

Primatologists Who Focus on Females/Gender

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Primatology is today, for several reasons, arguably a gender-inclusive science. First, the discipline includes a large and growing proportion of women practitioners. Second, leading figures of the discipline consider themselves feminists (e.g., Jeanne Altmann, Sarah Hrdy, Jane Lancaster). Third, primatology is widely recognized by science studies scholars as a feminist science (e.g., Schiebinger 2003). And finally, this science has shown itself to be responsive to prior criticism of gender bias and highly inclusive of issues relevant to women, females, and feminists.

Following earlier considerations of *why* this might be the case (e.g., Fedigan 2001), the present essay describes *how* this came to be the case only over time as the discipline of primatology amended early biases. Two heuristic devices are used to focus this essay: historical stages and transformation phases.

1. Primatologists at different stages of the discipline's history have addressed the enduring issue: "what is the social role of female primates?" In the 1990s, Shirley Strum and Linda Fedigan constructed a history of North American field primatology (e.g., Fedigan and Strum 1999) that characterized the science as having occurred in four distinctive stages, to which this essay now adds a fifth, more recent one:
 - Stage 1 1950–1965. The Natural History Phase
 - Stage 2 1965–1975. The Discovery and Enigma of Variability
 - Stage 3 1975–1985. The Sociobiological Era
 - Stage 4 1985–1995. Behavioral Ecology
 - Stage 5 1995–2005. Comparative Socioecology
2. A transformation model originally developed to characterize phases in the growing incorporation of women into the curriculum is also applied. Several scholars have proposed models to categorize steps in the transformation of curriculum. Rosser (1990) has expanded upon these models and shown how a recognizable set of phases can be

applied to the transformation of research and teaching about gender in the sciences.

- Phase 1 The Womanless Curriculum
- Phase 2 Women as an Addition to the Curriculum
- Phase 3 Women as a Problem, Anomaly
- Phase 4 Women as the Focus of Study
- Phase 5 A Gender-balanced Curriculum

This essay explores how a curriculum transformation model can be applied to the scheme of historical stages in primatology, with the goal of better understanding the steps in scientific transformation and the effects of changing gender beliefs on the discipline of primatology, a science that is widely recognized as gender inclusive. In the following adaptation of the transformation model, the word "females" is substituted for "women" and "science of primatology" for "curriculum."

1950-1965: Stage/Phase 1. Natural History/The Female-less Science

According to Rosser's adaptation of transformation models, the absence of women ("females") is simply not noted during the first phase of a science. This was arguably the case during Stage 1 of primatology from 1950 to 1965. Although a few attempts at scientific observation of nonhuman primates in the wild were made in the early part of the 20th century, primate field studies only flowered in the 1950s, after World War II. In this decade, the influential American anthropologist, Sherwood Washburn, promulgated the view that insight into human social evolution would be achieved through delimitation of a universal "primate pattern" and sent his graduate students to Africa and Asia to observe the social lives of monkeys. Simultaneously in Japan, Kenji Imanishi established a collaborative, descriptive method of studying sociality in primates and sent his students out to observe chimpanzees and macaques. In Britain, Robert Hinde recognized that studies of primates would shed light on the psychology of human behavior, particularly infant development and mother-infant relations. In Kenya, Louis Leakey pursued his hunch that clues to early hominid behavior would be revealed through the study of great ape behavior in nature and proposed that women would make better, more patient observers of animals. He recruited women, such as Jane Goodall and Dian Fossey, to go to Africa (and later Birute Galdikas to go to Borneo) to establish long-term field sites for the study of chimpanzees, gorillas, and orangutans. Washburn, Imanishi, Hinde, and Leakey mentored most of the early field primatologists, all of them dedicated to better understanding human behavior. Many of these scientists, at least in the West, were women who became the



Scientist and conservationist Jane Goodall with a stuffed chimpanzee in 1962. Famous for her groundbreaking work with chimpanzees in East Africa, Goodall became a passionate advocate for the humane treatment of animals used in biomedical studies. (Library of Congress)

foundling mothers of the discipline, such as Phyllis Dolhinow, Jane Lancaster, Thelma Rowell, and Jane Goodall. Another group of early primatologists (e.g., Stuart and Jeanne Altmann, Alison Jolly, and Alison Richard) were trained as field biologists. Whatever their disciplinary backgrounds and countries of origin, one theme common to field workers during this first period was the collection of as much natural history data as possible on the social lives of the primates they studied.

