Articles

SEX AND TEMPERAMENT IN MODERN SOCIETY: A DARWINIAN VIEW OF THE GLASS CEILING AND THE GENDER GAP

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Table of Contents

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* Associate Professor, Wayne State University Law School. © 1995 Kingsley R. Browne. The author would like to thank Cynthia Browne, David Buss, John Dolan, Joseph Grano, Owen Jones, Ariel Levi, Bobbi Low, Michael McIntyre, Ralph Slovenko, and Lionel Tiger for their valuable comments on an earlier draft of this article, as well as the participants in a faculty workshop at Benjamin N. Cardozo Law School. The author has also greatly benefited from discussions at the Conference on Law, Biology, and Human Behavior sponsored by the Gruter Institute for Law and Behavioral Research.

> [I]f social inequality based on sex is a serious problem, and if we really intend to do something constructive about it, we are going to need a comprehensive understanding of its causes. I am convinced that we will never adequately understand the present causes of sexual asymmetry in our own species until we understand its evolutionary history in the lines from which we descend.[1]

I. INTRODUCTION

Human beings are animals. As such, we—like all other living things—have been shaped over the course of our history by the forces of natural selection.[2] At one level, such an assertion is largely uncontroversial. We understand that the reason that humans have a bipedal form of locomotion is that bipedalism was adaptive in the past and presumably remains so in the present. Scientists may differ about the particular reasons that bipedal locomotion became established in our species, but few doubt that it was a product of natural selection. Although there may be theological objections to the general notion that humans have been shaped by natural forces and scientific disputes about the precise course that natural selection has taken us, the scientific case for the proposition that humans have evolved according to the principles of natural selection is overpowering.[3]

What does appear controversial in some quarters, however, is the suggestion that natural selection has presided over not only the morphological evolution of humans but over our psychological evolution as well. Yet the mechanisms that shape human behavior, no less than those that shape human anatomy and physiology, must be a product of the fundamental laws of biology. This is not a claim that we are genetically programmed automatons and that the environment "doesn't matter." It matters a great deal, but the environment per se "is powerless to act on the psyche of an animal, except in ways specified by the developmental programs and psychological mechanisms that already happen to exist in that animal at a given time."[4]

Over the last three decades, theoretical and empirical work in biology, psychology, and anthropology has provided powerful support for the conclusion that, to a much greater extent than is typically recognized, human behavioral tendencies are shaped by our biology. Everyone recognizes, of course, that the reason that humans do not (usually) behave like chimpanzees is that we are not chimpanzees, but there seems to be an underlying assumption that chimpanzees act the way they do because they are chimpanzees and humans act the way they do because they choose to.[5] There is a grain of truth in this

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1. SARAH B. HRDY, THE WOMAN THAT NEVER EVOLVED 14–15 (1981).
2. MARTIN DALY & MARGO WILSON, SEX, EVOLUTION, AND BEHAVIOR 279 (2d ed. 1983).
3. *See generally* TIMOTHY H. GOLDSMITH, THE BIOLOGICAL ROOTS OF HUMAN NATURE: FORGING LINKS BETWEEN EVOLUTION AND BEHAVIOR (1991).
4. John Tooby & Leda Cosmides, *On the Universality of Human Nature and the Uniqueness of the Individual: The Role of Genetics and Adaptation*, 58 J. PERSONALITY 17, 21 (1990).
5. *See* Carl N. Degler, *Darwinians Confront Gender; or, There Is More to It than History*, *in* THEORETICAL PERSPECTIVES ON SEXUAL DIFFERENCE 33, 37 (Deborah L. Rhode ed., 1990) [hereinafter THEORETICAL PERSPECTIVES] (noting that "[a]lmost all modern students of human behavior give lip service to the Darwinian principle that human beings are included in the process of evolution through natural selection, but in practice many see a sharp disjunction between animals and human beings when they try to account for human behavior").

assumption, since humans almost certainly have greater conscious control over their behavior than do chimpanzees. Although there is a tendency to envision a sharp break between animals and humans—viewing the behaviors of animals as largely fixed by biology and the behaviors of humans as largely independent of biology—students of behavior now reject that sharp dichotomy, believing that animal behavior is more environmentally sensitive and human behavior more biologically influenced than previously believed.[6] It is time to acknowledge that the assumption that our behavioral repertoire is unconstrained by our fundamental nature[7] is certainly wrong. Although it is conceivable, for example, that the state could forbid all sexual behavior, it could not forbid sexual desire, and given the strength of that desire it is extraordinarily doubtful that any society, no matter how totalitarian, could effectively forbid the behavior.

The idea of a fundamental "human nature" is resisted by many,[8] apparently out of concern that recognition of biological roots of human nature would deny the autonomy and dignity of the individual.[9] But to say that there is an underlying "psychic unity of mankind" is not to deny individual difference or personal autonomy. Indeed, the concept of such a unity had its origins in liberal notions of fundamental human equality. Many also have political objections to the idea of a fundamental human nature, fearing that appeals to a biological human nature are merely a subterfuge to maintain the status quo.[10] Nonetheless, an understanding of why we are the way we are is a precondition to our becoming the way that we hope to be.

An understanding of human behavior and psychology may illuminate many public policy issues. One of the thorniest sets of issues facing our society today is the appropriate role of the sexes—in the workplace, in the home, and in the political arena. Although no one doubts that at the core of our distinction between males and females is a biological difference in reproductive biology, the legal and public-policy literature largely ignores other biological sex differences, differences that extend beyond reproductive biology to temperament and behavior. Yet it is at least conceivable—and as I attempt to

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6. *See generally* JOHN T. BONNER, THE EVOLUTION OF CULTURE IN ANIMALS (1980); GOLDSMITH, *supra* note 3, at 109–16.

7. *See* John Dupré, *Global Versus Local Perspectives on Sexual Difference*, *in* THEORETICAL PERSPECTIVES, *supra* note 5, at 47, 50 (asserting that "human behavior is transmitted through culture rather than genes"). At one level, Dupré is correct: there are no genes for particular behaviors. *See* ROBERT PLOMIN, NATURE AND NURTURE: AN INTRODUCTION TO HUMAN BEHAVIORAL GENETICS 20 (1990). However, that is different from suggesting that behavior is not substantially affected by genes, for it certainly is. *See id.*

8. *See, e.g.*, Ruth Hubbard, *The Political Nature of "Human Nature,"* *in* THEORETICAL PERSPECTIVES, *supra* note 5, at 63, 70 (stating that "[i]t is questionable whether the concept of human nature means anything").

9. *See* Tooby & Cosmides, *supra* note 4, at 17.

10. RICHARD C. LEWONTIN ET AL., NOT IN OUR GENES: BIOLOGY, IDEOLOGY, AND HUMAN NATURE ix-x (1984) (asserting that "the social function of much of today's science is to hinder the creation of [a just] society by acting to preserve the interests of the dominant class, gender, and race"); Ruth Bleier, *Biology and Women's Policy: A View from the Biological Sciences*, *in* WOMEN, BIOLOGY, AND PUBLIC POLICY 19, 27 (Virginia Sapiro ed., 1985) (stating that "it takes little imagination to see how scientific theories become the basis for conservative or reactionary political programs and policies"); Herma H. Kay, *Perspectives on Sociobiology, Feminism, and the Law*, *in* THEORETICAL PERSPECTIVES, *supra* note 5, at 74, 75 (stating that "sociobiologists use sexual difference as a natural evolutionary justification for continued female exploitation").

show below, highly probable—that major aspects of sex roles in our society are strongly influenced by biological predispositions.[11]

It is a testament to the strength of our desire to disbelieve the existence of biological sex differences that those asserting such differences have been forced to bear a perhaps insurmountable burden of proof.[12] As psychologist Douglas Kenrick has observed, "[r]esearch studies based in an evolutionary framework are more often expected to attain levels of methodological rigor rarely even approached in other areas [and] are more often required to rule out 'alternative explanations' already found implausible."[13] The reader should consider discussions about sex differences to which he has been privy; if someone asserts that the difference at issue is caused by differential socialization, the assertion typically goes unchallenged, while if a biological cause is asserted, proof is usually demanded and skepticism expressed. Yet it is not clear why that should be so. Biologically influenced sex differences in behavior are not inherently improbable; indeed, if such differences do not exist in humans, humans are the only mammal for which that is true.[14] Moreover, these differences are not limited to mammals, but are found throughout the animal kingdom. As we shall see below, the underlying reason for such differences is a sex difference in parental investment in offspring, which in turn results in a host of behavioral sex differences in a wide variety of animals.

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11. Except where terms of art are to the contrary, as in "gender gap," I use the term "sex" rather than "gender." The term "gender" is often used in distinction to the term "sex" to distinguish between social and biological phenomena. *See* Nancy E. Dowd, *Work and Family: The Gender Paradox and the Limitations of Discrimination Analysis in Restructuring the Workplace*, 24 HARV. C.R.-C.L. L. REV. 79, 116 n.120 (1989) ("Gender is the social and cultural construction of roles associated with biological sex."). To the extent that legal issues are involved, the law generally prohibits sex discrimination, not gender discrimination. Moreover, since there is dispute about the extent to which sex roles are "social constructs," it begs the question to choose one label over the other on the ground that a "sex" or a "gender" difference is involved. *See* Richard A. Epstein, *Gender Is for Nouns*, 41 DEPAUL L. REV. 981, 982 (1992). For the surprising proposition that our recognition of only two sexes is a consequence of "Western culture," see Anne Fausto-Sterling, *The Five Sexes: Why Male and Female Are not Enough*, 33 SCIENCES 20 (Mar.–Apr. 1993).

12. *See* ANNE FAUSTO-STERLING, MYTHS OF GENDER: BIOLOGICAL THEORIES ABOUT WOMEN AND MEN 11–12 (2d ed. 1992) ("I impose the highest standards of proof, for example, on claims about biological inequality, my standards stemming directly from my philosophical and political beliefs in equality."). The only difference between Fausto-Sterling's approach and the approach of most who deny the existence of biological sex differences is Fausto-Sterling's candid acknowledgment of the standard that she is imposing. *See also* PHILIP KITCHER, VAULTING AMBITION: SOCIOBIOLOGY AND THE QUEST FOR HUMAN NATURE 9 (1985) (arguing that because the consequences of being wrong about the bases of human social behavior "may be grave indeed," an especially high level of proof must be required). The arguments of both Fausto-Sterling and Kitcher rest on the implicit, and undefended, assumption that incorrectly assigning a biological cause to a phenomenon is a more serious error than incorrectly assigning a social cause. This assumption, in turn, may be based upon the similarly unstated, and incorrect, assumption that biologically influenced phenomena are necessarily less susceptible of modification than environmentally influenced ones. RICHARD DAWKINS, THE EXTENDED PHENOTYPE: THE GENE AS THE UNIT OF SELECTION 13 (1982) (noting that "there is no general reason for expecting genetic influences to be any more irreversible than environmental ones").

13. Douglas T. Kenrick, *Evolutionary Theory Versus the Confederacy of Dunces*, 6 PSYCHOL. INQUIRY 56, 57 (1995).

14. *See* DALY & WILSON, *supra* note 2, at 110 (among mammals "we almost always find some more or less extreme form of the two basic sexual strategies—the nurturant female and the prodigal male"); MATT RIDLEY, THE RED QUEEN: SEX AND THE EVOLUTION OF HUMAN NATURE 249 (1993).

Although some people apparently believe that biological differences are unlikely because one can point to social reinforcements of these differences,[15] the existence of social inputs does not imply the lack of a substantial biological contribution. After all, the fact that parents pressure their children to eat their dinners and not to run out into the middle of the street does not imply that children's hunger and drive for self-preservation are "socially constructed."

In contrast to the weighty burden of proof imposed on those urging a biological basis for sex differences in behavior, those arguing that sex differences are socially constructed have borne little burden at all. Indeed, assertions of an exclusively environmental basis are often made without a felt need for citation of authority; invocation of "socialization" as a cause of observed sex differences presumptively ends the debate. Commenting on this phenomenon, feminist psychologists Katharine and Kermit Hoyenga have argued "not for lowering the standards for biological evidence but for requiring environmental evidence to achieve the same high standards."[16]

If it is not the improbability of biological differences that causes people to reject them, then perhaps it is their implications. But what are these implications? The answer is that there are no *necessary* implications, since the existence of such differences does not in itself tell us what to do about them.[17] We could decide that despite their biological basis we want to suppress these differences, or at least suppress any economic or other social consequences that they might cause, just as we suppress other kinds of behaviors that have some basis in biology, such as rape.[18] On the other hand, we might decide that since these are "natural" differences, we are willing to live with them in a way that we would not if they were purely socially constructed. Moreover, no matter what our views about whether to accept these differences, knowledge of their causes may help in estimating the costs of social change and in formulating a strategy for effecting that change.[19] At bottom, however, it seems the height of folly to base our public policies upon unexamined assumptions of behavioral identity that are so lacking in empirical support and, indeed, so strongly contradicted by a wealth of theoretical prediction and empirical data.

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15. *See* Kathryn Abrams, *Social Construction, Roving Biologism, and Reasonable Women: A Response to Professor Epstein*, 41 DEPAUL L. REV. 1021, 1026 (1992).

16. KATHARINE B. HOYENGA & KERMIT T. HOYENGA, GENDER-RELATED DIFFERENCES: ORIGINS AND OUTCOMES 18 (1993).

17. *See* Kingsley R. Browne, *Biology, Equality, and the Law: The Legal Significance of Biological Sex Differences*, 38 SW. L.J. 617, 654–55 (1984); Owen D. Jones, *Law and Evolutionary Biology: Obstacles and Opportunities*, 10 J. CONTEMP. HEALTH L. & POL'Y 265, 272–73 (1994).

18. *See generally* Randy Thornhill & Nancy W. Thornhill, *The Evolutionary Psychology of Men's Coercive Sexuality*, 15 BEHAVIORAL & BRAIN SCI. 363 (1992) (examining the question whether sexual coercion by men arises from a specific adaptation to rape or whether it is a side-effect of a desire for sex coupled with a general coercive tendency); Randy Thornhill & Nancy W. Thornhill, *Human Rape: An Evolutionary Analysis*, 4 ETHOLOGY & SOCIOBIOLOGY 137, 141 (1983) (suggesting that rape may be an alternative reproductive strategy for males who are unable to compete for the status and resources that would attract mates).

19. *See* JOHN H. BECKSTROM, EVOLUTIONARY JURISPRUDENCE: PROSPECTS AND LIMITATIONS ON THE USE OF MODERN DARWINISM THROUGHOUT THE LEGAL PROCESS 39 (1989) (analogizing biocultural science to an airline ticket office: "It may be of little or no help in telling us where we ought to go, but it may help us estimate the costs of getting there and help us to make the journey.").

The current debate over the respective roles of the sexes in the workplace proceeds on the basis of usually unstated assumptions about the nature of man and woman. A concrete application of such assumptions can be found in the literature on the "glass ceiling." The "glass ceiling" is a metaphor that is meant to reflect the fact that women tend to be substantially underrepresented in the upper reaches of management.[20] It is a clever metaphor for it not only captures an empirical observation—that women's progression up the hierarchy tends to "stall" at some point—but it also contains within it an assumption that the causes of this lack of progression are often-invisible forces that are external to women but internal to the organization.

The recently released report of the Federal Glass Ceiling Commission focuses on societal and corporate barriers to women in the work force.[21] However, if one were to begin without any preconceived notions about the reason for the empirical observation, one might cast a broader net searching for possible explanations. First, there might indeed be something about the institution—either outright discrimination or other barriers—that makes achievement by women more difficult than achievement by men. Second, there might be factors at work in society at large that lead to the observed circumstances. Third, there might be something intrinsic to men and women themselves—possibly differences in interest, ability, temperament, or qualifications—that leads to the result. The beauty of the "glass ceiling" metaphor is that it carries within it the assumption that it is the first reason that accounts for most of what we see, although proponents of the metaphor will readily concede that society-at-large is hardly blameless. The Glass Ceiling report hardly touches upon, and certainly does not address in any serious way, the third explanation, instead identifying the underlying cause as "white male anxiety."[22]

The assumption that the primary blame lies within organizations focuses attention on the behavior of employers. If the problem is caused by employer behavior, then the problem can be fixed by modification of employer behavior. It is more difficult to change society, but if we create the proper role models for little boys and girls at school, then society may take care of itself.

Although everyone would acknowledge that men and women are not identical in all respects,[23] many would not acknowledge that men and women

20. *See* Nancy E. Dowd, *Liberty vs. Equality: In Defense of Privileged White Males*, 34 WM. & MARY L. REV. 429, 478 (1993) ("The so-called 'glass ceiling' places artificial barriers based on attitudinal and organizational bias which prevent qualified minorities and women from advancing into mid- and senior-level management positions.").

21. GOOD FOR BUSINESS: MAKING FULL USE OF THE NATION'S HUMAN CAPITAL: FACT FINDING REPORT OF THE FEDERAL GLASS CEILING COMMISSION 3 (Mar. 16, 1995) [hereinafter GLASS CEILING COMMISSION REPORT] (describing the "glass ceiling" as "the invisible barriers that women confront as they approach the top of the corporate hierarchy"). The Commission identified three levels of barriers: (1) societal barriers that may be outside the direct control of business; (2) internal structural barriers within the direct control of business; and (3) governmental barriers. *Id.* at 7–8. One would not suspect it from the coverage that the report received in the press, or even from a cursory review of the report itself, but women make up approximately 40% of all managers in the American labor force. *Id.* at 151. The primary sex disparity is in senior executives, where women hold only five percent to seven percent of such jobs in the largest private-sector corporations.

22. *Id.* at 31.

23. Often this acknowledgment comes in the form of a brief nod to the possibility of differences followed by their disregard. *See, e.g.*, David A. Strauss, *Biology, Difference, and*

differ in any respect, save one, that is relevant to the workplace. The one relevant respect in which men and women are acknowledged to be different relates to childbirth and childrearing. Under this view, the biological necessity that women rather than men give birth means that women must leave the work force for a short period to accommodate childbirth; the empirical, though putatively socially determined, fact that women play a disproportionate role in child-rearing means that women often leave the work force for an even longer period to accommodate childrearing.[24] Employer incentive structures that "penalize" employees for periods of withdrawal from the labor force are said to have an adverse affect on women who remove themselves to give birth or rear children. In this way, employers who do not take positive steps to accommodate this fact are seen as creating a glass ceiling. The call for various benefits to be provided by employers or by society at large—such as "quality, affordable day care," maternity and child-rearing leave, and part-time and flexible schedules—is based to a large extent on the assumption, or at least the rhetoric, that such benefits will level the playing field and allow women to compete on an equal footing with men. The glass ceiling is thus seen as a product of inadequate social support systems and a superordination of male values concerning work-force commitment.[25]

The common understanding of the "gender gap" in compensation typically is similar to the understanding of the glass ceiling. In its usual form, the gender gap is described as the difference between the average earnings of full-time male employees and full-time female employees, typically expressed as the ratio of women's earnings to men's. Although one still frequently hears the outdated fifty-nine cent figure[26]—that is, that a full-time female employee earns only fifty-nine cents for every dollar earned by a full-time male employee—the current figure is more like seventy-one or seventy-two cents, and for young women the figure is much higher.[27] Again, the term "gender gap" is a loaded one in that it implies the need for correction; whether a "gap" is a gender gap or a missile gap, it is something that presumptively needs to be closed.

Notwithstanding the shrinking of the compensation gap, the fact that the average full-time female employee earns only seventy-two cents for every dollar earned by the average full-time male employee is seen as a measure of inequality having its source in failings of both employers and society. Most students of the gender gap do not believe that it is primarily a consequence of employer discrimination in compensation, but rather a product of occupational segregation, differences in productivity-related traits, and perhaps a devaluation

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Gender Discrimination, 41 DEPAUL L. REV. 1007, 1011 (1992) ("To say that the difference between men and women is socially constructed...is not to deny that there are biological differences (really, now, who denies that?).").

24. UNITED STATES COMMISSION ON CIVIL RIGHTS, CHILD CARE AND EQUAL OPPORTUNITY FOR WOMEN 5 (1981) ("[W]omen's traditional role—and in particular their responsibility for child care—constitutes a significant barrier to equal opportunity....").

25. *See infra* note 775.

26. *See* SUSAN FALUDI, BACKLASH: THE UNDECLARED WAR AGAINST AMERICAN WOMEN 364 (1991).

27. June O'Neill & Solomon Polachek, *Why the Gender Gap in Wages Narrowed in the 1980s*, 11 J. LAB. ECON. 205, 206 (1993).

of the kinds of tasks at which women excel.[28] As with the glass ceiling, it is seldom considered that the gender gap may be a reflection of real differences between men and women.

The assumption that men and women are substantially identical in respects relevant to the workplace leads to a reflexive suspicion whenever differences in outcome exist between the sexes, at least when the comparison is viewed as unfavorable to women. Thus, we speak of a gender gap in compensation to characterize the lower income of women, although one seldom hears about a gender gap in occupational deaths, despite the fact that thirteen men die on the job for every woman who dies.[29] When viewed through the current lens of "gender equality," the former is a "problem" while the latter is merely a "fact."[30]

If a major cause of these differential outcomes is the nature of men and women themselves, our attitudes toward them might change. Suppose, for example, that by nature men and women differ temperamentally and that these temperamental differences are substantial causes of the differences in outcome. How would we, or should we, respond? That is an important question to ponder even if one doubts the existence of such differences, since it helps illuminate one's conception of sexual equality.

The clarity of our definition of equality is not seriously challenged as long as we assume that the "second class" status of women in the workplace is due to unfair actions of employers or society that create artificial distinctions between effectively identical people. If unfair behavior has caused inequality, then fair behavior will presumably cause equality. However, if the differential status of men and women in the workplace is caused by true and fundamental sex differences, the response is not as obvious. One could argue that if differential outcomes are reflections of real differences, they are not arbitrary and require no correction. On the other hand, one might hold that even real sex differences cannot justify differential outcomes, either because differential outcomes are inherently unfair whatever their cause or because the differential

28. *See* Claudia Goldin & Solomon Polachek, *Residual Differences by Sex: Perspectives on the Gender Gap in Earnings*, AEA PAPERS & PROC. 143, 146 (May 1987).

29. *See High Murder Rate for Women on Job*, N.Y. TIMES, Oct. 3, 1993, at 29 (reporting that men comprise 93% of job-related deaths).

30. Indeed, when a Labor Department study of the causes of workplace deaths was released, the aspect that was viewed as particularly newsworthy was the fact that 40% of women killed at work were murdered compared to only 15% of men. *Id. See also* Gary C. Rummler, *Women Face Higher Risk of Murder at Workplace*, ST. PETERSBURG TIMES, Sept. 7, 1993, at 8A (describing an earlier NIOSH study that had reported similar results).

Labor Department officials interpreted these statistics to be a troubling indicator that "women are more likely to be murdered on the job than men." *See Nussbaum Says Employers Often Deny, Ignore Women's Workplace Health, Safety Concerns*, DAILY LAB. REP. (BNA) No. 219, at D–7 (Nov. 16, 1993). What these statistics show, however, is just the opposite: Men are much more likely to be murdered on the job than women. The Labor Department report indicated that men account for 93% of all job-related deaths, despite the fact that only 55% of the work force is male. Thus, less than 3% (40% of 7%) of workplace deaths are murders of females, while almost 14% (15% of 93%) are murders of males. After adjusting for the differential representation of the sexes in the work force, one sees that a man is almost four times as likely to be murdered in the workplace as a woman, in addition to being approximately 11 times as likely as a woman to be killed on the job by all causes combined. The reason that a greater proportion of female deaths are murders is not that women are murdered at a higher rate than men; it is that they are killed by other causes at a much lower rate. It is difficult to see why these statistics raise a "women's issue."

outcomes are a consequence of employers' and society's arbitrarily and unfairly overvaluing male traits and undervaluing female ones.

In order to evaluate the validity of the argument that it is unfair to structure a reward system in a way that tends to favor men, one must understand the workings of the system. One should also examine the underlying premise itself—that men are favored by current arrangements. Assume that for some reason men are more competitive than women and more inclined to expend effort to climb hierarchies. Would it be unfair if a disproportionate number of men achieved the highest positions in the hierarchy? One might respond that the outcome is appropriate; after all, those who achieved the status are those who were most inclined to work for it. On the other hand, one might respond that the outcome is inappropriate; we should not reward the competitive behavior of men but rather we should reward the cooperative behavior of women. The latter response, however, may misconceive what is meant by competitive behavior. In this context, competitive behavior means the sort of behavior that is necessary in order to achieve status. If one must demonstrate cooperation in order to progress up the ladder, that is what the competitive person will do. If one must dole out soup in a soup kitchen to get ahead, the competitive person will probably beat the compassionate person to the soup line.[31]

Suppose also that men are more inclined to take "career risks" than women. If men are more willing to put themselves into positions where there is substantial personal accountability and possibility of failure, one would expect more of the great successes—and great failures—to be men. Again, the question is whether it would be appropriate to structure workplace rewards in such a way as to equalize rewards between those who take risks for their success and those who do not.

Along the same lines, assume that men are more single-minded about acquiring resources than women. This is not to suggest that women are not interested in acquiring resources; almost everyone views resource acquisition positively and, all else being equal, would prefer more to less. The assumption that the reader is asked to indulge is that men place a higher priority on resource acquisition than women. Starting from this assumption, the question is whether it is arbitrary or unfair to have a system that leads to greater resource acquisition by those who are most willing to make sacrifices in other areas of their lives to obtain them.

Assume further that women are inclined to be more nurturant and oriented toward others, resulting in a greater attachment to their children and a lesser willingness to trade material resources for time spent with their children or in other activities. The psychic satisfaction they receive from devotion to family outweighs for them the reduced economic satisfaction that results from a lesser attachment to the workplace. If women work less because they have other forces in their lives that are as important as, or more important than, work, it

31. It should also be borne in mind that because these are merely group tendencies, not qualities that are present in all men and absent in all women, it is not the case that all men benefit from current arrangements and that all women would benefit from their modification. Noncompetitive men are subject to many of the same "penalties" as noncompetitive women, and competitive women benefit from a premium on competitiveness.

is not obvious that social policy should be oriented toward ensuring that economic outcomes are nonetheless equivalent.

Consider also the "gender gap" in occupational deaths. The concentration of men in dangerous occupations has resulted in a substantial overrepresentation of men among those who die on the job. Should we be as concerned about this gender gap as we are about the gap in compensation? If not, why not? Some might argue that no one "forces" men to take dangerous jobs, but by equivalent reasoning one could say that no one forces women to take low-paying jobs. Others might argue that the wages of the dangerous jobs incorporate a "risk premium," so that men have been paid for taking such risks. However, one would then not be in a strong position to argue that women should earn as much as men. Life is full of trade-offs, and if men and women tend to make different ones, it is to be expected that both benefits and burdens will be different for the two sexes.

Would a showing that men are more inclined than women to take physical risks affect our view of the acceptability of the "death gap"? If we are prepared to accept the notion that men and women might tend to sort themselves on the basis of their own values, we should hardly be surprised if the group that is more risk averse tends to find itself more often in occupations that are less risky. Also, even if there were no sex difference in risk preference per se, the fact that men assign higher priority than women to resource acquisition might make men disproportionately willing to trade safety for dollars.

No doubt this sounds terribly sexist to some. The reader is asked to assume that men are more competitive, more driven toward acquisition of status and resources, and more inclined to take risks; women are more nurturant, risk averse, less greedy, and less single-minded. These are familiar stereotypes to us and to people around the world.[32] Of course, stereotypes are not necessarily false; in fact, they usually contain some element, often a large one, of truth.[33] If these particular stereotypes are true as generalizations, as the evidence suggests, then they could go far toward explaining the face of the contemporary workplace. The fact that the generalizations do not hold true for all individuals is irrelevant, because the phenomena to be explained are themselves based upon group comparisons.

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32. A multination study of sex stereotypes revealed remarkable consistency. JOHN E. WILLIAMS & DEBORAH L. BEST, MEASURING SEX STEREOTYPES: A MULTINATION STUDY 78 (1990):

> Men are said to be autocratic and independent, while women are said to be dependent. Men are said to be aggressive and dominant and women are said to be submissive. Men are active, adventurous, daring, and courageous, while women are fearful. Men are strong, robust, and forceful; women are weak. Women are emotional; men are unemotional. Women are sensitive; men are rude. Men are progressive, enterprising, and wise compared to women, who are dreamy and superstitious. Women are affectionate, sentimental, and soft-hearted, while men are stern and severe.

Id. at 78.

33. Although the term "stereotype" is often used pejoratively, it simply means "a structured set of beliefs about the personal attributes of a group of people." Richard D. Ashmore & Francis K. Del Boca, *Sex Stereotypes and Implicit Personality Theory: Toward a Cognitive-Social Psychological Conceptualization*, 5 SEX ROLES 219, 222 (1979).

