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Book Review

A Look Inside Human Reproductive Activity: An Incomplete View

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A Review of the Book

How We Do It: The Evolution and Future of Human Reproduction, by Robert Martin. 2013.
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Introduction

Several sciences, like chemistry, physics, biology/medicine, genetics, and engineering, have a long history of generating knowledge that transitions to practical applications to solve to human problems, and thus, improve the human condition. Evolutionary science is not among those with a long history in applying its research to practical problem solving. Recently, a number of evolutionary scientists have provided support for this position in publications like *Darwinism Applied* (Beckstrom, 1993), *Applied Evolutionary Psychology* (Roberts, 2012), *Pragmatic Evolution* (Poiani, 2012) and the journal *Evolutionary Applications*. Others have made an effort to encourage this position with special interest in evolutionary science (see www.aepsociety.org). With this in mind I was particularly interested in reading and reviewing the book by Dr. Robert Martin, a well-respected evolution-based biologist/anthropologist. He offers to provide evolutionarily informed practical information regarding human's most highly motivated activity: sexual reproducing.

Upon reading the title "*How We Do It: The Evolution and Future of Human Reproduction*" my attention was captured. The title itself elicited an anticipation of new insights into human evolved sexual behavior. I was additionally encouraged upon reading that "The scientific mysteries explored will, I hope, lead readers to better decisions on their reproductive journeys. Ultimately, my goal is to enhance the richness and naturalness of the reproductive experience by connecting it with the entire history of *Homo sapiens* …" (p. X).

The book offers some interesting evolution-based information and proposes a few applications for improving reproductive outcomes. For example, in Chapter 1 Martin discusses "Sperms and Eggs." He presents thought-provoking research showing sperm count decreases since the 1950s coincident with a variety of environmental factors (pp. 17-19). He shows that the decreases and "increasingly frequent abnormalities of the male reproductive system" (p. 18) have been reported for the years 1989 through 2005. Various environmental factors are considered as causes, such as tobacco smoking, immoderate use of alcohol, and exposure to bisphenol A (BPA) found in many plastics. While none are presented as definitive, all are preventable from a practical perspective. He writes of the effects of heating and cooling on sperm activity and quality. Excessive heat applied in the scrotal area reduces sperm production and fertility while cooling the scrotal area may increase sperm production and fertility. Sounds practical, but the author adds "the method has not led to any practical application" (p. 14).

Martin cites research that supports the position that in vitro fertilization procedures may be more effective during "the months with extended day length (April-September) compared to months with shorter day length (October-March)" (p. 49). This finding appears to be an important one with practical application for enhancing reproductive outcomes. He addresses "morning sickness" experienced by pregnant women (p.102-104). He covers the contribution of Margie Profet (1997) and the subsequent work of Flaxman and Sherman (2000) who examined this experience under the lens of evolution and showed that it is an evolved adaptation designed to protect the fetus from toxic substances, thus inducing nausea to avoid toxins or vomiting to expel them. This inclusion is practical knowledge in the management of this uncomfortable but beneficial maternal experience. The research covered has practical value for parents and child caretakers. As for methods of regulating fertility, Martin quotes another biological researcher, Luc Bovens, who concludes "the rhythm method may well be responsible for a much higher number of embryonic deaths than some other contraceptive techniques" (p. 213). The practical implication may be that this method of contraception carries with it some not so obvious but significant costs. Therefore, the book has numerous applied proposals such as the ones reviewed that the reader might appreciate.

How It Gets Done, Not How We Do It

Martin's approach in examining human reproduction is to review, primarily, biological, medical, and (some) evolutionary research. He does cite research that employs ethological methods when he examines breeding seasonality and cycles in Chapter 2 and mating in Chapter 3. Yet, he concentrates more on biological processes that bring about offspring and does not examine adequately how humans "do it", viz, how human mating partners *interact* during reproductive activity as partners to reproduce, to achieve other ends (see Meston & Buss, 2007) or as parents. He addresses some aspects of active human agency, "the doing", in his coverage of mating, feeding offspring, baby care (parenting), and man's inventive role in fertility regulation expressed in contraceptive, birth control and in vitro fertilization (IVF) procedures. Martin portrays reproduction as a set of activities that take place primarily *within* the internal biology and physiology of humans and other animals, and attributes no significant role to the psychological/

