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Sisters Are Doing It for Themselves (and Always Have)

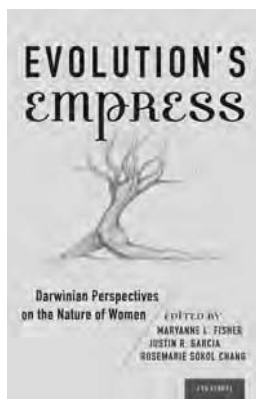
Evolution's Empress: Darwinian Perspectives on the Nature of Women. Maryanne L. Fisher, Justin R. Garcia, and Rosemarie Sokol Chang, eds. Oxford University Press, 2013, 512 pp., illus. $85.00 (ISBN 9780199892747 cloth).

It is always nice to spread a little joy into the lives of others, and *Evolution's Empress: Darwinian Perspectives on the Nature of Women* has offered me just that opportunity. "What's that you're reading?" people would ask, and when I told them that it was a book bringing together evolutionary psychology and feminism, gales of delighted laughter inevitably followed. It is, it seems, quite ludicrous to attempt such a union—a bit like Dick Cheney running off with Angelina Jolie to live in a hippie commune—but is it really a laughing matter? Is it so ridiculous to suggest that feminist theory has a place in evolutionary thinking?

Evolution's Empress attempts to answer these questions firmly in the negative, by both argument and empirical demonstration. The book's success is somewhat mixed, but one must applaud the attempt and, in particular, the bold, unapologetic style of editors Maryanne Fisher, Justin Garcia, and Rosemarie Sokol Chang. This defiance manifests not only in their robust argument for a feminist approach to evolutionary psychology but also in their criticisms of evolutionary psychology itself—a rarity in most discussions within the field.

Indeed, a certain kind of siege mentality is often seen among evolutionary psychology advocates, with any questioning of results or interpretation derided as "antievolutionary" or, worse, "antiscientific." In their introduction, Fisher and her colleagues raise this exact issue, arguing that this mindset arises partly from a long-standing and general resistance to evolutionary theorizing in the social sciences. They suggest that resistance might be chipped away more effectively if the field itself were held to more critical and more rigorous standards of hypothesis testing and supporting proof.

Similar criticisms also apply to feminist theory, of course, and the opening chapter of *Evolution's Empress* is exemplary in presenting a clear, fair-minded assessment of the present condition of both fields. They make a cogent and convincing case that greater interaction between feminist and evolutionary scholars would require both sides to consider the other's data and arguments more seriously, thus improving the overall levels of rigor and thoughtfulness. In this sense, even if one considers feminist and evolutionary psychological approaches to be incommensurable research paradigms, one can recognize the value of such pluralist thinking and welcome and support those who engage in it.



In addition to generally raising awareness, the main goal of *Evolution's Empress* is to emphasize that females (of any species) are neither coy nor passive but are, like males, reproductive opportunists with an active role to play shaping their own lives. In this respect, the book is very successful. In particular, the chapter by Patricia Gowaty is a marvelous read, highlighting the question-begging nature of traditional evolutionary approaches to sex differences and presenting an alternative, sex-neutral theoretical framework to test ideas about the origins of sex roles. This questioning of assumptions and a willingness to return to first principles is clearly what is needed—not just to incorporate an active female perspective into evolutionary theory but to ensure that researchers avoid the trap of overemphasizing females at the expense of males. Gowaty's individual-based approach, which allows sex roles to fall out of the analyses, does this.

Similarly, Linda Fedigan and Karen Jack's chapter on sexual conflict in capuchins raises valuable points regarding how our use of language pushes us to conceive and test particular hypotheses in particular ways. For instance, female behavior is generally characterized as a "counterstrategy" to male behavior, and this approach inevitably places males in the active roles and relegates females to the merely reactive. This kind of reflexive appraisal of the way we present our research questions is brought to our attention in the book, as is how we might work toward recognizing and then eliminating certain linguistic biases. This is also an example of how social science theory can help the natural sciences.