Even if these generalizations are the proximate cause of the various "gaps," however, the appropriate public policy response may vary depending upon their cause. It is probably fair to say that the overwhelming majority of legal scholars and others who write about these matters from a public-policy perspective believe either that the generalizations are not accurate or, perhaps more commonly, that they may be accurate but that they are a product of a sexist society with its accompanying sexist child-rearing practices; society causes these differences by treating functionally identical individuals differently. That is, men are competitive, acquisitive risk-takers and women are cooperative, risk-averse nurturers because they learned these traits as little boys and girls and have been reinforced in them ever since. Little attention is given to the possibility that there is something inherent in males and females that causes them to behave in different ways. Many are prepared to reject the notion that relevant biological sex differences exist without having even passing familiarity with the extensive literature to the contrary. Alternatively, the issue may not be one of evidence, for as Michael Levin has observed, "[a]ny veteran of adolescence and parenthood still able to believe that boys and girls are born alike has already withstood more evidence than any laboratory can provide."[34]

It is easy to view the question as entailing a choice between "nature" and "nurture," yet that is a false dichotomy.[35] Biology is the study of life and life processes, so in a sense everything that humans do is "biological"; everything that humans do is "allowed" by their biology. Not everything that is allowed by humans' physical makeup is allowed by their psychological makeup, however. Humans are quite capable physically of eating their young, as do some other species, yet that is not a behavioral pattern that humans generally express.

A concrete example illustrating the falsity of the dichotomy between nature and nurture is the production of calluses.[36] In response to repeated friction, calluses develop on the skin; it is fortunate for us that skin toughens rather than wearing away in response to this friction. Is the callus caused by nature or by nurture? Is it caused by environment or by biology? The questions have no meaning. In response to certain environmental stimuli, the body responds in a particular way. As we shall see below, our psyches also consist of evolved mechanisms that incline us to behave in certain ways in response to particular stimuli. The fact that a behavior is not expressed in the absence of the stimulus does not mean that the behavior lacks a "biological basis."

If one concludes that observable sex differences are in large part a consequence of inherent biological differences rather than merely differences in socialization, one might have a very different attitude concerning the kind or extent of social intervention advisable to reduce or eliminate them. If we are the way we are in large part for biological reasons rather than because of an

34. MICHAEL LEVIN, FEMINISM AND FREEDOM 55 (1987). Moreover, there is probably no form of evidence that would persuade those who subscribe to the view that "objective reality is a myth." *See, e.g.*, Ann Scales, *The Emergence of Feminist Jurisprudence: An Essay*, 95 YALE L.J. 1373, 1378 (1986). *See generally* PAUL R. GROSS & NORMAN LEVITT, HIGHER SUPERSTITION: THE ACADEMIC LEFT AND ITS QUARRELS WITH SCIENCE (1994) (describing the hostility of some segments of the academic community to the entire enterprise of science).

35. *See* David M. Buss, *Psychological Sex Differences: Origins Through Sexual Selection*, 50 AM. PSYCHOLOGIST 164, 167 (1995).

36. *See* David M. Buss, *Evolutionary Psychology: A New Paradigm for Psychological Science*, 6 PSYCHOL. INQUIRY 1, 12 (1995).

oppressive, patriarchal, socially constructed hierarchy, the *moral* claim to state intervention may be diminished. That is, society's moral obligation to correct these outcomes may be greater if society caused them in the first place. There may be an argument for equalizing outcomes even if the differences are biologically based, but the rationale presumably would not be that as a matter of justice society has an obligation to remedy differential outcomes that are based on biological differences. If that is a generally applicable principle, after all, society would be equally obliged to equalize outcomes between the more and the less intelligent.[37]

David Strauss argues that the origins of differences are irrelevant to the question of how we should respond to them.[38] However, it is difficult to take his assertion seriously, for, as Lionel Tiger has observed, "[i]f you want to change a system, it is best to understand it first."[39] Most people make judgments about the fairness or unfairness of distributions at least in part based upon their cause. Implicit in feminist claims about the unfairness of the process by which current distributions have occurred is the assumption that the cause is relevant.[40] Moreover, even if one were to conclude that unequal distributions should be remedied no matter what their cause, one would still want to identify the cause, because without that knowledge one could treat only the symptoms of the perceived problem. It makes no more sense to say that the causes of sex differences are irrelevant to the debate over women's workplace status than it would to say that the causes of poverty are irrelevant to our welfare policy.

The notion that men and women are biologically different in temperament is anathema to many. The idea runs counter to the orientation of much contemporary social science, which tends to view personality, behavior, and social structure solely as products of cultural influences.[41] Yet the anthropological literature demonstrates a remarkable cross-cultural consistency in the sex differences under consideration, and the biological and psychological literatures are bulging with data tending to show that inherent differences exist between the sexes and explaining many of the biological mechanisms in both

37. *See* RICHARD J. HERRNSTEIN & CHARLES MURRAY, THE BELL CURVE: INTELLIGENCE AND CLASS STRUCTURE IN AMERICAN LIFE 127–42 (1994) (describing the association of intelligence (or at least IQ) and economic status).

38. Strauss, *supra* note 23, at 1009.

39. LIONEL TIGER, THE MANUFACTURE OF EVIL: ETHICS, EVOLUTION, AND THE INDUSTRIAL SYSTEM 276 (1987).

40. Christine A. Littleton, *Reconstructing Sexual Equality*, 75 CAL. L. REV. 1279, 1333 (1987) (asserting that "men tak[e] the best for themselves and assign[] the rest to women").

41. As anthropologist Donald Symons has written:

> Almost all social science hypotheses about human sex differences imply that the human brain is sexually monomorphic (i.e., sex differences are attributed to socialization, culture, society, social learning, sex roles, etc.). While most social scientists admittedly do not discuss the brain at all, their hypotheses surely can be taken to imply that, in the absence of unambiguous laboratory evidence to the contrary, it is reasonable, prudent, and parsimonious to assume that the human brain is sexually monomorphic. Yet selectional thinking and comparative data imply that the precise opposite is the reasonable, prudent, and parsimonious assumption. Since males and females in ancestral populations must necessarily have encountered very different reproductive opportunities and constraints, to the Darwinist the likelihood of the human brain being sexually monomorphic is essentially zero.

Donald Symons, *A Critique of Darwinian Anthropology*, 10 ETHOLOGY & SOCIOBIOLOGY 131, 137 (1989).

proximate and ultimate terms. These data suggest that we may have been confusing cause and effect; our patriarchal social structure—to the extent that we have one—may be more an effect of sex differences than their cause.[42]

I should at this point say exactly what I am arguing. It is my central thesis that *much* of what we call the glass ceiling and gender gap is the product of basic biological sex differences in personality and temperament. These differences have resulted from differential reproductive strategies that have been adopted by the two sexes during human history and are every bit as much a product of natural selection as our bipedal locomotion and opposable thumbs. Although these temperamental traits evolved in our hunting-and-gathering ancestral environment, they remain with us today whether or not they remain adaptive.

I should similarly emphasize what I am not arguing. It is not my position that biology is the exclusive cause of the glass ceiling or the gender gap. Indeed, such a claim would be specious, since all behavior involves the organism's interaction with its environment. But even beyond this truism, I do not doubt that some portion of these two phenomena are produced by social attitudes, some of them arbitrary, as well as by outright sex discrimination that may be based upon false assumptions about the relative capacities of the sexes. I also do not argue that social reinforcement of these differences is insignificant. It would be very strange if social institutions were oblivious to these differences.

Notwithstanding the above disclaimers, the position articulated in this article will no doubt be dismissed by some as "biological determinism." As Robert Wright has recently written, however, accusations of biological determinism are often born of ignorance of both biology and determinism.[43] No one argues that human behaviors are "hard wired" into the brain; if they were, there would be little room for individual responsibility, and our own experience (though perhaps an illusion) tells us that we are capable, within limits, of exercising free will. But some behaviors come more readily than others, and some "cultural values" are universal. It is these predispositions and universals that characterize us as humans.[44]

I write this article with some hesitation. Many who are familiar with the biological and psychological literature I discuss are likely to respond, "So what; everyone knows that." On the other hand, those who are not familiar with this literature, but who are committed to a social-constructionist view, may well

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42. *See generally* Barbara Smuts, *The Evolutionary Origins of Patriarchy*, 6 HUM. NATURE 1 (1995).

43. ROBERT WRIGHT, THE MORAL ANIMAL: THE NEW SCIENCE OF EVOLUTIONARY PSYCHOLOGY 137 (1994).

44. Steven Goldberg argues that a single counterexample—in which females hold higher-status positions—would suggest that male dominance is probably not related to biological factors. STEVEN GOLDBERG, WHY MEN RULE: A THEORY OF MALE DOMINANCE 51 (1993). That conclusion does not necessarily follow. Since behavioral predispositions are just that—predispositions—there could conceivably be a small minority of populations that for some reason run counter to the normal trend, just as there are individuals who do not fit a stereotype. *See* Lionel Tiger, *Stability and Variation in Human Evolution*, 6 BEHAVIORAL & BRAIN SCI. 115, 115 (1983) (stating that "it is sufficient for someone...who is seeking to show a genotypicality for a fundamental behavioral syndrome to demonstrate its statistical likelihood, not its categorical inevitability"). In any event the question is largely academic, since no matriarchal societies have ever been known to exist. *See* Joan Bamberger, *The Myth of Matriarchy: Why Men Rule in Primitive Society*, *in* WOMAN, CULTURE, AND SOCIETY 263 (Michelle Z. Rosaldo & Louise Lamphere eds., 1974).

respond, "That can't be true." The current trend—that the more science tells us about sex differences, the more the prevailing ideology denies them[45]—must be reversed if we are to have any hope of formulating realistic public policy.

II. SEX DIFFERENCES AND EVOLUTIONARY THEORY

> Is it not reasonable to anticipate that our understanding of the human mind would be aided greatly by knowing the purpose for which it was designed?[46]

A. Natural Selection and Evolutionary Psychology

The theory of natural selection offered by Charles Darwin[47] well over a century ago continues to occupy a central position in evolutionary biology. Modern biologists adhere to Darwin's explanation that there are two necessary components to evolution by natural selection.[48] First, there must be *heritable variation*; that is, organisms within a species must vary with respect to the trait in question, and that trait must be capable of being passed on to the organism's offspring.[49] Second, there must be *differential reproductive success*; that is, some individual organisms must leave behind more offspring than other organisms of the same species.[50] Those organisms that have greater reproductive success pass on more of their genes to the next generation than do those organisms having lesser success. If those organisms possessing certain genetic variants systematically leave more offspring than their conspecifics, there will be a corresponding change in the genetic makeup of the species.

Although in the popular view natural selection is often viewed as differential mortality—that is, "survival of the fittest"[51]—differential mortality is only secondarily important in natural selection; in fact, it is important only insofar as it is reflected in differential *fertility*.[52] Put another way, living a long time but not reproducing makes one's genetic line a dead-end, while living only a short time but producing many surviving and fertile offspring who themselves go on to reproduce makes one an evolutionary success.[53] A man totally lacking a sex drive may live as long (or even longer) than a man with a strong sex drive; however, he is unlikely to leave behind as many offspring. An

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45. ANNE MOIR & DAVID JESSEL, BRAIN SEX: THE REAL DIFFERENCE BETWEEN MEN AND WOMEN 12 (1989).

46. GEORGE C. WILLIAMS, ADAPTATION AND NATURAL SELECTION: A CRITIQUE OF SOME CURRENT EVOLUTIONARY THOUGHT 16 (1966).

47. CHARLES DARWIN, THE ORIGIN OF SPECIES (1859).

48. ROBERT TRIVERS, SOCIAL EVOLUTION 12 (1985).

49. *Id.*

50. *Id.*

51. This phrase, often attributed to Darwin, was in fact coined by "social Darwinist" Herbert Spencer. CARL N. DEGLER, IN SEARCH OF HUMAN NATURE: THE DECLINE AND REVIVAL OF DARWINISM IN AMERICAN SOCIAL THOUGHT 11 (1991). Darwin did, however, use the term. DARWIN, *supra* note 47, at 88.

52. *See* DALY & WILSON, *supra* note 2, at 23 ("survival is only relevant in the service of reproduction").

53. Kenrick and Keefe have pointed out the trade-offs between mortality and fecundity: "Animals (like the salmon) that end their lives in the act of reproduction demonstrate the trade-off most dramatically. This pattern is called *semelparity*, colorfully described...as: 'The single big bang reproductive pattern; giving birth only once and committing suicide in the process....'" Douglas T. Kenrick & Richard C. Keefe, *Age Preferences in Mates Reflect Sex Differences in Human Reproductive Strategies*, 15 BEHAVIORAL & BRAIN SCI. 75, 77 (1992) (quoting S.C. Stearns, *Life History Tactics: A Review of the Ideas*, 51 Q. REV. BIOLOGY 3, 4 (1976)).

extreme case of this phenomenon is the fact that eunuchs may live longer than normal males;[54] nonetheless, they have very low fitness in the evolutionary sense. Thus, differential reproduction, rather than differential survival, is the measure of evolutionary fitness.[55]

Many of the traits that Darwin studied were morphological. For example, he observed a number of varieties of finches on the Galapagos Islands whose beak morphology seemed specifically adapted to particular functions and particular environmental niches.[56] But an animal's behavior, or at least the psychological mechanisms that produce its behavior, are as subject to the forces of natural selection as its anatomy. Birds migrate, salmon swim upstream to spawn, and mammalian mothers nurture their young. All of these behaviors are critical to propagation of the organism's genes.

Human beings, like all animals, face a set of adaptive problems the solutions to which are closely related to reproductive success. At the most basic level, humans must find and identify nutritious food, they must find mates, and they must produce and nurture offspring. Over the last ten to fifteen years there has been a flowering of scholarship produced by "evolutionary psychologists"—psychologists who examine traits from an evolutionary perspective. Central to the quest of evolutionary psychologists is the identification of "evolved psychological mechanisms"[57]—behavioral predispositions that evolved to solve particular problems in the environment of our Pleistocene hunter-gatherer ancestors. The more closely related the problem is to reproductive success, "the more intensely selection should have specialized and improved the performance of the mechanism for solving it."[58]

Thinking about problems in functional terms has allowed evolutionary psychologists to integrate into a theoretical framework what previously seemed

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54. For a discussion of the question, see James B. Hamilton, *The Role of Testicular Secretions as Indicated by the Effects of Castration in Man and by Studies of Pathological Conditions and the Short Lifespan Associated with Maleness*, 3 RECENT PROGRESS HORMONE RES. 257, 304 (1948).

55. *See* DALY & WILSON, *supra* note 2, at 23. This is a slight oversimplification, since the true measure of fitness is "inclusive fitness," a measure of not only the individual's reproductive success but also the extent to which the individual (or gene) contributes to the reproductive success of his relatives discounted by the appropriate degree of relation. *See* DALY & WILSON, *supra* note 2, at 28–31; W. D. Hamilton, *The Genetical Evolution of Social Behaviour I*, 7 J. THEORETICAL BIOLOGY 1, 8 (1964). For example, because an individual shares half his genes by descent with his siblings, anything the individual does to enhance his siblings' reproductive success enhances his own inclusive fitness, unless it at the same time reduces the individual's reproductive success. If an actor engages in "altruistic" behavior toward his brother—behavior that enhances the brother's individual fitness but reduces his own—the actor is still better off as long as the benefit to his brother is more than twice the detriment to him. For purposes of this article, it is not necessary to distinguish between individual and inclusive fitness.

56. CHARLES DARWIN, THE VOYAGE OF THE BEAGLE (1839).

57. Leda Cosmides et al., *Evolutionary Psychology and Conceptual Integration*, *in* THE ADAPTED MIND: EVOLUTIONARY PSYCHOLOGY AND THE GENERATION OF CULTURE 3, 5 (Jerome H. Barkow et al. eds., 1992) [hereinafter THE ADAPTED MIND].

58. Tooby & Cosmides, *supra* note 4, at 27. *See also* Donald Symons, *An Evolutionary Approach: Can Darwin's View of Life Shed Light on Human Sexuality?*, *in* THEORIES OF HUMAN SEXUALITY 91, 95 (James H. Geer & William O'Donohue eds., 1987) [hereinafter Symons, *An Evolutionary Approach*] ("Because differential reproduction is what produces adaptation, and sex is closely tied to reproduction, selection can be expected to be especially sensitive to variations in the neural and hormonal mechanisms that underlie sexual feeling, thought, and action.").

to be disparate data, interesting but ultimately unexplained and apparently unexplainable. It has also led these psychologists to reject the notion that the human psyche is merely a "general-purpose information-processing" mechanism that does what is environmentally programmed.[59] Such a mechanism has been labeled an "evolutionary impossibility" because it could not generate adaptive behavior.[60] Since each kind of problem requires a distinctive kind of solution, a general purpose brain mechanism that could solve the myriad behavioral problems that an organism faces is no more likely than a general purpose organ that could perform all of the physiological functions of an organism.[61] In short, "[t]here is no such thing as a 'general problem solver' because there is no such thing as a general problem."[62] Natural selection "designs"[63] organisms to deal with the specific problems that they encounter, not for problems that they have never encountered but may in the future.[64] After all, there is no reason to believe that animals designed to meet an as-yet-unencountered problem would have greater reproductive success than those animals without that ability; indeed, the former animals would probably be at a reproductive disadvantage in having to maintain a "mental organ" that has no present use.

Before turning to a discussion of the psychological mechanisms that differ in males and females and that are the basis of this article, it is worthwhile discussing outside the emotionally charged context of sex differences just what an "evolved psychological mechanism" might look like. One thing that will become immediately apparent is that these mechanisms are not simply "biological programs" that are acted out without regard to the organism's environment. Rather, they reflect a complex and often subtle interaction of the organism with its environment.

One problem that sexually reproducing organisms must cope with is the danger of inbreeding. Because mating with close relatives leads to reduced viability of offspring, selection would favor mechanisms that discourage

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59. *See* John Tooby & Leda Cosmides, *Evolutionary Psychology and the Generation of Culture, Part I*, 10 ETHOLOGY & SOCIOBIOLOGY 29, 31 n.1 (1989).

60. Tooby & Cosmides, *supra* note 4, at 27. *See also* Donald Symons, *On the Use and Misuse of Darwinism in the Study of Human Behavior*, *in* THE ADAPTED MIND, *supra* note 57, at 138 [hereinafter Symons, *On the Use and Misuse of Darwinism*] ("No mechanism could possibly serve the general function of promoting gene survival because there simply is no general, universally effective way of doing so.").

61. Symons, *On the Use and Misuse of Darwinism*, *supra* note 60, at 142.

62. Symons, *On the Use and Misuse of Darwinism*, *supra* note 60, at 142. *See also* Martin E.P. Seligman, *On the Generality of the Laws of Learning*, 77 PSYCHOL. REV. 406, 408 (1970) (suggesting that the ability to learn depends upon the evolutionary preparedness of the animal to respond to the particular kind of stimulus).

63. The term "design" should not be taken to imply that natural selection is teleological—that is, consciously directed toward a particular end. Rather, biologists use the term "as a convenient way to indicate that there is a reasonably effective match between the organism's features (its phenotype) and the requirements it faces in its normal environment." GOLDSMITH, *supra* note 3, at 38.

64. Symons, *An Evolutionary Approach*, *supra* note 58, at 97. Although "plasticity" is to some degree adaptive, unlimited plasticity is not. *See* Donald Symons, *If We're All Darwinians, What's the Fuss About?*, *in* SOCIOBIOLOGY AND PSYCHOLOGY: IDEAS, ISSUES, AND APPLICATIONS 121, 127 (Charles Crawford et al. eds., 1987) [hereinafter Symons, *What's the Fuss*] (noting that "[b]ehavioral plasticity for its own sake would be worse than useless, random variation suicide").

inbreeding.[65] Although cultural norms reinforce incest avoidance in humans,[66] even in the absence of such norms it appears that a psychological mechanism has evolved that would render inbreeding of close relatives unlikely in any event.[67] Given that cultural taboos may also limit inbreeding, when the psychological mechanism works correctly it is difficult to determine whether inbreeding is discouraged by cultural or biological mechanisms. However, the psychological mechanism does not always work precisely to limit inbreeding among close kin, and it is from those imperfections that the nature of the mechanism can be discerned.

In all societies, sexual relations between brother and sister are a rarity.[68] Not only do brothers and sisters seldom have sexual intercourse, they seldom want to.[69] When they do, it is usually in circumstances where they were not raised together as young children.[70] This suggests that there is something about being raised together that dampens sexual attraction. Indeed, when one looks at unrelated boys and girls who are raised together, one finds that they seldom experience sexual desire for one another. For example, in the Israeli kibbutzim, there is little marriage between members of the same kibbutz who are reared together, despite an absence of social sanctions against such marriages.[71] Another example comes from the practice of *Shim-pua* marriage in Taiwan, in which boys and girls are married as children and then reared together. Those couples have difficulty consummating their marriages, lower levels of fertility, a high divorce rate, and a high frequency of extramarital relationships.[72] The psychological mechanism at work in the kibbutzim and in Taiwan seems to be one that would have worked very well in our ancestral environment: don't mate

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65. DALY & WILSON, *supra* note 2, at 305. Such mechanisms are a commonplace among nonhumans. *See* RICHARD D. ALEXANDER, DARWINISM AND HUMAN AFFAIRS 193 (1979) (noting that "among sexual organisms all but a few peculiar species consistently outbreed").

66. The "incest taboo" is commonly cited as a cultural universal, though some have questioned that proposition. *See, e.g.*, ROBIN FOX, THE RED LAMP OF INCEST 1–14 (1980). Although cultural rules concerning incest and marital ineligibility vary substantially, in all cultures parent-offspring and brother-sister marriages seem not to be favored (although exceptions may exist for royal lineages). DALY & WILSON, *supra* note 2, at 305. In a review of the ethnographic literature on incest, Nancy Thornhill found that only 44% of the societies for which relevant information existed reported having explicit rules against incest within the nuclear family, although 88% had rules regulating mating or marriage with other categories of kin. Nancy W. Thornhill, *An Evolutionary Analysis of Rules Regulating Human Inbreeding and Marriage*, 14 BEHAVIORAL & BRAIN SCI. 247, 252 (1991). *But see* Frank B. Livingstone, *What Happened to the Universality of the Incest Taboo?*, 14 BEHAVIORAL & BRAIN SCI. 273, 273 (1991). As Robin Fox has noted, some scientists have failed to distinguish between rules of exogamy—which forbid marriage within a group—and rules of incest — which proscribe sexual relations. FOX, *supra*, at 2–4.

67. DALY & WILSON, *supra* note 2, at 306.

68. ALEXANDER, *supra* note 65, at 192 (citing G.P. MURDOCK, SOCIAL STRUCTURE (1949)) (observing that "[i]n every society in the world sexual relations between siblings or parents and offspring are forbidden, abhorred, and extremely rare").

69. FOX, *supra* note 66, at 7, 22–23.

70. Pierre L. van den Berghe, *Human Inbreeding Avoidance: Culture in Nature*, 6 BEHAVIORAL & BRAIN SCI. 91, 96–97 (1983).

71. Joseph Shepher, *Mate Selection Among Second Generation Kibbutz Adolescents and Adults: Incest Avoidance and Negative Imprinting*, 1 ARCHIVES SEXUAL BEHAV. 293, 293 (1971). Shepher found that out of 2769 marriages, there was not a single intra-peer group marriage among children who had been raised together from birth through age six.

72. Arthur P. Wolf, *Childhood Association and Sexual Attraction: A Further Test of the Westermarck Hypothesis*, 72 AM. ANTHROPOLOGIST 503, 510–13 (1970).

with people you were raised with (who in that environment would usually be kin). Whether or not they actually are kin, the mechanism discourages such matings. With such a mechanism, it obviously makes no sense to argue about whether incest avoidance is due to biological or environmental factors; a more accurate statement would be that we have an innate psychological mechanism that causes us to tend to respond in particular ways to certain environmental stimuli.[73]

The same interaction between experience and psychological mechanisms seems to be involved in the fear of snakes. Children are not born with a fear of snakes, but it is a very easy thing for them to learn whether or not they are at real risk from snakes.[74] As Matt Ridley has observed, "[i]nfant New Yorkers find it far easier to acquire a fear of snakes than of cars, despite the far greater danger posed by the latter."[75] Although it is sometimes said that monkeys, who face a great danger from snakes in the wild, have an innate fear of snakes, that does not appear to be true. In a series of experiments, psychologist Susan Mineka and her colleagues have demonstrated that laboratory-bred monkeys show no reaction to live or toy snakes.[76] However, if they are shown movies of monkeys reacting with fear to snakes, the monkeys develop their own fear of snakes. On the other hand, exposing the laboratory monkeys to wild monkeys acting in apparent fear of flowers or rabbits did not trigger a fear of flowers or rabbits in the lab monkeys.[77] Thus, it appears that parents who repeatedly must warn children not to run into the street would not have to expend nearly as much effort warning them to stay out of the snake pit.[78]

Cognitive psychologists have demonstrated that some things are easy to learn and some things are hard to learn.[79] It is easy for a child, though not for

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73. *See generally* van den Berghe, *supra* note 70. For an extended discussion of the history of the treatment of incest avoidance in psychology and the social sciences, see DEGLER, *supra* note 51, at 245–69.

74. *See* ISAAC M. MARKS, FEARS, PHOBIAS, AND RITUALS: PANIC, ANXIETY, AND THEIR DISORDERS 40–41 (1987).

75. RIDLEY, *supra* note 14, at 322.

76. Michael Cook & Susan Mineka, *Selective Associations in the Observational Conditioning of Fear in Rhesus Monkeys*, 16 J. EXP. PSYCHOL. ANIMAL BEHAV. PROCESSES 372 (1990); Michael Cook & Susan Mineka, *Observational Conditioning of Fear to Fear-Relevant Versus Fear-Irrelevant Stimuli in Rhesus Monkeys*, 98 J. ABNORMAL PSYCHOL. 448 (1989); Susan Mineka et al., *Observational Conditioning of Snake Fear in Rhesus Monkeys*, 93 J. ABNORMAL PSYCHOL. 355 (1984).

77. In animals characterized in general by less behavioral flexibility, the response may be more rigid. For example, some hatchling birds that have never seen snakes exhibit fear toward them. Susan M. Smith, *Coral Snake Recognition and Stimulus Generation by Naive Great Kiskidees*, 265 NATURE 535 (1977). *See also* Richard G. Coss, *Context and Animal Behavior III: The Relationship Between Early Development and Evolutionary Persistence of Ground Squirrel Antisnake Behavior*, 3 ECOL. PSYCHOL. 277, 293–95 (1991) (finding that California ground squirrel pups from habitats where snakes are rare or absent engage in the same characteristic antisnake behavior as squirrels from habitats where snakes are present).

78. Linguist Steven Pinker has noted that "[i]f birth control pills (a means of Darwinian suicide) had grown on trees in the Pleistocene savanna, we might have evolved to find them as terrifying as venomous snakes." Steven Pinker, *Is There a Gene for Compassion?* (Book Review), N.Y. TIMES, Sept. 25, 1994, § 7, at 3.

79. *See* GOLDSMITH, *supra* note 3, at 95–100. For example, it is easy to teach a pigeon to peck illuminated keys for food, apparently because this behavior draws on its natural feeding behavior; on the other hand, it is difficult to teach a pigeon to peck keys to avoid shocks. GOLDSMITH, *supra* note 3, at 99. *See also* Martin E.P. Seligman, *Phobias and Preparedness*, 2 BEHAV. THERAPY 307, 317 (1971) (noting that most phobias are "objects of natural importance to the survival of the species").

an adult, to acquire language. In fact, it would be virtually impossible, short of isolating the child from language, to prevent a normal child from learning to speak, a fact that is explainable in terms of an inherent receptivity to language acquisition.[80] Thus, when it is argued that children learn sex roles from watching other children, one should ask why that is something that is seemingly so easy for them to learn.

B. Evolution of Temperamental Sex Differences

Many of the traits that Darwin studied had obvious functional significance and were clearly related to the animal's survival. Darwin described numerous animals whose traits protected them against the hostile forces of nature: temperature, moisture (or lack thereof), hunger, predators, and so forth.[81] Because those forces of nature present dangers to both sexes of the species, one would not predict sex differences in the evolved mechanisms to deal with these problems.

Darwin further observed, however, that there were a number of traits for which no functional purpose was apparent, traits that could not be explained as adaptations to natural forces. A classic example is the peacock's tail. The peacock has a brightly plumed, long tail that would, from all appearances, imperil the animal's survival[82]—the bright plumage would seem to make the peacock more visible to predators, and the length of the tail would seem to interfere with mobility. Darwin correctly concluded that the peacock's tail was functional, not because it helped the peacock deal with predators or other forces of nature, but because it helped the peacock attract a mate, a form of selection that he termed "sexual selection."[83] Male ornamentation evolved, according to Darwin, because peahens are attracted to it and preferentially mate with the most ornamental males. Darwin ascribed the female's preference to aesthetics; many modern evolutionary biologists believe that the peahen's preference for bright plumage evolved because bright plumage indicates health and a low parasite load—therefore good health and "good genes."[84] Whatever the source

80. *See* Tooby & Cosmides, *supra* note 59, at 33 (noting that "[b]ehavioristic attempts to assimilate verbal behavior into general laws of learning proved to be a failure, while Chomsky's emphasis on the necessary existence of innate, special purpose mechanisms with their own unique and functional characteristics revolutionized psycholinguistics"). *See* STEVEN PINKER, THE LANGUAGE INSTINCT: HOW THE MIND CREATES LANGUAGE 18 (1994) ("Language is a complex, specialized skill, which develops in the child spontaneously, without conscious effort or formal instruction, is deployed without awareness of its underlying logic, is qualitatively the same in every individual, and is distinct from more general abilities to process information or behave intelligently.").