behavioral components of mating and parenting to his examination of human reproduction. Martin gives little attention to the role of active behavioral agency on the part of mating and parenting pairs. He neglects to address behaviors related to mutual mate attraction and selection, indicators of proposed gene and offspring quality, costly signaling by potential mates, long and short term mating strategies, sex-based parental investment differences, all of which are critical causal components of reproductive outcomes. He provides a detailed presentation of the complex female biological reproductive system and, appropriately, a simpler, less detailed presentation of the male reproductive system, as the sexes are in fact quite different reproductively.

This failing to cover the psychological/behavioral aspects of reproduction is especially glaring in his examination of "Mating" in Chapter 3 and "Baby Care" (parenting) in Chapter 7. Regarding mating, Martin narrows his coverage primarily to a brief evolutionary history of mating patterns (i.e., monogamy, polygyny, promiscuous and polyandrous mating). Yet, a comprehensive examination of the dynamics of mating *behavior* is critical to a full understanding of producing quality offspring (i.e. those who survive to have their own offspring thus perpetuating the genetic legacy in future generations) Martin fails to cover mating behavior in a fully evolutionarily informed manner. It is puzzling that not one well published evolutionary psychologist is referenced in "*How We Do It.*" One cannot get an effective handle on mating behavior, a primary component in the process of how we do it, without referring to the works of Buss (1994, 2005, 2008, 2012), Miller (2000), Geher and Miller (2008), or Gallup and Frederick (2010). Even Darwin and the Descent of Man are referenced only in relation to a brief discussion of male nipples (p. 153-155). Martin does cite Dixson's (2009) volume on sexual selection and mating systems that includes reference data from the work of evolutionary psychologists like Buss. However, Martin does not discuss any of the psychological/behavioral contributions to mating and reproduction found in Dixson and indeed, Darwin's sexual selection theory is not discussed by Martin. Also, he does not reference any evolutionary journal other than those addressing biological issues. Martin cites five references from evolutionary journals in his reference section of 28 pages of scientific articles (see p. 270, 272, 276, 280, 283). There is not one reference to an evolutionary journal that addresses the psychological/behavioral dynamics underpinning reproductive activities in humans. This omission does not appear unique to Martin. A recent book review (Deaner & Winegard, 2013) of a volume written by another respected evolutionary biologist, Marlene Zuk, offers a similar criticism (p. 267). While a sample size of two does not indicate a trend, it is disconcerting that such well-published scientists appear to be either ignorant of the rich literature in evolutionary psychology or decided to ignore its significance in explaining human nature and its related behavior.

As for parenting, Martin states in Chapter 3, in his discussion of mating, simplistically, that "… parenting by male mammals is not usually obligatory" (p. 59). This aspect of human reproductive activity would have been better examined in Chapter 7, "Baby Care." Here he appears to ignore the evolutionary literature that addresses the differential sex-related aspects of parental investment as found, for one example, in Thornhill and Gangestad (2008, Chapters 4 and 5), a volume Martin references (p. 260). He misses the opportunity to inform his readers about important parenting dynamics.

Martin does not address the sex-based differences in parental investment (and mating effort) and their evolutionary foundations. He misses a chance to enlighten readers about the practical value of this area of human behavior as an understanding of it can contribute significantly to enhancing relationships between females and males. While *Mothers and Others* (Hrdy 2009) is referenced by Martin, he does not take from that work an important practical reality that "it takes a village to raise a child" so well presented by Hrdy.

Martin addresses the issue of incest writing that "no discussion of human mating arrangements can gloss over the topic of incest" (p. 63). He writes that natural selection favored mechanisms that "curtailed mating between closely related individuals" (p. 64). He refers to avoidance of inbreeding as the problem to be solved. Martin cites the "kibbutz effect" (p. 65) as an explanatory dynamic but makes no effort to effectively explain the psychological/behavioral aspects of this dynamic to the reader as it relates to a fuller understanding of incest behavior. He does not reference the works of Lieberman et al. (2003, 2007, 2012) whose comprehensive examinations of incest provide strong support for the "Westermarck effect" and lays a foundation for practical problem solving in this area of human reproductive behavior.

