

Evolution's Empress



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*Darwinian Perspectives on the
Nature of Women*

EDITED BY MARYANNE L. FISHER
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CONTENTS

Contributors xi

Overdue Dialogues: Foreword to Evolution's Empress xv
SARAH BLAFFER HRDY

Introduction to *Evolution's Empress* 1

MARYANNE L. FISHER, ROSEMARIE SOKOL CHANG,
AND JUSTIN R. GARCIA

SECTION ONE SEX ROLES, COMPETITION, AND COOPERATION 17

1. Women's Intrasexual Competition for Mates 19

MARYANNE L. FISHER

2. The Tangled Web She Weaves: The Evolution of Female-Female
Aggression and Status-Seeking 43

LAURETTE LIESEN

3. Getting by With a Little Help From Friends: The Importance of Social
Bonds for Female Primates 63

LIZA R. MOSCOVICE

4. A Sex-Neutral Theoretical Framework for Making Strong Inferences
About the Origins of Sex Roles 85

PATRICIA ADAIR GOWATY

SECTION TWO MOTHERS AND PARENTING 113

5. Mothers, Traditions, and the Human Strategy to Leave Descendants 115

KATHRYN COE AND CRAIG T. PALMER

6. Maternal Effect and Offspring Development 133

NICOLE M. CAMERON AND JUSTIN R. GARCIA

7. The Evolution of Flexible Parenting 151

LESLEY NEWSON AND PETER J. RICHERSON

8. Human Attachment Vocalizations and the Expanding Notion of Nurture 168

ROSEMARIE SOKOL CHANG

9. Fathers Versus Sons: Why Jocasta Matters 186

LAURA BETZIG

SECTION THREE HEALTH AND REPRODUCTION 205

10. Women's Health at the Crossroads of Evolution and Epidemiology 207

CHRIS REIBER

11. Fertility: Life History and Ecological Aspects 222

BOBBI S. LOW

12. Reproductive Strategies in Female Postgenerative Life 243

JOHANNES JOHOW, ECKART VOLAND, AND KAI P. WILLFÜHR

13. Now or Later: Peripartum Shifts in Female Sociosexuality 260

MICHELLE J. ESCASA-DORNE, SHARON M. YOUNG, AND PETER B. GRAY

SECTION FOUR MATING AND COMMUNICATION 279

14. Sexual Conflict in White-Faced Capuchins: It's Not Whether You Win or Lose 281

LINDA FEDIGAN AND KATHARINE JACK

15. The Importance of Female Choice: Evolutionary Perspectives on Constraints, Expressions, and Variations in Female Mating Strategies 304
DAVID A. FREDERICK, TANIA A. REYNOLDS, AND MARYANNE L. FISHER
16. Swept off Their Feet? Females' Strategic Mating Behavior as a Means of Supplying the Broom 330
CHRISTOPHER J. WILBUR AND LORNE CAMPBELL
17. Sex and Gender Differences in Communication Strategies 345
ELISABETH OBERZAUCHER
- SECTION FIVE NEW DISCIPLINARY FRONTIERS 369
18. A New View of Evolutionary Psychology Using Female Priorities and Motivations 371
TAMI MEREDITH
19. From Reproductive Resource to Autonomous Individuality? Charlotte Brontë's *Jane Eyre* 390
NANCY EASTERLIN
20. The Empress's Clothes 406
JULIE SEAMAN
21. Consuming Midlife Motherhood: Cooperative Breeding and the "Disestablishment" of the Biological Clock 423
MICHELE PRIDMORE-BROWN
22. The Quick and the Dead: Gendered Agency in the History of Western Science and Evolutionary Theory 439
LESLIE L. HEYWOOD
- Index* 463