81. *See* DARWIN, *supra* note 47, at 74–87.

82. *See* DARWIN, *supra* note 47, at 241.

83. CHARLES DARWIN, THE DESCENT OF MAN, AND SELECTION IN RELATION TO SEX I, at 256 (1871). *See also id.* at II, 141 (noting that female progenitors of the peacock "have unconsciously, by the continued preference of the most beautiful males, rendered the peacock the most splendid of living birds"). Although "sexual selection" is sometimes treated as a phenomenon different from "natural selection," modern biologists recognize that the sexual-selection mechanisms of male-male competition and female choice are simply a part, and a very important one, of natural selection. *See* HELENA CRONIN, THE ANT AND THE PEACOCK 234 (1991) ("For modern Darwinism, nothing remains of the traditional idea that the intraspecific and social nature of sexual selection sets it apart from natural selection...."); David M. Buss & Michael Barnes, *Preferences in Human Mate Selection*, 50 J. PERSONALITY & SOC. PSYCHOL. 559, 559 (1986) ("[n]atural selection...subsumes sexual selection").

84. William D. Hamilton & Marlene Zuk, *Heritable True Fitness and Bright Birds: A Role for Parasites?*, 218 SCIENCE 384, 386 (1982). Consistent with the hypothesis of Hamilton

of the preference, it seems clear that female choice is the basis for the reproductive advantage of the colorful peacock. As long as the reproductive advantage of the plumage outweighs the reproductive disadvantage caused by decreased survival, selection will continue to favor the plumage.

Besides evolution driven by female choice, Darwin described another form of sexual selection, male-male competition.[85] Here, a classic example is the antlers of a male deer, which serve them primarily in contests with conspecific competitors.[86] During the rutting season, male deer engage in combat with their antlers, and to the victors belong the spoils—preferential access to females.[87] Notwithstanding the apparent selective disadvantage of carrying about a rack that is expensive in biological terms to create and maintain, a large rack gives its owner an advantage in the centrally important mating game.[88] Whether a specific form of sexual selection is characterized as "female choice" or "male-male competition," it involves competition between males—in our examples, either competition in growing the desired plumage or competition in growing and using deadly weapons.

The phenomenon of sexual selection is of central concern to this article, because the thesis here is that both the "glass ceiling" and the "gender gap" in compensation, like so many aspects of human society, can be understood fully only through a more complete understanding of what we are as a species and how we came to be this way. If sexual selection has resulted in different underlying psyches for men and women, we might reasonably expect that those psychological differences will have an impact on the kinds of behaviors engaged in by the two sexes. Whether selection would operate to create such differences would depend on whether the two critical elements of natural selection—heritable variation and differential reproductive success—obtained in our evolutionary past for the kinds of traits at issue.

A central tenet of evolutionary biology is that "natural selection favors individuals that *maximize* the number of their surviving offspring."[89] Put another way, animals exhibiting behaviors that enhance their reproductive success will leave behind more offspring and, if those behaviors are causally related to the animals' genetic endowment, those behaviors will then become more common in the population.[90] It is important to note that because natural selection can act only on what is put before it, natural designs are not necessarily the optimal designs that an engineer, starting from scratch, might produce.

Central to our discussion is the difference in "reproductive strategies" of males and females. The term "reproductive strategy" has been defined as a

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and Zuk, it has been found that in cultures with a high prevalence of pathogens, there is a heightened emphasis on physical attractiveness (which is thought by many investigators to be an indication of good health and good genes). Steven W. Gangestad & David M. Buss, *Pathogen Prevalence and Human Mate Preferences*, 14 ETHOLOGY & SOCIOBIOLOGY 89, 93–94 (1993).

85. DARWIN, *supra* note 83, at II, 239 (noting that "[w]ith mammals the male appears to win the female much more through the law of battle than through the display of his charms").

86. DARWIN, *supra* note 83, at 239–43, 248–49.

87. *See* T.H. Clutton-Brock, *The Functions of Antlers*, 79 BEHAVIOUR 108, 109–13 (1982).

88. *Id.*

89. TRIVERS, *supra* note 48, at 20 (emphasis in original).

90. Bobbi S. Low, *Human Sex Differences in Behavioral Ecological Perspective*, 16 ANALYSE & KRITIK 38 (1994).

"program for the allocation of reproductive effort."[91] Reproductive strategies involve the questions of when and with whom to mate, and they may differ between the sexes in how much of their reproductive effort is "mating effort" and how much is "parental effort."[92] It is important to emphasize that the term "strategy" should not be taken to mean a conscious process, but rather a behavior pattern that would be adopted *if* a conscious design were at work.[93] Thus, although non-human animals are not, so far as we know, capable of thinking strategically, they still have reproductive strategies.

That men and women should have different reproductive strategies is not intuitively obvious. After all, men and women are members of the same species, and the reproductive success of men is critically dependent upon women, just as the reproductive success of women is critically dependent upon men. Moreover, the total (or average) reproductive success of males must be equal to that of females. It might seem, therefore, that the interests of men and women are thus totally congruent and that their reproductive strategies should be identical.

In 1972, biologist Robert Trivers provided a comprehensive description and theoretical explanation of the reasons for sex differences in reproductive strategies. In one of the most important papers in evolutionary theory since Darwin—entitled *Parental Investment and Sexual Selection*—Trivers demonstrated that "[w]hat governs the operation of sexual selection is the relative parental investment of the sexes in their offspring."[94] Trivers defined *parental investment* as "any investment by the parent in an individual offspring that increases the offspring's chance of surviving (and hence reproductive success) at the cost of the parent's ability to invest in other offspring."[95] Throughout this discussion, it must be borne in mind that natural selection acts upon individuals, not upon a mating pair, not upon the group, and not upon the species.[96] As a result, it rewards behaviors that increase the reproductive success of the individual, whether or not the behaviors are "good" for the larger group.

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91. DALY & WILSON, *supra* note 2, at 41.

92. DALY & WILSON, *supra* note 2, at 40–41.

93. *See* DALY & WILSON, *supra* note 2, at 37. *See also* RICHARD DAWKINS, THE SELFISH GENE 151 (new ed. 1989) ("the word 'strategy' refers to a blind unconscious behaviour program").

94. Robert L. Trivers, *Parental Investment and Sexual Selection*, *in* SEXUAL SELECTION AND THE DESCENT OF MAN 136, 141 (Bernard G. Campbell ed., 1972).

95. *Id.* at 139. *See also* TRIVERS, *supra* note 48, at 207–09.

96. Although Darwin himself had explained natural selection in terms of individual selection, for the next century many, if not most, biologists attempted to explain selection as operating on a group basis—i.e., a trait might evolve that would be bad for the individual who carried it but advantageous to the group. *See, e.g.*, V.C. WYNNE-EDWARDS, ANIMAL DISPERSION IN RELATION TO SOCIAL BEHAVIOR (1962). Beginning in the 1960s, however, biologists overwhelmingly came to the view that traits that reduce the "inclusive fitness," *see supra* note 55, of an individual would tend to be removed from the population even if they were, on balance, better for the species. *See, e.g.*, WILLIAMS, *supra* note 46, at 92–124. For a discussion of the group-selection fallacy, see TRIVERS, *supra* note 48, at 67–85. Strictly speaking, the unit of selection may not even be the individual, but rather the gene itself. *See* DAWKINS, *supra* note 93, at 11.

Recently, a few researchers have suggested that there may in fact be some limited circumstances in which natural selection may operate at the group level. *See, e.g.*, David S. Wilson & Elliott Sober, *Reintroducing Group Selection to the Human Behavioral Sciences*, 17

Trivers predicted that the sex whose typical parental investment is greater than that of the other sex will become the limiting resource, and individuals of the sex investing less will compete among themselves to mate with members of the sex investing more. Members of the sex investing less can increase their reproductive success through numerous partners in a way that members of the other sex cannot.[97] Trivers' predictions have been shown to be correct for a wide variety of animals. In most animals, the lack of male parental investment leads males to compete among themselves either through female choice or male-male competition. Therefore, it is the male who develops the attractive coloration or appliances for combating sexual competitors, and it is the males who tend to be polygamous.[98]

Trivers' theory is confirmed by looking at species in which males have unusually high levels of parental investment.[99] In those species, there is a reversal of the usual sex roles. For example, among several species of seahorse, the male receives the eggs of the female and carries them in a pouch until they hatch. The courtship ritual of seahorses is correspondingly reversed, with the female being more brightly colored and engaging in the more active courtship.[100] Similarly, in a number of species of birds, after the eggs are laid by the female, the males brood the eggs and then care for the chicks for several weeks.[101] In such species, females are sometimes polyandrous, they are larger and more brightly colored than males, and they are more aggressive and more active in courtship than males.[102] Ironically, some who argue against a biological basis for differences in reproductive strategies rely on just these sex-reversal cases for the argument that sex roles are arbitrary.[103] However, the theory does not predict that males will be more active in courtship; instead, it predicts that the sex with the smaller investment—whether male or female—will be more active.

The paradigmatic examples of sexual selection described above for peacocks and deer hold true for most species—all of the male's reproductive effort is mating effort rather than parental effort; the only contribution of males is the sperm cells.[104] However, that pattern does not hold true for a good many other species. Although the extreme male parental investment and consequent sex-role reversal of animals such as the seahorse is fairly rare,

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BEHAVIORAL & BRAIN SCI. 585 (1994); David S. Wilson & Elliott Sober, *Reviving the Superorganism*, 136 J. THEORETICAL BIOLOGY 337 (1989).

97. Trivers, *supra* note 94, at 140.

98. TRIVERS, *supra* note 48, at 206–15.

99. TRIVERS, *supra* note 48, at 215–19.

100. *See* TRIVERS, *supra* note 48, at 215–16. If the reader is speculating that perhaps scientists have simply misidentified the males and females, as a definitional matter, males are the ones who manufacture the small sex cells, while females manufacture the large ones, irrespective of how the young are gestated.

101. E. Otto Höhn, *The Phalarope*, 220 SCI. AM. 105 (1969). Presumably related to this "reversal" in behavior is the fact that the female phalarope has levels of serum testosterone that are as high or higher than those of the male. *Id.* at 107. For a description of species in which only the male cares for offspring, see Mark Ridley, *Paternal Care*, 26 ANIMAL BEHAV. 904 (1978).

102. TRIVERS, *supra* note 48, at 217.

103. *See* FAUSTO-STERLING, *supra* note 12, at 185; Dupré, *supra* note 7, at 51. *See also* Robert Wright, *Feminists, Meet Mr. Darwin*, THE NEW REPUBLIC, Nov. 28, 1994, at 34 (quoting Fausto-Sterling as saying, "You name your animal species and make your political point").

104. Trivers, *supra* note 94, at 141.

males in a large number of species invest more than just their gametes in their offspring, although still less than females. The male's parental investment may take a number of forms, such as providing food, defense, a nest, or actual paternal care.[105] Increased male parental investment causes a behavioral shift in the male's mating behavior from essentially limitless promiscuity to a greater selectivity in partners, although polygyny is still very common.

Humans fall into this latter category of substantial parental investment by males,[106] but with a large remaining differential between females and males. These two facts—substantial parental investment plus a large remaining differential between the sexes—create different reproductive strategies for male and female humans, just as they do for other animals. The act of intercourse requires the investment of a few minutes of time for both the male and the female partner. If it leads to conception, which is the evolutionary "reason" for the behavior, the nature of mammalian reproduction renders the consequent burdens on the two partners grossly asymmetrical.[107] The woman must carry and nourish the baby for nine months, and, thereafter, in a traditional society at any rate, she must nurse it. Even after weaning, the child cannot live without care by adults, although there is no biological requirement that the care be provided by a parent. During the period of gestation, the mother cannot become pregnant and therefore cannot enhance her reproductive success by additional acts of intercourse. Furthermore, during the period of lactation, pregnancy is much less likely[108] and, in any event, might cause a reduction in the mother's investment in the first child, decreasing the likelihood of its survival.[109] Therefore, in order to assure her reproductive success, the woman must generally invest heavily in each child. To walk away from the child at

105. Trivers, *supra* note 94, at 142. Female mate choice based upon male resources is pervasive in the animal kingdom. In many insects, for example, males present food offerings to females to induce mating, and, if the offering is not large enough, the suitor is rejected. TRIVERS, *supra* note 48, at 249. The males of some bird species build nests that are then inspected by the female, and, if found wanting, the males will be rejected. TRIVERS, *supra* note 48, at 252. Among bonobos, females will sometimes exchange sexual favors for food. FRANS DE WAAL, PEACEMAKING AMONG PRIMATES 210–11 (1989).

106. Richard D. Alexander & Katharine M. Noonan, *Concealment of Ovulation, Parental Care, and Human Social Evolution*, *in* EVOLUTIONARY BIOLOGY AND HUMAN SOCIAL BEHAVIOR: AN ANTHROPOLOGICAL PERSPECTIVE 436, 436 (Napoleon A. Chagnon & William Irons eds., 1979) (observing that "[t]he human male is not particularly unusual among primate males, except that he is generally more parental than the males of other group-living species"). *See also* Mary M. Katz & Melvin J. Konner, *The Role of the Father: An Anthropological Perspective*, *in* THE ROLE OF THE FATHER IN CHILD DEVELOPMENT 155, 160 (Michael E. Lamb ed., 2d ed. 1981) (noting that "[p]rovision of resources and defense are the most important forms of paternal investment in human beings"); Michael W. Yogman, *Male Parental Behavior in Humans and Nonhuman Primates*, *in* NORMAN A. KRASNEGOR & ROBERT S. BRIDGES, MAMMALIAN PARENTING: BIOCHEMICAL, NEUROLOGICAL, AND BEHAVIORAL DETERMINANTS 461 (1990) (describing the extent of variation in human paternal behavior).

107. *See* DALY & WILSON, *supra* note 2, at 114.

108. *See* Rose E. Frisch, *Fatness, Puberty, and Fertility*, 89 NAT. HIST. 16 (1980) (suggesting that normal menstruation requires a critical level of stored fat, and fat stores are depleted during lactation); Melvin Konner & Carol Worthman, *Nursing Frequency, Gonadal Function, and Birth Spacing Among !Kung Hunter-Gatherers*, 207 SCIENCE 788 (1980) (suggesting that nursing is accompanied by increases in secretion of prolactin, which in turn results in lower levels of gonadal hormones and reduced fertility).

109. DALY & WILSON, *supra* note 2, at 328–31.

birth is to walk away from an investment of nine months' time and tremendous physiological effort.[110]

The man is in a very different position biologically. Even if his original mate becomes pregnant, he can continue to enhance his reproductive success by mating with other women. In terms of biological potential, the upper limit to the number of offspring that a man can have is almost limitless,[111] and the amount that he must invest in each one is quite low compared to what a woman must invest. As a result, a given mating decision has greater consequences for a woman than for a man. Moreover, the man, unlike the woman, can never have complete confidence that any given child in which he invests is his own, and a man who was unconcerned about whether the children in which he invested were his own would be at a substantial reproductive disadvantage.[112]

In most species, the sexes specialize in either mating effort or parental effort, and in most species, it is males who are the mating specialists and females who are the parental specialists.[113] In humans, this tendency persists, but the relatively high level of male parental investment somewhat mutes, but does not eliminate, the dichotomy observed in species where the male contributes nothing beyond his gametes. Men can still enhance their reproductive success by mating with many women; women enhance their reproductive success by investing heavily in their offspring.[114] In our pre-birth-control ancestral environment, promiscuity spread a man's genes around, but it did not do the same for the woman. A great deal of human behavior,

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110. DAVID M. BUSS, THE EVOLUTION OF DESIRE: STRATEGIES OF HUMAN MATING 19–20 (1994). This does not mean that it is *always* in the woman's interest to invest in the child. *See* Elizabeth M. Hill & Bobbi S. Low, *Contemporary Abortion Patterns: A Life History Approach*, 13 ETHOLOGY & SOCIOBIOLOGY 35, 36 (1992) (pointing out that an elective abortion may be in the mother's reproductive interest, depending upon the availability of resources, the extent to which the new child would interfere with investment in existing children, and future mating opportunities).

111. The largest recorded number of children born to one mother (an 18th century Russian peasant) is 69, a number achieved through multiple sets of multiple births. THE GUINNESS BOOK OF WORLD RECORDS 9 (1995). The largest number of children attributed to a single man (Emperor Moulay Ismail "The Bloodthirsty" of Morocco (1672–1727)) is in excess of 1,000. *Id.* at 10.

112. There is some interesting cross-cultural confirmation of the relationship between paternal confidence and parental investment. Cross-cultural studies show that in societies where prevailing sexual patterns yield low levels of paternal confidence (as in societies in which there is at least a moderate frequency of female extramarital sex or where there is some form of culturally sanctioned wife sharing), the male's investment in his wife's children tends to be substantially less than in societies in which paternal confidence is high. Steven J.C. Gaulin & Alice Schlegel, *Paternal Confidence and Paternal Investment: A Cross Cultural Test of a Sociobiological Hypothesis*, 1 ETHOLOGY & SOCIOBIOLOGY 301, 304 (1980). *See also* Patricia Draper & Henry Harpending, *Father Absence and Reproductive Strategy: An Evolutionary Perspective*, 38 J. ANTHROPOLOGICAL RES. 255, 261 (1982) (suggesting that the extent to which males invest in children is determined by the extent to which male labor is necessary for offspring survival; when women can support themselves, there is a lesser degree of bonding between husband and wife and more relaxed sexual mores). Also, the risk of incest may be highest in circumstances in which there is doubt of paternity. *See generally* Clive V.J. Welham, *Incest: An Evolutionary Model*, 11 ETHOLOGY & SOCIOBIOLOGY 97 (1990).

113. Low, *supra* note 90, at 45–46. *See also* DALY & WILSON, *supra* note 2, at 105 (observing that "[b]y and large, [females] don't need to expend much mating effort—as a resource valued by males, they can count on the males to come to them").

114. DALY & WILSON, *supra* note 2, at 79 (noting that "[t]he male's reproductive output is limited by his access to fertile females, whereas access to all the males in the world would not elevate the female's capacity").

particularly sex differences in human behavior, follows from this difference in specialization. For example, the high costs to women of pregnancy favored women who were selective in their mating decisions, since women who were indiscriminate in their sexual activities would suffer substantial costs.[115] An indiscriminate man, however, did not seriously compromise his reproductive success, and might, in fact, enhance it. A consequence of this asymmetry is the fact that men are generally more interested in pursuing casual sex than women, a fact that has consequences in the workplace.[116]

The specialization of male and female humans is not nearly as great as that of animals such as the red deer or the peacock. Indeed, the human species is characterized by an unusually high degree of male parental investment, presumably related to the long maturation period of the young.[117] The fact that men are described as mating specialists and women as parental specialists should not obscure the fact that men make parental investments and women make mating investments; only the relative proportions differ. An ancestral man who provided resources to his mates and children might enhance his reproductive success—which depends upon his children surviving and mating—to a greater extent than he would enhance his success by moving on, seeking other mates, and then abandoning them. To the extent that he could invest in his children and continue to seek other mates, he was so much the better off, reproductively speaking. A woman making a mate choice would predictably take into account the likelihood that a potential mate would provide resources that would support the child, a decision that makes relevant both the man's control of resources and his willingness to share them. The man's wealth or status satisfies the first criterion, and both the man's generosity and social requirements of supporting mates are relevant to the second.[118]

Because the reproductive strategies of men and women are substantially different, each must accommodate the other in order to achieve a successful mating.[119] That is, if men could define the ideal mating system without regard to the interest of women, and if women could define the ideal mating system without regard to the interest of men, one might see two very different patterns. One can see the "contest" between the sexes play out by looking at the process as a game in which each player expresses one preference and then the other responds.

What does the man want? Because his actual reproductive contribution to the offspring is the sperm cell, he would like to mate with a woman, then move

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115. BUSS, *supra* note 110, at 20.

116. *See generally* Michael V. Studd & Urs E. Gattiker, *The Evolutionary Psychology of Sexual Harassment in Organizations*, 12 ETHOLOGY & SOCIOBIOLOGY 249 (1991).

117. Patricia Draper & Jay Belsky, *Personality Development in Evolutionary Perspective*, 58 J. PERSONALITY 141 (1990); Douglas T. Kenrick et al., *Evolution, Traits, and the Stages of Human Courtship: Qualifying the Parental Investment Model*, 58 J. PERSONALITY 97, 101 (1990).

118. BUSS, *supra* note 110, at 22 (observing that "[t]he evolution of the female preference for males who offer resources may be the most ancient and pervasive basis for female choice in the animal kingdom").

119. For extensive and accessible descriptions of male and female reproductive strategies, see MARY BATTEN, SEXUAL STRATEGIES: HOW FEMALES CHOOSE THEIR MATES (1992); BUSS, *supra* note 110; HELEN FISHER, ANATOMY OF LOVE: THE MYSTERIES OF MATING, MARRIAGE, AND WHY WE STRAY (1992); DONALD SYMONS, THE EVOLUTION OF HUMAN SEXUALITY (1979).

on to another, maximizing the number of his offspring by mating with as many women as possible and making the smallest possible investment in each. Once the woman is pregnant, and assuming that abortion is not readily available, she is committed to the baby throughout the gestation period. Thereafter, she can abandon the baby, but only at substantial cost. Because of that fact, the male can assume that many, if not most, of the offspring he leaves behind would be taken care of by their mothers or their mothers' kin. Thus, depending upon availability of subsistence resources to the woman, the man may leave behind more surviving offspring by moving from woman to woman rather than impregnating one woman and staying with her, assuming—and this is a big assumption—that he can find women willing to mate with him under these conditions.

If the man moves from mate to mate, one would not expect him to be very selective in choosing his mates. Since his only investment may be a single ejaculate, he has little incentive to be choosy; his major concern would probably be that each mate be free of contagious diseases that he could contract. Apart from that, he may not care much what his potential mate is like as long as there is some likelihood that she is fertile.

What does the woman want? She wants someone who will invest more in her and her offspring than merely a sperm cell. She wants someone who will protect her and her offspring and supply them with food and other resources.[120] She will therefore be selective in her mate choice, preferring a mate whom she believes will invest in this way. Therefore, she looks for someone who appears to have the capacity and desire to do so. In terms of capacity, she prefers someone who is strong, brave, and has adequate resources. In terms of desire, she prefers someone who is generous and demonstrates a commitment to her.

The man may respond to this desire for resources and commitment in a number of ways. One way may be through deception; he may deceive the woman into believing that he is strong and brave, and that he has both resources and honorable intentions. A great deal of human mating behavior involves attempts at such deception, whether through false boasts about the man's daring exploits or his job or false professions of commitment.[121] Another way the man may respond is through actual demonstrations of his strength and bravery and by acquisition of resources and demonstration of a willingness to share them with her.

In order for the man to make this kind of parental investment—the devotion of resources to his mate and her offspring and perhaps the deferral of other mating opportunities—he needs, at a minimum, to be sure that any

120. Michael W. Wiederman & Elizabeth R. Allgeier, *Gender Differences in Mate Selection Criteria: Sociobiological or Socioeconomic Explanation?*, 13 ETHOLOGY & SOCIOBIOLOGY 115, 116–17 (1992) ("In contrast to males, female reproductive success is not as closely linked to finding fertile mates, but rather to finding a mate who is both willing and able to provide resources related to parental investment in offspring such as food, shelter, territory, and protection....").

121. BUSS, *supra* note 110, at 99–100. *See also* William Tooke & Lori Camire, *Patterns of Deception in Intersexual and Intrasexual Mating Strategies*, 12 ETHOLOGY & SOCIOBIOLOGY 345 (1991).

offspring that he is investing in are his.[122] Maternity is obvious, and, except in the most unusual cases, is not an issue; paternity is not obvious, and except in the most unusual cases, is an issue. The rational male strategy, then, is to require some assurance of paternity;[123] after all, a man who is indifferent to whether the offspring he is investing in are his own is going to be at a reproductive disadvantage. From a genetic perspective, the worst of both worlds is for the man to make a parental investment in children who are not his own, because in addition to safeguarding another man's genes, he also may be forgoing other mating opportunities and decreasing his ability to invest in his own offspring.[124] Assurances of paternity may be secured by a number of means. One method of assurance comes through mate guarding (that is, preventing his mate from mating with another man through surveillance or other means).[125] This may take the form of informal surveillance or formal regulation, as in the practice of purdah or the guarding of women that takes place in a harem.[126] Alternatively, the assurance may come through direct physical means, such as a chastity belt[127] or infibulation.[128] The assurance may also come through other indications of fidelity on the woman's part (assurances that may be strengthened by premarital chastity).

In addition to requiring indicia of paternity, the man, if he is to limit his sexual contacts, now cares a great deal more about the genetic endowment of his mate. He must make up for the loss in quantity by attention to quality.[129] In addition to his active investment, there is now also substantial opportunity cost associated with mating; as a result, the male now cares about the extent of his prospective mate's reproductive potential as compared with the reproductive potential of other possible mates. Just as the female has always wanted signs of "good genes," now the male cares about those as well, and his concern with his mate's health extends beyond his desire not to contract a contagious disease. If

122. *See generally* Margo Wilson & Martin Daly, *The Man Who Mistook His Wife for a Chattel*, *in* THE ADAPTED MIND, *supra* note 57, at 289.

123. The need for assurance of paternity is thought to explain the fact that people are far more likely to assert that a baby looks like its father than its mother and that it is the mother's relatives who are most likely to make that observation. Martin Daly & Margo Wilson, *Whom Are Newborn Babies Said to Resemble?*, 3 ETHOLOGY & SOCIOBIOLOGY 69 (1982); Jeanne M. Regalski & Steven J.C. Gaulin, *Whom Are Mexican Infants Said to Resemble? Monitoring and Fostering Paternal Confidence in the Yucatan*, 14 ETHOLOGY & SOCIOBIOLOGY 97 (1993).

124. Remember that parental investment is defined as something that not only increases the offspring's chance of surviving but also limits the parent's ability to invest in other offspring. Regalski & Gaulin, *supra* note 123, at 139. *See also* TRIVERS, *supra* note 48, at 207.

125. *See generally* LAURA BETZIG, DESPOTISM AND DIFFERENTIAL REPRODUCTION: A DARWINIAN VIEW OF HISTORY 78–82 (1986); David M. Buss, *From Vigilance to Violence: Tactics of Mate Retention in American Undergraduates*, 9 ETHOLOGY & SOCIOBIOLOGY 291 (1988).

126. Mildred Dickemann, *Paternal Confidence and Dowry Competition: A Biocultural Analysis of Purdah*, *in* NATURAL SELECTION AND SOCIAL BEHAVIOR 417, 418 (Richard D. Alexander & Donald W. Tinkle eds., 1981). In order to ensure that the fox is not guarding the chicken house, however, the guards may be women or eunuchs.

127. In some insects, the "chastity belt" takes the form of a vaginal plug that the male inserts after inseminating the female to prevent further matings. In the fly *Johannseniella nitida*, the female eats most of the male after copulation, but leaves his genitalia attached, an extreme form of male parental investment. DALY & WILSON, *supra* note 2, at 109.

128. Infibulation is the practice of sewing the vagina shut to prevent copulation. *See* Pia G. Gallo & Franco Viviani, *The Origin of Infibulation in Somalia: An Ethological Hypothesis*, 13 ETHOLOGY & SOCIOBIOLOGY 253, 261–62 (1992).

129. David M. Buss & David P. Schmitt, *Sexual Strategies Theory: An Evolutionary Perspective on Human Mating*, 100 PSYCHOL. REV. 204, 214–18 (1993).

he is to be in an extended relationship with a woman, especially a monogamous relationship, the male wants strong assurances of fertility.[130] What are the indicia of fertility? Good health, good genes, and youth. Youth is relatively straightforward, although it is subject to deception.[131] As for good health and good genes, clear skin, attractive looks, and high energy are relatively reliable indicators.

What about nurturance of the female? Does the male reproductive strategy require him to select for a mate who would nurture the child and be a "good mother?" Although that is an important trait in a mother, it may be that males can generally rely on their mates' furthering of their own self-interest, so that maternal nurturance was only of secondary concern.

