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Book Review

The Mating Mind. By Geoffrey Miller, New York: Doubleday, 2000.

Reviewed by John D. Wagner

Why have humans evolved such costly and complex brains? And further, why do we use our brains to produce such seemingly useless behaviors as art or music? Evolutionary psychologist Geoffrey Miller suggests that the reason might lie in what he considers to be Darwin's most significant contribution to evolution: sexual selection. Sexual selection is different than natural, or "survival" selection, which refers to environmental factors such as climate or predators that affect reproductive success. Sexual selection is much more direct and potentially powerful; it is shaped by the mate preferences of the opposite sex. For these reasons, Miller believes that the inherently awesome power of sexual selection has profoundly affected the equally awesome trajectory of our own species mental evolution through mate choice. *The Mating Mind* provides a thorough analysis of how this devil lurks in the details.

Central to Miller's argument is the concept of honest signals of phenotypic fitness, or 'fitness indicators' drawn from Zahavi's now increasingly accepted mechanism of inter- and intra-sexual communication (1975). Essentially, an honest fitness signal is just that—honest, meaning it can't be faked and is therefore a reliable indicator of the health and, for evolution's purpose, the genetic quality of a potential mate. Given that combining one's DNA with that of another is the name of the game for sexually reproducing species, selection on any traits that impinge on this process should be especially intense. All of this is rather well accepted by evolutionary biologists, and mechanisms of sexual selection in action are reported with increasing frequency in the animal literature. Miller's contribution, however, is to apply this same logic to the mental traits that make humans unique: language, art, morality, and creativity to name just a few.

Miller's professed goal is to explain human mental traits and he wastes no time outlining his agenda: The human mind's most impressive abilities are "courtship tools, evolved to attract and entertain sexual partners" (p. 4). He suggests that viewing our minds as not *only* simple survival machines but also as courtship machines will remove the conceptual blinders that have prevented meaningful analysis of certain mental traits, which have previously languished under unsatisfying and unconvincing functionalist interpretations. Take for example, musical ability: The frequently trotted out explanation is that music functions to enhance group cohesion or solidarity. However, in bird species particularly, song production is clearly a means of advertising the vigor of its producer. Sexual selection views organisms as advertisers of their phenotypic fitness, and it is this component that Miller refreshingly injects into many evolutionary psychological exegeses, where it has been sorely lacking.

So what exactly is a 'fitness indicator'? Miller lays out the characteristics: It should have wide phenotypic variability; males should be the sex that typically displays it more overtly; and it should be more prominent in sexually mature adults rather than youth. Also, it should be costly to produce. According to these criteria, a wide range of traits fall into this category, and Miller presents a lucid argument for how sexual selection has shaped mental traits into their current manifestation. His basic logic is sound. His arguments are well presented and convincing as far they can take us; however, a number of concerns do arise.

For one, we are left with the ineluctable conclusion that humans alone have seized on mental traits as fitness indicators and that sexual selection through mate choice has driven the emergence of creativity, intelligence, wit, humor—in short, all that which makes us human. One rather trifling problem previously leveled against Miller's argument is whether mental traits actually indicate fitness or not. My hunch is that they do but in a much more purposeful way than Miller would have it. As I understand him, uniquely human mental traits have not been subject to regular old natural selection but have simply evolved because they served as proxies of general fitness, and as such, sexual selection has taken over to elaborate these traits. This leads to a more serious problem in my opinion, which is, why did this process take off in the human brain alone? Surely of all the creatures that have graced earth, others would have embarked on a similar evolutionary process? As Miller states, "If human intelligence and creativity were so useful, it is puzzling that other apes did not evolve them." Here he gets to the crux of the problem. The only detectable explanation was that it might have been due to unpredictable "initial conditions" in which runaway selection scenarios commence. Miller might have allowed himself a backdoor by claiming that other species select for other mental traits and that this can be a somewhat random process leading to wildly divergent outcomes. But this doesn't seem to be his position, given statements such as "Sexual selection seized upon the ape brain as a set of possible fitness indicators" (p. 131). As such, Miller comes frighteningly close to Gould's "spandrel," or byproduct, explanation for human brain evolution, even though he is at pains to point out that this is not what he's saying. Instead of totally whimsical brain evolution as Gould would have it, we are left with only a slightly less touchy-feely version: that big brains evolved because they are entertaining (and of course because they are indicative of some more abstract fitness quotient, although this is never spelled out explicitly).

