

here all assume that there is no such thing as evolutionary *behavioral science*—there is only behavioral science which must be evolutionary by definition. With any luck, this will be the wave of the future.

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COURAGEOUS, COMPASSIONATE, AND SCHOLARLY: AN EVOLUTIONARY ANALYSIS OF RAPE AND MALE SEXUAL COERCION

A Natural History of Rape: Biological Bases of Sexual Coercion. By Randy Thornhill and Craig T. Palmer. Cambridge, MA: The MIT Press, 2000, 251 pages. Cloth, \$28.95.

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A Natural History of Rape: Biological Bases of Sexual Coercion is an intellectual masterpiece. Thornhill and Palmer present a courageous, compassionate, and scholarly analysis of rape and male sexual coercion, informed by an evolutionary perspective. There is much to commend and recommend about this book. First, we applaud Thornhill and Palmer for their courage in tackling an area of work that is riddled with ideology, misinformation, and untethered emotional upset.

Second, this book has a great deal to offer in the prevention of male sexual coercion and rape and in the treatment of the victims and perpetrators of these dreadful behaviors. Thornhill and Palmer convincingly demonstrate that, not only is an evolutionary perspective necessary to understand the psychology motivating these horrific behaviors, but an evolutionary perspective is necessary if we are to design effective treatments for the victims and perpetrators of these behaviors. The book includes several chapters addressing education, prevention, and treatment of rape and male sexual coercion. In addition, Thornhill and Palmer address the tremendous psychological pain and suffering endured by rape victims and their significant others. These chapters on treatment, education, prevention, and especially the chapter on psychological pain, reveal a sincere compassion and an urgent sense of care and concern for which Thornhill and Palmer have not been credited in the many misinformed reviews of this book.

In addition to being courageous and compassionate, *A Natural History of Rape* is a scholarly achievement based on references to and discussions of the most recent empirical and theoretical work. Thornhill and Palmer do not cite and discuss only work that was inspired by an evolutionary perspective. Thornhill and Palmer's apparent goal is to better understand the causes and consequences of rape and

male sexual coercion. What causes rape? Which men are most likely to perpetrate rape? Which women are most vulnerable to rape? Which women will experience the greatest psychological pain following rape? How can we best help these victims? How can we treat and perhaps reform perpetrators of rape? And how can we prevent rape? These are the important questions that Thornhill and Palmer address. Some of these questions have never been asked before in a scholarly arena, and many of them have never been effectively answered.

Thornhill and Palmer begin with a superb introductory chapter in which they carefully explain the basic premises of evolution by natural selection. This chapter is clear, concise, and readily accessible to the layperson or to the social scientist not familiar with Darwin's theory. Thornhill and Palmer provide the reader with a basic understanding of the difference between proximate causes of behaviors (for example, genes, hormones, and learning episodes) and ultimate causes of behaviors (for example, the "adaptive problem" of paternity uncertainty selected for the evolution of psychological mechanisms designed to solve that problem, including mechanisms motivating male sexual jealousy).

Thornhill and Palmer also address the different products of natural selection, only one of which is an adaptation. Two other products of natural selection are byproducts of adaptations and "noise," or individual differences that are selectively neutral. Contrary to the misguided claims of Gould (see, for example, Gould, 1991), evolutionary scientists do not assume that every trait is an adaptation. Instead, adaptation is appropriately invoked only when certain, very strict criteria have been met (Williams, 1966; and see Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998). These criteria include evidence of special design—that the trait in question has features that are improbably well suited to solve a particular problem that was recurrently faced by ancestral members of the species.

In the second chapter, Thornhill and Palmer address the evolution of sex differences. Like the first, this chapter is clear, concise, and remarkably accessible to the layperson or social scientist uninformed by evolutionary theory. This chapter covers key ideas such as polygyny in humans and other animals, male and female mate preferences, sex differences in desires for sexual variety, female mate choice, and male efforts to circumvent female mate choice. The first two chapters prepare the reader for an evolutionarily informed, scholarly discussion of rape.

In the opening pages of the third chapter, "Why do men rape?," Thornhill and Palmer quote the eminent biologist Theodosius Dobzhansky, who wrote that, "Nothing in biology makes sense except in the light of evolution." Biology, in turn, is the study of life. Thus, nothing in life or about the functioning of living organisms can be fully understood without an appreciation of evolution by natural selection. This is not a controversial statement to any modern biologist. Many standard social scientists, however, seem to believe that humans are somehow less susceptible to or exempt from evolution by natural selection,

because our "culture" mysteriously and magically overpowers evolution. Thornhill and Palmer dismantle this and many other misunderstandings regarding evolution by natural selection, and clarify for the reader that not only are humans *not* exempt from evolution by natural selection, but that humans and all forms of life on earth exist today *because* of evolution by natural selection.