Evolutionary theory predicts a host of differences in the behavioral profiles of mating specialists and parenting specialists. As behavioral ecologist Bobbi Low has observed, mating effort and parental effort show very different "return curves."[132] In economic terms, mating effort has a high fixed cost, in that the male must establish himself as successful before he can mate at all.[133] In deer, this may involve growing antlers and gaining size; in humans, it may involve acquiring sufficient size and resources to become attractive to a potential mate, and these attributes often come much later than the onset of sexual maturity.[134] Once the necessary level of status is achieved, however, the investment required to sire a second child is likely to be quite small. On the other hand, parental effort is characterized by a more linear return curve, since each additional offspring will cost about as much as the first. One of the major consequences of these different return curves is a greater variability in reproductive success in males than in females. Many more males than females will never have offspring, but the most successful males will have many more offspring than the most successful female. This is true of elephant seals,[135] red deer,[136] humans,[137] and most other mammals.[138]

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130. In some societies, wealthy men are able to demand very high proof of fertility—they delay marriage until the woman has become pregnant. *Id.* at 218.

131. That is, after all, the *raison d'être* of the multi-billion dollar cosmetics industry. *See* NAOMI WOLF, THE BEAUTY MYTH: HOW IMAGES OF BEAUTY ARE USED AGAINST WOMEN 106–21 (1991).

132. Low, *supra* note 90, at 45–46.

133. *See* DALY & WILSON, *supra* note 2, at 93.

134. Ritch C. Savin-Williams & Glenn E. Weisfeld, *An Ethological Perspective on Adolescence*, *in* BIOLOGY OF ADOLESCENT BEHAVIOR AND DEVELOPMENT 249 (Gerald R. Adams et al. eds., 1989). Savin-Williams and Weisfeld suggest that the relative costs and benefits of early conception explain the fact that female pubertal changes precede full fertility by several years, whereas in males fertility precedes full sexual dimorphism: "If a male successfully 'steals' the chance to impregnate, he has little to lose, but if a female conceives prematurely, the result may be fatal." *Id.* at 267. *See also* Jane B. Lancaster, *Sex Differences in the Higher Primates*, *in* GENDER AND THE LIFE COURSE 3, 17 (Alice S. Rossi ed., 1985).

135. Burney J. Le Boeuf, *Male-Male Competition and Reproductive Success in Elephant Seals*, 14 AM. ZOOLOGIST 163, 165–68 (1974) (A longitudinal study of a breeding population of several hundred seals found that the five most active males accounted for 48–92% of the copulations in each breeding season, with frequency of copulation being proportional to social rank, which is in turn achieved through aggressive encounters.).

136. T. H. Clutton-Brock, *Reproductive Success in Red Deer*, 252 SCI. AM. 86 (1985).

137. DALY & WILSON, *supra* note 2, at 88–89.

138. *See generally* Richard D. Alexander et al., *Sexual Dimorphisms and Breeding Systems in Pinnipeds, Ungulates, Primates, and Humans*, *in* EVOLUTIONARY BIOLOGY AND HUMAN SOCIAL BEHAVIOR, *supra* note 106, at 402.

The greater reproductive variance of males means that the stakes of the mating game are higher for males than females.[139] Therefore, evolutionary theory predicts that males, in order to enhance their reproductive success, should exhibit greater risk-taking behavior[140] (particularly in resource and mate acquisition), greater aggressiveness, and greater promiscuity. After all, if the male can establish himself as a desirable mate, he may be able to sire many children; if he does not, he may sire none. As seen below, empirical data support the theoretical predictions.

C. Evidence of Differential Reproductive Strategies in Our Evolutionary Past

For purposes of understanding how we came to be the way we are, evolutionists focus on traditional societies, as opposed to the modern society in which we now live, because for most of our evolutionary history we were living in traditional, almost-certainly polygynous,[141] societies. It is our thousands of generations in that milieu, rather than the few generations in a complex industrial society, that constituted our evolutionary heritage, and it was in that environment that these psychological mechanisms evolved. As Bruce Ellis has observed, "[t]his logic leads one to expect that a man's sexual attractiveness to women will be a function of traits that were correlated with high mate value in our natural environment: the environment of a Pleistocene hunter-gatherer."[142] Therefore, the correlation between male status and resources and reproductive success in such societies is of primary interest to the evolutionary argument, and it is there that the evidence is strongest.

In traditional societies, one of the best, if not the best, predictor of a male's reproductive success is his status and access to resources. After compiling information on standards of attractiveness in almost 300 mostly nonurban non-Western cultures, Edgar Gregersen concluded that "[f]or women the world over, male attractiveness is bound up with social status, or skills, strength, bravery, prowess, and similar qualities" and that "men are usually aroused more than women by physical appearance."[143] Laura Betzig, in a far-reaching survey of status and reproductive success found an extraordinarily high relationship between a man's power and his access to women.[144]

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139. In every known human society, bachelors who are mateless are more numerous than spinsters. BUSS, *supra* note 110, at 200–01.

140. Margo Wilson & Martin Daly, *Competitiveness, Risk Taking, and Violence: The Young Male Syndrome*, 6 ETHOLOGY & SOCIOBIOLOGY 59, 60 (1985).

141. Although the majority of known human societies are polygynous, most large modern societies are presumptively monogamous. Nonetheless, most scientists view our society as effectively moderately polygynous because of successive marriages and mating outside of marriage. Buss & Barnes, *supra* note 83, at 559; John M. Townsend, *Mate Selection Criteria: A Pilot Study*, 10 ETHOLOGY & SOCIOBIOLOGY 241, 241 (1989). Although a system in which successive marriages take place is not necessarily normatively polygynous, since women as well as men remarry, our system is polygynous in practice because men are more likely to remarry and to have children from subsequent marriages than are women.

142. Bruce J. Ellis, *The Evolution of Sexual Attraction: Evaluative Mechanisms in Women*, *in* THE ADAPTED MIND, *supra* note 57, at 267.

143. EDGAR GREGERSEN, SEXUAL PRACTICES: THE STORY OF HUMAN SEXUALITY 84 (1982).

144. BETZIG, *supra* note 125.

Intergroup aggression in primitive societies is often related to acquisition of mates.[145] Anthropologist Napoleon Chagnon has reported that the Yanomamö of South America commonly engage in intergroup aggression to capture wives from other groups and to recapture their own wives, who have been captured in raids on the group.[146] Many North American Indians also took female captives. The Shoshone Sacajawea, who accompanied Lewis and Clark on part of their journey, had been captured by the Hidatsa and sold to the Frenchman who became the interpreter for Lewis and Clark.[147] Quanah Parker, the most famous of the Comanche chiefs, was the son of a Comanche chief and a white woman who had been captured in childhood.[148] The Blackfoot engaged in raids to steal horses, often for the purpose of accumulating the brideprice. In society after society, men increase their reproductive success by engaging in risky activities and increasing their wealth and status.[149]

Acquisition of status often involves acquisition of resources, but this is not always the case. For example, among the Yanomamö of South America, being a *unokai*, or "revenge killer," is a mark of high status although not necessarily an indicator of greater resource control. It also yields stark reproductive benefits: *unokai* average one more wife than non-*unokai*, and average 4.5 children compared to 1.6 for non-*unokai*.[150]

Unlike men, women cannot generally enhance their reproductive success by acquiring wealth or accumulating mates, and in some cases it appears that women undermine their reproductive success by acquiring political status.[151] Rather, women increase their reproductive success by devoting the bulk of their energies to investment in children rather than the acquisition of resources. Maternal investment in children involves both providing milk and other forms of caretaking. The mother who was relatively indifferent to providing care to her children would leave few offspring. Therefore, one would predict evolved psychological mechanisms that would encourage such behaviors. One such mechanism is bonding with the infant, a process that may be facilitated by

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145. *See* Barbara Ayres, *Bride Theft and Raiding for Wives in Cross-Cultural Perspective*, 47 ANTHROPOLOGICAL Q. 238, 240 (1974) (finding that raiding for wives was common in traditional societies throughout the world).

146. NAPOLEON A. CHAGNON, YANOMAMÖ: THE LAST DAYS OF EDEN 218–21 (1992).

147. JAMES P. RONDA, LEWIS AND CLARK AMONG THE INDIANS 256 (1984).

148. WILLIAM BRANDON, INDIANS 179–80, 362–66 (1961).

149. BETZIG, *supra* note 125, at 34. *See also* Daniel Pérusse, *Cultural and Reproductive Success in Industrial Societies: Testing the Relationship at the Proximate and Ultimate Levels*, 16 BEHAVIORAL & BRAIN SCI. 267, 267–69 (1993) (collecting sources); Laura Betzig, *Where Are the Bastards' Daddies?*, 16 BEHAVIORAL & BRAIN SCI. 284 (1993) (collecting additional sources).

Timothy Goldsmith has noted the reproductive implications of the advice given by Moses following the victory of the Israelites over the Midianites. After the Israelites had slain all the men and captured the women and children, Moses told them: "Now therefore kill every male among the little ones, and kill every woman that hath known man by lying with him. But all the women children, that hath not known a man by lying with him, keep alive for yourselves." NUMBERS 21:17–18. As Goldsmith notes, "[w]hat could be a more explicit set of instructions both for eliminating reproductive competition, present and future, as well as for assuring paternity among the appropriated females?" GOLDSMITH, *supra* note 3, at 66.

150. Napoleon A. Chagnon, *Life Histories, Blood Revenge, and Warfare in a Tribal Population*, 239 SCIENCE 985, 989 (1988).

151. Bobbi S. Low, *Sex, Coalitions, and Politics in Preindustrial Societies*, 11 POL. & LIFE SCI. 63, 77 (Feb. 1992).

hormonal changes that occur following birth.[152] The relative strength of maternal and paternal attachment to infants is difficult to measure (other than by the tautological method of observing parents' willingness to be separated from their infants). However, in addition to anecdotal accounts of mothers' deeply felt aversion to separation, there is also evidence suggesting that mothers experience more grief from the death of a newborn than do fathers.[153] Moreover, as David Blankenhorn has observed, "[i]t is almost impossible to find a culture in which large numbers of mothers voluntarily abandon their children," yet we need only look around to see a culture in which fathers do.[154]

The clearest evidence of a link between men's wealth and status and their reproductive success comes from traditional societies. Notwithstanding dramatic differences between traditional societies and more modern societies, however, the correlation holds true for more advanced societies. Bobbi Low has shown that even in the monogamous and egalitarian population of nineteenth century Sweden during the period of the demographic transition, there was a marked relationship between status and reproductive success.[155] As to modern industrial society, the data are more complicated. Many studies have shown a relationship between wealth and reproductive success,[156] but others have not. Daniel Vining has argued that the bulk of the data show an inverse correlation between wealth and reproductive success in most modern societies; that is, the poor are having more babies than the rich, in accordance with the Depression-era song, "the rich get richer and the poor get children."[157] He contends that one of the central pillars of sociobiology is thereby undermined.[158]

Although Vining adverts to the issue, his conclusion nonetheless rests on the common, but fallacious, argument that if the forces that resulted in the evolution of a behavioral predisposition no longer exist, then an explanation of

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152. MARSHALL H. KLAUS & JOHN H. KENNELL, MATERNAL-INFANT BONDING 51–52, 67–68 (1976). *See also* Browne, *supra* note 17, at 647–49. *But see* Alice S. Rossi, *Gender and Parenthood, in* GENDER AND THE LIFE COURSE, *supra* note 134, at 161, 175–76 (arguing that the findings of Klaus and Kennell have not been replicated and suggesting that instead the differences in male and female parenting styles reveal the same sex differences as found in other contexts, such as greater female empathy).

153. *See* Charles H. Zeanah, *Adaptation Following Perinatal Loss: A Critical Review*, 28 J. AM. ACAD. CHILD & ADOLESCENT PSYCHIATRY 467, 468–69 (1989).

154. DAVID BLANKENHORN, FATHERLESS AMERICA: CONFRONTING OUR MOST URGENT SOCIAL PROBLEM 65 (1995).

155. Bobbi S. Low & Alice L. Clarke, *Resources and the Life Course: Patterns Through the Demographic Transition*, 13 ETHOLOGY & SOCIOBIOLOGY 463, 471 (1992).

156. *See, e.g.*, Susan M. Essock-Vitale, *The Reproductive Success of Wealthy Americans*, 5 ETHOLOGY & SOCIOBIOLOGY 45 (1984) (finding higher-than-expected numbers of children among the 400 wealthiest people in America, as well as higher-than-average survivorship of offspring).

157. Daniel R. Vining, Jr., *Social Versus Reproductive Success: The Central Theoretical Problem of Human Sociobiology*, 9 BEHAVIORAL & BRAIN SCI. 167 (1986).

158. It may be inappropriate to view a modern society as a single breeding population. As Allan Mazur and his colleagues have observed, "[t]he proper analogy to an animal dominance hierarchy is not socioeconomic status in mass society but the status hierarchy in a primary group of interacting humans who know one another." Allan Mazur et al., *Dominant-Looking Teenagers Copulate Earlier*, 15 ETHOLOGY & SOCIOBIOLOGY 87, 88 (1994). Put another way, although a successful corporate lawyer may have higher status in society-at-large than a drug-dealing pimp, in the narrow circles in which the pimp operates, he may enjoy higher status than the lawyer.

the behavior in evolutionary terms is misguided.[159] It cannot be overemphasized that *reproductive success in modern society is irrelevant to whether a trait was an adaptation to our ancestral environment.*[160] The relevant question for our purposes is not whether an adaptation continues to be adaptive, but rather whether it continues to exist. The advent of modern birth control, which has resulted in a substantial disjunction between the sex act and procreation means that, unlike in our ancestral environment, engaging in frequent sexual intercourse may have few reproductive consequences. This disjunction requires a clear identification of the precise traits that have been selected for.

Biologists often distinguish between proximate "triggers" and ultimate adaptive causes; both are "causes" in a sense, but they are answers to two separate questions.[161] One might ask why birds migrate. The answer could be couched in terms of the proximate cue—birds migrate because the day becomes shorter—or it might be expressed in terms of the ultimate adaptive cause—birds migrate in order to move to an environment that has the nesting sites and food to support them and allow them to pass on their genes to another generation.[162] One might similarly ask why humans have sex. The answer in terms of proximate cues might be that "under the right circumstances members of one sex are sexually attracted to the other and, besides that, it feels good."[163] An answer in terms of ultimate adaptive causes would be "because that is how they pass their genes on to the next generation, and people who did not have sex would leave no offspring."[164] When individuals respond to the proximate cue,

159. Another example comes from Kathryn Abrams, who asserts that an explanation of female nurturance as an adaptation to facilitate breastfeeding is no longer relevant in an age of formula-fed babies. Abrams, *supra* note 15, at 1024–25. Similarly, commenting on observations concerning male and female competitiveness in auto racing, she also questions why drivers should "apply strategies for reproductive success when entering the Indy 500." Abrams, *supra* note 15, at 1028–29. The point is not, of course, that race car drivers are "applying reproductive strategies"; rather, the point is that the male's greater competitiveness—which is not limited in its manifestation to reproduction—exists because in our evolutionary past males increased their reproductive success by being competitive. Even today, it is reasonable to predict that the winner of the Indy 500 will have mating opportunities available to him that the last-place finisher will not.

160. Symons, *On the Use and Misuse of Darwinism*, *supra* note 60, at 148 ("The statement that a particular form of behavior is an *adaptation* to a particular environment does not imply the current existence of beneficial effects on survival and reproduction; it implies that during the course of evolutionary history selection produced *that particular form of behavior* because that form served a specific function more than available alternative forms did."). In fact, Symons goes on to point out that "there is a principled Darwinian argument for assuming that behavior in evolutionarily novel environments will often be *mal*adaptive." Symons, *On the Use and Misuse of Darwinism*, *supra* note 60, at 154 (emphasis in original).

161. *See* Low, *supra* note 90, at 40.

162. *See* Bobbi S. Low, *An Evolutionary Perspective on War*, *in* BEHAVIOR, CULTURE, AND CONFLICT IN WORLD POLITICS 13, 15 (W. Zimmerman & H.K. Jacobson eds., 1993). *See also* Symons, *An Evolutionary Approach*, *supra* note 58, at 94 (describing proximate causes as "the particular complement of genes individuals inherited, the particular series of environments they encountered in the course of their development, the particular features of structure and physiology they thus developed, and the particular situations in which they exhibit the trait").

163. As Lionel Tiger has observed, "[t]he sexual spasm is the most physically pleasurable human event." LIONEL TIGER, THE PURSUIT OF PLEASURE 3 (1992).

164. *See* Symons, *An Evolutionary Approach*, *supra* note 58, at 94: "The ultimate causes are particular circumstances in the ancestral populations that led to selection for the trait in question. That is, the trait was designed by natural selection to serve a specific function, to play a specific role in the individual's game of life: achieving reproductive success."

they often further the ultimate adaptive cause, but they do so irrespective of whether the ultimate function is actually furthered. Although having children is the ultimate reason for sex, it is probably fair to say that most people having sex are not thinking about children.

Electing to have fewer children than one might readily support (and fewer children than others are having) appears to be, and presumably is, maladaptive. This is not an uncommon consequence of severance of the proximate cue from the ultimate function. One easily understood example involves our taste for sweets. Humans, or more likely our fruit-eating ape-like ancestors, evolved a taste for sweet foods because sweet foods found in nature tend to be nutritious and are seldom harmful.[165] Bitter foods, on the other hand, often contain poisonous alkaloids that are better avoided, and sour foods tend to have less nutritional value than sweet ones.[166] In our ancestral environment, it was difficult to obtain too much sugar from natural foods; at the same time one was eating the fruit, one was also taking in nutrients and fiber. However, with the advent of sugar refining, the connection between sweetness and nutrition was broken. We still have a taste for sweet foods, but we can satisfy that taste very efficiently by eating one candy bar instead of several plums. Our craving is for sweets, not for nutrition. In traditional settings, it did not matter; satisfying the proximate desire fulfilled the ultimate function as well. In modern society, satisfying the sweet tooth can lead to malnutrition or "overnourishment," hardly an adaptive strategy.[167]

The same kind of mechanism is likely at work with respect to sexual behavior after the technological innovations of birth control. Our craving to have sex with desirable sex partners remains, just as our craving for sweet foods does.[168] Our proximate desire when we engage in sexual behavior is usually not to produce children, any more than our proximate desire when we eat a candy bar is to obtain nutrition. We have sex for the same reason we eat sugar—because it is "sweet" to us.[169] Because in traditional societies a desire to

165. Symons, *An Evolutionary Approach*, *supra* note 58, at 92–93. *See also* P. Rozin & T.A. Vollmecke, *Food Likes and Dislikes*, 6 ANN. REV. NUTRITION SCI. 433, 436 (1986).

166. Rozin & Vollmecke, *supra* note 165, at 436.

167. *See* RANDOLPH M. NESSE & GEORGE C. WILLIAMS, WHY WE GET SICK: THE NEW SCIENCE OF DARWINIAN MEDICINE 147–48 (1994).

168. It is for this reason that Richard Alexander's prediction that most males will be reluctant to use contraceptives is unjustified. *See* RICHARD D. ALEXANDER, THE BIOLOGY OF MORAL SYSTEMS 218 (1987). Alexander reasons that since selection favored men who secured pregnancies, it stands to reason that men should be reluctant to engage in sex that could not result in pregnancy. As Donald Symons points out, however, "the psychological mechanisms that underpin the human male's perception of female sexual attractiveness were designed by natural selection in the [ancestral environment] to assess *specific correlates* of mate value," such as youth and health. Symons, *On the Use and Misuse of Darwinism*, *supra* note 60, at 151. Since actual fertility cannot be visually assessed, a taste for the predictors of fertility evolved. Those predictors exist independent of actual fertility. *See also* Kenrick & Keefe, *supra* note 53, at 89 (stating that "age preferences are based more on nonconscious responses to proximal cues than on consciously calculated strategies" and stating that "men who have had vasectomies would show the same general pattern of attraction as other men," despite the fact that they are not seeking to reproduce).

169. As biologist David Barash has commented:

> Just as we find sugar sweet, we find certain behaviors to be sweet as well. This means that, at least in part because of evolution's handiwork, we are inclined to do certain things rather than others, and it should be no surprise that in general our inclinations are those that contribute to our fitness.

DAVID BARASH, THE WHISPERINGS WITHIN 39 (1979).

further the ultimate cause was unnecessary—if they had sex, they had children—humans evolved in a way that led to a weaker desire for the ultimate goal than we otherwise might have. We still have a desire for children and nutrition, but perhaps on a different level (especially with respect to men's desire for children) from our desire to have sex and sweets.

Some of the best evidence that any reduced fertility that exists among those with wealth and status results from separation of the proximate trigger and the ultimate cause is the finding of a substantial relationship between wealth and number of copulations, even if those copulations do not result in offspring.[170] Thus, the proximate trigger is still working, but reproductive success is no longer the result. However, it should be emphasized that the reported difference in copulation frequency between those of high and low status would tend to understate the reproductive differential if these people were mating in a "state of nature," since copulation with a mate of high reproductive value is more likely to result in reproductively viable offspring than copulation with a mate of low reproductive value.[171]

Notwithstanding the ambiguous data from modern society, it is beyond reasonable dispute that the road to male reproductive success in our evolutionary past was high status and resources. Another way of characterizing the fact that men traditionally enhanced their reproductive success by acquiring resources and status is to say that *women have selected men* for those behaviors, temperaments, and abilities that allow the man to succeed in resource and status acquisition.[172] That is, women have distinguished between males on the basis of their "mate value"[173] and have preferentially mated with those men having high mate value. What are the qualities that give a man high mate value? Most obviously, a desire for status and resources and the drive, aggressiveness, and willingness to take risks to achieve them.[174] Needless to say, these traits are all

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170. Pérusse, *supra* note 149, at 275–77.

171. Pérusse, *supra* note 149, at 282. It should also be noted that even if the poor have more babies than the rich, that by itself does not make them more successful from an evolutionary perspective. The question is not how many offspring one has, but rather how many of the offspring survive and reproduce.

172. BUSS, *supra* note 110, at 47.

173. Ellis, *supra* note 142, at 267.

174. Presumably, intelligence helps as well, but since intelligence would be advantageous to both men and women, sex differences in general intelligence are not predicted. It does appear, however, that there are important differences in specific cognitive functioning between men and women, which may well have an evolutionary explanation. For example, there are well-documented differences in spatial ability, which appear to account for differences in mathematical ability. Although some cling to the hope that an environmental cause for the difference can be identified, it is unlikely that such will be the case. Camilla Benbow, one of the leading researchers on sex differences in mathematical ability, has stated, "After 15 years looking for an environmental explanation and getting zero results, I gave up." MOIR & JESSEL, *supra* note 45, at 16. Similarly, studies consistently show a greater verbal fluency in females. For a description of the research on sex differences in cognitive function, see MOIR & JESSEL, *supra* note 45; ROBERT POOL, EVE'S RIB: THE BIOLOGICAL ROOTS OF SEX DIFFERENCES (1994). Although these differences have occupational implications, especially at the extremes, it is doubtful that the occupational significance of cognitive differences is anywhere near the occupational significance of temperamental differences.

Psychologist Diane Halpern describes the process by which she concluded that "[t]here are real, and in some cases sizable, sex differences with respect to some cognitive abilities." DIANE HALPERN, SEX DIFFERENCES IN COGNITIVE ABILITIES vii (2d ed. 1992). She observes that when she started writing her book:

traits that are considered stereotypical male traits, and it is the difference in these traits—in conjunction with the female's drive to nurture children—that may in large part be responsible for both the "glass ceiling" and the "gender gap" in compensation.

D. Evidence for the Continued Existence of the Evolved Psychological Mechanism

If a species-typical psychological mechanism for assessing "mate value" evolved in our evolutionary history, it should continue to exist today whether or not it remains adaptive.[175] If such a mechanism exists, men and women should value the same kinds of traits today that they valued in our evolutionary past, and there should be a large measure of cross-cultural consistency. There is substantial evidence that these predictions are valid. As Donald Symons has observed, "The point is not just that male and female sexualities differ, but that these sexualities seem to be the coherent, integrated systems that an evolutionary perspective leads us to expect."[176]

The coherence Symons referred to is demonstrated by an increasingly large body of data. Studies show that modern American women are no different from their ancestors in their desire for men of high status, wealth, and dominance, both temperamental and physical. Modern American men are no different from their ancestors in their desire for women of youth and beauty. These preferences are correlated with the kinds of parental investments made by the two sexes: males primarily invest indirect resources, such as food, protection, and security, while females invest more "direct physiological resources."[177]

Assessment of mate preference presents some difficulty because it is not always clear what should be measured. Surveys concerning preference are subject to challenge on the ground that "talk is cheap; you should see what they do, not what they say."[178] Examining actual mate choices, on the other hand, is not necessarily revealing either, because although most people find mates, very few people have enough "mate value" themselves to be able to attract their ideal mate—the mate who embodies all of their preferences. In short, virtually

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> [I]t seemed clear to me that any between-sex differences in thinking abilities were due to socialization practices, artifacts and mistakes in the research, and bias and prejudice. After reviewing a pile of journal articles that stood several feet high and numerous books and book chapters that dwarfed the stack of journal articles, I changed my mind.

Id.

175. For a comprehensive survey of human mating preferences, see BUSS, *supra* note 110.

176. Symons, *An Evolutionary Approach*, *supra* note 58, at 100.

177. Kenrick & Keefe, *supra* note 53, at 78. *See also* Jeffrey S. Nevid, *Sex Differences in Factors of Romantic Attraction*, 11 SEX ROLES 401 (1984) (finding that men place much greater weight on physical appearance of partners than women do); John M. Townsend & Gary D. Levy, *Effects of Potential Partners' Costume and Physical Attractiveness on Sexuality and Partner Selection*, 124 J. PSYCHOL. 371, 372 (1990) ("[M]en's reproductive value is more closely tied to their economic prowess, whereas women's reproductive value is related to their age and health, attributes that are more readily assessed visually, for instance, by muscle tone, complexion, facial proportions, and absence of wrinkles.").

178. *See* Ada Zohar & Ruth Guttman, *Mate Preference Is Not Mate Selection*, 12 BEHAVIORAL & BRAIN SCI. 38, 38–39 (1989) (noting the limitations of preference-survey results).

everyone "settles."[179] One can make inferences, however, from the mate choices of people with high mate value who have more options than others; in those cases, "all agree, females exchange beauty for economic benefits offered by males."[180]

Yet another method of assessing mate preferences is to analyze advertisements in the personals columns of newspapers, although that method is subject to the criticism that most people do not seek mates in this way and that people who do are not representative of the general populace. Nonetheless, "the personals column provides a means for a straight-forward declaration of what one has and what one wants."[181] Another method of measuring mate preferences is to examine fantasies. Fantasies are unconstrained by the need to find someone with whom to satisfy them and even less constrained by real-life expectations than survey research; still, they are still just fantasies. If the various sources of information provided different results, the flawed nature of each of the sources of information would make it difficult to decide which is the most revealing of underlying psychological mechanisms. Fortunately, however, the various kinds of studies reveal substantial consistency, giving one a much greater confidence than might otherwise be the case.[182]

Results of survey questionnaires support the prediction of differential reproductive strategies. In a survey of men and women in Massachusetts, Michigan, Texas, and California, women rated social status between important and indispensable, while men rated it as desirable but not very important.[183] Women also show a preference for men who show signs of ability to obtain resources. American women in an international survey of thirty-seven cultures rated ambition and industry as important or indispensable in a mate and viewed

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179. *See* Buss & Barnes, *supra* note 83, at 560. This "settlement" has a systematic pattern to it, in the sense that the mating decision typically involves parties with somewhat different strategies, leading to compromises in the actual mating decisions. One fruitful avenue of research is to examine homosexual pairings, since in those circumstances there is no issue of compromise with the opposite sex. *See* DONALD SYMONS, THE EVOLUTION OF HUMAN SEXUALITY (1979). One does in fact see almost a caricature of male and female sexuality in gay men and lesbians, in that male homosexuals typically engage in a great deal of casual sex and place a high degree of importance on physical attractiveness; in contrast, lesbians tend to form much longer-lasting relationships, with a monogamous relationship being the ideal. *Id.* at 292–305. Moreover, male homosexuals place a great deal of importance on age of potential mates but little on social class, while among lesbians the reverse is true. Symons, *An Evolutionary Approach*, *supra* note 58, at 113. *See also* Kay Deaux & Randel Hanna, *Courtship in the Personals Column: The Influence of Gender and Sexual Orientation*, 11 SEX ROLES 363, 370–71 (1984) (in a study of heterosexual and homosexual advertisers in personals columns, finding that female homosexuals were least likely to seek or offer physical attractiveness and that male homosexuals were more concerned with physical characteristics than any other group).

180. J. Richard Udry & Bruce K. Eckland, *Benefits of Being Attractive: Differential Payoffs for Men and Women*, 54 PSYCHOL. REP. 47, 48 (1984). *See also* J. Richard Udry, *The Importance of Being Beautiful: A Reexamination and Racial Comparison*, 83 AM. J. SOC. 154 (1977) (demonstrating a relationship between female attractiveness and husband's status).

181. Deaux & Hanna, *supra* note 179, at 363.

182. Kenrick and Keefe put it this way:

> The deaf woman, the blind man, the emotionally distraught spouse of the murder victim, and the dimwitted child are all, in themselves, dubitable sources of evidence. Nevertheless, if from each of their fuzzy vantage points, they all agree that the butler did it, we should suspect that the butler did indeed do it.

