{31} whereas we know today that males in many of these species merely attach themselves on a temporary and rotating basis to permanent kin-bonded groups of females who occupy a consistent matrilineal home range. Can it be a coincidence that a generation raised on \textit{Father Knows Best} would have propounded the 1950s view that primate females were mothers and mates and did little else of social or ecological note? How else to explain the influence of and the vast number of papers published on the “priority of access model,” which assumed that female monkeys were passive resources available to males as sexual partners simply in order of the “winner’s list” from male-male competitions? One by one these assumptions have disintegrated as researchers have focused on the females and documented not only the active roles they play in primate society but the enormous variety of relations between the sexes that occur in primates, defying our attempts to simplify and extrapolate to one “human nature.” And the important point for our purposes here is that ethologists and primatologists themselves became aware of the dangers of extrapolating from humans to animals and then back to humans. Several researchers published warnings about the rebounding anthropomorphism known as the “aha! reaction” (e.g., “Aha! Female animals are choosy about mates; therefore, we can refer to them as ‘coy.’” “Aha! Human females are coy just like animals; therefore, female coyness must be part of our primate heritage.”).\textsuperscript{32}

\textit{Tool 4: Institutional Arrangements}

Schiebinger argues that institutional power structures influence the knowledge that issues from them—from formalized universities to recognized-but-informal schools of thought to nearly invisible “cliques.” The examination of how such institutions structure scientific representations of gender, race, and nature was of course the primary tool used by Haraway in her extensive analysis of primate studies.\textsuperscript{33} Use of this tool does require the assumption that “primatology
is politics,” and this may be one of the reasons that few, if any, primatologists themselves have commented in print on how institutional background affects what we believe to be true about primates and about gender. Furthermore, the scrutiny of institutional power structures may require a more uninvolved perspective on the science than many scientists feel they are ready or qualified to take. One exception is Hrdy’s brief analysis of the relationships among several important variables in her career: her status as the sole woman in her cohort at Harvard graduate school in the 1970s, her dawning awareness of androcentric bias in animal behavior studies, and her growing ability to imagine female animals as active strategists. A second exception is a recent Wenner-Gren–sponsored workshop of primatologists and science analysts in which many participants concluded that institutional background is even more important in influencing a primatologist’s thinking than is theoretical affiliation or methodological preference.

**Tool 5: Gender Dynamics in the Cultures of Science**

I teach in a building of social science departments but attend many meetings in the neighboring biological sciences building. Perhaps because of my background training in sociocultural anthropology, I have often noticed the radically different cultures reflected in the dress codes apparent in these two buildings: suits and pantyhose in the social science building; field clothes and lab coats next door. I also note differences in the intellectual styles and acceptable behavioral patterns of the biologists and the social scientists as I commute between them daily. This has clear implications for women graduate students in primatology, who may major in either anthropology, biology, or psychology, and who then face a choice between becoming “one of the boys” in the biological field or lab situation or taking on the “woman in power suit with briefcase” role in a social science setting. Primatologists have not commented in print about the “culture of primatology,” perhaps for the same reasons that they have not reflected publicly upon institutional arrangements. But its “scientific culture” is one of the several ways in which primatology is a very informative case study, because I believe that ours is by and large an androgynous culture. To some extent, this is due to critical mass—there are now nearly equal proportions of men and women primatologists in North America, and there have always been substantial proportions of women in this science. The most telling example of our androgynous culture is the nature of fieldwork, which is strongly gendered masculine in most sciences (e.g., archeology, paleontology, geology, entomology) but which
is not gendered masculine or feminine in primatology. For reasons
which are beyond the scope of this paper (e.g., the relatively recent
emergence of primate fieldwork after World War II, and the early role
models of women anthropological field-workers), a macho fieldwork
image never took hold in the science of primatology in North America
(Japan, Latin America, and India are different stories). It has always
been expected that women will be as able and as competent as men to
carry out field research on primates—research that is just as physically
demanding, if not more so, than it is in other sciences. In fact, the
popular media’s attraction to women primatologists “roughing it” has
sometimes given the public the impression that only women do field-
work in primatology, but this is not the case. There are many successful
men working at primate field sites, although it is possible that the men
are more associated with short-term studies and the women with longi-
tudinal field studies (this would make a good research question). My
point is that I do not think in this case that feminism changed the
gendered nature of primate fieldwork; I think rather that women got
in on the ground floor, proved early on that they could do good work
in the field as well as in the lab, and helped to establish an androgynous
culture of primate science in which feminist tenets could flourish.