To fully bring feminism into the evolutionary psychology conversation requires more than just redefining terms, however, but rather, a reconsideration of how to establish the female's active role in the entire evolutionary process. This is a point worth emphasizing, because, elsewhere in the book, a simple change in language is seen as sufficient. A case in point is the chapter on women's strategic mating behavior by Christopher Wilbur and Lorne Campbell, which contains an extended discussion on findings related to humor as a mate-choice characteristic. Whereas women were formerly described as passive appreciators of male humor, Wilbur and Campbell suggest

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that they are "active and prudently evaluating men's humorous displays" (p. 339). Nevertheless, the empirical evidence to suggest that men are the *producers* of humor and that women are the recipients goes largely unexamined, with no effort made to detect potential biases that may have shaped how such studies are conducted. At best, it appears as if women are actively allowing males to place them in the passive recipient position. This lack of a more critical approach seems to be an opportunity missed, given that this is exactly the kind of finding where a more extensive feminist reappraisal might pay dividends.

Another point of contention found in the book is the thorny issue of the naturalistic fallacy. At the end of a very interesting and thought-provoking chapter on culture, traditions, and the role of mothers in sustaining cultural practices, Coe and Palmer note the irony in their suggestion that the stereotyped "domestic role" of women has been of great evolutionary significance. They go on to argue that "there is no need to fear that the patterns of behaviour favoured by natural selection in the past dictate what we should desire or what is possible to achieve in the future. To think otherwise is to commit the naturalistic fallacy" (p. 129). For those who subscribe to a particular school of evolutionary thought associated most prominently with Leda Cosmides, John Tooby, and David Buss, however, there is a strong and deeply held commitment to the idea that patterns of behavior favored by natural selection do dictate what we desire today, and, as a result, may place certain limits on what we can achieve. The argument is precisely that much of our current psychology reflects the influence of natural selection—a process that shaped the preferences of our ancestors in ways that ensured our current existence. Should Coe and Palmer's proposition turn out to be true, it would force us to question how much of our decision-making is truly autonomous and to ask whether it is possible to eradicate certain biases and behaviors—and it would raise the issue of whether to incorporate such knowledge into our legal and political systems.

Alternatively, a more integrative evolutionary psychology, resulting from the incorporation of feminist thinking, might allow a more nuanced view of the evolutionary process to permeate. The naturalistic fallacy occurs when one derives moral values exclusively from facts, and it is the word *exclusively* that matters: We can and do use facts about the world to inform our moral and value judgments, but we do not use *only* facts to decide what is right or wrong. To worry about whether naturally selected behaviors might influence our current desires is not, then, to commit the naturalistic fallacy. We are not imposing moral values on objective facts; rather, we are simply recognizing that what is is. On this basis, we can then decide how we wish to use those facts within the human moral universe.

Should you read *Evolution's Empress*? Absolutely. As critical as the above may seem, one only bothers to criticize those things that are worth taking seriously, those that provoke thought and inspire deeper consideration, and this book certainly does that.

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SEEING THE FOREST—AND THE TREES

Cells to Civilizations: The Principles of Change That Shape Life. Enrico Coen. Princeton University Press, 2012. 360 pp., illus. $29.95 (ISBN 9780691149677 cloth).

In *Cells to Civilizations: The Principles of Change that Shape Life*, author and plant biologist (and corecipient of the Darwin Medal) Enrico Coen is one of the latest scientists to carry the banner claiming the existence of a pattern to the transformation of all living things—an evolutionary transformation that embraces the processes (or the four domains) of biological evolution, development, learning, and culture. Coen is in distinguished company, both past and present. Donald T. Campbell pressed for a structural parallel between evolutionary biology and evolutionary epistemology based on random variation and selective retention. Gerald M. Edelman's "neural Darwinism" asserted a pattern between learning and other complex adaptive systems using the concept of feedback. Richard Dawkins and Daniel Dennett each strive to prove the existence of similarities between biological and cultural evolution. Stuart Kauffman ambitiously asserts that a single set of processes guides both evolution and development, as well as the dynamics of other complex systems. Peter J. Richerson and Robert Boyd together have developed an impressive multilevel account of evolution. All good company aside, Coen does not simply reiterate what has gone before; he develops and compares models of evolutionary transformation within four distinct domains, stating the presence of a formally similar set of mechanisms in each case.

In *Cells to Civilizations*, the author identifies a total of seven principles that are involved in evolutionary transformation, and the core of his approach is rooted in Alan Turing's (1952) classic account of morphogenesis using the model of a reaction–diffusion system, in which Turing showed us that it is possible to generate interesting patterns of growth. Coen depicts two feedback loops, one positive and one negative, regulating a specific domain. The positive loop is described as *reinforcement* and the negative loop as *competition*. Using this dual-feedback system, Coen explains the developmental patterning within *Escherichia coli*, and specifically, how *E. coli* reliably divides in its midsection. When the organism prepares to reproduce,

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