During the first and all subsequent stages of primatology, there was no debate about whether women were capable of arduous field research in the physically demanding, politically difficult conditions of Third World, tropical countries and remote habitats, far from the conveniences of modern life. It has always been assumed among primatologists that women are as capable of fieldwork as men, and sometimes that women are more so. This is not true in other disciplines with a large fieldwork component, such as geology, archaeology, and botany, where women have often been excluded from field projects, tacitly or otherwise. Perhaps because primatology is a disciplinary offshoot of anthropology, psychology, and ethology and because there was an established tradition of women field anthropologists (e.g., Margaret Mead), the problem of "women in the field" simply did not arise in the minds of even this first generation of primatologists.

A great irony of this stage is that the female primates being studied were almost exclusively portrayed in their roles as mothers who did not participate in group leadership, predator and resource defense, dominance hierarchies, or intergroup encounters. It was generally assumed that the role of females was to gestate, lactate, and rear the young and do little else of social significance.

Females were viewed as resources over which males would compete and that males would defend. There seems to have been a "disconnect" between the actual gender roles of scientists studying these animals and portrayal of their subjects. This was a postwar era that idealized mothers who stayed home to raise children while their husbands were out earning an income. The prevailing gender myth of the time had a greater influence on how primate sex roles were perceived than did the reality of what women and men were doing in this era. Alison Jolly (2000) has argued that this stage's emphasis on males as the primary social actors and females as behind-the-scenes players was a case of "gender unconsciousness," which certainly fits the theme of the first phase of transformation: absence of females not noted.

1965-1975: Stage/Phase 2. The Enigma of Variability/Finding the Missing Females

In Rosser's transformation model, it is during the second phase that researchers start to notice the absent females and to add females to the mix but without any serious change to the traditional framework. During this stage of primatology, a second wave of field studies occurred such that the same species (e.g., baboons, langurs, chimpanzees) were studied at different field sites. This research brought back unexpected news that the same species often behaved distinctively in different places and that newly studied species behaved much differently than expected on the basis of previously studied species. Thus Washburn's idea of a universal primate pattern collapsed and scientists began to search for sources of variability in social behavior. One source was recognized as the environment (e.g., langurs behave differently in crowded urban habitats versus rural, forest parks); another newly recognized source of variation was how the data were collected for each study (e.g., observer bias). In 1974, Jeanne Altmann published her classic paper codifying the sampling methods used in observational studies, which continues to be the most cited paper in animal behavior research. She demonstrated that all individuals (males, females, juveniles) must be observed for equal periods of time for any valid comparisons of behavioral patterns.

A further source of variation was change over time. During the prior stage, all field studies lasted less than a year. During the second stage, we began to reap the benefits of longer term studies. Japanese primatologists, following in Imanishi's collaborative tradition, were particularly tenacious and cooperative in their research, handing down their data and knowledge of the animals to the next researcher. From their studies, scientists realized that in many African and Asian monkey species, the adult males come and go, but the females remain in their social groups for life, forming matrines and stable dominance

hierarchies and maintaining years of knowledge about resources in their home ranges.

Even in species where females disperse and males stay in the natal area (e.g., chimpanzees), the vital social role of females beyond that of motherhood began to be recognized. In 1973, Jane Lancaster wrote a prescient article, entitled "In Praise of the Achieving Female Monkey," in which she articulated the many important social and ecological functions performed by female primates beyond that of mother. By the end of this stage, female primates were emerging from the wings of the social theater and moving onto central stage.