Tool 6: Language Use

Language both reflects and structures our thinking, and as noted by
Schiebinger, much gender analysis has focused on the rhetoric of scien-
tific writings and speech.\textsuperscript{57} Analysis of gender symbolism in scientific
terminology has been a particularly effective tool for feminist critiques
of science because most scientists are strongly encouraged to be clear
and precise in their language. However, they may not be fully aware
of the powerful connotations of the metaphors and other figures of
speech that are embedded in all language because this is not part of
their formal training. Thus, it is probably easier to convince a scientist
of the androcentrism inherent in references to “passive” eggs and “ac-
tive” sperm (since it is now obvious to any biologist that these are not
appropriate descriptors) than it is to convince scientists that institu-
tional power structures affect the knowledge that issues from them or
that there are gender dynamics in the culture of science.

Primatologists are caught on the horns of a powerful language di-
lemma in the form of anthropomorphism. One of the strongest taboos
in primate studies is to attribute human characteristics to animals—
before we have studied them to determine how they do, in fact, behave
and think—since this implies that all organisms behave and think like
ourselves. And yet, we cannot fully invent a new language to describe
our observations of animals, so we must borrow terms from the human domain that seem to best capture what we observe in the behavior of our animal subjects. The more closely related the animal is to us, the more it looks like and seems to behave like us, and thus the greater the danger of anthropomorphism. Primates are our closest relatives and share many characteristics with humans. But careful observations by scientists have convinced us that the gorilla does not beat his chest because he is angry; the vervet does not present his posterior to the face of another vervet to insult him, and the macaque does not grin because she is happy. Anthropomorphic assumptions about the meaning of primate signals must be avoided at all costs in that basic tool of all primate behavior research—the ethogram, which is a list of the behavioral units to be studied. Much of the work of developing a good ethogram involves language use, and a considerable amount of time and training is invested in teaching students to use descriptors that are as value neutral as possible (e.g., “open-mouth gape” instead of “threat face”).

Thus, primatologists are somewhat predisposed to be judicious in their use of language. However, this is not to say that there have not been biases in the choice of terms to describe primate behavior. Biased terminology was a sufficient problem to warrant my devoting an entire chapter to language use in my general review of primate sex roles and social bonds. In the early 1980s, I identified two major forms of biases in the choice of terms to describe primate behavior: androcentrism and a preference for hostile and combative metaphors. I was certainly not the first or the only scientist to identify sexism in the language of primate behavior. Perhaps a single example will suffice. One type of social organization found in some primate species consists of several adult females who rear their young together in the presence of one adult male at a time (a uni-male, multifemale, or polygynous, system). This social system had been described by Darwin (1871) as “harems” ruled by “despots” or “masters” who “possessed” the females, and some of the early primate field studies reiterated such language. However, after a few years of study it became obvious that in almost all polygynous primate societies (hamadryas baboons being the exception), a network of related females forms the stable core of the group and males come and go—hardly our idea of a “harem.” Once it was recognized that these sorts of terms were very inappropriate to the actual behavior of most primate species, they were largely dropped. However, the hostile and combative metaphors have been harder to discourage. I wonder what comment it makes on our scientific culture that anthropomorphic and value-laden terminology that connotes
sentimentality or "a warm fuzzy feeling" (e.g., "aunting" rather than "allomothering"; "kids" rather than "juveniles"; "babies" rather than "infants") has been mainly rejected whereas equally anthropomorphic terms that imply belligerent or ethically undesirable imagery in the human context (e.g., rape, cheaters, suckers, selfish) are still widely used and accepted.