Douglas T. Kenrick & Richard C. Keefe, *Sex Differences in Age Preference: Universal Reality or Ephemeral Construction?*, 15 BEHAVIORAL & BRAIN SCI. 119, 120 (1992).

183. BUSS, *supra* note 110, at 26.

lack of ambition as extremely undesirable.[184] Men, on the other hand, viewed the lack of ambition in a wife as neither desirable nor undesirable.[185]

Analysis of advertisements in personal columns also supports the prediction. For example, one study found that the three traits that women sought most often were sincerity, age (wanting a man older than herself), and financial security.[186] These three traits ranked far higher than did physical attractiveness. Men, on the other hand, were three times as likely to seek physical attractiveness.[187] Another survey of over 1100 personal ads found that women sought financial resources approximately eleven times as often as men did.[188] Other studies have consistently shown a greater relative interest in partner attractiveness on the part of men and in partner status on the part of women.[189]

In another study measuring the importance of attractiveness and status, researchers showed subjects pictures of models who were either attractive or homely members of the opposite sex.[190] The male models were wearing one of three costumes: a designer blazer and a Rolex watch, a plain white shirt, or a Burger King uniform.[191] The female models wore a white silk blouse and a Rolex watch, a plain white blouse, or a Burger King uniform.[192] The subjects were asked to indicate their willingness to enter into different levels of relationships (ranging from conversation to dating to sex to marriage) with the three different models.[193] The pattern of responses indicated that for men, the sexual desirability of partners was primarily determined by their physical attractiveness, with sexual desirability acting as a threshold of acceptability for relationships requiring more investment.[194] For women, on the other hand, a

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184. David M. Buss, *Sex Differences in Human Mate Preferences: Evolutionary Hypotheses Tested in 37 Cultures*, 12 BEHAVIORAL & BRAIN SCI. 1, 7 (1989).

185. *Id. See also* Susan Sprecher et al., *Mate Selection Preferences: Gender Differences Examined in a National Sample*, 66 J. PERSONALITY & SOC. PSYCHOL. 1074 (1994) (finding that the male emphasis on youth and physical attractiveness in a mate and the female emphasis on earning potential was consistent across ages and races).

186. A.A. Harrison & L. Saaed, *Let's Make a Deal: An Analysis of Revelations and Stipulations in Lonely Hearts Advertisements*, 35 J. PERSONALITY & SOC. PSYCHOL. 257, 259 (1977).

187. *Id.* at 260.

188. BUSS, *supra* note 110, at 24.

189. Deaux & Hanna, *supra* note 179, at 368; I.A. Greenlees & W.C. McGrew, *Sex and Age Differences in Preferences and Tactics of Mate Attraction: Analysis of Published Advertisements*, 15 ETHOLOGY & SOCIOBIOLOGY 59 (1994); John M. Townsend & Gary D. Levy, *Effects of Potential Partners' Physical Attractiveness and Socioeconomic Status on Sexuality and Partner Selection*, 19 ARCHIVES SEXUAL BEHAV. 149 (1990).

190. Townsend & Levy, *supra* note 177, at 376–77.

191. Townsend & Levy, *supra* note 177, at 376.

192. Townsend & Levy, *supra* note 177, at 376.

193. Townsend & Levy, *supra* note 177, at 377.

194. Townsend & Levy, *supra* note 177, at 386.

It is well established that men are much more eager to participate in casual sexual encounters than women. Dramatic evidence of this commonly assumed fact came in an experiment in which male and female college-student volunteers approached members of the opposite sex and asked them randomly one of three questions: 1) whether they would like to go out on a date; (2) whether they would like to come over to the volunteer's apartment; and (3) whether they would like to have sex. Russell D. Clark III & Elaine Hatfield, *Gender Differences in Receptivity to Sexual Offers*, 2 J. PSYCHOL. & HUM. SEXUALITY 39 (1989). Although there were no significant differences between the responses of male and female subjects to the request for a date, men were far more likely to respond positively to a request to visit an apartment or to have sex. In fact, almost three-quarters of the men responded positively

potential partner's socio-economic status was an important determinant of the person's acceptability for relationships that require substantial investment. If a man exceeds the threshold, the woman may be willing to have sex with him.[195]

In another experiment by the same researchers, subjects were shown three photographs of members of the opposite sex of differing levels of physical attractiveness. Subjects were told that the target was training to be a doctor, a high-school teacher, or a waiter and then asked about their willingness to enter into different levels of relationship. The results indicated that although both sexes favored high attractiveness, for women, but not for men, high status in the target could compensate for low attractiveness.[196]

Women also favor size and strength in a mate, consistent with the view that in the ancestral environment a mate offered the woman protection[197] and with the fact that height is associated with status both in the U.S.[198] and cross-culturally.[199] As psychologist David Buss has pointed out, women judge short men to be relatively undesirable as a permanent mate and they find height, strength, and athleticism to be very desirable. This is confirmed both by survey research and by studies showing that "[t]aller men are more sought after in women's personal advertisements, receive more responses to their own personal advertisements, and tend to have prettier girlfriends than do shorter men."[200]

Other physical indicia of dominance are likewise valued by women. For example, psychologist Caroline Keating showed male and female subjects composite faces constructed from "Identi-Kits," which are used by police to construct composites of suspects.[201] The subjects were asked to rate both male and female faces on a scale of dominance-submissiveness and then later asked to rate them on attractiveness. For both male and female faces, relatively thin lips and small eyes were seen as reliable dominance cues, and a combination of

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to the invitation to sex (a substantially higher proportion than were willing to go on a date), while not a single woman responded positively. *See also* EDWARD O. LAUMANN ET AL., THE SOCIAL ORGANIZATION OF SEXUALITY: SEXUAL PRACTICES IN THE UNITED STATES 201 (1994) (in a major study of sexual practices, finding that males in each age cohort had substantially more sex partners than females); Paul J. Chara & Lynn M. Kuenne, *Diverging Gender Attitudes Regarding Casual Sex: A Cross-Sectional Study*, 74 PSYCHOL. REP. 57 (1994) (in a survey of seventh grade to college-senior students, finding that males become increasingly accepting of casual sex, while females remained consistently opposed at all levels).

Males also masturbate substantially more than females. Harold Leitenberg et al., *Gender Differences in Masturbation and the Relation of Masturbation Experiences in Preadolescence and/or Early Adolescence to Sexual Behavior and Sexual Adjustment in Young Adulthood*, 22 ARCHIVES SEXUAL BEHAV. 87 (1993); Mary Beth Oliver & Janet S. Hyde, *Gender Differences in Sexuality: A Meta-Analysis*, 114 PSYCHOL. BULL. 29 (1993).

195. Townsend & Levy, *supra* note 177, at 386. *See also* John M. Townsend & Lawrence W. Roberts, *Gender Differences in Mate Preferences Among Law Students: Divergence and Convergence of Criteria*, 127 J. PSYCHOL. 507 (1993) (obtaining similar results in a study of law students).

196. Townsend & Levy, *supra* note 189, at 153–54.

197. BUSS, *supra* note 110, at 39.

198. JOHN S. GILLIS, TOO TALL, TOO SMALL (1982); Donald B. Egolf & E. Corder, *Height Differences of Low and High Job Status, Female and Male Corporate Employees*, 24 SEX ROLES 365, 371 (1991).

199. Thomas Gregor, *Short People*, 88 NAT. HIST. 14, 18 (1979); W. Penn Handwerker & Paul V. Crosbie, *Sex and Dominance*, 84 AM. ANTHROPOLOGIST 97 (1982).

200. Ellis, *supra* note 142, at 281 (citations omitted).

201. Caroline F. Keating, *Gender and the Physiognomy of Dominance and Attractiveness*, 48 SOC. PSYCHOL. Q. 61 (1985).

adult-like brows, eyes, lips, and jaw increased dominance ratings.[202] The effects of dominance on attractiveness, however, differed by sex. The traits that made male faces look dominant also made them look attractive; this was true of both multiple feature combinations and single-feature manipulations.[203] The result for female faces was more complicated. The multiple-feature combinations of mature or immature traits had no effect on attractiveness ratings. However, when single features were manipulated, dominant features lowered ratings for attractiveness.[204]

In addition to desiring men who are physically dominant, women also are attracted to men with dominant personalities. In a study of the influence of dominance-seeking behavior on sexual attractiveness, one of the experiments involved male and female subjects who were given descriptions of two participants in an intermediate tennis class, both of whom won sixty percent of their matches.[205] One of the targets was very competitive and tended to dominate his opponent; the other was described as playing well but as more interested in having fun than winning and subject to being thrown off his game by opponents who played with great authority. Subjects were asked to evaluate opposite-sex targets on a series of scales. Women found the dominant males to be far more sexually attractive and desirable as dating partners, while the dominance rating had no effect on men's perceptions of women.[206]

An important psychological measure of personality is a trait called "surgency," which is a personality factor that combines aspects of dominance and extraversion.[207] High scores on this factor are highly correlated with various hierarchy-negotiation tactics and are highly prized by women in potential mates.[208] Again, this is consistent with an evolutionary explanation, since ability to negotiate hierarchies is an important key to resource acquisition.[209] Interestingly, while the dominance component of surgency is much more favored by women, the extraversion component is valued equally by men and women.[210]

Evidence of differential reproductive strategies of the sexes is also apparent in age preferences. In our culture, as well as cross-culturally, women prefer men who are older than themselves, and men prefer women who are

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202. *Id.* at 68.

203. *Id. See also* Mazur et al., *supra* note 158, at 90–92 (finding that dominant-looking teenage boys are more sexually active than submissive-looking boys).

204. Keating, *supra* note 201, at 68–69.

205. Edward K. Sadalla et al., *Dominance and Heterosexual Attraction*, 52 J. PERS. & SOC. PSYCHOL. 730, 733 (1987).

206. *Id.* In three other experiments designed to test the same question, the consistent result was that dominant males were rated more sexually attractive than nondominant males, while there was no related effect for women. An interesting feature of the results was that counternormative (high dominance) behavior did not lower the attractiveness ratings of females. *Id.* at 737. *See also* Lauri A. Jensen-Campbell et al., *Dominance, Prosocial Orientation, and Female Preferences: Do Nice Guys Really Finish Last?*, 68 J. PERSONALITY & SOC. PSYCHOL. 427, 437-38 (1995) (finding that male dominance enhanced attractiveness of men high in "agreeableness," but not those low in that quality; finding no effect of female dominance on male attraction).

207. Ellis, *supra* note 142, at 276.

208. M. Botwin & D.M. Buss, *Personality and Mate Preferences* (cited in Ellis, *supra* note 142, at 276).

209. Ellis, *supra* note 142, at 274–75.

210. Ellis, *supra* note 142, at 274–75.

younger.[211] For example, in the international study, women preferred older men in all thirty-seven cultures, and men preferred younger women in all thirty-seven.[212] Age disparities increase with subsequent marriages: American grooms are an average of three years older than their brides in first marriages, five years older in their second marriages, and eight years older in their third.[213] One of the consistent correlates of mature age in men is greater access to resources,[214] and in women the consistent correlate of youth is reproductive value.[215] This no doubt is the explanation for the common observation that when men get gray they become "distinguished," but when women get gray they become "old."[216]

An analysis of male and female sexual fantasies reinforces the conclusions drawn from empirical data. As Bruce Ellis and Donald Symons have noted, sexual fantasies, being unconstrained by real life exigencies, probably provide greater insight into the psychological mechanisms underpinning sexual desire than do sexual activities themselves.[217] Such fantasies confirm the polygynous nature of males, with men reporting a much greater variety of sexual partners in their fantasies than reported by women.[218] Women reported much less concern with the physical characteristics of their partners than did men and much greater interest in the "personal or emotional" characteristics.[219]

The sex differences in fantasy are consistent with differences between male and female literature of erotic fantasy: male-oriented pornography and female-oriented romance novels. Male-oriented pornography involves sex as "sheer lust and physical gratification, devoid of encumbering relationships, emotional elaboration, complicated plot lines, flirtation, courtship, and extended foreplay."[220] In romance novels, on the other hand, sex "serves the plot without dominating it, [and] the emotional focus of the romance is on love, commitment, domesticity, and nurturing."[221]

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211. Kenrick & Keefe, *supra* note 53, at 80–84. The data are actually somewhat more complicated than demonstrating the simple rule that men like younger women and women like older men. Females consistently tend to seek males slightly older than themselves, while for males, there is little tendency in their early years to seek a younger mate, but the tendency becomes more pronounced with age. Kenrick & Keefe, *supra* note 53, at 84.

212. Buss, *supra* note 184, at 9. Cues to youth are also paramount in the aesthetics of women's attractiveness. When men and women rate a series of photographs of women differing in age, judgments of facial attractiveness decline with the increasing age of the woman. The decline in ratings of beauty occurs regardless of the age or sex of the judge. BUSS, *supra* note 110, at 53.

213. BUSS, *supra* note 110, at 52. This pattern holds true for every country for which there are data. BUSS, *supra* note 110, at 202.

214. BUSS, *supra* note 110, at 28.

215. BUSS, *supra* note 110, at 52.

216. *See* Susan Sontag, *The Double Standard of Aging, in* THE PSYCHOLOGY OF WOMEN 462, 465 (J. Williams ed., 1979).

> [G]etting older tends (for several decades) to operate in men's favor, since their value as lovers and husbands is set more by what they do than how they look. Many men have more success romantically at forty than they did at twenty or twenty-five; fame, money, and, above all, power are sexually enhancing.

Id.

217. *See* Bruce J. Ellis & Donald Symons, *Sex Differences in Sexual Fantasy: An Evolutionary Psychological Approach*, 27 J. SEX RES. 527, 527 (1990).

218. *Id.* at 540–41.

219. *Id.* at 539.

220. *Id.* at 544.

221. *Id.*

A note of caution is in order in drawing inferences from the above studies. The studies demonstrate general patterns, but these patterns do not hold true for everyone.[222] A host of environmental variables and individual psychological differences can affect an individual's preferences.[223] There are men who prefer older women and women who prefer younger men. There are women for whom looks are more important than financial status and men for whom the opposite is true. There are women who are promiscuous and men who are not and even some who do not want to be. Also, the greater emphasis of males on the appearance of their mates should not obscure the fact that physical attractiveness of mates is important to women; it is just not as important as it is for males. It is also important to distinguish between short-term and long-term mating strategies. Members of both sexes sometimes seek long-term mates and sometimes short-term mates.[224] However, short-term mating is a larger component of men's than women's reproductive strategy.[225] Moreover, the attributes that women seek in short-term and long-term mates are more similar overall than is the case for males, who look for quite different things in short-term and long-term mates.[226]

Variations in reproductive strategy seem to have both genetic and environmental components. Gangestad and Simpson have suggested that selection would favor a finite, but relatively low, frequency of females who exhibited "unrestricted" sexual behavior—because their willingness to have sex without commitment would give them access to mates they otherwise would not be able to obtain.[227] The adaptiveness of this trait is frequency dependent, meaning that it is advantageous to its bearer only if it is relatively rare. Draper and Harpending have presented substantial evidence that unrestricted female sexuality is an environmentally contingent strategy that is exhibited in circumstances where the female's father was absent during a critical period of childhood.[228] Their thesis is that father absence is an environmental cue that suggests that men cannot be counted on to invest in offspring.[229]

It is important to emphasize that there is no contradiction in saying that human mating strategies are products of evolved psychological mechanisms and at the same time saying that they are environmentally contingent. Humans, like all animals, have faced varying environments and need mechanisms flexible enough to deal with these different environments. That is not to say that these varying strategies are merely products of the environment. It has been demonstrated, for example, that the presence of a predator alters the pattern of

222. Kenrick & Keefe, *supra* note 53, at 88.
223. Kenrick & Keefe, *supra* note 53, at 88.
224. *See* Buss & Schmitt, *supra* note 129.
225. Buss & Schmitt, *supra* note 129, at 210.
226. Buss & Schmitt, *supra* note 129, at 221–22.
227. Steven W. Gangestad & Jeffry A. Simpson, *Toward an Evolutionary History of Female Sociosexual Variation*, 58 J. PERSONALITY 69 (1990).
228. Draper & Harpending, *supra* note 112, at 258. *See also* Draper & Belsky, *supra* note 117.
229. Draper & Harpending, *supra* note 112, at 258. *See also* Elizabeth Cashdan, *Attracting Mates: Effects of Paternal Investment on Mate Attraction Strategies*, 14 ETHOLOGY & SOCIOBIOLOGY 1, 16–17 (1993) (reporting that women who expect to find investing males will try to attract them by acting chaste, while women who expect non-investing mates will flaunt their sexuality to obtain pre-reproductive investment from as many men as possible).

courtship and mating in a species of pipefish (*Syngnathus typhle*).[230] This species exhibits sex-role reversal, in that females compete for choosy males; these males generally prefer to mate with large females.[231] Ordinarily, copulation is preceded by a conspicuous ritualized dance, at the conclusion of which the female transfers her eggs to the male's brood pouch and the male then fertilizes the eggs.[232] Males may brood eggs from one or more females, and females may transfer eggs to several males within a short time span.[233] The presence of a predator alters the mating and courtship behavior in a way that makes perfect sense in light of evolutionary theory. Males become less choosy, no longer showing a preference for larger females. Although the fish danced less often and danced less per copulation, more eggs were transferred per copulation in the presence of a predator.[234] Quite clearly, the pipefish were not making decisions based upon a conscious assessment of the tradeoffs, but they were acting as though they were.[235]

Finally, the above discussion also should not be taken to indicate that males and females differ with respect to all traits, for there are many traits that are very important to both sexes, such as kindness, intelligence, and fidelity.[236] The lack of sex differences in those attributes is not surprising, since evolutionary logic would predict that these traits would be important to both sexes.[237]

It is worthwhile addressing here two arguments that are often made to counter the suggestion that there is an underlying psychological basis for mate preferences: (1) that standards of attractiveness are culturally based;[238] and (2) that women's preference for mates with status and resources is based upon women's economic powerlessness and their consequent need to secure economic resources through marriage.[239] According to the former argument, each society

230. Anders Berglund, *Risky Sex: Male Pipefishes Mate at Random in the Presence of a Predator*, 46 ANIMAL BEHAV. 169 (1993).

231. *Id.* at 169.

232. *Id.* at 169–70.

233. *Id.* at 170.

234. *Id.* at 174.

235. *See also* Ann V. Hedrick & Lawrence M. Dill, *Mate Choice by Female Crickets Is Influenced by Predation Risk*, 46 ANIMAL BEHAV. 193, 194 (1993) (finding that although female crickets generally prefer males with long calls, they will settle for a male with a shorter call if they would have to cross open areas to get to the long-calling males).

236. *See* Buss & Barnes, *supra* note 83, at 562.

237. Even with respect to traits that both sexes value, such as fidelity, there may be differences in the meaning of the trait for the two sexes. For example, David Buss and his colleagues have shown that sexual infidelity by a woman and emotional infidelity by a man are more threatening to their mates than sexual infidelity by a man and emotional infidelity by a woman. David M. Buss et al., *Sex Differences in Jealousy: Evolution, Physiology, and Psychology*, 3 PSYCHOL. SCI. 251 (1992). *See also* Michael W. Wiederman & Elizabeth R. Allgeier, *Gender Differences in Sexual Jealousy: Adaptationist or Social Learning Explanation?*, 14 ETHOLOGY & SOCIOBIOLOGY 115, 133 (1993) (reporting similar findings). These findings are consistent with the evolutionary argument. Because the male's primary concern is about paternity, men are more concerned about sexual infidelity; because the female's concern is for continued investment of resources, women are more concerned about emotional infidelity, which may lead to a diversion of these resources.

238. *See, e.g.*, SHARON S. BREHM, INTIMATE RELATIONSHIPS 76 (1985) ("Traditionally, *in our society*, males have been valued for their economic success and females for their physical attractiveness." (emphasis added)).

239. *See, e.g.*, Linda R. Caporael, *Mechanisms Matter: The Difference Between Sociobiology and Evolutionary Psychology*, 12 BEHAVIORAL & BRAIN SCI. 17 (1989); Kim Wallen, *Mate Selection: Economics and Affection*, 12 BEHAVIORAL & BRAIN SCI. 37 (1989).

chooses, presumably arbitrarily, what kinds of features are physically attractive. Under the latter argument, preferences for attractive wives and wealthy husbands are social constructs that have no basis in the inherent nature of man and woman. This argument implies that as the economic differences between men and women diminish, mate preferences of the two sexes will converge.[240] Empirical studies refute both of these culture-based arguments.

There is a remarkable cross-cultural consistency in perceptions of beauty, a consistency that would be surprising if judgments of facial attractiveness were culturally generated. Under the social-construct view, one might expect people from the same culture to agree on who is attractive, but one would expect little agreement between members of different cultures. In fact, however, there is substantial agreement even across racial groups concerning who is attractive.[241] If these judgments were determined by culture, one also would not expect children to be able to make these judgments until they had assimilated the cultural standards. However, even infants seem to be able to distinguish between attractive and unattractive faces, and they prefer attractive ones.[242] These preferences develop "long before any significant exposure to contemporary cultural standards, definitions, and stereotypes," suggesting that "a universal standard of attractiveness, overlaid with cultural and temporal variation, may exist."[243]

Features that are deemed attractive in a woman tend to be features that indicate good health and reproductive value. David Buss summarizes the literature as follows:

> Signs of youth, such as clear skin and smooth skin, and signs of health, such as the absence of sores and lesions, are universally regarded as attractive. Any cues to ill health or older age are seen as less attractive. Poor complexion is always considered sexually repulsive. Pimples, ringworm, facial disfigurement, and filthiness are universally repugnant. Cleanliness and freedom from disease are universally attractive.[244]

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240. Buss & Barnes, *supra* note 83, at 569.

241. BUSS, *supra* note 110, at 54. *See also* Michael R. Cunningham, *Measuring the Physical in Physical Attractiveness: Quasi-Experiments on the Sociobiology of Female Facial Beauty*, 50 J. PERSONALITY & SOC. PSYCHOL. 925, 934 (1986) (suggesting that although there is some variability in judgments of attractiveness, consistent results of studies demonstrate that "beauty is not an inexplicable quality which lies only in the eye of the beholder").

242. *See* Judith H. Langlois et al., *Infant Preferences for Attractive Faces: Rudiments of a Stereotype?*, 23 DEVELOPMENTAL PSYCHOL. 363 (1987) (infants as young as two months old look longer at attractive faces than unattractive ones).

The one thing that men cross-culturally do not agree on is the amount of body fat that is attractive in women. David Buss argues that rather than having an evolved preference for a specific amount of body fat, men seem to have a preference for features that are linked with status and health. BUSS, *supra* note 110, at 56. The amount of body fat means different things in different cultures; in some, it means good health and high status, and in others it means bad health and low status.

Notwithstanding assertions to the contrary, *see* WOLF, *supra* note 131, at 179–201, American women's focus on slimness is not a response to actual male preferences. One study, for example, reported that female college students believed that what male students considered the ideal figure was significantly thinner than the male's reports of their perceived ideal female figure. April Fallon & Paul Rozin, *Sex Differences in Perceptions of Desirable Body Shape*, 94 J. ABNORMAL PSYCHOL. 102 (1985). In other words, the "anorexic fashion model" ideal is not the ideal in the eyes of men, as can be confirmed by a quick perusal of "men's magazines."

243. Langlois et al., *supra* note 242, at 367.

244. BUSS, *supra* note 110, at 53.

Also important are facial symmetry[245] and "average" features.[246] The attractiveness of average features was demonstrated dramatically in a study of facial attractiveness using computer-generated composites.[247] Subjects were shown pictures of thirty-two actual people and asked to rate their attractiveness. They were also shown computer-generated composites of four, eight, sixteen, and all thirty-two. The composites were uniformly judged more attractive than the actual people, with the thirty-two person composite being judged most attractive.[248]

As to the argument that women prefer mates with resources because of societal restrictions on women's ability to secure resources for themselves—what has been called the "structural powerlessness" argument[249]—empirical evidence is no more kind. If the economic argument were correct, one would expect that as women ascend the economic ladder on their own, their concern with the economic status of their mates would decrease, because they no longer need to rely on the resources of their mate.[250] In fact, the response is just the opposite. Repeatedly, studies have shown that women who have greater economic resources or potential place *more* importance on a man's economic status than do women with fewer resources.[251] Feminist leaders, no less than other women and perhaps more, desire high-status mates.[252] Moreover, if these desires were motivated by economic concerns, one would expect that men with

245. *See* Randy Thornhill & Steven W. Gangestad, *Human Facial Beauty: Averageness, Symmetry, and Parasite Resistance*, 4 HUM. NATURE 237 (1993).

246. Judith H. Langlois & Lori A. Roggman, *Attractive Faces Are Only Average*, 1 PSYCHOL. SCI. 115 (1990). *Cf.* Thomas R. Alley & Michael R. Cunningham, *Average Faces Are Attractive, but Very Attractive Faces Are not Average*, 2 PSYCHOL. SCI. 123, 123 (1991) (suggesting that although average faces are attractive, the most attractive faces may be somewhat atypical, specifically men may prefer "relatively youthful," rather than average female facial characteristics, and that women may prefer men with facial characteristics that reflect above-average strength or health).

247. Langlois & Roggman, *supra* note 246, at 118.

248. Langlois & Roggman, *supra* note 246, at 118.

249. BUSS, *supra* note 110, at 45–47.

250. *See* Caporael, *supra* note 239, at 17.

251. BUSS, *supra* note 110, at 46. *See, e.g.*, David M. Buss, *Toward an Evolutionary Psychology of Human Mating*, 12 BEHAVIORAL & BRAIN SCI. 39, 41 (1989) ("women who make *more* money tend to value monetary and professional status of mates *more* than those who make less money"); Townsend & Levy, *supra* note 189; Townsend, *supra* note 141, at 243–44 ("elevating wives' earning power relative to that of their husbands and instituting a more equitable division of domestic chores and childcare does not attenuate wives' *preference* for husbands whose financial success exceeds their own" (emphasis in original)); John M. Townsend, *Sex Differences in Sexuality Among Medical Students: Effects of Increasing Socioeconomic Status*, 26 ARCHIVES SEXUAL BEHAV. 425 (1987) [hereinafter Townsend, *Sex Differences in Sexuality*]; Wiederman & Allgeier, *supra* note 120, at 121, 123 (finding that men placed significantly more emphasis on "good looks" and that women placed significantly more emphasis on "good financial prospects"; moreover, to the extent that there was a correlation between a woman's anticipated income and importance of earning potential in a potential mate, it was a positive correlation, rather than the negative correlation predicted by the structural powerlessness hypothesis.).

The fact that our mating system is characterized by hypergyny—i.e., women "marry up"—has the unfortunate consequence that as a woman's age and status increase, the pool of acceptable partners decreases. *See* Townsend, *Sex Differences in Sexuality*, *supra*, at 441; John M. Townsend, *Measuring the Magnitude of Sex Differences*, 15 BEHAVIORAL & BRAIN SCI. 115, 116 [hereinafter Townsend, *Measuring*] (noting that increased socioeconomic status has resulted in "a growing pool of women whose socioeconomic standards for mates exceed what their age and physical attractiveness merit on the current dating-mating market").

252. Ellis, *supra* note 142, at 273.

fewer resources would value resources in a mate more than would men with greater resources; however, men of low resources and status do not value a potential mate's financial resources any more than financially successful men do.[253] In short, "[t]he evolutionary explanation of men's and women's differing preference for a physically attractive partner versus a good provider appears to be more viable than...hypotheses based on economic inequality between men and women."[254]

To say that the complex of traits that has been described—dominance-seeking, risk-taking, and so forth—would have been valuable in our evolutionary environment and is preferred by women today does not prove that there are in fact sex differences in these traits. Some evidence to show that differences exist has been described already, but we will now turn to a more detailed examination of the differences and an exploration of the biological mechanisms that may be responsible.

III. BIOLOGICAL SEX DIFFERENCES IN RISK-TAKING, STATUS-SEEKING, AGGRESSIVENESS, AND NURTURANCE

> The entire life strategy of males is a higher-risk, higher-stakes adventure than that of females.[255]

Evolutionary theory predicts that men will tend to exhibit greater status-seeking, competitiveness, and risk-taking than women, and that women will exhibit more nurturance and affiliative behavior. These predictions are borne out in every known human society. With respect to all of these traits, the differences are statistical, in the sense that they are generalizations that do not hold true for all individuals. However, even relatively small between-group differences can have a dramatic effect on the sex ratio at the extremes.[256] Moreover, since the glass ceiling and the gender gap in compensation are themselves both group-based phenomena, it seems appropriate to seek an explanation for them in terms of group-based traits.

