

CHAPTER 14

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EVOLUTIONARY PERSPECTIVES ON SEX, GENDER, AND CRIME

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14.1. INTRODUCTION

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How are we to explain striking statistical regularities such as the sex difference in criminal offending? This essay argues that an evolutionary explanation must be an essential part of the story. Sex differences are not uniquely human, and it is only by considering *Homo sapiens* in a comparative zoological perspective that we can answer a profound question posed by the great evolutionary biologist George Williams (1975, p. 124): “Why are males masculine and females feminine and, occasionally, vice versa?”

An “evolutionary explanation” may involve a reconstruction of ancestral stages, but, more typically, this phrase refers to an account of the *functional significance* of the phenomenon under consideration. In the present case, what this means is generating a theoretical account of why natural selection has favored distinct female and male attributes, and seeing how well that account both explains what we know about behavioral sex differences and predicts other things that we do not yet know. For readers unfamiliar with this approach, I introduce evolutionary thinking in Sections 14.2 and 14.3 of this essay, and its applicability to sex differences is discussed in Section 14.4. Sections 14.4 and 14.5 consider why men compete more intensely, and hence more dangerously, than women, and conclude that a major source of variability in homicide rates across societies is variability in the extent to which access to the means of reproduction is inequitably distributed among men.

Section 14.6 reviews evolutionary thinking about two major categories of criminal victimization of women: intimate-partner violence and rape. Regarding the former, the relevance of “male sexual proprietariness” seems clear, and this insight has motivated a number of discoveries. As regards the latter, whether any aspects of human male physiology or psychology have been shaped by natural selection for the specific function of inseminating unwilling partners is still undecided. Finally, Section 14.7 I concludes with

a brief overview of controversies surrounding evolutionary approaches, suggesting that some are substantive but many others reflect misunderstandings and false dichotomies.

14.2. COMPLEMENTARY LEVELS OF EXPLANATION

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An evolutionary explanation of sex differences in behavior complements rather than competes with explanations in terms of experiences, circumstances, and social expectations. It does this by addressing why men and women respond to particular experiences, circumstances, and social expectations in particular ways, and, ideally, by facilitating the formulation of fruitful hypotheses at these complementary levels of analysis (Archer 2009).

Evolution-minded social scientists often invoke “Tinbergen’s four whys”- cause, ontogeny, phylogeny, and function - to explain what they mean by distinct but complementary levels of analysis. The Dutch ethologist Niko Tinbergen (1963) argued that muddled disputes arise among behavioral scientists when they fail to see that they are seeking different sorts of answers to what sounded like one and the same question: *Why does this creature behave in such and such a way?* Although Tinbergen's argument arises from research on nonhuman animal behavior, but it is readily applicable to the human sciences.

First, consider what Tinbergen calls *cause*. Most scientific efforts to explain behavior seek a sort of structural description of underlying dynamics, whether in terms of responses to social cues and other stimuli, perceptual and cognitive processes, hormonal and brain mechanisms, neuromuscular signals, or something elser. In effect, such investigations analogize the actor to a machine, and provide partial descriptions of its functional organization and operating principles. However, those who ask why actor X performed act Y may not be seeking an answer of this sort at all. Perhaps what they really want to know is how past experience influences present performance, and if so, their question is an instance of Tinbergen’s second “why”: *ontogeny* (development within the individual lifespan). To stretch the behaving-individual-as-machine analogy, one is now asking not merely for a description of the machine’s performance and functional organization but for an account of how its present structure was assembled.

For most psychologists and many others, Tinbergen's cause and ontogeny (often conjoined under the unfortunate label of “proximate” explanations) appear to exhaust the possibilities. But because organisms have evolved under the influence of Darwinian selection, there are two additional categories of “why” questions, which seek so-called “ultimate” (or evolutionary) explanations in terms of *phylogeny* and *function*.