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xiii

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OVERDUE DIALOGUES: FOREWORD TO EVOLUTION'S EMPRESS

SARAH BLAFFER HRDY

Essays in this book promote long-overdue conversations between Darwinians and feminists. The delay is understandable, if short-sighted on both sides. For all its originality and power, Darwin's view of human nature was distorted by overly narrow, often misleading stereotypes about females. In writing his classic account of *The Descent of Man and Selection in Relation to Sex*, Darwin assumed that "the most able men will have succeeded best in defending and providing for themselves, their wives and offspring" (1871/1981, Part II: 383) and that offspring sired by hunters with "greater intellectual vigor and power of invention" would be most likely to survive. Invoking his theory of sexual selection, which combines male-male competition followed by female choice of the winning male (easily the most original of Darwin's many brilliant ideas), Darwin assumed that women would preferentially select as mates the best and the brightest of provider/defenders and thereafter single-mindedly devote themselves to rearing that male's young. With selection acting more strongly on this vigorous and active sex than on what Darwin regarded as the more "passive" female sex, it followed that men would attain "a higher eminence, in whatever he takes up, than woman can attain— whether requiring deep thought, reason, or imagination" (1871/1981, Part II: 327). Altogether, it was a very neat, internally consistent—if entirely androcentric— package, leaving out crucial female contributions to subsistence as well as all the strategizing females engage in to ensure their local clout and the survival of any young at all.

Over time, this bias grew more pronounced among some of Darwin's disciples, persisting to the present day. No wonder many of those in the humanities and social sciences subscribed to Virginia Woolf's assessment: "Science it would seem, is not sexless; she is a man, a father, and infected too" (1938). Feminists were understandably put off by more than a century of male-centered constructs, including constructs whereby our ancestors evolved big brains so that males

could outwit competitors or collaborate with one another the better to kill game or prevail over neighboring groups, or evolved to walk upright so males could carry meat back to females and offspring who waited back at camp (e.g., Lovejoy, 1981, among many other distinguished evolutionists). Feminists wrote off biology as a field unhelpful to women seeking either to improve their lot or to better understand themselves. But these same feminists may be surprised by the very different scenarios and highly variable female organisms that emerge from the pages of this book.

Over the last four decades a growing assortment of sociobiologists and evolutionary-minded anthropologists and psychologists have started to employ a wider angled evolutionary lens to study a range of creatures including humans. The result is a more accurate picture encompassing the evolutionary interests and perspectives of females as well as males, along with selection pressures across the life course beginning in utero and continuing long after women cease to be fertile.

And what of generations of Darwinians whose confidence in their own objectivity led them to ignore feminist critiques as too ideologically motivated to merit attention? A growing number of them as well are beginning to recognize that no amount of hypothesis-testing and extra data-collection matter if hypotheses being tested are built on flawed or seriously incomplete starting assumptions. A few of these committed evolutionists are even wondering out loud how it was possible that sex differences apparent in some species could have been projected onto nature at large without taking into account just how flexible sex roles between and within species often are (especially Gowaty, this volume). How could widely accepted assumptions about *universal* sex differences have persisted and shaped evolutionary theorizing for so long after abundant evidence contradicting such presumptions had been reported? How could mainstream scientists ever have taken it as granted that females were too preoccupied with nurturing to compete in wider spheres, as in this statement: “primate females seem biologically to dominate political systems, and the whole weight of the relevant primates’ breeding history militates against female participation in what we can call ‘primate public life’” (Tiger, 1977, p. 28)? How could the finest textbook in the field back in the 1970s have so casually pronounced that “most adult females . . . are likely to be breeding at or close to the theoretical limit” while “among males by contrast there is the probability of doing better” (Daly & Wilson, 1978, p. 59), with the obvious implication that somehow what matters most is competition between males for mates? (Hint: sometimes it does, except when it doesn’t!) Given just how much evidence there was before our eyes, why did so many years elapse before stereotypes about sexually “ardent” males and universally discriminating “coy” females started to be challenged (e.g., Hrdy, 1986/2006) and before long-standing stereotypes about evolved female nature were revised (Angier, 1999; Eckholm, 1984; Gowaty, 1987)?