1975-1985: Stage/Phase 3. Sociobiology/Females as Anomalies

During the third phase of curriculum transformation, people begin to ask why there are not more females represented and why female experiences do not fit the prevailing models.

In primatology, by the end of Stage 2, many observations of behaviors had accumulated that resisted understanding through the currently available explanatory models of group selection; these included behaviors such as occasional killing of infants by adult males, conflict between mothers and infants during weaning, and infidelity by both male and female partners. Sociobiological theory did a remarkable job of formulating scientifically satisfying answers to these behavioral riddles. Sociobiology, which is actually a body of theories (e.g., kin selection, parental investment, and reciprocal altruism) shifted the unit of selection in evolutionary models from the group to the individual and ultimately to the gene. Behaviors that had previously been interpreted as altruistic were now interpreted as fundamentally competitive. The sociobiological approach to understanding behavior had such a revolutionary impact on animal behavior research during this era that it qualifies as a "scientific revolution" in the Kuhnian sense.

Although some social scientists and feminist critics of science were appalled at the implication of sociobiological theory that all behavior is ultimately, selfishly, directed toward improving the reproductive success of the individual/gene, the irony is that sociobiological thinking played a large role in the growing conceptualization of female primates as social strategists rather than pawns in male games. Initially in good part through the work of Sarah Hrdy (e.g., 1981), primatologists came to recognize that female animals are proactive, reproductive strategists rather than passive recipients of male initiatives. As noted by Rosser, Hrdy's early work certainly fits the "female as anomaly" theme for this phase of the transformation model. It was during this stage that Hrdy began to ask why the theories she had learned in graduate school did not fit her observations of female monkeys.

Indeed, during the latter part of this stage, many women primatologists became "gender conscious" and several influential works appeared that fleshed out the picture of how important female primates are in their societies. Jeanne Altmann wrote of baboon females as "dual career mothers"; Meredith Small edited a volume of studies on female primates by women primatologists. Thelma Rowell led a critique of the "male dominance model," and Adrienne Zihlman produced the "Woman, the Gatherer" model of human evolution based in part on primate data. Linda Fedigan wrote the first edition of *Primate Paradigms*, which pulled together data to show that the roles of female primates are far more powerful and wide-ranging than previously assumed. It is not a coincidence that growing focus on female primates between 1975 and 1985 occurred simultaneously with the second wave of Western feminism, which urged women scientists to take account of the female point of view.

1985-1995: Stage/Phase 4. Behavioral Ecology/Females as a Focus of Study

As formulated by Rosser, it is in the fourth phase of transformation that females become the focus of study. In primatology, this had already begun during the third stage, in part through the advent of sociobiology. One of the criticisms of sociobiological theory as initially applied in the previous stage is that it was deterministic and gave too much weight to the power of genes to directly control behavior. It is true that in the first rush of enthusiasm and defense against critics, sociobiological models of behavior were too simplistic, reductionist, and all-encompassing. Although sociobiological explanations are here to stay in the field of animal behavior, during Stage 4, primatologists moderated the deterministic explanations of the prior era and began to explore multicausal analyses. In particular, they worked on a more holistic approach that integrates environmental, social, and genetic processes.

It was also during this stage of primatology that many scientists produced theoretical insights that remade the understanding of female behavior. For example, during this era the reasons why many lemurs live in female-dominated societies, why adult males in monogamous societies show extensive parental care, why female baboons develop friendships with particular males, and why female monkeys are as competitive as males were explained.

During this stage, it was no longer necessary to keep pointing out that female primates are significant players in social life—that becomes one of the assumptions. Female behavior and relations with their kin, their young, and their mates were increasingly seen as highly variable combinations of cooperation and competition.