A phylogenetic explanation is one that entails some reconstruction of the evolutionary steps by which behavioral control mechanisms attained their current form. Stretching the machine analogy a little further, it is like an account of the successive

tweaks by which an earlier prototype was transformed into the current model: “development” over generations rather than within a single life. This is a legitimate scientific question, but it has been the least explored of Tinbergen’s four, largely because it is the least amenable to experimental approaches.

Most evolutionary hypotheses and research programs address Tinbergen’s fourth and final “why”: the question of *adaptive function*. What is some focal aspect of behavior (or of the brain/mind that generates behavior) *organized to achieve*? If you were to ask an ornithologist why birds sing, for example, you probably would not be satisfied with information about song nuclei in birds’ brains (cause), nor by being told that some species learn their songs from older singers and others do not (ontogeny). What you almost certainly wanted to know is “what is the point?” Does song function as courtship? as threat? *What does the singer get out of it?* Fifty years ago, many life scientists dismissed such questions as misguided “teleological” efforts to explain action in terms of its consequences rather than its antecedents, and some still harrumph that science can only address “how”, not “why”. But it is the harrumphers who are naive. Anyone who dismisses functional hypotheses in this way has failed to grasp a simple truth: The discovery of evolution by natural selection made questions of function legitimate, by providing a fully materialistic meaning to the proposition that the outcomes accomplished by some attribute of mind or behavior constitute the reason it exists (Williams 1966).

It is ironic that hypotheses about adaptive function may be disparaged as more speculative and less scientific than hypotheses about proximate causation. Investigations of causal mechanism are virtually always planned and carried out in the shadow of implicit functional hypotheses (Mayr 1983). It was only in the seventeenth century that William Harvey correctly theorized that the heart’s function is that of a pump, and until he did so, progress in vast domains of physiology was impossible. Similarly, all of neuroscience is predicated on the relatively recent discovery that information processing is what neural tissue is “for”.

In this light, it is disappointing that analyses of “gendered behavior” are often carried out in the absence of any notion, sound or erroneous, about what sex and the male-female phenomenon are “for”. This essay aims to convince readers that understanding the functional significance of the male-female distinction is essential for understanding why men and women do not think and act identically. But before addressing this basic issue, some further introduction to adaptationist thought about evolved function is required.

14.3. NATURAL SELECTION, ADAPTATION, AND PATHOLOGY: A BRIEF PRIMER

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The unifying conceptual framework of the life sciences is Darwin’s theory of evolution by selection. A human being or other organism is a complex system and that complexity

requires explanation. Pre-Darwinian thinkers could only suppose that one or more creatures analogous to ourselves, but unimaginably more powerful, must have designed and created us. Such creationist theories have at least two flaws that make them scientifically worthless: They merely shift the unexplained complexity to invisible creators, thus solving nothing, and they are devoid of testable implications that could arbitrate among the numerous competing versions, whose claims for credence invariably rest on bald assertions of authoritative revelation. Nevertheless, for want of a better idea, even biologists were creationists until 1858, when Charles Darwin and Alfred Russel Wallace's discovery of the natural process that generates complex adaptation automatically was announced to a meeting of the Linnaean Society in London.

Darwin and Wallace (1858) note that random variation is ceaselessly generated in populations of reproducing organisms and is then winnowed by nonrandom differential survival and reproduction. The result, they argue, must be that the more successful forms proliferate while their alternatives perish, and adaptive complexity is therefore cumulative over generations. Darwin calls this process "natural selection", analogizing it to the selective breeding practiced by farmers intent on improving their stock. All the processes that the theory entails have since been abundantly confirmed (Endler 1986; Freeman and Herron 2007). No other viable explanation for complex adaptation in the living world has been proposed, nor is there any evident need for one. Like the atomic theory, which is still, after all, "just a theory" of the nature of matter, the theory of evolution by natural selection has attained the status of basic "fact".