The empirical observation of sex differences is relatively well established, although not universally accepted. In a recent review of sex-differences research over the last two decades, psychologist Alice Eagly found that existing research refutes four commonly asserted claims about sex differences: that they are small, inconsistent from study to study, artifactual,

253. Wiederman & Allgeier, *supra* note 120, at 122–23.
254. Wiederman & Allgeier, *supra* note 120, at 123.
255. ALEXANDER, *supra* note 65, at 241.
256. For example, if the male mean for a trait is half a standard deviation higher than the female mean—a sex difference that would be labeled "medium"—at a level at which only five percent of women are found (1.65 standard deviations above the mean), over 12% of the men will be found, for a ratio of approximately 2.5:1. At a point in the distribution that corresponds to two standard deviations above the male mean, there will be a male:female ratio of 3.7:1. Moreover, if males show more variability in the trait, as they do in many cognitive traits, the sex disparities in the extremes of the distribution will be even more pronounced. For example, the male/female ratio of those scoring over 500 on the mathematics portion of the SAT is 2:1; it increases to 4:1 at 600, and to 13:1 at 700. David Lubinski & Camilla P. Benbow, *Gender Differences in Abilities and Preferences Among the Gifted: Implications for the Math-Science Pipeline*, 1 CURRENT DIRECTIONS PSYCHOL. SCI. 61, 62 (1992).

and inconsistent with stereotypes.[257] Eagly notes that despite the repetition of the above claims in psychology text books and some trade books:[258]

> Those who have immersed themselves in this area of science have begun to realize that it is not cultural stereotypes that have been shattered by contemporary psychological research but the scientific consensus forged in the feminist movement of the 1970s. Perhaps the idea that people's ideas about the sexes would be very misguided probably never should have seemed so plausible to psychologists, given the large amount of information that people process about women and men on a daily basis.[259]

As David Buss points out, the traits for which substantial sex differences are found are precisely those traits reflecting different adaptive problems faced by men and women in our evolutionary past.[260]

Because the existence of these differences is reasonably well established, I will discuss evidence of their existence relatively briefly, before turning to the more controversial matter of their cause.

A. Behavioral and Temperamental Sex Differences

1. Aggressiveness, Dominance-Assertion, Competitiveness, Achievement Motivation, and Status-Seeking

> Men are everywhere the more political sex. They wheel and deal, bluster and bluff, compete overtly both for valuable commodities and for mere symbols. Ultimately, these male machinations reflect a struggle for access to female reproductive capacity.[261]

One of the most consistently observed differences between the sexes is in "aggressiveness."[262] However, "aggressiveness" sometimes means something different to the layman than to the psychologist. Psychologists often use the term narrowly to mean the infliction of harm on another.[263] However, both psychologists and laymen sometimes define the term more broadly to include not only harm-inflicting behavior, but also traits that more properly might be called "assertiveness," "competitiveness," "achievement-motivation," and "dominance-seeking," as in the phrase "he is an aggressive businessman" or "she

257. Alice H. Eagly, *The Science and Politics of Comparing Women and Men*, 50 AM. PSYCHOLOGIST 145, 150–54 (1995).

258. *See, e.g.*, CAROL TAVRIS, THE MISMEASURE OF WOMAN: WHY WOMEN ARE NOT THE BETTER SEX, THE INFERIOR SEX, OR THE OPPOSITE SEX (1992).

259. Eagly, *supra* note 257, at 154.

260. Buss, *supra* note 35, at 166.

261. DALY & WILSON, *supra* note 2, at 288.

262. ELEANOR E. MACCOBY & CAROLYN N. JACKLIN, THE PSYCHOLOGY OF SEX DIFFERENCES (1974). *See generally* Eleanor Maccoby & Carolyn Jacklin, *Sex Differences in Aggression: A Rejoinder and Reprise*, 51 CHILD DEV. 964 (1980).

263. John Archer, *The Influence of Testosterone on Human Aggression*, 82 BRIT. J. PSYCHOL. 1, 3 (1991) ("[A]ggression...includes varying mixtures of these components, the intention to harm another individual, a behavioural manifestation of this intention, and an accompanying emotion, ranging from irritation to rage."); Alice H. Eagly & Valerie J. Steffen, *Gender and Aggressive Behavior: A Meta-Analytic Review of the Social Psychological Literature*, 100 PSYCHOL. BULL. 309, 309 (1986) ("Psychologists have defined aggression as behavior intended to inflict harm or injury.").

is an aggressive soccer player."[264] Although not identical, these traits appear to be related[265] and will be treated together.

With respect to the narrow conception of aggression as harm-inflicting behavior, the evidence of a sex difference is compelling.[266] As Eleanor Maccoby and Carol Nagy Jacklin have observed, "males are the more aggressive sex, and...this sex difference is evident at least as early as the preschool years and continues through subsequent phases of development, although it may change in form and in the circumstances which trigger it."[267]

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264. *See* Eleanor E. Maccoby, *Woman's Intellect, in* MAN AND CIVILIZATION: THE POTENTIAL OF WOMEN 37 (Seymour M. Farber & Roger H. Wilson eds., 1963) ("There is good reason to believe that boys are innately more aggressive than girls—and I mean aggressive in the broader sense, not just as it implies fighting, but as it implies dominance and initiative as well."); Eagly & Steffen, *supra* note 263, at 323 ("[N]onpsychologists consider that aggression encompasses forceful actions intended to dominate or master, regardless of their harmful intent."). *See also* GOLDBERG, *supra* note 44, at 65–66 (noting that because of the dual meanings of the term "aggressive," he prefers to use the term "dominance tendency" for circumstances where there is no intent to injure).

265. *See* MOIR & JESSEL, *supra* note 45, at 83 ("Dominance, assertiveness, and the drive which sustains ambition belong to the same behavioural family and have the same biological roots."); Eagly & Steffen, *supra* note 263, at 310 (trait of aggression is related to traits of assertiveness and competitiveness). *See also* Craig R. Paterson et al., *California Psychological Inventory Profiles of Peer-Nominated Assertives, Unassertives, and Aggressives*, 40 J. CLINICAL PSYCHOL. 534, 537–38 (1984) (finding that "assertive" and "aggressive" individuals were similar in dominance, capacity for status, sociability, and social presence, but that assertives scored significantly higher on "socialization" and self-control and "achievement via conformance"); J. Philippe Rushton et al., *Altruism and Aggression: The Heritability of Individual Differences*, 50 J. PERSONALITY & SOC. PSYCHOL. 1192, 1193 (1986) (finding positive correlation between aggressiveness and assertiveness and negative correlation between aggressiveness and altruism, empathy, and nurturance).

266. *See* Archer, *supra* note 263, at 4 ("Surveys of sex or gender differences in human aggression generally show males to be more aggressive than females, over a wide age range of different measures of direct verbal and physical aggression."); Frank A. Elliott, *Violence: The Neurologic Contribution: An Overview*, 49 ARCHIVES NEUROLOGY 595, 598 (1992) ("Most normal male individuals, from cradle to grave, are more prone to physical violence than are most female individuals, and the pathologic violence exhibited by individuals in the form of episodic dyscontrol and predatory aggression is far more common in men. The physiologic differences between the two sexes seem to be the result of prenatal differentiation of the hypothalamic preoptic area as a result of the action of androgens."); Auke Tellegen et al., *Personality Similarity in Twins Reared Apart and Together*, 54 J. PERSONALITY & SOC. PSYCHOL. 1031, 1036 (1988) (both aggressiveness and capacity for control owed more to genetics than to common family or environmental components). The human pattern is consistent with the general mammalian pattern. Kenneth E. Moyer, *Sex Differences in Aggression, in* SEX DIFFERENCES IN BEHAVIOR 335 (Richard C. Friedman et al. eds., 1974).

Eagly & Steffen, *supra* note 263, conducted a meta-analysis of studies of aggression in adults and concluded that although a clear sex difference existed, the magnitude of the difference was only modest. Eagly & Steffen, *supra* note 263, at 322. However, the authors excluded from their review literature on violent crime. Eagly & Steffen, *supra* note 263, at 309. Since their definition of aggression was behavior that is "intended to inflict harm or injury," Eagly & Steffen, *supra* note 263, and since in our society a great deal of behavior intended to inflict harm is both illegal and engaged in disproportionately by males, excluding criminal behavior is certain to result in an understatement of the sex difference.

267. Maccoby & Jacklin, *supra* note 262, at 964. Over 90% of all playground fights observed in a recent study involved boys only. Michael J. Boulton, *Aggressive Fighting in British Middle School Children*, 19 EDUC. STUD. 19, 25 (1993).

Anne Fausto-Sterling implies that not only is there no biological basis for sex differences in aggression, there may not be a sex difference at all, despite numerous studies to the contrary. FAUSTO-STERLING, *supra* note 12, at 148–49. She also suggests that even the greater physiological strength of males may be due to socialization differences. FAUSTO-STERLING, *supra* note 12, at 219. Her argument that male hormones cannot explain differences in strength rests in large part on her argument that the sex gap in performance is less in countries, like East

They also note that despite frequent assertions that parents reinforce aggressive behavior in boys, existing research indicates similarity in parental response to aggressive behavior in boys and girls.[268] In reviewing the cross-cultural literature on children, they found that although not all studies find a significant sex difference in aggression, there are no societies in which a counterexample of higher female aggression is found.[269]

People of diverse cultures commonly view the presence of women as a sign of nonaggressive intentions. Probably the most significant contribution that Sacajawea made to the journey of Lewis and Clark was to reassure the Indians who might have perceived the explorers as having hostile intentions. William Clark wrote in his journal: "The wife of Shabono [Charbonneau] our interpreter we find reconsiles all the Indians, as to our friendly intentions.... [A] woman with a party of men is a token of peace."[270] Similarly, in the first contact with the people of the highlands of New Guinea, the Australian prospector Michael Leahy recorded in his diary: "It was a relief finally when the [highland natives] came in sight,...the men...in front, armed with bows and arrows, the women behind bringing stalks of sugarcane. When he saw the women, [the native guide from the lowlands] told me at once that there would be no fight."[271]

One of the clearest indicators of disproportionate male aggressiveness is involvement in homicide. Margo Wilson and Martin Daly studied the pattern of homicides in Detroit for the year 1972.[272] Of the 690 nonaccidental homicides in Detroit that year, 512 of the cases were closed by 1980, meaning that the police had identified a perpetrator to their satisfaction, whether or not a

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Germany, that place a heavy emphasis on women's sports. FAUSTO-STERLING, *supra* note 12, at 219–20. *But see* Randy Harvey, *Defectors Expose E. German Doping: Two Former Sports Officials Describe Methodological Administration of Drugs*, L.A. TIMES, Sept. 15, 1989, pt. 3, at 1; Michael Janofsky, *Coaches Concede that Steroids Fueled East Germany's Success in Swimming*, N.Y. TIMES, Dec. 3, 1991, at B15.

In a similar vein, two physiologists have predicted, based upon increasing female performance, that female runners will reach parity with male runners in the marathon by 1998 and in all running events by the middle of the next century. Natalie Angier, *2 Experts Say Women Who Run May Overtake Men*, N.Y. TIMES, Jan. 7, 1992, at C31. Of course, the problem with extrapolating from curves is that one does not know what the curve's future shape will be. If one extrapolated even farther, women would no doubt be predicted to run twice as fast as men, and, presumably, at some point in the very distant future women would be predicted to exceed the speed of light, the theory of relativity notwithstanding. In any event, it may not even be the case that women's performance relative to men has been continuing to improve even in the near past. Amby Burfoot & Marty Post, *Battle of the Sexes*, RUNNER'S WORLD, Apr. 1992, at 40, 40–41 (noting that the improvement of women relative to men in the marathon has leveled off since 1985).

268. Maccoby & Jacklin, *supra* note 262, at 974. Maccoby and Jacklin conclude:

> [A]lthough children know, before the age of 6, that boys are rougher and more given to fighting than girls, they probably do not begin to use this knowledge for self-socialization until about age 6. Thus there is a period of time (perhaps age 3-5) during which boys are demonstrably more aggressive than girls and when neither differential socialization nor self-monitoring processes (including choice of same-sex models) have been shown to account for the difference.

Maccoby & Jacklin, *supra* note 262, at 976–77.

269. Maccoby & Jacklin, *supra* note 262, at 970–71.

270. MERIWETHER LEWIS & WILLIAM CLARK, 3 ORIGINAL JOURNALS OF THE LEWIS AND CLARK EXPEDITION 111 (Reuben G. Thwaites ed., 1904) (entry of Oct. 13, 1805).

271. BOB CONNOLLY & ROBIN ANDERSON, FIRST CONTACT 24 (1987).

272. Wilson & Daly, *supra* note 140.

conviction resulted.[273] Wilson and Daly found that participants in homicidal conflicts, both perpetrators and victims, were largely young males, disproportionately unemployed and unmarried.[274] Of the homicides in 1972, 339 were what they classified as "social conflict homicides," that is, homicides that were not incidental to the commission of another crime, and 125 of those cases were between relatives.[275] Wilson and Daly's 1985 study focused on the 214 homicides of non-relatives.[276] They found that thirty-four were caused by sexual jealousy, typically two men fighting over a woman.[277] More than half of the 214 cases reviewed arose out of "trivial altercations," either "escalated showing-off disputes"[278] or disputes arising from "retaliation for previous verbal or physical abuse."[279] Wilson and Daly attributed both of these forms of homicide to status-seeking.[280] As biologist Timothy Goldsmith has colorfully noted, "[r]espect of peers is a major determinant of social status, and considering the ever-present hidden agenda that evolutionary history has provided, it is not at all ironic that the proximate goal of the participants in these altercations is to demonstrate that they 'have balls.'"[281]

Males also exhibit more competitive behavior,[282] and they respond more positively than women to competitive situations. Competition significantly increases the intrinsic motivation of men, while it does not do so for women.[283] This is thought to be because of men's greater assertiveness and interest in

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273. Wilson & Daly, *supra* note 140, at 61.

274. Wilson & Daly, *supra* note 140, at 62. By offender-victim type, there were 348 male-male homicides, 74 male-female homicides, 74 female-male homicides, and 16 female-female homicides. Wilson & Daly, *supra* note 140, at 62.

275. Wilson & Daly, *supra* note 140, at 63.

276. The authors had previously described the homicides of relatives in Martin Daly & Margo Wilson, *Homicide and Kinship*, 84 AM. ANTHROPOLOGIST 372 (1982).

277. By offender-victim, there were 20 male-male homicides, five male-female, six female-male, and three female-female. Wilson & Daly, *supra* note 140, at 63, 65.

278. By offender-victim type, of the homicides resulting from "escalated showing off," there were 26 male-male, zero male-female, two female-male, and one female-female. Wilson & Daly, *supra* note 140, at 63, 65.

279. Of this category there were, by offender-victim type, 75 male-male, nine male-female, six female-male, and five female-female. Wilson & Daly, *supra* note 140, at 63–65.

280. Wilson & Daly, *supra* note 140, at 69 (noting that the "trivial altercation" homicide "is an affair of honor," because the precipitating event "often takes the form of disparagement of the challenged party's 'manhood': his nerve, strength or savvy, or the virtue of his wife, girlfriend, or female relatives").

281. GOLDSMITH, *supra* note 3, at 64.

Disproportionate male involvement in homicide is not limited to adults; a substantial majority of childhood and adolescent homicide victims are male as well. Katherine K. Christoffel, *Violent Death and Injury in U.S. Children and Adolescents*, 144 AM. J. DISEASES CHILDREN 697, 700 (1990). The propensity of males to homicide is consistent with their substantially higher participation in other forms of violent crime. *See* Deborah W. Denno, *Gender, Crime, and the Criminal Law Defenses*, 85 J. CRIM. L. & CRIMINOLOGY 80, 80–81 (1994) (collecting sources); Walter R. Gove, *The Effect of Age and Gender on Deviant Behavior: A Biopsychosocial Perspective*, *in* GENDER AND THE LIFE COURSE, *supra* note 134, at 115.

282. *See* Andrew Ahlgren, *Sex Differences in the Correlates of Cooperative and Competitive School Attitudes*, 19 DEV. PSYCHOL. 881 (1983) (concluding that competition comes more easily to males and that competition is a more unalloyed positive experience for boys than for girls); Richard Lynn, *Sex Differences in Competitiveness and the Valuation of Money in Twenty Countries*, 133 J. SOC. PSYCHOL. 507 (1993) (finding a higher degree of competitiveness and valuation of money in men).

283. Robert S. Weinberg & John Ragan, *Effects of Competition, Success/Failure, and Sex on Intrinsic Motivation*, 50 RES. Q. 503, 509 (1979).

status.[284] One study showed that the more competitive an academic program was perceived by women, the poorer their performance, while the relationships were in the opposite direction for males.[285] Also, when given a choice of tasks to perform, males are more likely to select the more difficult task and females are more likely to select the easier one.[286] Females are also more adversely affected by failure and more likely to give up than males,[287] and are more likely to attribute failure to lack of ability rather than lack of effort.[288] Males, on the other hand, actually tend to improve in performance after failure.[289] These differences in attribution are reflected in males' greater "ability to deal with criticism by seeing it directed much less to the person and much more to task achievement."[290]

Males and females differ in their physiological response to challenging activities. A series of studies of Finnish eighteen-year-olds taking national examinations has shown that when faced with achievement demands, the levels of catecholamines (adrenaline and noradrenaline) increase in men to a much greater degree than they do in women.[291] In male subjects, there was a high correlation between catecholamine excretion during exam stress and both success on the matriculation examination and "overachievement" (defined as higher performance in school than the subject's intelligence test scores would predict).[292] There was also a significant positive correlation in males between adrenaline excretion and achievement-orientation,[293] and a negative correlation between adrenaline excretion during stress and anxiety.[294] In females, the correlations between catecholamine excretion and school performance, achievement orientation, anxiety, and relative school achievement were close to

284. *Id. See also* Deborah L. Rhode, *The "No-Problem" Problem: Feminist Challenges and Cultural Change*, 100 YALE L.J. 1731, 1774 (1991) (observing that "[m]ost research suggests that women have placed lower priority than men on objective forms of recognition in employment such as money, status, or power and have attached higher importance to relational concerns such as opportunities to help or work with others").

285. HOYENGA & HOYENGA, *supra* note 16, at 319. This may in part explain the recently reported lesser performance of women in at least one elite law school. *See* Lani Guinier et al., *Becoming Gentlemen: Women's Experiences at One Ivy League Law School*, 143 U. PA. L. REV. 1 (1994).

286. HOYENGA & HOYENGA, *supra* note 16, at 321; Josef E. Garai & Amram Scheinfeld, *Sex Differences in Mental and Behavioral Traits*, 77 GENETIC PSYCHOL. MONOGRAPHS 169, 228–29 (1968).

287. HOYENGA & HOYENGA, *supra* note 16, at 321; Billie J. Hughes et al., *Continuing Motivation of Boys and Girls Under Differing Evaluation Conditions and Achievement Levels*, 23 AM. EDUC. RES. J. 660, 664 (1986) (finding that boys exhibited greater persistence, particularly in the face of mediocre performance).

288. Carol S. Dweck & Ellen S. Bush, *Sex Differences in Learned Helplessness: I: Differential Debilitation with Peer and Adult Evaluators*, 12 DEVELOPMENTAL PSYCHOL. 147 (1976).

289. Arden Miller, *A Developmental Study of the Cognitive Basis of Performance Impairment After Failure*, 49 J. PERSONALITY & SOC. PSYCHOL. 529, 537 (1985).

290. MARGARET HENNIG & ANNE JARDIM, THE MANAGERIAL WOMAN 23 (1977).

291. Maijaliisa Rauste-von Wright et al., *Relationships Between Sex-Related Psychological Characteristics During Adolescence and Catecholamine Excretion During Achievement Stress*, 18 PSYCHOPHYSIOLOGY 362 (1981).

292. *Id.* at 367.

293. *Id.*

294. *Id.* at 366.

zero.[295] Unlike the case with boys, there was a significant negative correlation between catecholamine excretion and self-image.[296]

From the above studies, the researchers described a picture of an "achieving boy," a boy who is achievement-oriented and able to mobilize physiological resources when necessary: "a high rise in adrenaline during examination stress appears to be part and parcel of a constructive effort to cope with a challenging situation."[297] The researchers characterized the girls' psychological and physiological responses to achievement stress as "more varied" than those of males and the motivational patterns of girls as "more diverse."[298] Similar studies show that women in typically male professions tend to show the same kind of sharp increase in adrenaline secretion that is typical of males,[299] although it is not clear whether the explanation is that these women are constitutionally like men and therefore choose male work or whether their responses are shaped by their vocational behavior.[300]

Differential responses to challenges may have important consequences in terms of achievement. Those who rise to challenges are more likely to succeed than those who are intimidated by them; those who redouble their efforts after experiencing failure are more likely to succeed than those who give up. Researchers have shown that "mastery-oriented" children—that is, children who tend not to dwell on the fact that they are having difficulties but focus instead on strategies for solving problems—perform better when learning new academic material than do children of similar intellectual capacity who are characterized as "helpless"—who tend to attribute their failure to their own shortcomings.[301] In one study, fifth-grade students who had been identified as either helpless or mastery-oriented, were randomly assigned to one of two groups.[302] One group was given a difficult and confusing passage about psychology to read, the other group an easy one. The children then answered multiple-choice questions about the passage they had read. The two groups were then given identical passages on another aspect of psychology, which were unrelated to the first passages they read, and asked to answer questions about that passage as well. The purpose of the study was to determine whether mastery-oriented and helpless children would respond differently to the initial confusion,[303] and indeed they did.[304] Although in the no-confusion condition, helpless children ultimately mastered the target material at an insignificantly

295. *Id.* at 369.
296. *Id.* 366–67.
297. *Id.* at 369.
298. *Id. See also* Aila Collins, *Interaction of Sex-Related Psychological Characteristics and Psychoneuroendocrine Stress Responses*, 12 SEX ROLES 1219, 1229 (1985) (noting that "males in our society are more consistently achievement oriented in a variety of situations and that their achievement behavior is more closely linked to psychophysiological arousal than it is in females").
299. Marianne Frankenhaeuser, *Challenge-Control Interaction as Reflected in Sympathetic-Adrenal and Pituitary-Adrenal Activity: Comparison Between the Sexes*, SCANDINAVIAN J. PSYCHOL. SUPPLEMENT I, 158, 161 (1982).
300. *Id.* at 162.
301. Barbara G. Licht & Carol S. Dweck, *Determinants of Academic Achievement: The Interaction of Children's Achievement Orientation with Skill Area*, 20 DEVELOPMENTAL PSYCHOL. 628, 628–29 (1984).
302. *Id.*
303. *Id.* at 630.
304. *Id.* at 632.

higher rate than the mastery-oriented children, among children who had initially encountered the confusing material, mastery-oriented children mastered the material at a rate exceeding twice that of the helpless children.[305] The researchers concluded that despite a similarity in intellectual capacity, helpless children are less able to cope with difficulties in encountering new material.[306] As a consequence, they predicted that helpless children will have more difficulty in academic areas that repeatedly present new and difficult concepts (such as mathematics), while they should be able to perform up to their abilities in areas in which difficulty increases in gradual increments (such as basic verbal skills).[307]

The significance of the foregoing study for our purposes is that numerous studies have found that girls are more likely than boys to be helpless, and boys are more likely than girls to be mastery oriented.[308] The authors of the study suggest that their findings may explain, at least in part, the differential performance in mathematics of boys and girls, especially at the highest levels of achievement.[309]

Males' greater achievement motivation may be related to their greater single-mindedness, a trait that also could have substantial ramifications in both the acquisition of skills and the distribution of men and women in the work force. As psychologist Jacquelynne Eccles has noted, a major dimension of persistence "is single-minded devotion to one's occupational role"—an "excessive concern over one's work to the exclusion of other concerns."[310] Men are much more likely than women to exhibit this pattern.[311]

Two of the areas of academic and vocational inequality about which a great deal of concern is expressed are mathematics and science. Although it is commonly asserted that differential socialization and reinforcement explain the greater apparent aptitude of males than females in these areas, researchers have found little support for that position.[312] However, for current purposes, it is

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305. *Id.* at 632–33. Of the helpless children, 76.57% in the no-confusion condition and 34.65% in the confusion condition mastered the material; of the mastery-oriented children, 68.36% in the no-confusion condition and 71.88% in the confusion condition mastered the material. *Id.* at 633.

306. *Id.*

307. *Id.* at 629, 633.

308. *See id.* at 629 (collecting sources). *But see* Jacquelynne S. Eccles, *Gender Roles and Achievement Patterns: An Expectancy Value Perspective*, *in* MASCULINITY/FEMININITY: BASIC PERSPECTIVES 240, 243 (June M. Reinisch et al. eds., 1987) (suggesting that she does not see "consistent support" in laboratory studies for the pervasive belief in psychology that girls are less persistent in the face of failure than boys). Eccles goes on to note, however, that in real-life situations, "defining persistence in terms of occupational status and comparing males and females in this variable clearly biases our conclusion in favor of males." *Id.*

309. In this particular study, unlike in many others, the researchers found no overall sex differences in helplessness or mastery-orientation or in the extent to which the children were debilitated by the initial confusion. Eccles, *supra* note 308, at 633. However, they did find another sex difference that may potentially be quite important. It turned out that the less able among the boys were most likely to be debilitated by confusion, but among the girls, those debilitated by confusion were among the brightest students. Eccles, *supra* note 308, at 634. According to the researchers, these results are consistent with the fact that male-female discrepancies in mathematical achievement are much greater among very bright children than they are in the overall population. Eccles, *supra* note 308, at 634.

310. Eccles, *supra* note 308, at 243.

311. Eccles, *supra* note 308, at 264.

312. *See* Lubinski & Benbow, *supra* note 256.

instructive to look not at the question of average differences between males and females, but rather at differences between male and female high achievers in math. A long-term study of mathematically gifted boys and girls has shown substantial differences in career preferences.[313] Although all of these students are aware of their ability to achieve in math and science and of the range of career possibilities open to them, boys are much more likely to choose careers in these areas.[314] The reason does not appear to be an aversion of girls to math or science careers, but rather their more generalized interests.[315] For example, during a four-year period at one university, gifted females enrolled in math and science courses and English and foreign language courses in approximately equal proportions, while males were six times as likely to enroll in math and science courses than in English and foreign language.[316] It thus appears that scientifically gifted boys care mostly about science, while scientifically gifted girls retain substantial interests in other areas.

Perhaps related to their differences in achievement motivation, men and women (and boys and girls) also differ substantially in the exhibition of dominance behavior,[317] although some of the differences may be qualitative rather than quantitative.[318] Men tend to display more *egoistic dominance* (attempting to control others for selfish ends), while females tend to exhibit more *prosocial dominance* (attempting to control others by offering responsible suggestions). David Buss has described the differences as follows:

> Self-assertion, self-enhancement, and manipulativeness, the defining features of the agenetic mode, seem to characterize the desirability with which males view dominant acts and acts through which they express dominance. This self-serving dimension of dominance is not seen in women, who tend to view group-oriented and group-facilitating acts as relatively more socially desirable and express their dominance through more selfless behaviors. These are the hallmarks of communion: a concern with the larger group of which one is a part and an interest in maintaining harmony within that group.[319]

Psychologist Eleanor Maccoby has observed that the male's interest in "turf and dominance" and the female's interest in maintaining social relationships is visible at an early age.[320] Referring to children's play groups, she has stated:

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313. Lubinski & Benbow, *supra* note 256.
314. Lubinski & Benbow, *supra* note 256, at 65.
315. Lubinski & Benbow, *supra* note 256, at 65.
316. The researchers doubted that social influences were causing this attenuation of commitment to math and science in females. Lubinski & Benbow, *supra* note 256, at 65. Among the reasons for their doubt were the fact that: (1) the researchers were unable to find substantial evidence of differential socialization of these boys and girls; (2) females get better grades than males in math courses and are superior in arithmetic computation; and (3) gifted adolescents are less gender stereotyped in nonacademic interests than their peers.
317. *Cf.* Jim Sidanius et al., *Social Dominance Orientation and the Political Psychology of Gender: A Case of Invariance?*, 67 J. PERSONALITY & SOC. PSYCHOL. 998 (1994) (finding a higher social-dominance orientation—defined as preference for superordinate status of in-groups—in males, across groups based upon age, class, religion, educational level, ideology, and "gender-role relevant opinion").
318. David M. Buss, *Sex Differences in the Evaluation and Performance of Dominant Acts*, 40 J. PERSONALITY & SOC. PSYCHOL. 147, 147 (1981).
319. *Id.* at 152–53.
320. Eleanor E. Maccoby, *Gender and Relationships: A Developmental Account*, 45 AM. PSYCHOLOGIST 513, 516 (1990).