Right along with Darwin’s immense curiosity, powers of observation, imagination, and diligence, one of his great strengths was humility. Darwin fretted

constantly that he might be wrong. Were he alive today, I imagine he would be at the fascinated forefront studying the new and highly variable female life-forms taking shape from behind the shadows of biased presumptions. I would even go so far as to speculate that Darwin himself might entertain a novel twist to his own theory of sexual selection. Quite possibly it was in the interests of well-born men in social contexts where males are considered superior, control resources, and dominate females, *not* to notice certain things about their daughters and wives. Even the most well intentioned and upright of gentlemen could go right on believing that a woman was naturally inclined and even eager to give birth to one closely spaced child after another, devoting herself single-mindedly to their care while lovingly and charitably also devoting her (naturally empathetic) Emma-like nature to improving her husband's quality of life. In patriarchal worlds where inheritance and property rights overwhelmingly favored sons, where paternity mattered a great deal, women's autonomy was highly constrained. In societies where any challenge to a woman's chastity would be disastrous, no wonder a woman might prefer to preserve herself for the one "best"— which of course was too often taken to mean the most propertied— male. And well might the discretion of such a woman lead to the impression (as the famous medical authority of Darwin's day William Acton put it) that "the majority of women (happily for them) are not much troubled with sexual feelings of any kind" (Acton, 1865, pp. 112–113). How convenient to assume that if women behaved passively, opted out of "primate public life," or remained monandrous, it was because they were naturally inclined to do so! Such blinders would have eased the existence of a kindly Victorian gentleman, while also enhancing his professional as well as reproductive success.

Whatever their sources, Darwin's blind spots constituted a highly adaptive obliviousness shared by a succession of brilliant researchers in the evolutionary sciences. I still vividly recall a conversation with an eminent British zoologist about the many newly recognized sources of variance in female reproductive success and the question of why their recognition had been so long in coming. "Females were just harder to study," he told me, with a perfectly straight face. Note that this was in the 1980s, before fieldworkers had ready access to noninvasive methods for determining genetic paternity. Variation between the lifetime reproductive success of females should have been, if anything, easier to measure than that of males.

So what changed? A great deal! The transformations can be detected in the way psychologists and anthropologists interpret an increasingly broad range of human behaviors (e.g., see chapters by Moscovice; Newson & Richerson; Escasa-Dorne, Young, & Gray; Fedigan & Jack) as well as those by scholars with backgrounds in political science, law, comparative literature, and gender studies (e.g., chapters by Liesen, Easterlin or Pridmore-Brown). In my own case, the process began as I increasingly began to identify with the female monkeys that I studied in the arid zone forests of Rajasthan. Observing them day after day, I could not help but

empathize with langur mothers, who every 27 months on average had to cope with the appearance in their midst of a new male bent on killing infants sired by his predecessor. By this point in the 1970s, feminist critiques of science were also (however awkwardly and belatedly) percolating into my consciousness. I was increasingly aware of the disconnect between evolutionary generalizations by mentors (all male in those days) and the sexual, maternal, and competitive emotions I routinely noticed and experienced firsthand.

Thus when the behavior of females I was watching failed to conform to theoretical expectations, instead of dismissing seemingly idiosyncratic antics I grew curious. Rather than write off as insignificant the behavior of females who temporarily left their groups to sexually solicit strange males (even females who were already pregnant so hardly after the “best” genes), I tried to imagine why a female would ever do so. A field study originally focused on a particularly striking male reproductive strategy (eliminating the offspring of rival males so as to compress female fertility into his tenure of access) expanded to include an array of previously undreamed of female counterstrategies, such as females engaging in not-possibly-conceptive matings with extragroup males so as to manipulate information about paternity (Hrdy, 1977, 1981). Over time, I began to rethink why women like myself would ever feel conflicted or ambivalent about motherhood and recognize how impossible it would have been for the apes in the line leading to the genus *Homo* to evolve had mothers *not* been able to rely on help from a wider range of others (allomothers of both sexes) than previously supposed (Hrdy, 1999).