One more area of language use that has changed in primate studies concerns the active/passive connotations of how we describe the behavior of the animals. For example, there used to be two terms to describe the sexuality of female animals: attractiveness (is she attractive to the male?) and receptivity (does she accept male advances?). In other words, the female was seen as a passive resource for males. In 1976, Frank Beach pointed out that estrous female mammals often take the initiative in approaching, investigating, and soliciting sex. He called this phenomenon "proceptivity," and it has since come to be extensively used for and documented in female primates.\(^{41}\)

Haraway identified the granting of agency as an important component of the situated knowledges of feminists and pointed out that primatologists (mainly but not only women primatologists) have activated the previously passive category of the female body and of female sex.\(^{42}\) This activation of females is part of a larger move in primatology and anthropology to depict the "object of study" as an actor or agent rather than as a passive resource. In primatology, the granting of agency to the animals has been part of two larger moves: the modernization of sexual selection theory and the cognitive revolution. The theory of sexual selection developed by Darwin over a century ago consists of two main principles: male-male competition and female choice.\(^{43}\) Although male-male competition has been studied over the past hundred years in great detail in many species, female choice of mates (and indeed male choice of mates and female-female competition) has only been well studied over the past couple of decades. Until recently, scientists have shown little enthusiasm for Darwin's idea that female animals could act as selective forces through the careful choice of their male mates and thus influence the evolutionary direction of modifications in male appearance and behavior.\(^{44}\) Similarly, scientists used to be reluctant to consider what goes on in the minds of animals and, under the influence of the theory of "behaviorism," assumed that animals mainly reacted to their environment without mental reflection. Therefore, primate society used to be depicted as very much structured by "brute force": the biggest, strongest individuals ran the show, the alpha male got all the females and produced all the infants, and so on. Then, as part of the cognitive revolution, primatologists began to
investigate the possibility that primates think before they act, that they are sentient creatures who are able to remember past events, to recognize relationships among others along kinship and dominance lines, and to predict the consequences of their actions and those of others. This new granting of agency to primates is reflected in the language that is now used to describe their behavior—"social strategies," "skilled tacticians," "primate politics" (the ability to "finesse" instead of fight one's way to success), "deception," "peacemaking," and so forth. Recognizing the cognitive abilities of our fellow primates, especially their strategic skills, gave us an explanation for the widespread finding from field studies that the most influential individual in the group is not usually the largest or strongest male. It may also help to explain the startling findings from DNA paternity studies that infants born to ape and monkey groups in the wild are not always fathered by the males of the group, even when the females appear to be subordinate to these males and mating only with them.

Tool 7: The Remaking of Theoretical Understandings

Schiebinger notes that there has been controversy about how deep gender analysis goes and whether feminists have contributed to the remaking of the theoretical understandings of a discipline or just "added females" to the mix. The idea that in scholarship women are the fact gatherers and men are the theoreticians seems to be pervasive although seldom stated in print or studied directly. In her consideration of the gender of theory, Catherine Lutz has argued that the lines separating theory from nontheory are fuzzy, that theory is intentionally or unintentionally signaled to and picked up by readers as more associated with male scholarship than female scholarship, and that feminists have continually pressed against the dualism of theory and practice. This latter point was brought home to me by Naomi Quinn, who referred to some of my own work as theoretical when I thought of it as merely a critique. As she pointed out to me, "How does any new theory arise except in the context of other theory?"

One of the "signals" of theory is that it is more abstract, original, and generalized than other writings and that it articulates thoughts not spoken or published before. Bruno Latour put this last characteristic of theory somewhat differently. He argued that it is important to document the "interesting differences" made by women scientists, differences that have shown primates to us in a new light or allowed primates to "speak" to us in new ways. Using this understanding of theory, I would like to address some specific cases where primatologists have been instrumental in allowing female primates to become
significant social actors or where they have created new "setups" (to use another Latour term) that changed our perceptions of female primates. In the field of primatology, there have been many such important theoretical breakthroughs, brought about by the ideas of both women and men. Some of these I have briefly described already or Haraway has valorized in her widely read analysis of primatology; others are lesser known. Although I recognize the many pitfalls of providing a simplified list of important theoretical insights first developed by individual primatologists, in the interest of space (and in the interest of including mention of people who are not well known outside their science) I offer here brief synopses of some of the important work by primatologists that has remade our theoretical understandings of female animals and the relations between these females and the males with which they live. This list is neither exhaustive nor representatively sampled; it is rather what comes to my mind when I think of theoretical advances that changed our understanding of female primates.