> [T]he most interesting thing about all-boy and all-girl groups is the divergence in the interactive styles that develop in them. In male groups, there is more concern with issues of dominance.... Boys in their groups are more likely than girls in all-girl groups to interrupt one another; use commands, threats, or boasts of authority; refuse to comply with another child's demand; give information; heckle a speaker; tell jokes or suspenseful stories; top someone else's story; or call another child names. Girls in all-girl groups, on the other hand, are more likely than boys to express agreement with what another speaker has just said, pause to give another girl a chance to speak, or when starting a speaking turn, acknowledge a point previously made by another speaker. This account indicates that among boys, speech serves largely egoistic functions and is used to establish and protect an individual's turf. Among girls, conversation is a more socially binding process.[321]

Maccoby attributes to this difference in interactive style the well-observed tendency of children starting as early as age three to prefer same-sex playmates, a tendency that is more marked in unstructured situations than it is in situations structured by adults.[322] She speculates that the orientation of boys toward competition and dominance is aversive to girls, and girls find it difficult to influence boys.[323]

In a well-known study of play in children, Janet Lever observed a number of differences between the play of boys and girls.[324] Among these differences are some that may be related to patterns that are observed in later life and that have relevance for the workplace. One of the most obvious differences is in the amount of competition exhibited.[325] Lever distinguished between *play* and *games*, the former being "a *cooperative* interaction that has no explicit goal, no end point, and no winners," and the latter being "*competitive* interactions, governed by a set body of rules, and aimed at achieving an explicit, known goal."[326] About sixty-five percent of the play activities of boys were formal games, compared to thirty-five percent for the girls.[327]

Lever found the boys to be far more rule-oriented than girls. Although there were repeated quarrels over the rules during the games, no games were ever terminated because of a quarrel, and it appeared to observers that the boys enjoyed the rule disputes as much as the game.[328] Boys appeared much better able than girls to compete against friends and "to cooperate with teammates

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321. *Id.*

322. *Id.* at 514. Studies show that girls spend more time in adult-structured activities, while boys spend more time in activities with little adult structure. Aletha C. Huston et al., *Gender, Adult Structuring of Activities and Social Behavior in Middle Childhood*, 57 CHILD DEV. 1200, 1208 (1986).

323. Maccoby, *supra* note 320, at 515.

324. Janet Lever, *Sex Differences in the Games Children Play*, 23 SOC. PROBS. 478 (1976). Lever reported six sex differences: (1) boys play outdoors far more than girls; (2) boys more often play in large groups; (3) boys play in more age-heterogeneous groups; (4) girls more often play in predominantly male games than vice versa; (5) boys play competitive games more than girls; (6) boys' games last longer than girls' games. *Id.* at 480–82.

325. *Id.* at 481–82.

326. *Id.* at 481.

327. *Id.* Part of the disparity was due to the much greater involvement of boys in team sports, but even without team sports significant differences remained. With team sports excluded, the percentages of competitive activities were 54% for boys and 30% for girls. *Id.* at 482.

328. *Id.*

whom they may not like personally."[329] When girls quarreled over the application of rules, the games were likely to break up.[330] Boys' play was also substantially more complex than girls' play.[331]

Girls' play was more social and free of structure and rules.[332] It often occurred in private places, in small groups, and involved the mimicking of primary human relationships. Much of the play involved open displays of affection between the girls, both in the form of hand-holding and through "love notes."[333] Even the games that they played tended to be different. For example, games like hopscotch and jump-rope are "turn-taking" games, in which any competition that exists is indirect. When boys competed, they were more likely to be competing head-to-head.[334] Because boys cared more about being declared the winner, their games were always structured so that there would be a clear and definite outcome.[335]

Bobbi Low has pointed out that Lever's results can be explained in evolutionary terms.[336] In our ancestral environment, women enhanced their reproductive success by cooperating with sisters and co-wives, situations in which they gained no reproductive advantage through open conflict or changes in coalitions. Men, on the other hand, enhanced their reproductive success by cooperating with male relatives and nonrelatives at times, and competing with them at times. Dominance assertion in male groups is more likely to lead to enhanced reproductive success than it is in female groups.[337]

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329. *Id.* at 485.

330. *Id.* at 483. Lever also describes a gym class in which a teacher introduced a new game similar to volleyball, in which the principal rule was that the ball had to be passed three times before it could be returned. Neither the boys nor girls had ever played the game before. The boys never forgot the three-pass rule but the girls forgot it over half the time on the first day. *Id.*

331. Janet Lever, *Sex Differences in the Complexity of Children's Play and Games*, 43 AM. SOC. REV. 471 (1978). Lever described six measures of complexity: (1) *Role Differentiation*: whether the same behavior is required of all players; (2) *Player Interdependence*: whether the performance of one player immediately and significantly affects the performance of others; (3) *Size of Play Group*; (4) *Explicitness of Goals*; (5) *Number and Specificity of Rules*; (6) *Team Formation*. *Id.* at 473.

332. Lever, *supra* note 324, at 484.

333. Lever, *supra* note 324, at 484.

334. Lever, *supra* note 331, at 477.

335. The finding that boys play in larger groups than girls is consistently replicated. Mary F. Waldrop & Charles F. Halverson, Jr., *Intensive and Extensive Peer Behavior: Longitudinal and Cross-Sectional Analyses*, 46 CHILD DEV. 19, 24 (1975) (finding that highly social boys tend to have extensive peer relations—meaning that they tend to play in groups—while highly social girls tend to have intensive peer relations—meaning that they play with one other girl).

336. Bobbi S. Low, *Cross-Cultural Patterns in the Training of Children: An Evolutionary Perspective*, 103 J. COMP. PSYCHOL. 311, 318 (1989).

337. *See also* Low, *supra* note 151, at 63. Similar sex differences are observed in chimpanzees, with males engaging in cooperation on a transactional basis, helping one another on a tit-for-tat basis, while females cooperate on the basis of kinship and personal preference. DE WAAL, *supra* note 105, at 49. Male chimpanzee coalitions are part of dominance strategies, while those of females serve to protect friends and relatives. Frans B. M. de Waal, *Sex Differences in the Formation of Coalitions Among Chimpanzees*, 5 ETHOLOGY & SOCIOBIOLOGY 239, 240 (1984). As a result, male coalitions are shifting ones, while those of females are more stable. *Id.* at 250–51. *See also* FRANS DE WAAL, CHIMPANZEE POLITICS: POWER AND SEX AMONG APES 185–87, 194–99 (1982).

Numerous other studies have shown that boys exhibit more competitive behavior than girls.[338] Girls consistently prefer cooperation to competition, and boys prefer competition to cooperation.[339] A marked increase in girls' preference for cooperation over competition comes in the period immediately following puberty,[340] as does an increase in nurturance. Boys and girls tend to exhibit differences in quality as well as quantity of competitiveness, with boys being more oriented to winning and girls being more oriented toward personal goals.[341]

Probably related to the greater athletic competitiveness of boys is the fact that cross-cultural studies repeatedly show that boys engage in more aggression, dominance-seeking, and rough-and-tumble play.[342] Although one frequently hears assertions that boys are aggressive because they are reinforced in aggressive behavior, studies have repeatedly shown that boys are no more likely than girls, and sometimes less likely, to receive positive reinforcement for aggressive behavior.[343]

A study of dominance hierarchies in male and female adolescents supports the view that dominance is more salient for males than for females.[344] Eleven- to fourteen-year-old boys in a summer camp were found to establish much more stable dominance hierarchies than girls.[345] Although girls also established hierarchies, their hierarchies were more fluid than those of the boys, and there was a much greater disagreement among girls concerning relative rank than there was among boys.[346] Moreover, boys and girls achieved dominance in different ways:

> The boys, by and large, were more likely to physically assert themselves, argue with others, and, to a lesser extent, threaten and displace cabin

338. A meta-analysis of cross-cultural studies of competitiveness found statistically significant differences in child competitiveness in North American and Indian cultures but found that in Israeli children girls were more competitive than boys. Michael J. Strube, *Meta-Analysis and Cross-Cultural Comparison: Sex Differences in Child Competitiveness*, 12 J. CROSS-CULTURAL PSYCHOL. 3, 15–16 (1981). *See also* Andrew Ahlgren & David W. Johnson, *Sex Differences in Cooperative and Competitive Attitudes from the 2nd Through the 12th Grades*, 15 DEVELOPMENTAL PSYCHOL. 45, 45 (1979) (finding that males had more positive attitudes toward cooperation, but acknowledging other studies had inconsistent results).

339. Ahlgren & Johnson, *supra* note 338, at 48.

340. Ahlgren & Johnson, *supra* note 338, at 48.

341. Diane L. Gill, *Competitiveness Among Females and Males in Physical Activity Classes*, 15 SEX ROLES 233, 245 (1986).

342. *See* Daniel G. Freedman & Marilyn M. DeBoer, *Biological and Cultural Differences in Early Child Development*, 8 ANN. REV. ANTHRO. 579, 589 (1979); N.G. Blurton Jones & M.J. Konner, *Sex Differences in Behaviour of London and Bushman Children*, *in* COMPARATIVE ECOLOGY AND BEHAVIOUR OF PRIMATES 724–27 (Richard P. Michael & John H. Crook eds., 1973). *See also* Donald R. Omark & Murray S. Edelman, *A Comparison of Status Hierarchies in Young Children: An Ethological Approach*, 14 SOC. SCI. INFO. 87, 105 (1975).

343. HOYENGA & HOYENGA, *supra* note 16, at 301 (pointing out that parents punish aggression in boys and girls equally). The authors also point out that negative feedback to boys for aggression actually results in a continuation of that kind of aggressive behavior. HOYENGA & HOYENGA, *supra* note 16, at 316. *See also* Maccoby & Jacklin, *supra* note 262, at 976 ("[T]here is no reason for children to conclude that boys receive different consequences for aggressive behavior. Rather, the salient message they probably receive is that fighting is disapproved by adults regardless of whether a boy or girl is involved.").

344. *See* Ritch C. Savin-Williams, *Dominance Hierarchies in Groups of Early Adolescents*, 50 CHILD DEV. 923 (1979).

345. *Id.* at 924, 933.

346. *Id.* at 933–34.

> mates; girls were more apt to recognize the status of others, to give unsolicited advice and information, and to shun and ignore. This reflects the general trend for young adolescent males to assert their status by utilizing the "power"-related components of dominance behavior, while adolescent females assert their status through evaluative behavior.[347]

In summary, competitive behavior comes more easily to males, apparently in large part because males value the products of competition—status and resources—more than females do as a result of the close historical relationship between status and resources, on the one hand, and male reproductive success, on the other.

2. Risk-Taking

> If you can make one heap of all your winnings
> And risk it on one turn of pitch-and-toss,
> And lose, and start again at your beginnings
> And never breathe a word about your loss;
> ...
> Yours is the Earth and everything that's in it,
> And—which is more—you'll be a Man, my son![348]

Another behavioral dimension predicted by evolutionary theory to vary by sex—and that is relevant to workplace outcomes—is risk-taking. Greater male risk-taking is predicted because the high variance in male reproductive success means that it may carry a large payoff. Certainly, the stereotype is that males, especially adolescents and young adults, disproportionately engage in physically risky activity. Indeed, psychological studies confirm that women tend to perceive greater risks than men and to be more risk averse and less impulsive.[349]

One measure of a propensity to engage in risky behavior is what psychologists call "sensation seeking." The sensation seeker "needs varied, novel, and complex sensations and experiences to maintain an optimal level of arousal."[350] Sensation seeking is often measured by a test known as the "Sensation Seeking Scale" (SSS).[351] The components of the SSS of most interest here are the subscales *Thrill and Adventure Seeking*, indicating a desire to engage in activities involving speed or danger, and *Disinhibition*, indicating a desire for social and sexual disinhibition as expressed in social drinking,

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347. *Id.* at 933.

348. Rudyard Kipling, *If, in* RUDYARD KIPLING, COMPLETE VERSE: DEFINITIVE EDITION 578 (1940).

349. Cheryl J. Cherpitel, *Alcohol, Injury, and Risk-Taking Behavior: Data from a National Sample*, 17 ALCOHOL CLIN. EXP. RES. 762, 764 (1993).

350. Reid J. Daitzman et al., *Sensation Seeking and Gonadal Hormones*, 10 J. BIOSOCIAL SCI. 401, 401 (1978).

351. Marvin Zuckerman et al., *Sensation Seeking in England and America: Cross-Cultural, Age, and Sex Comparisons*, 46 J. CONSULTING & CLINICAL PSYCHOL. 139 (1978). The SSS contains four factors: (1) *Thrill and Adventure Seeking*, indicating a desire to engage in activities involving speed or danger; (2) *Experience Seeking*, representing "the seeking of experience through the mind and senses, travel, and a nonconforming lifestyle"; (3) *Disinhibition*, indicating a "desire for social and sexual disinhibition as expressed in social drinking, partying, and variety in sexual partners"; and (4) *Boredom Susceptibility*, representing "an aversion to repetition, routine, and dull people." *Id.* at 140.

partying, and variety in sexual partners.[352] Numerous studies show males scoring significantly higher than females on both of these scales, as well as in total score.[353]

Another method of determining attitudes toward risk is simply to look at risky activities and see who chooses to participate in them. Male participation in risky employment is well established.[354] The male accidental death rate is two to three times as high as the female rate in the United States.[355] Notwithstanding greater equality and socially sanctioned androgyny, the male/female accidental death ratio actually increased from 1960 to 1979.[356] Males are also disproportionately involved in both homicide[357] and suicide, with approximately three times as many men as women killing themselves.[358] Men are also disproportionately involved in risky recreational activities such as car racing, sky diving, and hang-gliding.[359] Gambling, risky by definition and design, is a disproportionately male activity,[360] and the higher the stakes the greater the disproportionality becomes.[361] Even when engaged in such mundane activities as sunbathing, males disproportionately take the riskier course of failing to use sunscreen.[362]

The driving style of men also shows a greater propensity toward risk. From the moment they get into the car, more men than women take the risky step of failing to fasten their seatbelts.[363] Once behind the wheel, men, especially young men, suffer far more traffic fatalities than women, not because of their lesser skill in manipulating the vehicle, but because they engage in more risky behavior, such as speeding, tailgating, refusing to yield the right of

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352. *Id.*

353. *See, e.g., id.* at 143; James P. Kurtz & Marvin Zuckerman, *Race and Sex Differences on the Sensation Seeking Scales*, 43 PSYCHOL. REP. 529, 530 (1978).

354. *See supra* note 30.

355. Jean E. Veevers & Ellen M. Gee, *Playing It Safe: Accident Mortality and Gender Roles*, 19 SOC. FOCUS 349, 352 (1986).

356. *Id.*

357. *See supra* notes 272–81 and accompanying text.

358. Maurice J. Rosenthal, *Sexual Differences in the Suicidal Behavior of Young People*, 9 ADOLESCENT PSYCH. 422, 422 (1981). *See also* Peter M. Marzuk et al., *Cocaine Use, Risk Taking, and Fatal Russian Roulette*, 267 J.A.M.A. 2635, 2635 (1992) (all 14 Russian roulette fatalities over a four-year period in New York were males). The sex ratio of suicide *attempts* is reversed, with anywhere from two to eight times as many females attempting suicide as males. Constance Holden, *Youth Suicide: New Research Focuses on a Growing Social Problem*, 233 SCIENCE 839 (1986).

359. Veevers & Gee, *supra* note 355, at 352. *See generally* Paul Roberts, *Risk*, PSYCHOL. TODAY, Nov.–Dec. 1994, at 50, 51. Men, especially young men, are at substantially higher risk of suffering injuries. *See, e.g.*, Robert J. Glynn et al., *The Incidence of Eye Injuries in New England Adults*, 106 ARCHIVES OPHTHALMOLOGY 785, 787 (1988).

360. *See, e.g.*, Rachel A. Volberg & Henry J. Steadman, *Prevalence Estimates of Pathological Gambling in New Jersey and Maryland*, 146 AM. J. PSYCH. 1618, 1619 (1989).

361. Wilson & Daly, *supra* note 140, at 67.

362. Barbara Keesling & Howard S. Friedman, *Psychosocial Factors in Sunbathing and Sunscreen Use*, 6 HEALTH PSYCHOL. 477, 487, 489 (1987).

363. David F. Preusser et al., *Characteristics of Belted and Unbelted Drivers*, 23 ACCIDENT ANALYSIS & PREVENTION 475 (1991); Robert F. Anda et al., *Behavioral Risk Factor Surveillance, 1988*, 39 MORBIDITY & MORTALITY WEEKLY REPORT No. SS-2, at 1 (1990); James Harvey, *Seat Belt Use Up But Some Still Resist*, USA TODAY, Apr. 28, 1992, at 3A.

way,[364] and running amber lights.[365] Drunk driving is also disproportionately engaged in by men.

Even as children, boys are substantially more likely to engage in risk-taking behavior. For example, psychologists Harvey Ginsburg and Shirley Miller tested what they called the "widely held belief in our society...that males demonstrate a greater willingness to take risks or chances than females."[366] They noted that there was some indirect support for the conclusion in the literature, primarily the fact that: (1) elementary school children believe boys generally to be more daring than girls; (2) boldness is positively correlated with popularity for males and negatively correlated for girls; and (3) boys have a higher frequency and greater severity of childhood accidents than girls.[367] For their study, they observed a large number of three- through eleven-year-old children at the San Antonio Zoological Gardens. In each of the four risky activities they observed, significantly more boys than girls were involved. Their study was not designed, however, to determine whether the results were due to inherent differences between the boys and girls or to differential parental encouragement.[368]

Cross-cultural evidence of male risk-taking activity is abundant. Warfare and big-game hunting are two of the riskiest activities that our ancestors engaged in and that traditional societies continue to engage in. Both of those occupations are virtually all-male.[369] Moreover, the greater male accidental-death rate that was previously described for the United States holds worldwide. A World Health Organization study of accidental death rates for 1971 in fifty countries throughout the world found a higher death rate for boys in all countries and in all age groups, with only one exception.[370] The average death rates per 100,000 children aged one through fourteen in Europe was 25.0 for

364. Bruce D. Jamieson, *Sex Differences Among Drivers in Yielding Right-of-Way*, 41 PSYCHOL. REP. 1243, 1246 (1977).

365. Vladimir J. Konecni et al., *Decision Processes and Risk Taking in Traffic: Driver Response to the Onset of Yellow Lights*, 61 J. APPLIED PSYCHOL. 359, 362 (1976). *See generally* Nils P. Gregersen & Hans Y. Berg, *Lifestyle and Accidents Among Young Drivers*, 26 ACCIDENT ANALYSIS & PREVENTION 297, 300–01 (1994) (substantial majority of high-risk drivers are males; substantial majority of low-risk drivers are females); Wilson & Daly, *supra* note 140, at 68, and sources cited therein.

366. Harvey J. Ginsburg & Shirley M. Miller, *Sex Differences in Children's Risk-Taking Behavior*, 53 CHILD DEV. 426, 426 (1982). *See also* Lawrence Kutner, *Daredevils and Fraidycats*, PARENTS MAG., Mar. 1992, at 158 (noting that among pre-school children, boys engage in riskier behavior than girls).

367. Ginsburg & Miller, *supra* note 366, at 426.

368. Ginsburg & Miller, *supra* note 366, at 427–28.

369. *See* BUSS, *supra* note 110, at 169.

> Violence at the hands of other men was not the only way an ancestral man could die. Hunting has always been a male-dominated human enterprise, and ancestral men risked injury, particularly when hunting large game, such as wild boar, bison, or buffalo.... Ancestral women never warred and rarely hunted.

BUSS, *supra* note 110, at 169.

370. H. Marcusson & W. Oehmisch, *Accident Mortality in Childhood in Selected Countries of Different Continents, 1950-1971*, 30 WORLD HEALTH STAT. REP. 57, 69–70 (1977). The sole exception was one- to four-year-olds in Luxembourg, which had a slightly higher accidental death rate for girls than for boys. The reason for this deviation is not obvious, but perhaps it is merely a small-sample effect. The Luxembourg death rate for young girls was approximately twice that of the European and world average. In the 5–14 age group, the normal sex ratio was found.

boys and 13.0 for girls; in non-European countries, the ratio was 27.0 to 15.5.[371]

Men's greater willingness to face risks is not limited to risks of physical harm. Psychologist Elizabeth Arch has recently suggested that sex differences in achievement-orientation[372] may be explained at least in part as a consequence of sex differences in risk-taking.[373] Arch defines risk-taking as "the tendency to act in the face of uncertain consequences where there is a possibility of suffering harm or loss."[374] From an early age, females are more averse not just to physical risk, but also to social risk, and "tend to behave in a manner that ensures continued social inclusion."[375] Arch notes that achievement opportunities often present uncertainty and the potential for loss of resources or group support.[376] Thus, it is not female lack of ability, but rather a difference in attitudes toward failure, that leads women to avoid competitive situations.[377]

The willingness to take risks depends upon the relative values that one places on success and failure. A person whose appetite for success exceeds his aversion to failure will be inclined toward action; a person whose aversion to failure exceeds his appetite for success will be inclined not to act.[378] A strong motive to achieve or to avoid failure may also bias the actor's subjective probability of outcome. That is, an achievement-oriented person may have a higher expectation of success than is objectively warranted, while a person with a high motivation to avoid failure may consistently underestimate the chance of success.[379] This suggests that what is often referred to as women's "fear of success"[380] is in fact the more prosaic "fear of failure." Although the risk-averse person may avoid many of the lows of failure, he will also avoid many of the highs of success.

Although Arch refers to an evolutionary explanation only in passing,[381] her description of male and female attitudes fits quite easily within an evolutionary framework. She observes:

> It appears that females are vulnerable to situationally induced *loss* of confidence and self-esteem. They cannot seem to maintain confidence for themselves without explicit positive feedback; without such feedback they tend to assume they are not doing well. This is an excellent mechanism for ensuring that females will be hesitant to venture into new, potentially risky situations. In contrast, males tend to maintain confidence in themselves *despite* feedback; they assume they are doing

371. *Id.*
372. *See supra* text accompanying notes 282–311.
373. Elizabeth C. Arch, *Risk-Taking: A Motivational Basis for Sex Differences*, 73 PSYCHOL. REP. 3, 4 (1993).
374. *Id.*
375. *Id.* at 5.
376. *Id.* at 6.
377. *Id.* at 8. *See also* HENNIG & JARDIM, *supra* note 290, at 27 (noting that "[m]en see risk as loss or gain; winning or losing; danger or opportunity," while "[w]omen see risk as entirely negative. It is loss, danger, injury, hurt").
378. John W. Atkinson, *Motivational Determinants of Risk-Taking Behavior*, 64 PSYCHOL. REV. 359, 360 (1957).
379. John W. Atkinson et al., *The Achievement Motive, Goal Setting, and Probability Preferences*, 60 J. ABNORMAL & SOC. PSYCHOL. 27, 33 (1960).
380. *See generally* Matina Horner, *The Measurement and Behavioral Implications of Fear of Success in Women*, *in* MOTIVATION AND ACHIEVEMENT 91 (John W. Atkinson & Joel O. Raynor eds., 1974).
381. *See* Arch, *supra* note 373, at 8 n.3.

> well. In fact, compared to females and even compared to actual performance, males tend to overrate themselves, *a response that would be very useful for situations where people challenge and are challenged and where a tendency to face the opponent with a sense of confidence just might provide the margin necessary for victory.* Unfortunately, females are simply less likely to enjoy the benefits of this optimistic view of the relationship between personal action and outcome.[382]

The male tendency toward overestimation of ability provides an explanation for a frequently repeated canard about sex discrimination in the schools. A much-publicized 1991 American Association of University Women study reported that between the ages of nine and fifteen, schools systematically sap girls of self-esteem.[383] Although the underlying basis for that conclusion was not as widely reported as the conclusions,[384] in order to be labeled as having high self-esteem, the subject had to respond "always true" to the statement "I'm happy the way I am."[385] The study's conclusion concerning girls' loss of self-esteem was based upon the fact that at age nine, sixty-nine percent of girls answered "always true," while by age fifteen, only twenty-nine percent so responded. In contrast, the figure for boys went down from sixty percent to forty-six percent.[386] The authors of the study concluded that the greater reduction in girls was a measure of failure of the schools.[387]

A more plausible explanation of the study is that it was measuring self-deception and braggadocio (and perhaps immaturity) rather than self-esteem.[388] If survey scores are a measure of school-induced self-esteem or lack thereof, it is difficult to explain the fact that the sub-group with the highest score was black males,[389] followed by black females, unless one concludes that the schools are systematically creating high self-esteem in blacks (both males and females) but simultaneously destroying the self-esteem of white girls.[390]

If in our ancestral environment men could enhance their reproductive success by competitiveness and bluff and bluster, natural selection would have favored a mechanism predisposing men to such behaviors. A person hoping to face down a competitor needs confidence, even if the confidence may not be

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382. Arch, *supra* note 373, at 7–8 (last emphasis added).

383. *See* Suzanne Daley, *Little Girls Lose Their Self-Esteem on Way to Adolescence, Study Finds*, N.Y. TIMES, Jan. 9, 1991, at B6.

384. *See* CHRISTINA HOFF SOMMERS, WHO STOLE FEMINISM?: HOW WOMEN HAVE BETRAYED WOMEN 137–56 (1994).

385. The other possible responses were "sort of true," "sometimes true/sometimes false," "sort of false," and "always false." *Id.* at 146.

386. *Id.*

387. Eighty-eight percent of the girls and 92% of the boys gave a somewhat positive response ("always true," "sort of true," or "sometimes true/sometimes false") to the happiness question. *Id.* It is difficult to see why any response less than "always true" should necessarily be viewed as an indication of low self-esteem.

388. For a discussion of the adaptive advantages of self-deception, see TRIVERS, *supra* note 48, at 415–20 (noting that "[a] certain amount of self-deception...may give a convincing image of [a person's] high self-esteem, thereby impressing others"); WRIGHT, *supra* note 43, at 275–86.

389. The researchers have stated that there were too few boys to draw conclusions about race differences among boys. Amy Saltzman, *Schooled in Failure?*, U.S. NEWS & WORLD REP., Nov. 7, 1994, at 88.

390. Sommers reports that black boys led black girls by margins of 10–18% on measures of general happiness, with three-fourths of black boys reporting that they are "always" happy the way they are. SOMMERS, *supra* note 384, at 149.

entirely warranted. The best way to convey confidence in one's abilities is actually to have confidence, so natural selection may have favored a male tendency toward a certain amount of self-deception concerning their abilities. On the other hand, since there probably would have been little in the way of female reproductive payoff for competitive behaviors, a propensity toward risk-taking and competitiveness would have been a net disadvantage, given that any risk presents the opportunity for a negative outcome. Thus, a more cautious female approach toward risk and a more conservative assessment of one's capacities may have been the more successful strategy.

3. Nurturance, Empathy, and Interest in Others

Just as men everywhere exhibit more risk-taking and status-seeking behavior, women everywhere exhibit more nurturing and allocentric behavior. Psychologists Eleanor Maccoby and Carol Nagy Jacklin observed that "women throughout the world and throughout human history are perceived as the more nurturant sex, and are far more likely than men to perform the tasks that involve intimate care-taking of the young, the sick, and the infirm."[391] As Carol Gilligan has pointed out, "women not only define themselves in a context of human relationship but also judge themselves in terms of their ability to care."[392]

Studies routinely show that women are more empathic than men, in the sense that they experience a "vicarious affective response to another's feelings."[393] Probably related to this greater empathy is the greater general

391. MACCOBY & JACKLIN, *supra* note 262, at 215. *See also* HOYENGA & HOYENGA, *supra* note 16, at 250; Alan Feingold, *Gender Differences in Personality: A Meta-Analysis*, 116 PSYCHOL. BULL. 429 (1994) (finding that women are more nurturant than men and that men are more assertive than women).

392. CAROL GILLIGAN, IN A DIFFERENT VOICE: PSYCHOLOGICAL THEORY AND WOMEN'S DEVELOPMENT 17 (1982).

Although women are associated with child rearing in all societies, from a reading of the legal literature one would think that child rearing was a skill like playing dominos. *See* Abrams, *supra* note 15, at 1025 (arguing that women learn nurturing by watching other women); Martin H. Malin, *Fathers and Parental Leave*, 72 TEX. L. REV. 1047, 1054 (1994) (arguing that women are no better at, and require no less learning for, child rearing than men); Joan Williams, *Gender Wars: Selfless Women in the Republic of Choice*, 66 N.Y.U. L. REV. 1559, 1623 (1991) (arguing that "[w]omen learn to mother, and so can men"). However, as Alice Rossi has observed:

> Biologically males have only one innate orientation, a sexual one that draws them to women, while women have two such orientations, a sexual one toward men and a reproductive one toward the young. By comparison to the female attachment to an infant, the male attachment is a socially learned role. Fathering is often non-existent among other primates, and, among humans, it is more learned from women or required by the norms of kinship systems than it is innately predisposed in the male himself.

Alice S. Rossi, *A Biosocial Perspective on Parenting*, 106 DAEDALUS 1, 5 (1977). *See also* Eleanor E. Maccoby, *The Varied Meanings of "Masculine" and "Feminine"*, *in* MASCULINITY/FEMININITY, *supra* note 308, at 227, 233 (characterizing the sexual dimorphism in parenting as an example of the inextricable linking of biological and social causes).