1995-2005: Stage/Phase 5. Socioecology/A Gender-Inclusive Science

In Rosser's transformation model, Phase 5 is the era when a science has been wholly redesigned and reconstructed to include everyone. It is a fully transformed, "balanced" science, an ideal phase that is almost impossible to achieve. Is this description typical of Stage 5 in primatology?

It is doubtful that a completely successful docking on this phase in the transformation of any discipline could be reached. The current stage of primatology, being closest in time, is the most difficult to characterize and to distinguish from the prior one. Nonetheless, primatology appears now as a "gender-balanced" science. Overtly female-focused studies and volumes are not so common in this stage as in the previous one. This could either be a sign that females are fully integrated and recognized in our science or an indicator that the interest in female perspectives was short-lived and faddish. One hopes for the former.

During the current stage of primatology, there has been much emphasis on testing socioecological models, in particular a model of the evolution of female social relationships and primate social systems proposed by Elisabeth Sterck. Accumulation of a sufficient amount of data on a variety of primates makes it possible to conduct informed, comparative analyses of the factors that affect female relations and how these relations among females in turn affect the overall social system of different primates. The assumption that female relations (with each other, with males, and with their environment) have a determining effect on male behavior has become so commonplace that it is no longer debated or remarked on. Female counterstrategies to male attempts at dominance are now so widely studied that "intersexual conflict" is a thriving area of research. Feminist theorists might prefer that cooperation between the sexes be an equally thriving area of research, but nonetheless, "sexual conflict" is a model of social behavior in which females play a role equal to that of males.

Conclusion

Rosser's adaptation of curriculum transformation models to an understanding of how a science can change over time toward a more gender-balanced perspective proves to be a useful way to think about the history of field primatology in North America. It would be too much to expect that every phase in the transformation model would correspond entirely to each of the stages in our previously reported history of primatology. Nonetheless, the progressive steps in the transformation model (e.g., from "gender unconsciousness"

to "search for the missing females," to "focus on females," to a more "balanced approach") can all be easily detected in the historical scheme of our discipline. This brief history of the progression through which primatology achieved its current gender-balanced status can be instructive as a model for the viability of transformation in other scientific disciplines. (See also Conclusion; Feminist Science Studies)

References and Further Reading

- Altmann, Jeanne. "Observational Study of Behavior: Sampling Methods." *Behavior* 49 (1974): 227-265.
- Fedigan, Linda M. "The Paradox of Feminist Primatology: The Goddess's Discipline?" In *Feminism in Twentieth Century Science, Technology and Medicine*. Edited by Angela N. H. Creager, Elizabeth Lunbeck, and Londa Schiebinger, 46-72. Chicago: University of Chicago Press, 2001.
- Fedigan, Linda M., and Shirley C. Strum. "A Brief History of Primate Studies: National Traditions, Disciplinary Origins, and Stages in North American Field Research." In *The Nonhuman Primates*. Edited by Phyllis Dolhinow and Agustín Fuentes, 258-269. Mountain View, CA: Mayfield Publishing, 1999.
- Hrdy, Sarah B. *The Woman that Never Evolved*. Cambridge, MA: Harvard University Press, 1981.
- Jolly, Alison. "The Bad Old Days of Primatology?" In *Primate Encounters. Models of Science, Gender and Society*. Edited by Shirley C. Strum and Linda M. Fedigan, 71-84. Chicago: University of Chicago Press, 2000.
- Lancaster, Jane B. "In Praise of the Achieving Female Monkey." *Psychology Today* 7 (1973): 30-36, 99.
- Rosser, Sue V. *Female-friendly Science. Applying Women's Studies Methods and Theories to Attract Students*. New York: Pergamon Press, 1990.
- Schiebinger, Londa. "Primatology, Archaeology and Human Origins: Feminist Interventions." In *Equal Rites, Unequal Outcomes: Women in American Research Universities*. Edited by Lilli S. Hornig, 247-256. New York: Kluwer Academic/Plenum, 2003.