1. Several researchers contributed new insights about principles of baboon behavior that re-created the world of social baboons (and thus the generalizations about all social primates) from a male militaristic model to a representation in which females as well as males play active roles. For example, Altmann conceptualized and documented female baboons as "dual career mothers" with the capacity to feed themselves and their nursing offspring, to form long-lasting kinship bonds, to act as repositories of ecological knowledge, as well as to rear their young. Thelma Rowell spearheaded the critique of the "male dominance" model of baboon social life and argued that dominance may be more characteristic of human primatologists than it is of the nonhuman primates, and that its common appearance in baboons and macaques might be the result of human-induced conditions in captivity. Shirley Strum documented how individuals with real power are those who can mobilize allies rather than those who can push through with brute force; they rely on systems of social reciprocity, which they actively construct. Barbara Smuts developed a model of "friendship" in baboons that showed how adult males slowly become accepted members of matrilineal societies by ingratiating themselves with individual females and their infants.

2. Richard Wrangham modeled primate society as one where females first distribute themselves according to the resources (food and water) available, and males then distribute themselves according to the spatial and social pattern of females available. This idea was enor-
mously influential in moving us away from a concept of male primates as "owners" of females, because Wrangham's model causes us to think of female patterns of distribution and female sociality as being prior to that of males.

3. Donald Sade recognized from his long-term studies of rhesus monkeys that female kinship bonds are the fundamental structuring principle of most Old World monkey societies. Although many others contributed to this important theoretical understanding (especially Japanese primatologists), Sade published several influential papers exploring the implications of his findings that affiliative interactions occur mainly among matrilineal kin, that mothers avoid mating with sons, and that groups fission along kinship lines.56

4. Sarah Hrdy is well known outside the discipline of primatology for her theoretical contributions to sociobiology.57 She brought female strategies and a female perspective into sociobiological theory, she reformulated female primates as active strategists and competitors, and she conceptualized female behavior as adaptive strategy. In her work on infanticide she has both developed and tested the hypothesis that adult males kill infants fathered by other males as an adaptive strategy to promote their own reproductive success.58 Although Hrdy considers herself a feminist sociobiologist, the theories of sociobiology have been distasteful to many feminists, which has given rise to the contradictory treatment she has received in the feminist science literature.59

5. Michael Huffman, Charles Janson, Joseph Manson, and Meredith Small examined the ways in which female primates choose their mates and express their preferences.60 Small in particular has developed generalizations about the principles by which mate choice operates in primates. As noted above, scientists took nearly one hundred years to get around to documenting this essential principle of sexual selection theory first proposed by Darwin, but since then the study of female choice has been a key factor in remaking our theoretical understanding of relations between the sexes.

6. Karen Strier showed us that contrary to the popular image of the aggressive, competitive male primate, many New World monkey societies (primarily those of the atelines) include philopatric, affiliative, closely bonded adult males, as well as females who transfer between groups.61 Strier has been at the forefront of challenges to the generalizations we have all developed about primates based only on the well-studied Old World primates, especially the baboons, macaques, and chimpanzees, and she has encouraged us to acknowledge and incorporate into our theories the many forms that male and female relationships may take in primate societies.62
7. Several other important insights into how primate societies function have come from the more recent studies of New World monkeys. For example, group movement patterns are a useful indicator of social dynamics, coordination, and power. Many primatologists have assumed that dominant males determine the direction of group movement, although it is usually difficult to tell who is leading whom. Sue Boiniski demonstrated that high-ranking adult female capuchins use a particular vocalization and body stance to draw the group's attention to the intended direction of her travel, and the group then moves in the same direction as the signaler.\(^6\) This suggests that it may not be the animal out in front, but the one giving a particular set of signals, and the ones with greater historical knowledge of group ranges (in this case, the philopatric females), who are influencing group movement.

