



NATURALLY SELECTIVE

Evolution, Orgasm, and Female Choice

Robert King

Naturally Selective

Researchers of human behavior have identified a so-called “orgasm gap”: Men usually orgasm during intercourse, whereas women often do not. This book addresses this mystery. The two leading explanations are either that women are “psychologically broken”—Freud’s theory—or badly designed—the “by-product theory.” However, there is a much more compelling third explanation. Evolutionary biology, anatomy, physiology, and direct sex research suggest women have evolved under their own selection pressures, and orgasm is a fitness-increasing consequence of such selective factors. This is revealed in their patterns of orgasmic response, which are neither random nor inexplicable.

Key Features

- Synthesizes decades of peer-reviewed sex research in anatomy, biology, physiology, and behavior.
- Engagingly written based on feedback from students, peers, and interested lay persons.
- Makes sense of the “orgasm gap” between men and women.
- Provides a wider context of human sexual dimorphism and mutual sexual selection.
- Balances sex research and real-world research and practical applications.



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*To my parents, Don and Hilary, without whose mutual
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Preface

What is this book about, why now, and why am I writing it?

LIONS, TIGERS, AND BEARS: OH MY!

All the animals have started having sex again.

I mean, of course, that all the animals in zoos and wildlife parks have been having sex. Over the last few years, all over the world, there has been a veritable orgy of menagerie-based shenanigans, from species previously thought coy. Once-shy cheetahs have reproduced in droves. Hippos have frolicked. Even those notoriously undersexed pandas have joined in the debauch.

What changed? Did the heating up of the climate similarly heat up their blood? Was this sexing-up the result of those alleged hormones in the water supply that so excite the conspiracy theorists? Not a bit of it. There is one single factor that explains all the sudden passion in those parts of the animal kingdom that humans do not reach: Humans had stopped watching them.

The Covid-19 pandemic denuded zoos of human visitors for months, thus giving the animals what they needed—privacy—to do their, well, what can one say, other than, their “thing”?

We humans often pride ourselves as being very different from other animals, but we are not so different in that respect, at least. We also, unless we have unusual tastes (about which I will have more to say later), normally prefer privacy for our sexual behavior. Not completely, of course, else we would not count voyeurs and exhibitionists among our ranks, but enough so that we might not expect the full range of human sexual behaviors to occur while we are being watched. And that is an issue for scientists, like me, who study sex.

This is a book about sex research—about applying scientific methods to human sexual behavior—and what I have just said to you raises an immediate problem. Science is about observing things. Some (idealized) versions of science imply that *only* observing events under the most controlled conditions—experiments—counts as science at all (these purists appear to have forgotten all about mathematics and astronomy, which have few, if any, controlled experiments). But, as I have just pointed out, we sex researchers have a problem because even other animals hardly have sex when being observed.

Although, of necessity, I will be discussing sex research as it pertains to both men and women, this book focusses on the mechanisms of female sexual selection. This is because the bulk of what I study is the nature and function of female orgasm, but it turns out that you cannot study that without studying how sexual selection—especially female sexual selection—works in both the general cases of the animal kingdom and the specific ones of human beings.

The raw mechanics of sex change when complex social mammals watch one other—and humans are the most complex social mammals of all. It isn't just what an external observer can record that matters to humans, it is what the events mean to the participants. Anyone who has ever asked if it is okay to fantasize about others during sex or, more darkly, thought about the implications of issues such as consent already knows this, of course, but apart from some sex therapists, there have been few attempts to integrate this insight into sex research per se.

WHY NOW?

Over fifteen years ago, a best-selling book about the nature and function of female orgasm ended with the provocative words “The time is ripe to do some good science.”¹ Even more provocatively, the rest of the book argued strongly that all of our most reliable sex research implied the conclusion that female orgasm had no discernible function whatsoever, that it only existed at all as a by-product of selection on male anatomy.