Having clarified the importance of evolution to understanding life, Thornhill and Palmer note that, "Evolutionary theory applies to rape, as it does to other areas of human affairs, on both logical and evidentiary grounds. There is no legitimate scientific reason not to apply evolutionary or ultimate hypotheses to rape. The only scientific question concerns how to apply theoretical biology to a particular aspect of human endeavors. Evolutionary history would be applicable to human rape even if it were explicable only as a trait that exists as a result of evolutionarily novel circumstances faced by modern humans. And if such were the case, one would still want to know why men's psychological adaptations are designed in a way that yields rape behavior in the novel circumstances" (p. 55).

In later sections of the book, Thornhill and Palmer debunk the hypothesis that rape is entirely attributable to evolutionarily novel circumstances, citing evidence such as the cross-cultural incidence and prevalence of rape. Thornhill and Palmer address and dismiss with convincing empirical and theoretical evidence several ultimate hypotheses for rape including, for example, that rape is a "phylogenetic holdover"—that is, that males rape because they are descendants of males who raped. Thornhill and Palmer conclude that, "There are currently only two likely candidates for ultimate causes of human rape: It may be an adaptation that was directly favored by selection because it increased male reproductive success by way of increasing mate number. That is, there may be psychological mechanisms designed specifically to influence males to rape in ways that would have produced a net reproductive benefit in the past" (p. 60).

The second hypothesis, the "byproduct hypothesis," is that, "[Rape] may only be a product of other psychological adaptations, especially those that function to produce the sexual desires of males for multiple partners without commitment. In this case, there would not be any psychological mechanism designed specifically to influence males to rape in ways that would have produced a net reproductive benefit in the past" (p. 61). Much of the remainder of the third chapter, and various sections throughout the remainder of the book, present the empirical and theoretical work supportive of and contrary to each of these hypotheses. Thornhill and Palmer take the reader on a fascinating scientific and intellectual journey as they consider the status of the two competing evolutionary hypotheses for rape. Thornhill and Palmer clearly note for the reader, however, that both hypotheses remain viable, and that future empirical work is required to resolve which hypothesis better describes reality.

In chapter four, "The Pain and Anguish of Rape," Thornhill and Palmer review the mounting empirical evidence that the psychological pain of rape is adaptively patterned. Consistent with recent advances in the evolutionary psychology of psychological pain (see, for example, Nesse & Williams, 1994), Thornhill and Palmer argue that psychological pain occurs following "events that lowered reproductive success in human evolutionary history," (p. 86) and that, "The greater the negative effect [on reproductive success] of an event, the greater the psychological pain experienced" (p. 86). These hypotheses lead to several novel and nonintuitive predictions about the psychological pain felt by rape victims.

For example, a mated woman is hypothesized to experience less psychological pain when the rape is accompanied by signs of physical force, such as bruising and abrasions, because this would have signaled to her mate that she did not engage in consensual sex with another man. In the absence of evidence of physical force, a man may wonder whether his mate engaged in consensual sex with another man, and this may lead him to question his paternity of current or future offspring born to his partner. The data clearly support this hypothesis. Thornhill and Palmer note that it is precisely this sort of information that should be incorporated into treatment programs for victims of rape. If the woman is mated, and if she does not display visible signs of physical force, the counselor should be alerted to the fact that she is likely to experience particularly intense psychological pain and anguish.

Chapters five and six, "Why Have Social Scientists Failed to Darwinize?" and "The Social Science Explanation of Rape," respectively, present a brilliant exposé of the power of political and social ideology to obscure, interfere with, and even to halt altogether the scientific search for truth about rape and male sexual coercion. In addition, Thornhill and Palmer reveal the key flaws in the social science theory of rape, which argues that rape is a learned behavior, the goal of which is collective political, social, and economic domination of women by men. These key flaws identified by Thornhill and Palmer include assumptions about human nature that are incompatible with current knowledge of evolution by natural selection; the empirically indefensible assertion that rape is motivated not by sexual motivation, but by the need for power and domination; and a failure to account for the cross-cultural and cross-species occurrence of rape and male sexual coercion. Thornhill and Palmer close chapter six with an observation that sings to the truth-seeker and to those who seek to eliminate rape and male sexual coercion: "The ability of ideology to blind people to the utter implausibility of their positions is perhaps the greatest threat to accumulating the knowledge necessary to solve social problems" (p. 152).