8. Carolyn Crockett, Kenneth Glander, and Margaret Clarke have shown that in societies of New World monkeys such as howlers where adolescent females transfer between groups, and therefore do not have kinship bonds with the other adult females of their groups, female-female competition can be fierce to the point of fatal wounding.\(^6\) This challenges the stereotypical view of female primates as always being the affiliative forces in society.

9. Devra Kleiman and Patricia Wright drew our attention to the extensive parental care shown by adult males in monogamous primate societies and developed explanations for the conditions under which male care and monogamy are adaptive in primates.\(^6\)

10. The more recent studies of prosimian primates have also challenged some of our assumptions based only on the Old World monkeys and apes. For example, Alison Jolly, Michael Pereira et al., and Alison Richard brought dominant female lemurs to our attention and helped to develop an evolutionary and ecological model of the conditions under which it is advantageous for female primates to be dominant over the males of their groups.\(^6\)

Although there are other examples of how our theoretical understandings of female primates and of male-female relationships have been remade, I hope that these ten will suffice to show that primatologists have been very concerned to provide a more complete picture and a greater critical awareness of the roles of females in primate societies and to disassemble old sex role stereotypes.

**Tool 8: Challenges to What “Counts” as Science**

It is fairly common in the feminist literature to point out that bodies of knowledge more associated with women are often categorized as
"nonscientific"—home economics, family studies, and nursing, for example. Schiebinger argues that gender analysis has challenged what "counts" as science. I would like to briefly describe two areas in which some Western primatologists, mainly women, have challenged what counts as primatological science: empathy as means of understanding the animals and "mission" science.

Empathy is the projection of one's own feelings and thoughts onto the emotions and behavior of another and thus is quite similar to anthropomorphism, the primary taboo in primate studies, which I have already briefly discussed. Although few Euramerican primatologists have dared to suggest that they employ empathy to better understand their subject matter, the exceptions that I can think of have almost all been women (several of them also on our list of self-declared feminists): Hrdy, Rowell, Sicotte and Nisan, Small, and Strum. The primary exception to this gender coding of empathy as feminine in North American primatology comes from the senior and respected animal behavior field-worker George Schaller, who said that much of what we understand about primates we do through intelligent empathy. Another exception comes from Japanese primatology, which developed simultaneously and independently of Western primate studies and in which most practitioners are men who use "empathetic understanding" as a scientific tool. Empathy is a two-edged sword for women primatologists in North America and Europe because their hard work can easily be dismissed as some form of "female intuition," and because admitting to empathy can jeopardize one's reputation as an objective observer. It seems that not only is it taboo to employ empathy as part of one's scientific tool kit, but most scientists are even reluctant to talk about it in print or to analyze the roles that it might play in our work. At the moment, it is certainly not thought to count as science outside Japan.

Mission science in primatology mainly takes the form of conservation work. Although many men (Russ Mittermeier being the most famous) and indeed most field primatologists are necessarily involved to some degree in conservation of the species they study, I would like to consider for the purposes of this chapter the example made famous by the media: the "trimates," Jane Goodall, Dian Fossey, and Birute Galdikas. There are other more in-depth analyses of these three women and their work, but I want to focus here on only two aspects: their perseverance and their willingness to sacrifice scientific success in order to devote themselves to conserving and enhancing the living conditions of the great ape species that they have worked with for so long. Obviously, other primatologists have also carried out longitudinal research,
but the fact that Jane Goodall is still overseeing field research on the chimpanzees of Gombe forty years after she first began is truly remark-
able. Dian Fossey’s research was of course cut short by her untimely death, and Birute Galdikas has run into problems renewing her permit to carry out research at her field site, but her students and field assis-
tants continue it for her. Each of these women decided at some point in their long careers that the need to save the endangered species they study is greater than the need to save their reputation as pure and productive scientists, and each has suffered from the diminished re-
spect that some scientists accord to popularizers of science and to those who break ranks by placing their politics on a par with, or above, their science. I do not wish to turn these women into saints or martyrs, for that they certainly are not. However, Haraway’s description of Jane Goodall as the “Virgin Priestess in the Temple of Science” certainly seems apt when one sees the masses of people lined up for a simple touch of her hand.\textsuperscript{23} Not only have these three women primatologists triggered a major tide of public goodwill and funding for primates and the scientists who study them, but their example has also encouraged many young people, particularly young women, to enter this disci-
pline. And they have played an important role in making conservation and animal welfare a very active and recognized part of the science of primatology. Conservation symposia are now the most widely att-
tended sessions at national and international conferences of primatol-
ogy, and the \textit{International Journal of Primatology} flags with a special symbol all articles published on endangered species. I would argue that the courage of Goodall, Fossey, and Galdikas to break ranks and their challenge to what counts as science have been crucial in legitimizing mission science as an accepted aspect of primatology.