To say I was intrigued by this claim was an understatement. Echoing the great evolutionary biologist Robert Trivers, I found myself thinking, “One has to wonder how often [the scientist in question] has been witness to such a blessed event to regard it as a by-product!” When I started looking at the research in question, it turned out that a surprisingly large amount of it involved nothing like sexual behavior as practiced by actual human beings across time and place. It was, in other words, as if we had put humans in zoos and gone, “They don’t seem to do much, do they?” This so astonished me that it formed the basis of my PhD research and resulted in a career change. In order to try to answer the questions about the nature and function of female orgasm, I pretty soon realized that I had to understand the fundamentals of how sexual selection operates and because, in common with all other primates, females are the key drivers of sexual selection, this meant studying the mechanisms of that.

I soon discovered that, although a lot of sex research took place in very limited observed settings, not all of it did. Despite this, ignorance about basic female anatomy and physiology bedeviled the field. For example, I found that fully half the textbooks in my local specialist bookshop, which were used to train the next generation of medical students, mislabeled the clitoris as a tiny, functionless, entirely external organ. No wonder so many people had been led into thinking it plausible that female sexuality was likewise tiny, functionless, and external. On the contrary, female sexuality—and the orgasms that lie at the heart of it—is rich, complex, but often somewhat cryptic in nature. Men and women are not the same, and neither are their sexualities. Any discomfort with what this implies about our being “just another critter,” and subject to the same rules, needs to be faced in an adult fashion.

Not only have we done a large amount of research into the nature and function of female orgasm over the last fifteen years, but there is also a rich (but neglected) body of research into this phenomenon going back nearly a century that deserves to be better known. I hope to put the record straight.

THE MOST IMPORTANT SEX ORGAN

Gynecologists have told me that they get bored of being asked if the activities of their day jobs put them off sex. One answer I have heard such a colleague give is, “Does being a Ferrari mechanic put you off driving Ferraris?” And, when it is put that way, it is obvious that the answer is “no” because the state of mind (problem solving in the gynecological/mechanics cases) is totally different from the other activity. Not only in terms of raw mechanics, but also in terms of what particular actions mean to the participants.

This implies that attention to the mechanics of acts, while important, is not the whole story when it comes to describing human behavior. Humans ascribe meanings to actions and, when it comes to sex, this utterly crucial element is, too often, absent from behavioral descriptions. As one therapist put it, “A woman’s biggest erogenous zone is between her ears.” Humans care a lot about meanings, and this is true of other supposedly basic functions besides sex. For example, no other animal cares about how food is presented, but we do—unless we are almost dead of starvation. Ethology is the study of behavior in natural settings, and the human setting includes social worlds that are rich in meaning. Meaning-making might even be said to be our species-typical behavior.

WHO DO I THINK I AM?

Some colleagues told me that it would be a more than usually hard sell for me to write this book. One reason was that I was a man writing about female sexual selection and this had become “problematic.”² The second was that, beyond a very tight circle of specialists, potential readers would be put off by some of the necessary technical details.

My response to the first point is that if we have really reached a point where people can only write from within their own personal experiential bubble, then behavioral scientists may as well *all* pack up and go home. Science is, minimally, an attempt to correct for biases in a collaborative group

exercise. But even if that were not the case, why wouldn't a heterosexual man, who is, after all, the recipient (or at least the witness) of female sexual selection, be capable of studying it? A female doctor would not be prevented from writing about prostate cancer. That aside, a number of eminent people are on record as actually calling for such analysis as I am offering here.

For instance, the (then) head of the American Psychological Association, Lisa Feldman Barrett, recently said (with some asperity) that she was tired of reading about the effects of sexual selection on the female of the species and that evolutionary theorists (leaving aside that these are not all men) should turn that perception on themselves: "I've always felt there should be a special place in hell, filled with mirrors, reserved for people who suggest that waist or hip size predicts anything important about a woman."³

This is an explicit demand that male (and, one hopes, female) scientists of sexual behavior look in that mirror that all of our evolved bodies, and minds, hold up to us. And I take her point. Female sexual selection is that mirror, and this book is about that. Whether men will like what they see is a different matter.

As to the second point: I want this book to be of use to professional scientists, but I always have in mind also Steven Pinker's writing ideal of "My smart college room-mate who just did not happen to study my subject" while writing. Some colleagues have warned me that the gory details of scientific method and philosophy—especially the vexed but central question of what actually constitutes causation in behavioral sciences—would be over the heads of a general readership.