It is crucial to note that Darwinian selection is not simply a matter of differential survival, as might be inferred from the catchphrase "survival of the fittest." Over generations, it is successful attributes that "survive," not individuals, and their persistence depends not merely on the longevity of those who possess them, but on the abundance of their progeny. It follows that the adaptive attributes of any creature have been "designed" by the Darwinian process to promote a single outcome: reproductive "fitness", which refers to the expected value (in the statistical sense) of a phenotypic design's success in promoting the replicative success of its bearers' genes relative to their alleles (alternative variants at the same genetic locus). In less technical language, what this amounts to in humans is the capacity to out-reproduce same-sex rivals. Same-sex rivalry is stressed because males in a population are engaged in a zero-sum competition for half the parentage of future generations, and females are engaged in a parallel zero-sum competition over the other half. It follows that *competitive* conflict is primarily a within-sex affair, a crucial insight for understanding why crime and violence take the particular forms that they do.

Adaptationism is the scientific enterprise of elucidating the functional "designs" of organisms and their constituent parts. The most familiar meaning of *adaptation* is probably the process by which one becomes better adjusted to one's environment, but in evolutionary biology, there is a slightly different secondary meaning as well: an adaptation is an evolved attribute that promotes fitness. Thus, the human eye might be referred to as an adaptation, and so might a functional component thereof, such as the iris or cornea, or indeed even a statistical property such as the absorption spectra of its distinct classes of retinal receptor cells.

Because individual fitness can be quantified only relative to the performance of the population average, fitness promotion is ineluctably competitive and adaptations are not necessarily “nice”. Aggression and the capacity for violence, for example, are very clearly adaptations: they are typically deployed in ways that promote self-interest in competition with rivals, and there is a panoply of anatomical, physiological, and psychological machinery that is clearly “designed” for their effective use (Huntingford and Turner 1987; Wilson, Daly, and Pound 2010). Whether the human male furthermore possesses adaptations for the specific function of forced copulation with unwilling female partners is more controversial, and will be considered further below, but the fact that rape is abhorrent has no bearing on the answer. In other words, whether a certain type of behavior is antisocial and repugnant, and whether it reflects adaptation or pathology, are distinct questions.

The concept of pathology is incoherent without a prior concept of adaptations. Perhaps because violence is abhorrent and because it is a popular metaphor to call socially desirable outcomes “healthy”, it is also popular to disparage violence as “sick”. But to suggest that violence per se is pathological is simply false (Monahan and Splane 1980; Cohen and Michalek 1994). Pathologies are failures - due to mishap, senescent decline, or subversion by biological agents with antagonistic interests - of anatomical, physiological, or psychological adaptations, reducing their effectiveness in achieving the functions for which they evolved (Williams and Nesse 1991). The prototype is a fracture. Violence, by contrast, is a complex, strategically deployed behavioral capacity (Sell 2011). This is not to deny that there are pathologies of violence (Raine 1993; Aarland et al. 1996); any complex adaptation is vulnerable to pathology. But we cannot even identify pathology without a prior characterization of the structure and evolved function of the adaptation that has been disrupted.

An interesting issue in this regard is whether “psychopathy” is indeed pathological. Psychopaths are exploitative, antisocial, violent, and devoid of empathy. They are also overwhelmingly male; indeed, there has been debate about whether female psychopaths even exist. Not surprisingly, psychopaths are typically characterized as suffering from a disorder, but many are superficially charming seducers and effective in getting what they want. It has therefore been proposed that psychopathy may be an alternative male “strategy” rather than a pathology: a personality type that maintains its presence in populations because it thrives, reproductively, where it is rare (Mealey 1995).