In chapter seven, "Law and Punishment," Thornhill and Palmer address legal and penal issues surrounding rape and male sexual coercion. Thornhill and Palmer begin with a brief overview of rape laws historically and across cultures. They then address laws regarding statutory rape,

noting that, "Like any other component of rape law, statutory rape is based on evolved psychology. Central here is the motivation of parents (especially fathers) to limit the pre-marriage sexual behavior of their daughters. An understanding of this might help lawyers, judges, and juries to better serve the interests of all parties involved in a statutory-rape case. An evolutionary approach to law would focus on the often-conflicting interests of individuals and how certain laws may reflect the interests of individuals other than the direct victim" (p. 164). Thornhill and Palmer close with a brief discussion of punishments for rape that are likely to be more or less effective, given what we know about evolved male psychology.

In chapter eight, "Social Influences on Male Sexuality," Thornhill and Palmer respond to the uninformed criticism that evolutionary psychology leaves no room for social, cultural, or other environmental influences. Thornhill and Palmer review work inspired by an evolutionary perspective that explicitly highlights the fundamental role of the environment in the development and activation of evolved mechanisms. Evolved mechanisms motivating male sexual behavior, in general, and male sexual coercion in particular, depend on environmental input—including socialization, culture, and learning—for their ontogenetic development and activation.

In the next two chapters, Thornhill and Palmer briefly discuss how an evolutionary perspective might inform educational programs and social barriers designed to reduce or perhaps even prevent the occurrence of male sexual coercion and rape. Thornhill and Palmer envision "an evolutionarily informed educational program for young men that focuses on increasing their ability to restrain their sexual behavior. Completion of such a course might be required, say, before a young man is granted a driver's license" (p. 179).

Equally important, according to Thornhill and Palmer, are antirape education programs for females. These programs "should begin with the same explanation of *male* sexual adaptations that should be used in the program for males. In addition to that and some instruction in self-defense, we suggest that the program address several matters that are typically ignored or denied by the social science model" (p. 180, emphasis in original). These matters include the traits of a woman and her behavior that can increase her vulnerability to rape and male sexual coercion. Key among these traits is her youth and sexual attractiveness. Women cannot alter their age, but they can be educated to appreciate that youthful women are at greater risk for sexual coercion and rape. And they can be educated to appreciate that the application of make-up or donning a particular style of clothing that enhances their sexual attractiveness can place them at greater risk for sexual coercion and rape. Whether a woman decides to apply beautifying make-up or to wear more revealing clothes are personal choices that, according to Thornhill and Palmer, should be made with the knowledge that increasing her sexual attractiveness may place a woman at greater risk for

unwanted sexual advances and rape—albeit entirely unfairly and through no fault of her own.

In the concluding chapter, Thornhill and Palmer present evolutionarily informed answers to several key questions about the causes and consequences of rape and male sexual coercion. For each question they address, Thornhill and Palmer highlight for the reader why an evolutionary perspective is necessary if we are to gain a deep understanding of rape and male sexual coercion. In their response to each question, Thornhill and Palmer leave the reader with a sense of hope and excitement that there is much more research to be done by those informed by an evolutionary perspective.

"Science has nothing to say about what is right or wrong in the ethical sense. Biology provides understanding, not justification, of human behavior . . . [I]t is our hope that concerned people will begin making use of the knowledge that evolutionary biology provides in order to reduce the incidence of rape and to better deal with this horrendous crime's effects on its victims and their significant others" (Thornhill and Palmer, p. 199). Contrary to media reports and reviews by people who appear not even to have cracked the cover, *A Natural History of Rape* is a stunning intellectual achievement that is at once courageous, compassionate, and scholarly.

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DECONSTRUCTING THE DISCOURSE OF SEXUAL DIMORPHISM: RETHINKING, BENDING, AND CROSSING SEXUAL BOUNDARIES

Sexing the Body: Gender Politics and the Construction of Sexuality. By Anne Fausto-Sterling. New York: Basic Books, 2000, 473 pages. Cloth, \$35.00.

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The prevailing theory of sexual dimorphism in Western culture can be traced to antiquity, in the work of philosophers like Aristotle and in the Judeo-Christian religious tradition. These early ideas have had a powerful influence on our views of sex and sexuality. Throughout most of our history, the policing of sex categories and related sexual behavior was largely left to religious and civil authorities. During the nineteenth century, however, the power to discipline sex and sexuality gradually shifted to the scientific

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