I can only say that I hope the pessimists are wrong. One reason for my thinking that they *are* wrong is the proliferation of podcasts, often offering long-form discussions of some pretty technical science and philosophy issues, that boast audiences in the millions. My own experience in public lectures, podcasts, occasional writing for non-technical outlets such as *Quillette*, and my *Psychology Today* column, which has been running for over a decade now, matches this thought. I think there is a public appetite for technicalities, and a concentration span to match. I also think that the general public is being underestimated by much mainstream media, including some mainstream publishing media.

Maybe I am wrong. Let us see.

NOTES

- 1 Lloyd, E. A. (2005). *The case of the female orgasm: Bias in the science of evolution*. Harvard University Press.
- 2 "Problematic" is a magic word invoked by moral relativists, who want to say that something is morally wrong but cannot bring themselves to admit that their relativism has painted them into an intellectual corner.
- 3 Barrett, L. F. (2019). Blog post *Zombie ideas*. www.psychologicalscience.org/observer/zombie-ideas last accessed 22/08/2023.



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About the Editor

Robert King is a psychology lecturer at University College Cork, in the school of Applied Psychology. He lectures on social and biological psychology—especially in the field of human sexual behavior—as well as on the history and philosophy of science, research methods, statistics, and behavioral genetics. He is the co-director of the Masters in Mental Health, which has close ties to local health care providers, and he participates in the clinical courses. King writes an (almost) monthly column for *Psychology Today*, which typically gets over 30,000 reads when he blogs about sexual behavior (www.psychologytoday.com/blog/hive-mind). He also writes for *Quillette* online journal about the same topics. *Quillette* articles typically get more than 2 million hits and has a subscriber base of 70,000 (<https://quillette.com/author/robert-king/>). King has published in the peer-reviewed literature on human sexual behavior, especially female orgasm, in several journals, including the highest impact factor journal in the field of human sexual behavior—namely *Archives of Sexual Behavior*.



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1 Introduction

1.1 WHAT IS THIS BOOK ALL ABOUT?

What did Jennifer Aniston mean when she said that the best smell in the world “Is that man that you love”?¹ Why did Germaine Greer tell a luckless paramour, “I’m not frigid, you’re boring”?² What can we learn from the Manganians of Polynesia, where the teenage boys are forbidden to have sex with girls of their own age, until they have been properly trained in appropriate techniques by the older women of the tribe?³

The answers are to be found by studying female orgasms.

You have probably heard of the so-called orgasm gap: That men usually orgasm easily during sex, whereas women often have a more difficult time of it. Therapeutic careers have been built on trying to reduce the orgasm gap, while comedic careers have been built on making jokes about it. Would it surprise you to learn that many leading scientific figures argue that the orgasm gap exists because women are, intrinsically, either poorly designed by nature, or are too psychologically damaged to enjoy sex?

This is all wrong. Integrating new insights from evolutionary biology, human sex research has advanced to a point where we can see clearly that women are neither psychologically dysfunctional nor anatomically poorly designed. On the contrary, women are miracles of their own unique history of evolutionary design. Female sexuality—of which their orgasms deserve to form a central part—makes sense only in the light of these understandings.

To start answering the sorts of questions I opened with (and I promise you that each of those questions does have a scientifically respectable answer), I will have to start with an even more basic question: What is the most valuable substance on the planet? Not platinum. Not diamonds even. Certainly not gold. In terms of cost to weight ratio, the most valuable substance—currently estimated at one quadrillion dollars per pound—is the human egg.⁴

On the other hand, sperm are cheap. Every human ejaculation contains a quarter of a billion of them. Every second of every day there are 18,000 ejaculations and 4.4 births. That is quite a ratio, and it underscores an important fact about human sexuality: Women are built to be choosy. They have to be, because what they carry is the most valuable thing in the world.