Certain technical arguments have granted weight to this idea, making it more than an idle speculation. First, there is some evidence that psychopathy is a taxon: a discrete state with a suite of functionally integrated attributes, rather than a condition of greater or lesser severity (Harris, Rice, and Quinsey 1994). Second, the relationship between scores on diagnostic instruments for psychopathy and other signs of pathological development is precisely the opposite from that expected and observed with unequivocal disorders such as early-onset schizophrenia or various forms of developmental delay: higher scores on a psychopathy checklist, which can be interpreted as higher likelihood of being correctly placed in the taxon, are associated with lower rather than higher rates of birth complications and with greater rather than lesser bilateral symmetry (Lalumière,

Harris, and Rice 2001). These findings support the hypothesis that psychopathy is not a pathology but is repugnant, antisocial adaptation. Whether this hypothesis is correct is far from settled (Glenn, Kurzban, and Raine 2011), but the verdict ought not to be influenced by the consideration that the behavior of psychopaths happens to be despicable.

Adaptationist analysis is the cornerstone of biological discovery, and it always was, even before Darwin's theory made it evident *why* this strategy of functional parsing of the organism works (Mayr 1983). Harvey, for example, was led to his insight that the heart's function is to circulate the blood because he observed that there were valves in the veins and wondered what function *they* served. Once adaptationism was combined with the recognition that natural selection is the architect of adaptations, however, it became considerably more powerful, because the hypotheses about function worthy of test were now constrained: A correctly identified adaptation must promote fitness. For a highly readable, book-length elaboration of modern adaptationism, see Dawkins (1986).

14.4. WOMEN AND MEN IN COMPARATIVE BIOLOGICAL PERSPECTIVE

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With this brief introduction to evolution, let's turn to sexual reproduction and the sexes. Sexual reproduction is the process whereby two parents' genetic material is combined to produce a genetically distinct offspring. Nonsexual reproduction is certainly possible and is widespread among animal species. Parents who dispense with sexual reproduction produce clones of young who are genetically identical, whereas sexual reproduction produces individuals with unique genotypes. Under what circumstances and why reproduction is sometimes sexual and sometimes not has been a lively area of evolutionary theorizing and research (Williams 1975; Otto 2008), but that would be a tangent for present purposes. The important point here is that sexual reproduction creates inevitable conflicts of interest: Because it produces genetic non-identity, the events that would maximize one party's fitness are typically different from those that would maximize anyone else's, even one's closest kin, and conflicts of interest necessarily follow (Trivers 1974). In a sense, all conflict between individuals within a species, including exploitative crime against persons, is thus a consequence of sexual reproduction.

Sexual reproduction furthermore entails a peculiar social relationship: that of mates. Because preferences have been shaped by selection to promote expected fitness and because the well-being, survival, and eventual reproduction of an offspring contributes to the fitness of both parents, the resource allocations and other states of affairs that appeal to one parent are likely to have appeal for the other as well. There is thus a commonality of purpose between mates, which is, like the commonality of purpose between genetic relatives, ultimately traceable to correlated fitnesses. However, the relationship between mates also entails endemic conflicts (Arnqvist and Rowe 2005; Parker 2006). The fact that both parties accrue expected fitness from either's investments in the welfare of their

joint offspring opens the door to the evolution of free-rider strategies and various sorts of coercion.

This brings us to the essence of the male-female phenomenon. In comparative perspective, *Homo sapiens* is not merely a sexually reproducing species, but a *dioecious* species: Individuals come in two varieties, female and male, and successful reproduction requires one of each. Not all sexually reproducing creatures are dioecious, and the problems of parasitic exploitation and coercion of mates apply even among monomorphic hermaphrodites. The additional twist that dioecy adds is the evolution of two distinct morphotypes, with distinct attributes that are partly complementary and partly antagonistic.

