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Essay Review

The Case of the Female Orgasm*

Marlene Zuk

A LOT OF PEOPLE HAVE PROBLEMS with the human female orgasm, ranging from women who have difficulty in achieving sexual satisfaction to pharmaceutical companies trying to develop a female version of Viagra. Films like *When Harry Met Sally* take advantage of the cryptic nature of female orgasm to point to how easy it is to fake. Biologists, too, have problems with female orgasm, or at least its evolution, because it is an enigmatic trait compared with many others. Women can conceive without orgasm, making it less directly connected with reproductive success and hence fitness than male orgasm, which virtually always accompanies ejaculation. What is more, most women do not experience orgasm during so-called "unassisted" intercourse, in other words, without additional stimulation of the clitoris before, during, or afterwards. Freud thought that this type of orgasm was more mature than one resulting from clitoral stimulation, and although his ideas have largely been debunked, they have left a legacy of assigning ranks to female sexual response, so that women worry that their orgasms are somehow inferior or abnormal.

The orgasm has also taken its place in the battle about adaptationism, with scholars debating whether female orgasm evolved through natural selection in much the same way as morphological traits, because they enhanced the ability of

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their bearer to survive and reproduce. During the 1970s, while the debate over sociobiology was raging, biologists argued about how one could determine whether any characteristic, from the chin to a predilection for adultery, was an adaptation. Because of the perplexing aspects of orgasm in women, some early researchers, most notably anthropologist Donald Symons, author of *The Evolution of Human Sexuality* (1979), suggested that the trait was not an adaptation, but instead was a by-product of selection on male orgasm. The tissues of the clitoris and penis derive from the same embryonic source, so women ended up with something of a bonus because of selection on men. Such traits are sometimes called evolutionary artifacts, the result of selection on another character, itself subject to selection, to which it is genetically tied. According to Symons: "If . . . adaptive design can be recognized in such features as precision, economy, and efficiency, it seems clear to me that available evidence is, by a wide margin, insufficient to warrant the conclusion that female orgasm is an adaptation" (p. 89). The late Stephen Jay Gould (1987) also championed this viewpoint, using the idea of adaptive female orgasm as one of his examples of "just-so stories."

Members of the other camp suggest that just because female orgasm differs from male orgasm does not mean that it is less of an adaptation. Some scientists found a male bias in the notion that female orgasm is not adaptive; anthropologist Sarah Blaffer Hrdy responded to Symons by suggesting that "The notion that woman's orgasm is 'in an evolutionary sense a "pseudo-male" response' appears to be a vestige of Victorian thought on the subject." She proposed that females seeking numerous mating partners to satisfy their sexual needs within a relatively short time would also achieve an adaptive goal of confusing paternity, so that the various mates would be less inclined to harm and more inclined to protect offspring that had some chance of being their own (Hrdy 1981, 1996).

Other adaptation advocates proposed a variety of hypotheses about the utility of human female orgasm, many of which have rather creative names, like the Poleax hypothesis, which holds that women are more likely to remain supine, as if struck by the eponymous medieval weapon, and hence retain sperm in the reproductive tract, if they have had an orgasm (Baker and Bellis 1995). Female orgasm is thus viewed as an advantageous consequence of bipedal stance and locomotion. The Jackpot and Upsuck hypotheses, as well as various explanations suggesting that female orgasm enhances the male-female pair bond, are alternative ideas (Alcock 1987). Sexual politics, with the notion that women's sexuality had been ignored both by scientists and the public, also seemed to play a role (Zuk 2002).

This is where Elisabeth Lloyd's book, *The Case of the Female Orgasm: Bias in the Science of Evolution*, comes in. Lloyd is a philosopher of science interested in evolutionary biology, and she provides a measured scholarly evaluation of both the adaptive and nonadaptive explanations for human female orgasm. She is also interested in the ways that biases about female sexuality have influenced the acceptance of those explanations. Her meticulously researched book examines

21 explanations for the evolution of female orgasm, and she eventually concludes that the best idea is, in fact, Symons's: women have orgasms as a by-product of selection on men to have orgasms. She does not rule out the possibility that an adaptive explanation could be found, but finds serious flaws in all of those currently proposed.

She spends considerable time dissecting a particularly popular suggestion, the proposal by Robin Baker and Mark Bellis, based on sperm competition theory, that orgasm functions to manipulate conception by increasing the suction of semen into the reproductive tract. This idea is based on a more general Upsuck hypothesis, that the uterine contractions of orgasm facilitate the movement of semen, but Baker and Bellis draw an explicit analogy to sperm manipulation in other species, particularly insects, in which females may selectively retain sperm from different mates. They predicted that sperm retention would depend on whether or not a woman had an orgasm and when the orgasm occurred (before, during, or after intercourse).