Part of this problem may stem from the fact that Miller bifurcates natural and sexual selection into two distinct processes. This is problematic considering that, in humans particularly, there may exist a close connection between sexual and natural selection owing to humans becoming ecologically dominant at some point in our past. As such, other conspecifics began influencing our evolution much more directly. Therefore, "survival" selection will probably start to look a lot like sexual selection because the dominant environmental feature influencing hominid reproductive success, particularly in the realm of social cognition, was other hominids.

In reality the twin evolutionary processes of natural and sexual selection are virtually inextricable from each other. A more fruitful model would likely involve treating them as partners in the evolutionary dance. For example, it is probable that sexual selection, or mate choice, tracks and periodically locks onto traits that increase reproductive success. This mechanism accelerates the rate of adaptation and, as a consequence, sexually selected traits can become extremely elaborate and potentially overshoot an adaptive peak (Wright 1930). At this point, natural selection might intercede to arbitrate the situation in a dialectic process. The important point is that in order for a mating preference to spread, it must by definition be

successful in replicating. Miller seems to be missing the trees for the forest when he states, "It doesn't matter why [females] evolve this preference… perhaps there was a mutation" (p. 71). As we have seen, at minimum, mating preferences must pass through the sieve of survival selection. A female preference for men who stab them in the belly when it periodically increases in size will probably not spread. Conceiving of sexually selected traits as incipient adaptations also alleviates the nagging circularity in explaining where sexual preferences come from. At some intrinsic level, natural selection sets the rules of the game and keeps the score, even if the playing field can become exceptionally large and varied.

Take for example, Miller's explanation for how traits can become elaborated through assortative mating even when directional selection is not operating. Essentially, those with strong manifestations of a trait will tend to mate together and produce offspring that are even higher on that trait. However, the tacit assumption is that wittier, more creative, more moral, what have you, individuals were also fitter than their lowbrow neighbors, which actually must have been true on average, although it is difficult to see what sexual selection contributes to this argument. It is just as conceivable that selection could have favored organisms that allocated minimal energy to developing elaborate neural circuits, and rather put more effort into developing seemingly more practical structures, such as larger bones and muscles, which, incidentally are characteristic of many terrestrial Cenozoic mammals. The fact that humans did not take a similar route requires explanation: Why were genes for smarter brains more successful than genes for bigger bones and muscles? Which environmental and social factors might have been important? And why did this process occur so dramatically in one small twig of the hominid bush?

By bringing such a broad range of phenotypic traits to bear on his argument (everything from storytelling to breasts to sports), Miller risks explaining everything and by doing so explaining nothing—a charge to which he is sensitive. Miller is probably guilty of greedy theorizing, but as he points out, psychology may be due for an "indecently powerful" theory. Overstating the case for sexual selection may be forgivable in this case given the purpose of his mission, which is to stimulate research on sexual selection in humans—a missive that appears to have taken effect (Kanazawa 2000).

Miller sees sexual selection at work everywhere and he probably is right. However, evolutionists' most cherished interrogative continues to lurk in the background: Why? Why have humans formed mate preferences for wit, humor, creativity, and intelligence? Why do we admire musical ability and adept oration? Although he presents a compelling case for how sexual selection might have accelerated or elaborated certain mental traits, in the end we are still no closer to understanding why these traits were selected, unless of course we invoke random initial conditions, a rather unsatisfying, and at this point premature, conclusion to most scientific minds. Ultimately, it is difficult to shake the feeling that Miller is describing a mechanism rather than providing an explanation.

As one of evolutionary psychology's most gifted writers Miller has no doubt contributed a significant volume. Although written for a lay audience, the plethora of information contained in *The Mating Mind* should serve researchers well. The ideas presented are sure to stimulate discussion for years to come, and as such, should earn it a place on the bookshelf of every person interested in evolutionary theory as applied to humans.

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Nor are the responses to Geoffrey Miller's new book, Spent, particularly original. First came a lengthy piece in Newsweek by Sharon Begley entitled "Why Do We Rape, Kill and Sleep Around?" in which the usual straw men were lined up and decapitated: disregard of culture and context, genetic determinism, and - paradoxically - ignorance of recent genetic discoveries. David Brooks followed up with an equally misinformed opinion piece in the New York Times, in which he excoriated Miller for stating that "listening to Lynyrd Skynyrd is a sign of low intelligence".Â His theory, eloquently advanced in The Mating Mind (2000), that the evolution of human intelligence was shaped more by sexual selection than by natural selection, sets him apart from the mainstream.