In dioecious organisms, the female is, by definition, the morphotype that produces the larger gamete: Eggs are bigger than sperm. One crucial consequence is that when internal fertilization (the union of parental gametes inside one parent's body) has evolved - as has happened independently in many different evolutionary lineages - it has almost invariably evolved to take place within the female rather than the male. In such lineages, the stage was then set for further evolution of sexually differentiated modes of internal nurturance, such as mammalian pregnancy and lactation, with the female literally left holding the baby. This sexual differentiation of the evolved mechanisms of "parental investment" (Trivers 1972) opened the door to the evolution of parasitic exploitation of female reproductive efforts by males: Females often invest vastly more time and energy in nurturing each offspring than do males, who can vanish after conception and still gain the full fitness benefits of successfully raised young. Various sex differences in the psychophysiological paraphernalia that we call *sexuality* follow logically from this asymmetry (see, e.g., Symons 1979).

In other words, insofar as reproductive efforts can be partitioned into the pursuit of matings versus parental investment, males in taxonomic groups with internal fertilization generally specialize in the former and females in the latter (Trivers 1972; Low 1978). One significant implication is that the principal factor limiting male fitness is often the number of mating partners, whereas female fitness seldom profits analogously from increased numbers of mating partners and is instead generally limited by nutrient availability (Bateman 1948; Trivers 1972). Since the minimal time and energy cost of producing a viable offspring is much lower for a male than for a female, males can reproduce at shorter intervals and higher rates (Clutton-Brock and Vincent 1991), and the ceiling on their potential reproduction is higher. Hence, the variance in reproductive success is usually higher for males (*effective polygyny*; Daly and Wilson 1983, pp. 151-152) and the proportion who die childless is also higher, engendering more intense male-male competition and the selective favoring of more expensive, dangerous, and competitive tactics. That is partially why male mammals so often have specialized weaponry that can be used for same-sex combat and are more muscular than females. Moreover, insofar as males are specialized morphologically and psychologically for violent competition with other males, and insofar as male fitness is largely determined by the frequency and exclusivity of mating access, it is hardly surprising that males should also sometimes use their adaptations for violence to coerce and control females.

The above is a gross, generic characterization of how the sexes differ in many animals, including the class *Mammalia* to which humans belong. But there is, of course, considerable diversity even within the mammals, and the patterning of that diversity is also intelligible. The extent to which males have higher fitness variance, grow larger, die younger, and otherwise differ from females varies greatly even among closely related species, and these aspects of sexual differentiation are strongly correlated with one another. Most notably, wherever pairs remain together and care for their young cooperatively - as foxes, beavers, and some monkeys do, for example - these sex differences are diminished. Biparental care of this sort is rather rare in mammals, presumably at least partly because it is difficult for males to have reliable cues of paternity, with the result that fathers are vulnerable to *cuckoldry* (unwitting investment in young sired by rivals) and paternal investment is therefore *evolutionarily unstable*. Nevertheless, there are mammalian species with biparental care of the young and mateships that can persist for years, and *Homo sapiens* is, of course, one.

Our biparental care should not be over-interpreted as evidence that humans are “naturally” monogamous. The prevalence of adulterous fantasy and action demonstrates that entering into a potentially reproductive union does not abolish interest in other possible mates, and the same is implied by the ubiquity of countermeasures to adultery (Wilson and Daly 1992). Moreover, the ethnographic record reveals that men are ardent polygamists when opportunity permits: In a majority of known human societies - including all those who subsist by foraging, as all people did for most of human evolutionary history - most marriages are (at least serially) monogamous, and yet some men of high status manage to have multiple wives simultaneously (Betzig 1986). Nor can we conclude even that women are “naturally” monogamous although men are not, for a growing body of evidence suggests that human females may also have adaptations for mating polygamously under some circumstances (Thornhill and Gangestad 2008). Nevertheless, the evidence is abundant and unequivocal that women are less polygamously inclined than men (Symons 1979; Daly and Wilson 1983).