This choosiness manifests itself in a myriad number of interesting ways. For example, it deserves to be a better-known fact that, when women are in egalitarian cultures—and thus freer to choose their paths in life—on average they end up being *more* different—behaviorally and psychologically—from the men around them, than do their sisters in more restricted cultures.⁵ The less the environment explains differences, the more that genetics does. The evidence is that these differences include a complex psycho-physical sexual system, engineered to be a rigorous gatekeeper for that valuable egg. Women are thus choosy, rather than passive, and this will be the topic of chapter two.

Sex was never meant to be a merely mechanical doddle for humans; it was always meant to be a challenge. Furthermore, that challenge has been largely set by women, for men. Putting this point less provocatively, the challenging nature of sex arises directly from women’s choosiness, or to give it its more technical terminology: sexual selection.⁶

The fundamental thesis of this book is that, when it comes to explaining female orgasm, many people—of both sexes—have mischaracterized this female choosiness. They have mistaken it for women’s being either psychologically broken (Freud’s theory, in a nutshell)⁷ or being badly designed in the first place (the theory that female sexuality is mostly a by-product of male sexuality).⁸ Both of these mistakes are born of the same conceptual error: androcentrism.

Androcentrism is the error of seeing the male of a species as the norm, with females as the deviations from this norm. But, with current research, another—and much richer—perspective is possible: Women are neither damaged nor are they pale reflections of men. Their evolutionary path is unique to them. Furthermore, while this is not a sexual self-help book, knowledge is power. Knowledge of human sexual nature can increase our relationship satisfaction and mutual pleasure.

1.1.1 “JUST ANOTHER CRITTER”?

Why are all these things I have mentioned not already widely known? Mark Twain memorably said that humans are “The only animal that blushes—or needs to.”¹⁰ We are capable of uneasy responses to learning the truth about ourselves. Sex research renders humans—the only animal to wear clothes—both literally, and metaphorically, naked. It strips away layers of comforting illusions. Chief among these illusions is the notion that humans are uniquely free of the laws governing the rest of the animal kingdom. Humans are *special*, we want to say. Humans are self-creating. Surely, we cannot be, in biologist Martin Daly’s memorable phrase, “just another critter”?

Humans *are* special, of course. All species are special—that is why they are species. Humans are rarely content to be merely one species among many, however. We have a rich inner life, we insist. We transmit culture. We have ideas.

Those thoughts are not controversial, but they have extreme versions that pander to human vanity. Chief among these is the step that insists that our thoughts—our ideas—*alone* make the world. The ancient Greek philosopher Protagoras gave an early formulation of this *idealism* when he declared, “Man is the measure of all things, of the things that are—that they are, of the things that are not, that they are not.”¹¹ Protagoras’ argument was roundly defeated at the time by Socrates, but his core conceit—that thoughts themselves alone are real—is a very persistent and ancient one. Idealism may even be a cross-culturally universal conceit. For instance, at roughly the same time Protagoras was expressing that western version of idealism, Buddha opened the *Dhammapada* with the words: “With our thoughts, we make the world.”¹²

Does anyone think such an extreme form of idealism today? Thirty million people bought *The Secret*, a book that peddles the idea that the universe will align itself to your desires, if only you wish hard enough.¹³ Less extreme, though no less delusional, is a modern version of Protagoras’ idealism that says, “All sex differences are social constructions.” There are various ways in which this could be meant. There are desirable versions, which point out that humans can outgrow socially restrictive gender roles. However, at least one version is to insist that sex differences exist only in our heads, and that, therefore—the thought continues—we could wish them all away if we wanted to.¹⁴

As sci-fi author Philip K. Dick puts it, “Reality is that which, when you stop believing in it, doesn’t go away.”¹⁵ On one level sex differences do, of course, exist “only” in our heads. For one thing, brains exist in our heads, and male and female brains—whatever you may have heard to the contrary—can be readily and reliably distinguished.¹⁶ This topic—of what sense biologists make of what is technically called *sexual dimorphism*—is such a foundational one that it is the subject of chapter three. However, somebody viewing from the sidelines might be forgiven for being puzzled as to why this is even a contentious issue.¹⁷

Quite often, so the thought goes, the moment we admit to innate human differences, we mandate treating some people—typically women—worse. I need to say something about this form of social constructionist reflex to sex differences right away, to persuade some readers that admitting sexual dimorphism may not be quite the political bogey-person that they fear.