In his discussion of the procedures related to contraception in the final chapter, Martin shares some interesting information about fertility regulation. He astutely states that '"One striking finding is that the legalization of the pill in any given country is soon followed by a marked increase in the rates at which women participate in higher education and study through graduation" (p. 218). This finding has important practical application. But, he writes on page 198 that "Deliberate interference in our own breeding is unique to humans… there is no evolutionary precursor to birth control. Intervening in human procreation is decidedly *not* natural". This statement is not evolutionarily accurate. Hrdy (1979), in her examination of categories of infanticide in non-human animals, showed their practical, adaptive outcomes, in that mothers utilize a calculation of resource availability vis a vis current offspring to control the number of offspring. Following this work, Hausfater and Hrdy's (1984, 2008) edited volume shows that infanticide is well represented in a variety of nonhuman, ancestral species thus revealing its evolutionary roots. The data in these works present evolutionary precursors to current birth control procedures.

Martin also states that "… the evolutionary background to human reproduction rarely has been examined in depth" (p. ix). This statement is blatantly false. Books by Symons (1979), *The evolution of human sexuality*, Trevathan (1987), *Human birth: An evolutionary perspective* and by Potts and Short (1999), *Ever since Adam and Eve: The evolution of human sexuality*, all three of which Martin references, are excellent examples. All three are, in my view, written in a style that communicates quite adequately with the general public.

Conclusion

Martin's examination of human reproduction is incomplete, especially for the intended general public reader. Martin provides few practical suggestions clearly or directly, as he suggests in his Introduction and closing words. As is often the case in articles and books written by scientists, the reader is left to tease out of the scientific findings presented the

practical applications that are implied but not directly and clearly stated in the text. Unfortunately, from this reviewer's perspective, showing even the potential practicality of their work is not their intention. The task of discovering the practical value of scientific findings is not best left to the general public readership and this is the case, for the most part, in *How We Do It*. Dr Martin shares in his Acknowledgments section that "this is my first attempt to write for a general audience" (p. 236). It appears that he was inspired in writing this book to model Desmond Morris's "*The Naked Ape*" (Morris, 1967), a well-received and readable early evolutionary science-based book for the general public readership. Dr Martin cites that book and its author throughout the volume. However, unlike Morris, Martin does not achieve the simplicity and directness of communication with the general public reader.

Martin has not covered his topic of human reproductive activity as promised in a fashion that results in "connecting it with the entire history of *Homo sapiens*" (p. X). Martin demonstrates here the concern expressed by David S. Wilson, a prominent evolutionary biologist/psychologist, that scientists from various academic specialties and departments often fail to communicate effectively with each other and live in what he calls an "Ivory Archipelago" (Wilson, 2007, p. 2-4). It appears that Martin has not communicated effectively with colleagues in some essential areas of evolutionary science which adversely affected his attempt to explain reproductive activity in humans from an evolutionary perspective.

Dr. Martin deserves credit for making an effort to translate complex evolutionary science into language that engages the general public reader and to provide practical problem solving. In "*How We Do It*," he has not succeeded in that effort for reasons discussed above. Nevertheless, it is recommended that other scientists, especially those who identify themselves as evolutionary scientists, follow Dr. Martin's example and make an effort to show the practical utility of their research and theorizing.

ABOUT THE AUTHOR

Nicholas P. Armenti is an evolutionary clinical psychologist with a special interest in human reproductive behavior. He is a cofounder of the Applied Evolutionary Psychology Society (AEPS: www.aepsociety.org) and its current President. He is a member of the Northeast Evolutionary Psychology Society (NEEPS) and has been from its founding in 2005. In addition, he is a member of the Feminist Evolutionary Psychology Society (FEPS). He is preparing a paper for publication relevant to the evolutionary foundations of human reproductive activity. An abstract of a presentation of that paper may be found at: www.neepsociety.org, 2011- Program, p. 7, Armenti, N. P. (2011). *Contraception and other birth control procedures and their relationship to an adaptation designed for fertility regulation (FR)*.

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