14.5. EFFECTIVE POLYGyny AND DANGEROUS COMPETITION AMONG MALES

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Homo sapiens exhibit a number of sex differences that may be interpreted as evolutionary vestiges of a selective history as an effectively polygynous species (i.e. one in which male fitness variance exceeds female fitness variance), with the result that competition among men has been more intense than that among women. These vestiges include sex differences in body size, maturation schedules, intrasexual combat, and rates of senescence. Little wonder, then, that men kill other unrelated men at higher rates than women kill unrelated women and have apparently done so throughout human history and in all societies (Daly and Wilson 1988, 1990).

In the several sexually differentiated attributes listed in the preceding paragraph, the sexes differ more in human beings than in monogamous mammals but much less than in extremely polygynous mammals such as bison, various seals, or the great apes. Likely implications are that the human species evolved as a slightly polygynous one and, more specifically, that pair formation with biparental care is an ancient hominid adaptation but that competitively ascendant men continued to be polygamists. That, of course, is also what is suggested by the ethnographic record of marriage practices, and it can now be corroborated by genetic analyses as well. For example, in both *Homo sapiens* as a whole and in discrete subpopulations, the most recent common ancestor (MRCA) of mitochondrial DNA, inherited matrilineally, lived about twice as long ago as the MRCA of Y chromosomes, inherited patrilineally (Wilder, Mobasher, and Hammer 2004). This implies that men have incurred a substantially higher rate of reproductive failure than women for many millennia (Lohmueller, Degenhardt, and Keinon 2010).

In sum, a suite of anatomical, psychological, and behavioral sex differences covary in magnitude in comparisons across species, apparently as a result of the variable magnitude of the sex difference in reproductive success variance. Indeed, there are animal species (none of them mammals), in which males are the primary caretakers of the young and females have greater fitness variance than males, and in such cases the usual sex differences in body size and combativeness are reversed (Trivers 1972; Gwynne 1991). These reversals provide some of the strongest evidence for the theory that sex differences in competition derive from differences in parental investment and potential reproductive rate. Compared to most mammals, including the great apes that are our closest relatives, *Homo sapiens* actually has rather small sex differences in this suite of traits. However, they play out in a dramatic sex difference in the use of dangerous tactics of social competition, including violence and other criminally self-interested acts.

A zoologist from Mars, equipped with an understanding of sexual selection but with no knowledge of *Homo sapiens* beyond that provided by a few dead specimens, would correctly infer that men compete more intensely and dangerously than women. It is not so clear, however, on what basis one could predict the *magnitude* of this sex difference, and some have suggested that it is surprisingly large in view of our species' biparental practices and relatively slight sex differences in fitness variance and body size. Our physical sex differences are not, in fact, so slight when one considers other metrics such as muscle mass rather than mere skeletal length (Lassek and Gaulin 2009), but the question of why sex differences in competitive violence are as large as they are remains open. A satisfactory answer to this question requires greater consideration of human beings' uniqueness in the extent to which competition is fought out not simply between individuals but between cooperative *coalitions* of men (Johnson and van Vugt 2009; Flinn, Ponzi, and Muehlenbein 2012).

These general remarks about the human species should not be read as dismissive of cross-cultural diversity. Of particular interest in the present context is the great variability among societies in lethal competitive violence. Variability in homicide rates resides primarily in cases of men killing unrelated male rivals, with the effect that such cases comprise a growing proportion of all homicides as the gross homicide rate increases

(Daly and Wilson 1988), and income inequality generally proves to be the best predictor of this variability across nation-states and other polities (Daly and Wilson 2001; Ouimet 2012). These patterns sit well with the evolution-minded argument that criminal violence derives from competition for the means of reproduction, and that variability therein reflects societal differences in the degree to which resources are inequitably partitioned. High homicide rates in some non-state (“primitive”) societies might seem to constitute evidence against the primacy of inequality, since these societies lack money, have few forms of material wealth, and are allegedly “egalitarian”; however, such societies are not at all egalitarian with respect to marital and reproductive opportunity, and violence appears to be most severe in those in which polygamy and male fitness variance are greatest (Chagnon 1988). Thornhill and Fincher (2011) make the case that another major evolutionary driver of societal differences in violence is the variable prevalence of infectious disease, which supposedly affects optimal levels of outgroup hostility, but analyses supporting the importance of this variables still indicate that its relevance is mediated through its effect on unequal opportunities for male competitors.