The moral and political case for sexual egalitarianism I take to have been already, and decisively, won in our culture, but I do not believe it can, or should, be maintained through lies. To echo the historian and activist Alice Dreger, truth and justice go hand in hand, and it is therefore impossible to build a lastingly just society on the shifting sands of untruths.¹⁸ To say even that, true though it is, under-describes the problem, and ignores one of the principal reasons why applying scientific reasoning to humans has been so fraught up until now.

If generals are notorious for tending to fight the last war, then philosophers are even worse, and philosophers of science perhaps the worst of all. They are prone to re-fight battles that have already been decisively won by other people, and then turn up in sharply creased military uniform for the victory parade, claiming to have been in the vanguard all along. The philosophers posing as victors in this case are the existentialists, and their descendants are the post-modernists and social constructionists. At the core of their philosophy is the famous Sartrean claim that “existence precedes essence.”¹⁹ Sartre thereby thought to free human souls from what he saw as the twin tyrannies of science and religion—both of which he felt had nefarious plans for humans, based on their falsely claimed essential natures.

Liberated from these tyrannies by existentialism, humans would then be free to construct themselves as they wished.²⁰ There are some things that we can grant post-modernism, and its offshoot—social constructionism. One concession is that it is most certainly true that modern science has discarded the idea of essences. We did not need the post-modernists to point this out. Rejecting essences is the mark of the Enlightenment, characterized by the change from magical thinking to modern science. For example, alchemy became chemistry through the abandonment of magical essentialist thinking, such as the doctrine of signatures.²¹ Chemistry was not alone. Biology also has no use for ideas of an essence of male, or essence of female, any more than it has need of the concept of a magical essence—an *élan vital*—to explain life. But the alternative to belief in essences is not the unrestricted flight of the human imagination, or that more extreme idea that human thought creates all reality.

Scientific advance has been characterized by replacing *essences* with *processes*. No one now believes that fire burns because flammable substances contain an essence—once called “phlogiston.” Instead, we now understand the processes of combustion. Functionalism—the idea that what something *is*, is what it *does*—is the guiding principle of physics, chemistry, and biology.

Functionalism is the guiding principle of modern psychology too, although this is far too seldom made explicit.²² These psychological and behavioral processes that behavioral scientists study are not randomly scattered throughout the population. Many of them are patterned according to someone’s biological sex. Furthermore, the fascinating exceptions that test the boundaries of sexual dimorphism—the people with intersex conditions, transsexual folk, the sex-role reversed, gender-atypical people, and all the fascinating kaleidoscope of human variation—turn out to provide profound and illuminating insights into the underlying processes that unite us all.

1.1.2 BEHAVIORAL SCIENCE AND PHYSICAL SCIENCE: DOES EVERYBODY LIE?

How do we explore these processes in humans? In chapter four, I outline some of the main principles of the discipline of ethology: Specifically, of how we observe and describe behaviors—in this case, sexual behaviors—in natural settings, inflected by the knowledge that evolutionary theory brings to this pursuit. Achieving this goal when it comes to human sexual behavior is not easy. Some of this is for practical reasons; humans (like a lot of animals) tend to mate in private. However, there are also conceptual reasons why sex research poses unique challenges.

Daniel Dennett, in *Darwin’s Dangerous Idea*, reminds us that “There is no such thing as philosophy-free science; there is only science whose philosophical baggage is taken on board without examination.”²³ The issue of human interests affecting objectivity in science becomes especially acute when it comes to sex research. This is because sex research is carried out by actual men and actual women, and there exists an actual battle of the sexes which, as renowned biologist Olivia Judson puts it, is “Eternal, insoluble, and inevitable.”²⁴ In other words, men and women have reproductive interests, and these interests are always in danger of biasing their perception of the data, because they do not always align perfectly. Put more simply—we tend to lie to both ourselves, and to others, on the topic of sex.

Is there a way to solve this epistemological problem; that we are trying to investigate sexual behavior while remaining sexually reproducing beings, at the mercy of our own sexually reproductive