\textbf{FEMINIST PRIMATOLOGY—WHAT’S IN A NAME?}

In the previous section, I have provided numerous examples of primatologists using the tools of gender analysis identified by Schiebinger as methods commonly employed by feminists to help create woman-
friendly science. The literature on gender and science indicates that there are at least three fundamental ways in which feminism can influence a science: (1) it can create more opportunities for women to enter and succeed in science (which has no further implications for change in science if women “do science” just like men); (2) it can increase gender awareness or gender sensitivity in the practitioners of a sci-
ence;\textsuperscript{24} and (3) it can alter the working dynamics of a science (e.g., power relations, gender symbolism) through the practices of well-
established scientists who are also feminists. I would argue that primatology has exhibited changes over the past fifty years of its existence that provide substantial evidence for all three types of influence. First of all, our discipline has included higher and higher proportions of women practitioners,\textsuperscript{75} and these women are holding more of the important societal offices of our profession (e.g., a recent past president of the International Primatological Society was Alison Jolly, and there have also been women presidents of the American Primatological Society). Second, the many examples that I provided above of primatologists changing their minds, their descriptions, and their research foci to recognize and document the “achieving female primate” are in part the result of increasing gender awareness in primatologists. Few North American primatologists today would refer to a polygynous society as a “harem” or treat females as if they were passive resources for male competition. Third, I have given examples of the few but powerful women primatologists who identify themselves as feminists, such as Sarah Hrdy and Jeanne Altmann, and who have played significant roles in rectifying the early androcentric biases of our field.

Why then do so many primatologists distance themselves from any association with feminism and deny that they have been influenced by feminism? I will offer three possible reasons based on my knowledge of, and conversations with, primatologists. First, I think that there is an underlying concern that our science not be perceived as “feminized,” because of the widespread belief that feminized disciplines become devalued.\textsuperscript{76} Most scientists do not perceive a difference between a feminine science and a feminist science and so would confuse the influences of feminism on science with “doing science in a feminine way” (i.e., “science with pink ribbons” as my colleague Shirley Strum puts it). Primatology is a quantitative science with a vital component of evolutionary biology and a strong association with other fields coded “masculine,” such as anatomy, physiology, neurology, paleontology, and quantitative ecology. Training for both lab and fieldwork is rigorous, and many primatologists feel that all the media attention to women primatologists holding baby apes will project an incorrect image of a “sissy science.”

Second, like scientists everywhere, primatologists distance themselves from anything perceived as political, because “politics” implies bias and failure to adhere to the scientific credo of objectivity. As Schiebinger has pointed out, feminism is a dirty word in North America and has many negative connotations to scientists.\textsuperscript{77} Much of the science studies literature refers back to C. P. Snow’s classic description of the “two cultures” of science and humanism, two cultures that still
hold sway and are dichotomized in the minds of scientists. Most of the primatologists I know see themselves as scientists, whereas they classify feminists as non-scientists. They are at least vaguely aware of the “science wars” and often assume that feminists must be on the other side. An interesting point, worthy of study, is how and why scientists classify certain theories as political (e.g., any feminist theory) and other theories as nonpolitical (e.g., sociobiology). One primatologist explained this distinction by saying that he does not carry his sociobiological beliefs home to the bedroom, whereas his wife does carry her feminist theories home. I suspect that the distinction between political and apolitical theory is often made on the basis of where the theory is thought to have originated—“in” or “out” of science. Since sociobiology was developed by scientists, it is perceived as nonpolitical in spite of its strong implications for, and widespread adoption by, conservative political groups in the United States. Feminism is perceived by primatologists as having been developed outside science, in fact as a critique of science, in spite of the work of influential and established feminist primatologists such as Sarah Hrdy, who is one of the few women (and perhaps the only feminist?) to be elected to the National Academy of Sciences.