14.6. VIOLENCE AGAINST WOMEN

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Most violence, whether criminal or legitimized, is inflicted upon men by men. The evolutionary theories reviewed above help us understand why. But an evolutionary perspective also sheds light on the questions of why and in what ways male and female agendas conflict, such that men may be motivated to victimize women.

As was discussed in Section 14.4 above, sexual reproduction creates conflict between the sexes because each parent can gain fitness from the other’s parental efforts and can profit from letting the partner shoulder most of the work. Another major arena of conflict is mate choice. In mammals generally, including humans, females surpass males in both their obligate and their typical levels of parental investment, and are thus a contested limiting resource from the male perspective. This puts females in a position to choose who will sire their young, unless their choices are circumvented or coercively constrained. Men, in other words, have incentives to control women’s mating and reproduction in ways that are not necessarily in a woman’s interests; this applies not just to her mates and potential mates, but also to her kin, who often wish to control her marital and reproductive career for their own political purposes. Wilson and Daly (1992) dub these motives and their manifestations “male sexual proprietariness” and present diverse evidence that this conflict domain underpins a large proportion of violence against women, especially intimate-partner violence. This focus has led to several discoveries about demographic and circumstantial risk factors for such violence (Wilson, Johnson and Daly 1995; Wilson and Daly 2009).

Another major category of violence against women is sexual assault. One anthropologist has summed up the cross-cultural evidence on sexual politics as follows: “everywhere sex is understood to be something that females have that males want” (Symons

1979, p. 253). The insight that women's greater parental investment makes them a chronically scarce resource for males (Trivers 1972) provides a compelling explanation for this cross-culturally universal aspect of human affairs. The potential relevance to sexual assault should be obvious.

Some male insects court females by offering prey they have killed or scavenged, but when a male is unable to locate prey, he may switch to an "alternative strategy" of deceptive advertising and forced copulation (Thornhill 1980). The females resist males who offer no "nuptial gift", but the males have anatomical structures whose sole function is apparently to immobilize struggling females and force them to mate. This secondary tactic, which has been called "rape", has lower fertility than "honest courtship", mainly because victimized females have counter-measures for preferentially using the sperm of honest suitors to fertilize their eggs. These discoveries inspired Thornhill to hypothesize that rape in the animal kingdom may often be a non-preferred, low-yield mating tactic resorted to by competitively disadvantaged males

It is hard to overstate the outrage that this suggestion has provoked. Scores of writers, including many biologists, are offended by the very use of the word "rape" with reference to the behavior of nonhuman animals. More vociferous, and more clearly wrong-headed, are the many objections to the idea that facultative resort to rape could possibly be an adaptation. These objections scarcely ever entail either counter-evidence or counter-arguments, resting primarily on a version of the "naturalistic fallacy" which sees naturalistic interpretations of rape as justifying or excusing it and on a curious dogma that because rape is an act of violence and control, it is therefore "not sexual". Thornhill and Palmer (2000) dissect and dismiss these objections and, although their proponents remain unswayed, there is little point in discussing them further. More interesting is evidence reviewed by Lalumière et al. (2005) that many male rapists are *not* "competitively disadvantaged" but have higher than average numbers of consensual sexual partners. This suggests that part of what makes some men rapists may be an atypically high motivation for polygamous / promiscuous mating.