It is by now clear from many sources that throughout the evolution of our species, the majority of conceptions and births ended in untimely demise. And if so, female status-striving and quests for autonomy, and quite a bit else that mothers, older sisters, grandmothers, and others do to ensure at least some infants remain safe from predators and conspecifics and well-enough fed and positioned so as to prosper long enough to breed themselves, would have rendered the female sex wide open to Darwinian selection in realms far broader than simply choosing the “right” mate and then committing to every fetus conceived, selflessly rearing every baby born.

Can the f-word “feminist” so dreaded by empirically minded scientists introduce sources of bias? Yes, of course it can, and sometimes does. But keep in mind just how often the same rigorously scientific intellects that once were bent on rejecting any taint of feminist thought failed to notice how “masculinist” were the models they themselves had so long endorsed. It is important to acknowledge and recall this history lest old biases creep back in.

As I employ the term “feminist” it simply refers to anyone, male or female, who advocates equal rights and opportunities for both sexes. In an evolutionary context, this means paying equivalent attention to selection pressures on females as well as those acting on males. “Feminism” becomes political only when countervailing biases deny females equal consideration, which of course in the case of

much early Darwinian and especially social-Darwinian (Spencerian) theorizing, they did. Rather than introducing new sources of bias, or seducing researchers into politically correct positions unsupported by evidence, feminist critiques led many of us to revise incorrect starting assumptions. Eyes newly opened to old sources of bias started to see females who were competitive and sometimes violent (see especially the chapters by Liesen and Fisher) as well as affiliative and cooperative, females who could be nurturing in one context and quite destructive in another and also, as in almost all primates, often characterized by decidedly polyandrous tendencies. Such females were every bit as strategic as males. Indeed in some species (Cercopithecine monkeys come to mind) a daughter's rank—and with it her reproductive success—is determined by her mother's, while in other species the mother's rank influences the reproductive success of sons. This is the case among bonobos, muriqui monkeys, and under some circumstances among humans as well (see the “empresses” in Laura Betzig's chapter of this volume!). The female status-seekers and perpetuators in these instances are anything but uninvolved in “primate public life,” often playing for more enduring stakes than males do. Read on and see for yourselves.

References

- Acton, W. (1865). *The functions and disorders of the reproductive system* (4th ed.). London: Churchill.
- Angier, N. (1999). *Woman: An intimate geography*. Boston: Houghton Mifflin.
- Daly, M., & Wilson, M. (1988). *Sex, evolution and behavior*. North Scituate, MA: Duxbury Press, p. 59.
- Darwin, C. (1871/1981). *Descent of man and selection in relation to sex* (Facsimile of 1871 edition published by J. Murray, London). Princeton, NJ: Princeton University Press.
- Eckholm, E. (1984). New view of female primates assails stereotypes. *New York Times*, Sept. 18, 1984.
- Gowaty, P. A., (Ed.). (1997). *Feminism and evolutionary biology: Boundaries, intersections and frontiers*. New York: Chapman and Hall.
- Hrdy, S. (1977). *The langurs of Abu: Female and male strategies of reproduction*. Cambridge, MA: Harvard University Press.
- Hrdy, S. (1981). *The woman that never evolved*. Cambridge: Harvard University Press.
- Hrdy, S. (1986/ 2006). Empathy, polyandry and the myth of the coy female. In E. Sober (Ed.), *Conceptual issues in evolutionary biology* (3rd ed., pp. 254–256). Cambridge, MA: MIT Press.
- Hrdy, S. (1999). *Mother Nature: A history of mothers, infants and natural selection*. New York: Pantheon.
- Knight, J. (2002). Sexual stereotypes. *Nature*, 415, 254–256.
- Lovejoy, O. (1981). The origin of man. *Science*, 211, 341–350.
- Tiger, L. (1977). The possible biological origins of sexual discrimination. In D. Brothwell (Ed.), *Biosocial man*. London: Eugenics Society.
- Woolf, V. (1938). *The Three Guineas*. New York: Harcourt, Brace and World.