Finally, many of the primatologists that I know hold a very idealistic view of science, a view that we inculcate, both consciously and unconsciously, in our students during their graduate training. Such a view has been called the “Legend of Science” by Steven Shapin and “Science with a Capital S” or “Science-Already-Made” by Bruno Latour. Holders of such an idealistic view tend to perceive science as operating in a different realm from all other human activities, a realm that is pure and objective and free from sociocultural influences. The messiness of the actual practice of primatology in the field and in the laboratory is not denied so much as it is de-emphasized or ignored. That the community of scientists insists on Science with a Capital S is exemplified in the “cleaning up” of what we report in our publications and grant proposals—our research would never be published or funded if we laid out all the influences, all the mistakes, all the blind alleys, and all the human controversy that are, in fact, an integral part of the work.

Many scientists see themselves as operating from a nonpartisan position, and they see feminists and other science analysts, who often focus on the untidiness of “science-in-the-making,” as a threat to their credibility and authority. Feminist theorists of science have often been at pains to point out the social influences on science and to suggest ways to improve science by making it more inclusive and egalitarian. That scientists and science analysts adhere to very different models of
science (outcome and norms vs. process and practice) was pointed out to me by Shirley Strum as we puzzled over the many difficulties that our workshop of scientists and science analysts experienced in attempting to discuss the factors that caused primatologists to change their views of primate society.\textsuperscript{80} Often we could not even begin our discussion of the history of ideas in primatology because the participants had such different views of what science is and how it works. We finally realized that we were enacting a local battle in the larger science wars and that C. P. Snow's model of two cultures still holds sway.

To return to the original puzzle at the heart of this paper: Why have so many primatologists incorporated feminist values if some of them so distrust feminism? Why not reject the tenets of feminism along with the label? Many primatologists I have talked to say that they changed their practices in order to make their science better, not necessarily because feminists thought they should do so but because it was right, scientifically right, to flesh out the picture of female primates, to consider questions from a female, as well as a male, perspective, and to research issues of concern to women as well as men. This suggests to me that the goals of feminists and of scientists may sometimes dovetail—at least the goal of producing a better, more inclusive science, one that incorporates the female perspective of both the primatologists and the animals that they study.

Haraway says that several of the women primatologists she interviewed in the 1980s reported affirmation and legitimization for focusing on females in their scientific work from the atmosphere of feminism in their own societies.\textsuperscript{81} The men she interviewed also reported legitimization for taking females seriously from the prominence of feminist ideas in their culture and from their friendships with women influenced by feminism. I agree with Haraway that feminism can be credited with creating the atmosphere for legitimizing a new sensitivity to gender issues on the part of primatologists. Thus I think that feminism has been a significant influence on the field of primatology as it exists today, and I have provided many examples of how primatologists have used tools of gender analysis to self-correct in response to the feminist critique of science. However, if feminism and primate science do represent two different cultures, then what we have here may be a case of cultural assimilation, where primatologists have incorporated those feminist values seen to be useful while continuing to reject the "name" and the activism of feminism, which in a scientist's view imply partisan assumptions. Whether primatology will ever move beyond its "two-
culture” perspective and its worries about pink ribbons and partisanship and truly become the goddess’s discipline remains to be seen.

NOTES

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9. Ibid.


33. Haraway, Primate Visions.

34. Hrdy, “Empathy.”


37. Schiebinger, Has Feminism Changed Science? 188–89.

38. Fedigan, Primate Paradigms.


44. Fedigan, Primate Paradigms.
46. Schiebinger, Has Feminism Changed Science? 189.
49. Haraway, Primate Visions.
51. Altmann, Baboon Mothers and Infants.
54. Smuts, Sex and Friendship in Baboons.
57. For example, Hrdy, The Woman That Never Evolved.
59. For example, Haraway, Primate Visions.


77. Schiebinger, Has Feminism Changed Science?
81. Haraway, “Morphing in the Order.”