An alternative to the hypothesis that rape is a facultative adaptation is the possibility that it is a "byproduct" of other adaptations. The essence of this alternative is that rape per se has not been favored by natural selection, but selection on males *has* favored both coercive capability (for its utility in other contexts) and strong sexual motivation, and the confluence of these two adaptations incidentally produces rape. Thornhill and Palmer (2000), Lalumière et al. (2005), and Ellsworth and Palmer (2011) all maintain that the predictions that can be derived from these alternatives are so similar that no conclusions can yet be drawn about whether there is any aspect of male physiology or behavior that should be interpreted as adaptation "for" rape.

Some critics charge that if rape were an adaptive mating tactic, it should be as fertile as (or more fertile than) consensual sex, but this is clearly wrong. In insects in which forced copulation is unequivocally an evolved male tactic, it is nevertheless less fertile than consensual copulation because the females possess counter-adaptations for avoiding fertilization by nonpreferred males. These are to be expected in any species in which forced copulation is prevalent. Most evolution-minded investigators probably agree that

the evidence for human female adaptations for avoiding being impregnated by rapists is stronger than the evidence for human male adaptations for perpetrating rape (Ellsworth and Palmer 2011; McKibbin and Shackelford 2011).

Oddly, one candidate male rape adaptation that has not been scrutinized in this context is the very capacity to complete the sexual act in interaction with an unwilling partner. A priori, there appears to be no reason to presume such a capacity. For example, the males of certain rodent species rightly fear females, who sometimes kill them, and apparently require female solicitation before they manifest sexual arousal. In any event, rape has been part of the human landscape for millennia, and has often impregnated and otherwise affected the lives of large numbers of women, especially in war (Swiss and Giller 1993; Ferrales and McElrath, this volume). The possibility that it has played some role in human evolution cannot be dismissed out of hand.

14.7. IS AN EVOLUTIONARY OVERVIEW CONTROVERSIAL?

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Attempts to bring evolutionary insights to bear on sex differences often elicit hostile criticism, a good deal of which derives from a failure to grasp the complementarity of Tinbergen's levels of explanation (see Section 14.2, above). Many social scientists see "biology" as some sort of alternative or antidiscipline to their own fields and imagine that biologists attribute human traits to genes, testosterone, and other such "deterministic" causes rather than to learning and social influences. This is, of course, a false opposition. Learning and responding to social influences are things that *only* biological organisms do, and the *ways* in which creatures learn and respond to social influence have evolved by natural selection.

Many people (including the majority of US citizens) do not "believe" in evolution because "divine revelations" contradict it. Some academic critics of evolutionary approaches to the human sciences explicitly distance themselves from religiously motivated anti-evolutionary creationism before going on to insist that evolution has no relevance to "gender" or "learned behavior" or human psychology. The case can be made, however, that such critics are often subtly influenced by religious creationism nonetheless, for it is religious creationism that prevents basic biology from being a part of a standard social science education and thus facilitates the perpetuation of false dichotomies like "biological versus social".

These problems seem especially acute in discussions of sex differences. The proposition that male and female attributes have an evolutionary history and a functional rationale is widely misconstrued as a denial that they also have an ontogeny. A notorious case of such confusion is the "social role theory" of Eagly and Wood (1999), whose emphasis on social influences in sex role development backed them into an absurd corner, arguing that natural selection has had sexually differentiated impacts on virtually every

component of the human body except the brain. See Archer (2009) and the ensuing commentaries for a lively discussion of this example.

This is not to deny that there are legitimate controversies about specific evolutionary ideas. Campbell (1999) argues that sex differences in violence derive not only from sex differences in fitness variance but also because the requirements for producing surviving offspring place a greater premium on “staying alive” for women than for men. Thornhill and Gangestad (2008) argue that polygamous inclinations are an important aspect of the evolved sexual psychology not only of men but also of women. Brown, Laland, and Borgerhoff Mulder (2009) complain that the Bateman-Trivers model of “competitive males and choosy females” is excessively “stereotypical” in its application to the human case, failing to capture cross-cultural diversity. These and other controversies are substantive and worthwhile to the degree that they stimulate the formulation of testable alternative hypotheses, research and discovery.

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