Baker and Bellis tested their predictions using a variety of data, most notably the results of a survey administered in a national magazine in the United Kingdom, *Company*, which yielded 3,679 responses for a 0.84% response rate out of the readership gauged from circulation figures. They also examined the aftermath of sexual encounters by collecting the contents of condoms after couples had intercourse, as well as by asking women about their estimates of the amount of flowback, or fluid that left the vagina following sex. They claim to find strong support for the idea that orgasm influences sperm retention, and their work was published in a pair of papers in the highly respected journal *Animal Behaviour* (1993a, 1993b), followed by the book *Human Sperm Competition* (1995). The notion that female orgasm is adaptive because it enhances fertility in this manner was, according to Lloyd, adopted with uncritical alacrity by both scientists and the lay public.

On closer examination, however, she finds a different story. Baker and Bellis's account turned out to have numerous problems, including selective use and pseudo-replication of data, in which reports from a single couple are used in 93 out of 127 data points, but not weighted in accordance with their representation. The criteria for assessing whether a given prediction was fulfilled are also vague, and finally, no evidence that fertility is increased by orgasm is provided. Indeed, the unwarranted assumption that this link occurs is made by many of the researchers looking for similar adaptive explanations.

Other hypotheses receive equally skeptical treatment, and the book is impressive in its painstaking—and sometimes merciless—scrutiny of the evidence. The variable nature of female orgasm also causes Lloyd to doubt it being an adaptation. If orgasm did indeed make conception more likely, why wouldn't selection have produced women who more reliably achieved one?

Lloyd suggests that the reason behind the uncritical acceptance of the adaptive nature of female orgasm lies in the biases of its proponents. If people wanted

to believe that female orgasm was an adaptation—because it seemed politically correct, because they wanted to counter the androcentrism of the past, or because they assumed female response must be like male response, another form of androcentrism—they were more willing to accept a lower standard of evidence. They also make assumptions about female orgasm, such as its being found only in humans, which may be unwarranted. Lloyd uses feminist scholar Helen Longino's (2002) model of the production of scientific knowledge to provide a framework for what she calls "a failure of impartiality." In this analysis, the book becomes about much more than an aspect of human sexuality. It is an examination of how evolutionary biologists think, and how their system of gathering and evaluating knowledge can falter. Her reasoned approach is refreshingly free of jargon in a field that sometimes seems abstruse for its own sake; even if one does not agree with Lloyd's conclusion, the book provides a blueprint of how to critically evaluate scientific arguments.

I agree that bias has been important in shaping the scientific response to the problem of the evolution of female orgasm. I also suggest that it has been responsible for the viewpoint that human female orgasm is a "problem" in the first place. The emphasis on orgasm only during intercourse seems to view male sexual response as the norm and female sexual response as an aberration. Conception and reproduction are clearly the evolutionary goals of copulation, but in my opinion far too much has been made of the need to link fertilization with female orgasm within a time frame of a few seconds, as is the case for males, as well as of the requirement for women to have orgasms "unassisted." In the words of psychologist Carole Wade, "Sex is not a soccer game. The use of hands is permitted" (quoted in Tavris 1992).

Furthermore, a question about the adaptive nature of orgasm is almost never asked, and that is why do males have orgasms? Most people would suggest that the answer is obvious: men have orgasms to provide the proximate pleasure that facilitates the ultimate objective of reproduction. Yet on closer scrutiny this argument falls apart. Why should males require such evolutionary prodding, while women do not? The notion that females simply have weaker sex drives than males is also crumbling as data on the sexual proclivities of females from numerous species, including humans, accumulate.

Undeniably, a social context influences our biological response, but that is not unique to sexuality; take hunger, for example. Presumably we find eating pleasurable because the feeling is a proximate reward for the goal of survival. Many women in Western countries are dieting, have eating disorders, or have other psychological issues surrounding food, but that does not suggest that male and female hunger drives are at core different.

In addition to being male-centered, the construction of female, but not male, orgasm as a phenomenon requiring explanation is anthropocentric as well. Do all male animals have orgasms? Do all vertebrates? Just mammals? The information on this issue is sparse, perhaps owing to the difficulties of evaluating sexual

response in species with vastly different anatomy than our own. I am not suggesting that we immediately attempt to rectify the situation by creating a Masters and Johnson–like laboratory for seals or sea anemones. But our lack of curiosity about the topic points to another way in which our biases can blind us. I concur with Lloyd's final statement: "The case is still open, and it is ripe for some good scientific work." What is more, an examination of female orgasm could point the way to a greater awareness of bias in studies of other biological phenomena as well.

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