393. Martin L. Hoffman, *Sex Differences in Empathy and Related Behaviors*, 84 PSYCHOL. BULL. 712, 715 (1977) (stating that the most striking feature of the empathy findings in a whole host of studies "is the fact that in every case, regardless of the age of the subjects or the measures used, the females obtained higher scores than did the males"). *Cf.* Nancy Eisenberg & Randy Lennon, *Sex Differences in Empathy and Related Capacities*, 94 PSYCHOL. BULL. 100 (1983) (finding a sex difference in self reports of empathy, but not on physiological measures); Linda K. Cartwright, *Editorial Comment to Weisman et al.*, *infra* note 750, at 781

"people orientation" of females.[394] Numerous studies have shown, for example, that girls tend to be "person-oriented," while boys tend to be more "object-oriented."[395] In one study of college students, male and female subjects were shown a series of pictures of human figures and mechanical objects in a stereoscope so that each time a picture of a human figure and a picture of a mechanical object were falling on the same part of the subject's visual field.[396] The theory behind the experimental design is that where two stimuli are competing, subjects will attend to the stimulus that is more meaningful to them. Male subjects saw objects more than they saw people, and they saw objects more than did female subjects.[397] Conversely, female subjects saw human stimuli more than they saw objects, and they saw human stimuli more than did male subjects.[398] The investigators rejected the notion that these differences could be accounted for by cultural or environmental factors.[399]

Attitudes of men and women toward personal possessions seem to reflect this kind of difference as well. One study showed substantial sex differences in the kinds of possessions that are prized by men and women.[400] Men tend to value possessions based upon attributes of status or for instrumental reasons, while women attach more importance to possessions that have "sentimental value." This is consistent with the fact that collectors of objects tend to be men.[401]

(describing an unpublished study finding women pediatric residents to be more empathic than male cohorts). Personality studies also show a substantial correlation between nurturance and empathy. *See* Rushton et al., *supra* note 265, at 1194.

Some studies purport to find no sex differences in empathy, but those tend to be studies measuring the ability to identify other people's feelings, rather than studies measuring the subject's own emotional reaction. *See, e.g.*, Gerald R. Adams et al., *Age and Gender Differences; Preschool Children's Identification of the Emotions of Others*, 25 CANADIAN J. BEHAVIORAL SCI. 97 (1993).

394. *See, e.g.*, Evelyn W. Goodenough, *Interest in Persons as an Aspect of Sex Difference in the Early Years*, 55 GENETIC PSYCHOL. MONOGRAPHS 287, 317 (1957) (describing "[t]he more personal orientation of the female to the environment and the more objective, less personal, orientation of the male").

395. *See id.* at 317–18.

396. Diane McGuinness & John Symonds, *Sex Differences in Choice Behaviour: The Object-Person Dimension*, 6 PERCEPTION 691 (1977).

397. *Id.* at 693.

398. *Id.*

399. In another study, researchers found that women (non-mothers) exposed to a video of a crying baby experienced acceleration of heart rate, while men experienced a deceleration. John J. Furedy et al., *Sex Differences in Small-Magnitude Heart-Rate Responses to Sexual and Infant-Related Stimuli: A Psychophysiological Approach*, 46 PHYSIOLOGY & BEHAV. 903 (1989).

400. Helga Dittmar, *Gender Identity-Related Meanings of Personal Possessions*, 28 BRIT. J. SOC. PSYCHOL. 159, 166–69 (1989).

401. *See generally* WERNER MUENSTERBERGER, COLLECTING: AN UNRULY PASSION (1994) (describing obsessive collectors, most of whom were male). Collectors of a wide range of objects tend to be men. *See, e.g.*, Matt Kramer, *King Tut's Wine Cellar It Ain't*, WINE SPECTATOR, June 15, 1995, at 27 (wine); Diana J. Schemo, *For Musical Appreciation, Sexes Go Their Own Ways*, N.Y. TIMES, Nov. 15, 1994, at B1 (classical recordings; males and females have different motivations, with women buying recordings for the pleasure of listening to the music and men buying them to acquire complete sets); Germaine Greer, *Why Women Won't Play This CD Power Game*, EVENING STANDARD, Aug. 23, 1994, at 9 (same); Tiffany Daneff, *Forget Coins, the Smart Money Is on the Cards*, DAILY TELEGRAPH, Jan. 14, 1995, at 5 (British telephone cards); S.K. List, *More than Fun and Games*, AM. DEMOGRAPHICS, Aug. 1991, at 44 (toys); Clare Henry, *To Have the Nerve to Take the Plunge*, THE HERALD (GLASGOW), Nov. 5, 1994, at 11 (art); Angie Chuang, *Invasion of the Comics Queens: Women*

As Hoyenga and Hoyenga have observed, "[w]omen's prosocial dominance means that their concepts of self are centered more around relationships with others, whereas men's egoistic dominance means that their self-concepts are centered more around task performances and skills."[402] In one study, for example, fifty percent of the women but only fifteen percent of the men agreed with the statement, "I'm happiest when I can succeed at something that will also make other people happy."[403]

There is also substantial evidence that the nurturing orientation of girls begins at a young age. From a very early age, girls are oriented more toward persons, and boys are oriented more toward things.[404] In a naturalistic study of older siblings' (ages four to seven) nurturant interactions with their infant siblings, significant sex differences were found.[405] Females' nurturant tendencies increase with pubertal maturity.[406]

In sum, males and females have grossly different temperamental styles. Men tend to be competitive, while women tend to be more cooperative. Men want to be at the top of a dominance hierarchy, while women seek to cement social relations. Men tend to be single-minded in their pursuits, while women have more varied interests. There is greater agreement on the fact of these differences[407] than there is on the causes. Thus, there is little dispute that throughout the world and throughout history, men have exhibited dominant behavior and have played the dominant public role in society.[408] As one group of feminist authors state: "In all known cultures, males are dominant over women of equal age and status. Men occupy the high-status positions, exercise

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Prefer Human Touches to Superheroes, ARIZ. REPUBLIC, Sept. 27, 1994, at D1 (comic books); Mitch Gitman, *Hi-Tech Wizardry Takes Sports Card Collecting into a New Arena*, PITTSBURGH POST-GAZETTE, Aug. 14, 1994, at G1 (sports cards); Nancy Lyon, *Bug Collector's Lot Is Not Easy: Thrill of the Chase is Worth the Hassles of Jungle Life*, THE GAZETTE (MONTREAL), July 17, 1993, at G9 (bugs).

Even items typically associated with females attract many male collectors. *See, e.g.*, Carole G. Brown, *Shop Fosters Fine Art of Doll Making*, PITTSBURGH POST-GAZETTE, Oct. 6, 1994, at W4 (reporting that one-third of doll collectors are men); Janet B. French, *Those Beautiful Dolls: Collecting Them Now Our No. 2 Hobby*, PLAIN DEALER, May 1, 1994, at 11 (reporting that one-eighth of American doll collectors are men); Kathie Jenkins, *Holiday Gifts: The $1,000 Cookie Jar and Other Stories*, L.A. TIMES, Dec. 2, 1993, at H12 (noting that 80% of collectors of kitchen implements are men).

402. HOYENGA & HOYENGA, *supra* note 16, at 346.

403. MOIR & JESSEL, *supra* note 45, at 157.

404. Goodenough, *supra* note 394, at 317–18.

405. Judith E.O. Blakemore, *Children's Nurturant Interactions With Their Infant Siblings: An Exploration of Gender Differences and Maternal Socialization*, 22 SEX ROLES 43, 53 (1990).

406. Susan Goldberg et al., *Menarche and Interest in Infants: Biological and Social Influences*, 53 CHILD DEV. 1544 (1982).

407. *See* HOYENGA & HOYENGA, *supra* note 16, at 348 ("[a]cross cultural groups, males seem more concerned with maintaining and acquiring personal status than females are").

408. *See* Michelle Z. Rosaldo, *The Use and Abuse of Anthropology: Reflections on Feminism and Cross-Cultural Understanding*, 5 SIGNS: J. WOMEN CULTURE & SOC'Y 389, 394 (1980) (asserting that "in all known human groups—and no matter the prerogatives that women may in fact enjoy—the vast majority of opportunities for public influence and prestige, the ability to forge relationships, determine enmities, speak up in public, use or forswear the use of force are all recognized as men's privilege and right").

primary decision-making and political power, and tend to be dominant at interpersonal levels as well."[409]

Writing from a decidedly non-feminist position, sociologist Steven Goldberg expresses the same thought:

> Patriarchy is universal. For all the variety different societies have demonstrated in developing different types of political, economic, religious, and social systems, there has never been a society which failed to associate hierarchical authority and leadership in these areas with men. Indeed, of all social institutions there is probably none whose universality is so totally agreed upon.[410]

In other words, there are not now and there have never been any known matriarchal societies, although such societies were hypothesized by a number of nineteenth century theorists.[411] In short, men run things (in the extradomestic sphere, at any rate) everywhere.[412]

The big question, of course, is why men run things everywhere, and this is where the consensus breaks down. Many believe, as has already been suggested here, that men run things everywhere because of innate temperamental differences between the sexes.[413] Others believe that the situation is a secondary consequence of the fact that our biology "sticks" women with gestation and lactation and that it is this universal rather than any underlying temperamental difference that explains it. Under this view, human societies have assigned the childcare/domestic sphere to women as a matter of convenience because women already had by necessity the biological responsibilities of gestation and lactation.[414] Others have sought particularistic

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409. IRENE H. FRIEZE ET AL., WOMEN AND SEX ROLES: A SOCIAL PSYCHOLOGICAL PERSPECTIVE 80 (1978). The authors identify their feminist orientation in *id.* at xvii. *See also* CATHERINE MACKINNON, TOWARD A FEMINIST THEORY OF THE STATE 116 (1989) (asserting that "[m]ale dominance is perhaps the most pervasive and tenacious system of power in history").

410. GOLDBERG, *supra* note 44, at 15.

411. *See* Bamberger, *supra* note 44, at 263–66.

412. Some recent writers have challenged the notion that women have lower status than men in all cultures. *See, e.g.*, Carol C. Mukhopadhyay & Patricia J. Higgins, *Anthropological Studies of Women's Status Revisited: 1977-1987*, 17 ANN. REV. ANTHROPOLOGY 461 (1988). However, the authors do not challenge the proposition that "men run things" in the public sphere. Rather, they suggest, appropriately, that there are different ways that status can be defined and that under some definitions women fare quite well. The complexity of the notion of status can be understood by asking, "In America, do men or women have greater status?" The answer would likely be, "Well, if you mean by status extradomestic power and possession of a disproportionate number of the most prestigious jobs, men have greater status; if you mean are men as a class or women as a class admired more, the answer is less obvious." *See infra* text accompanying note 895. That women may achieve status under some measures is not relevant to this article, since the focus here is on challenges to the status of women in the work force.

It is also worth noting that labeling women as lower status may not capture a phenomenon that is meaningful in the culture, since people tend to compare themselves to their peers. If men and women occupy separate domains, men will compare themselves to men, and women to women. If so, "the sex difference in apparent public status could be irrelevant to the thinking of individuals in the societies involved." Paul C. Rosenblatt & Michael R. Cunningham, *Sex Differences in Cross-Cultural Perspective*, *in* EXPLORING SEX DIFFERENCES 71, 82 (Barbara Lloyd & John Archer eds., 1976).

413. *See, e.g.*, GOLDBERG, *supra* note 44.

414. *See, e.g.*, Michelle Z. Rosaldo, *Woman, Culture, and Society: A Theoretical Overview*, *in* WOMAN, CULTURE, AND SOCIETY, *supra* note 44, at 17, 23–35.

explanations in terms of each specific culture.[415] We will turn now to the evidence of a biological basis for these differences.

B. Evidence for a Biological Basis for Temperamental Sex Differences

The fact that the sexes differ cross-culturally in systematic ways predicted by evolutionary theory is strong evidence that the differences are rooted in biology. It is not iron-clad proof, however. Many believe that all of the behavioral differences observed between men and women are purely "socially constructed"—"society" decided that men should be competitive, aggressive risk-takers and women should be nurturant, cooperative, and less overtly aggressive. To support this claim, advocates typically point to various societal expectations and stereotypes. However, just as cross-cultural universality does not prove a biological cause, the existence of societal expectations and stereotypes does not disprove such a cause. Instead, it simply moves the question one step back—that is, if men act one way and women act another because of societal expectations and stereotypes, the question that follows is necessarily "why did societal expectations and stereotypes develop in this way, and why did they do so not only in our culture but in virtually all cultures?" Explanations that invoke culture to explain culture and that proceed without regard to any inconsistency with other disciplines have a long pedigree in the social sciences,[416] but they ultimately lack explanatory power.[417] As Michael Levin has argued, environmentalism "shares many of the intellectually stultifying traits of classical theology," as in its view that society is a cause that itself lacks a cause.[418]

Although the frequency of charges of biological determinism might lead one to believe the contrary, no one argues that the environment is not an important influence on human behavior. Environmental conditions, including social ones, can result in behaviors being suppressed or exaggerated. The argument made here is simply that males and females, on average, have different temperamental predispositions and different thresholds for the display of various behaviors and that these predispositions have their roots in biology.

Several independent sources of information suggest that many of the temperamental sex differences have a biological basis. Evidence from the field of behavioral genetics indicates that many of the relevant traits are highly heritable; that is, much of the individual variation in these traits is attributable to genetic differences among individuals. Also, studies in both humans and animals have shown that sex hormones have a substantial effect on the specific behaviors that we are considering. These hormonal effects are caused at two

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415. *See* Alice Schlegel, *An Overview*, *in* SEXUAL STRATIFICATION: A CROSS-CULTURAL VIEW 356 (Alice Schlegel ed., 1977) ("Sexual stratification...is not panhuman but rather poses a problem that must be explained, for each society in terms of the forces to which it is responsive, and cross-culturally in terms of variables that exist across societies.").

416. *See, e.g.*, EMILE DURKHEIM, THE RULES OF SOCIOLOGICAL METHOD 110 (8th ed. 1938) ("[t]he determining cause of a social fact should be sought among the social facts preceding it"); George P. Murdock, *The Science of Culture*, 34 AM. ANTHROPOLOGIST 200 (1932) (suggesting that the science of culture is "independent of the laws of biology and psychology").

417. John Tooby & Leda Cosmides, *The Psychological Foundations of Culture*, *in* THE ADAPTED MIND, *supra* note 57, at 19, 22–23.

418. LEVIN, *supra* note 34, at 67.

stages: (1) hormonal exposure of fetuses *in utero* leading to changes in the developing brain, and (2) circulating levels of hormones in children and adults. Another source of evidence comes from psychological studies on infants and young children showing that stereotypic sex-role behavior develops at an early age, in many cases at such an early age that an explanation in terms of purely social conditioning is not plausible. Finally, anthropological evidence shows that many of the sex differences we observe in our culture are cross-cultural universals. Taken separately, these bodies of evidence are strongly indicative of a biological basis for observed sex differences; taken together, they present a compelling case that is far too powerful to ignore.

1. Behavioral Genetics

One major source of evidence for a biological basis for the traits under consideration comes from the field of behavioral genetics. "Behavioral genetics is the study of the genetic and environmental factors that create behavioral differences among individuals."[419] The methods of behavioral geneticists may vary, but two of the primary methods of teasing out the effects of genes and environment are to examine traits in twins and in adopted children.[420]

The basis of twin studies is the fact that monozygotic ("MZ" or identical) twins are virtually identical genetically, since they result from the division of a single fertilized egg.[421] Dizygotic ("DZ" or fraternal) twins result from the fertilization of two eggs by two sperm cells and are therefore no more alike genetically than any other pair of siblings; that is, they share on average fifty percent of their genes.[422] One way of attempting to ascertain the existence and magnitude of genetic factors is to compare the correlations for a particular trait between MZ twins and DZ twins.[423] If MZ twins are substantially more similar than same-sex DZ twins, one may fairly conclude that the trait is influenced by genetic factors.[424]

Another avenue of inquiry is to compare MZ twins who are reared together with twins who are reared apart.[425] If twins who are reared apart are

419. PLOMIN, *supra* note 7, at 4.

420. John C. Loehlin et al., *Human Behavior Genetics*, 39 ANN. REV. PSYCHOL. 101, 108–11 (1988).

421. PLOMIN, *supra* note 7, at 47.

422. To be more precise, they receive 50% of their genetic material from an immediate common ancestor. Since most genes in the human population are fixed, there is no variation in most genes; therefore, we share over 99% of our genes with all other humans. Indeed, we share over 98% of our genetic material with the bonobo and the chimpanzee, our closest ape relatives. JARED DIAMOND, THE THIRD CHIMPANZEE: THE EVOLUTION AND FUTURE OF THE HUMAN ANIMAL 20–24 (1992).

423. *Id.* at 47–48.

424. Jane E. Mitchell et al., *Masculinity and Femininity in Twin Children: Genetic and Environmental Factors*, 60 CHILD DEV. 1475, 1477 (1989). This assumes, of course, that the shared environmental factors are of equivalent importance in MZ and DZ twins. *Id.* Although one might speculate that the shared family environment is greater for MZ twins because their greater similarity may lead to greater similarity of treatment, it does not appear that this is a major effect.

Even if the shared environment of MZ twins were greater than that for DZ twins, it does not appear that much of the environmental-based variance in personality comes from the shared environment anyway. *See* Loehlin et al., *supra* note 420, at 126 (describing recent research as demonstrating that "essentially none of the environmental contribution to adult personality is from shared family environment"). *See also infra* note 431.

425. *See* PLOMIN, *supra* note 7, at 41.

as similar in the trait at issue as twins who are reared together, the environment of twins living together would not seem to make a major contribution to their temperamental resemblance.[426]

Adopted children are another source of evidence concerning heritability. Behavioral geneticists compare trait correlations between siblings reared in different homes and between adopted children and unrelated siblings. If siblings who are adopted into different homes are more similar to one another than they are to the unrelated children with whom they are reared, that again would suggest a biological component to the trait at issue, as would a greater correlation between adopted children and their biological parents than between those children and their adoptive parents.[427]

Employing the above techniques, behavioral geneticists have consistently demonstrated substantial genetic contributions to a whole range of personality traits that are relevant to this article.[428] One large-scale study of twins examined a series of personality dimensions, including "Social Potency"—which is a measure of dominance—"Achievement," "Aggression," and "Social Closeness."[429] Heritability estimates for these various dimensions ranged from .39 to .58,[430] meaning that from thirty-nine to fifty-eight percent of the variation in these traits is accounted for by genetic differences.[431]

It is often noted that particular occupations attract certain personality types,[432] so perhaps it should come as no surprise that heritability estimates of vocational, as well as recreational interests, are also quite high.[433] In fact, in a

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426. Loehlin et al., *supra* note 420, at 110.

427. PLOMIN, *supra* note 7, at 41–47; Sandra Scarr et al., *Personality Resemblance Among Adolescents and their Parents in Biologically Related and Adoptive Families*, 40 J. PERSONALITY & SOC. PSYCHOL. 885 (1981).

428. *See generally* T. J. Bouchard, *Twins Reared Together and Apart: What They Tell Us About Human Diversity*, *in* INDIVIDUALITY AND DETERMINISM 147 (S.W. Fox ed., 1984); Loehlin et al., *supra* note 420.

429. Tellegen et al., *supra* note 266.

430. The heritability scores for the individual traits are as follows: Well-Being (.48); Social Potency (.54); Achievement (.39); Social Closeness (.40); Stress Reaction (.53); Alienation (.45); Aggression (.44); Control (.44); Harm Avoidance (.55); Traditionalism (.45); Absorption (.50); Positive Emotionality (.40); Negative Emotionality (.55); and Constraint (.58). Tellegen et al., *supra* note 266, at 1036.

431. One finding of this and similar studies that is at first surprising is that shared environment plays a very small role in the determination of most of the traits. Tellegen et al., *supra* note 266, at 1037. That is, most of the environmental contribution to personality is idiosyncratic. Numerous other studies have reached this same conclusion. Tellegen et al., *supra* note 266, at 1031-32. *See also* Robert R. McCrae & Paul T. Costa, Jr., *Recalled Parent-Child Relations and Adult Personality*, 56 J. PERSONALITY 417, 430 (1988) ("It would appear that major dimensions of child-rearing practices...have only a very limited effect on subsequent personality."); Robert Plomin & Denise Daniels, *Why Are Children in the Same Family So Different from One Another?*, 10 BEHAVIORAL & BRAIN SCI. 1, 4 (1987) (noting that "nonshared environment is responsible for most environmental variation relevant to psychological development"); Rushton et al., *supra* note 265, at 1196 (finding in a study of altruism and aggressiveness that "very little, if any" of the similarity of twins was a consequence of a shared environment).

432. *See* Gangestad & Simpson, *supra* note 227, at 83 (noting that "occupation reliably relates to features of personality") (citing I.B. MYERS & M.H. MCCAULLEY, MANUAL: A GUIDE TO THE DEVELOPMENT AND USE OF THE MYERS-BRIGGS TYPE INDICATOR (1985)).

433. David T. Lykken et al., *Heritability of Interests: A Twin Study*, 78 J. APPLIED PSYCHOL. 649 (1993); Carole A. Roberts & Charles B. Johansson, *The Inheritance of Cognitive Interest Styles Among Twins*, 4 J. VOCATIONAL BEHAV. 237 (1974); Sandra Scarr & Richard A. Weinberg, *Attitudes, Interests, and IQ*, HUMAN NATURE, Apr. 1978, at 29.

large-scale study based upon over 1000 pairs of twins, the investigators estimated that one-half to two-thirds of the variance in vocational and recreational interests was associated with genetic variance.[434] The researchers cautioned that their results do not mean that "our species has evolved genes patterned after the *Dictionary of Occupational Titles*":

> Because specific interests are undoubtedly learned, these findings must be interpreted to mean that the experiences people seek, and the effect of those experiences on their developing interests, are influenced by traits of physique, aptitude, and temperament—and perhaps by certain not-yet-identified primitive or primary interests—that are themselves substantially genetically influenced.[435]

The contribution of genetic influences to personality are visible even in the first few years of life.[436] A recent study found that between twenty percent and forty-eight percent of individual differences in masculinity and femininity in same-sex twins could be accounted for in genetic terms, and, consistent with other studies, it found that shared environments made negligible contributions to masculinity and femininity.[437]

It is important to note that the fact that there is a genetic basis for individual differences within a group does not mean that an observed difference between groups has a genetic basis. Thus, the above-described studies do not prove that there is a genetic basis for human sex differences in personality. However, they do show that these personality traits are strongly influenced by biology, a fact of which many are unaware.

To the extent that personality traits are influenced by genes, the traits are subject to natural selection. Prior sections of this article explained why certain personality traits, such as dominance and risk-taking, would be valuable to men in our ancestral environment and presented evidence that women preferentially mate with men exhibiting these traits. Once it is seen that these traits have a genetic basis and that there is individual variation in them, the picture of how natural selection may have operated becomes more complete.

2. Hormones and Behavior

An understanding of how males come to be males and females come to be females is essential to an understanding of the biological mechanism leading to sex differences in behavior.[438] To begin with, men and women are *almost* genetically identical. Men and women each have twenty-two pairs of "autosomal" chromosomes, which do not differ between the sexes, and one pair of sex chromosomes.[439] The female has a pair of "X" chromosomes, and the male has one "X" chromosome and one "Y" chromosome, the latter containing

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434. Lykken et al., *supra* note 433, at 658. *See also* Harold D. Grotevant et al., *Patterns of Interest Similarity in Adoptive and Biological Families*, 35 J. PERSONALITY & SOC. PSYCHOL. 667, 674 (1977) (finding that scores on a test of vocational interest are substantially more similar for biologically related family members than for adoptive family members).

435. Lykken et al., *supra* note 433, at 658.

436. Mitchell et al., *supra* note 424, at 1475.

437. Mitchell et al., *supra* note 424, at 1483.

438. For an overview of sexual differentiation, see DALY & WILSON, *supra* note 2, at 249–61; SIMON LEVAY, THE SEXUAL BRAIN 17–29 (1993).

439. June M. Reinisch et al., *Hormonal Contributions to Sexually Dimorphic Behavioral Development in Humans*, 16 PSYCHONEUROENDOCRINOLOGY 213, 216 (1991).

very little genetic material.[440] Thus, except for the redundancy of the X chromosome in females and the small amount of genetic material contained on the Y chromosome, males and females are genetically identical. Given the similarity of the genetic complement of males and females and the disparity in their biology—particularly reproductive biology—it appears that something major must be created from what might at first glance seem to be minor differences between the sexes. That "something major" is hormones.[441]

Although chromosomal differences between the sexes exist from conception, male and female embryos develop identically for approximately the first two months.[442] After that point, however, anatomical and physiological differentiation begins, and the appearance of the sexes begins to diverge. The Y chromosome of the male plays a central role in causing the previously undifferentiated gonad to develop into testes through production of a substance known as testis-determining factor, which stimulates development of the testes.[443]

Prior to sexual differentiation, the primordial genital tract of both sexes contains three components: (1) undifferentiated gonads (to develop into either ovaries or testes); (2) two genital duct systems (the Wolffian system and the Müllerian system); and (3) a common opening for the genital ducts and the urinary tract to the outside.[444] If the fetus is a normal chromosomal male, the testes secrete a substance that causes regression of the Müllerian ducts.[445] On the other hand, if the fetus is a normal chromosomal female, the Müllerian ducts persist and the Wolffian ducts regress.[446] In males, two related androgens—or male hormones—cause development of the male genital tract: (1) testosterone, which virilizes the Wolffian system, and (2) dihydrotestosterone, which virilizes the external genitalia.[447]

In the absence of testicular secretions—or if testicular secretions occur but the fetus is for some reason insensitive to the secretions—a female phenotype occurs, even if the fetus has the male XY chromosomal

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440. *Id.*

441. *Id.* at 214 ("It is a generally accepted principle of mammalian development that hormones, rather than genetic sex *per se*, play the principal and proximal role in the physical differentiation of the sexes."); S. Marc Breedlove, *Sexual Differentiation of the Human Nervous System*, 45 ANN. REV. PSYCHOL. 389, 393 (1994) (noting that "[o]nce the sex of the gonads is determined, sexual differentiation of the rest of the body is affected, not by genetic influence directly, but by the hormones secreted from the gonads").

442. Reinisch et al., *supra* note 439, at 216; Jean D. Wilson et al., *The Hormonal Control of Sexual Development*, 211 SCIENCE 1278, 1278 (1981).

443. Jeremy Cherfas, *Sex and the Single Gene*, 252 SCIENCE 782 (1990); Gina Kolata, *Maleness Pinpointed on Y Chromosome*, 234 SCIENCE 1076 (1986); Leslie Roberts, *Zeroing in on the Sex Switch*, 239 SCIENCE 21 (1988). Because the development of testes depends upon the TDF gene, an XY embryo will develop in the female direction if the TDF gene is missing or defective ("XY females"), and an XX embryo will develop in the male direction when the father's sperm contains an X chromosome that bears the critical portion of the Y chromosome ("XX males"). Roberts, *supra*, at 21–22.

444. DALY & WILSON, *supra* note 2, at 250–51.

445. DALY & WILSON, *supra* note 2, at 251–52.

446. DALY & WILSON, *supra* note 2, at 251–52.

447. *See generally* HOYENGA & HOYENGA, *supra* note 16, at 154–56.

complement.[448] It is this fact that is responsible for the common observation that the female form is the "basic" human form.[449]

Just as the fetus' hormonal environment shapes its sexual anatomy, it also shapes the development of its brain.[450] Androgens shape the brain in a male direction, just as they shape the male sexual anatomy.[451] During a critical period—probably between sixteen and twenty-eight weeks of gestation, although the timing is uncertain[452]—exposure of the brain to androgens results in psychosexual differentiation.[453] Exposure of a chromosomal female to androgens will cause psychological development in the male direction, and absence of androgens will cause psychological development of the male in the female direction. The effect of hormones on the developing fetal brain is referred to as the "organizing" effect, as contrasted with the "activational" effect, which is the result of the immediate influence of circulating hormones on behavior.[454]

Although the following discussion will focus on functional differences, structural differences between the brains of males and females have been found as well. Indeed, the avowedly feminist-oriented[455] book by Hoyenga and Hoyenga states: "Despite years of controversy, sex differences in brain structures have been conclusively demonstrated, including in the human brain."[456] Some of the sex differences in the brain are due to perinatal hormones and some to postpuberal hormones.[457] Because the relationship between structure and function is not well understood, and because function is ultimately what is important to our discussion, structural differences will not be discussed.

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448. Breedlove, *supra* note 441, at 393.

449. *See, e.g.*, Steve Jones, *Ys and Wherefores*, NEW STATESMAN & SOC., June 11, 1993, at 30 ("[E]xistence is, it seems, essentially female, and masculinity just a modification of the feminine experience.").

450. HOYENGA & HOYENGA, *supra* note 16, at 161.

451. HOYENGA & HOYENGA, *supra* note 16, at 161.

452. Ralf W. Dittmann et al., *Congenital Adrenal Hyperplasia II: Gender-Related Behavior and Attitudes in Female Salt-Wasting and Simple-Virilizing Patients*, 15 PSYCHONEUROENDOCRINOLOGY 421, 431 (1990).

453. Strictly speaking, what causes the "masculinization" of the brain is estradiol, a "female" hormone. Testosterone is converted to estradiol in the brain. *See* Lee Ellis, *Evidence of a Neuroandrogenic Etiology of Sex Roles from a Combined Analysis of Human, Nonhuman Primate, and Nonprimate Mammalian Studies*, 7 PERSONALITY & INDIVIDUAL DIFFERENCES 519, 521 (1986). Estradiol produced outside the brain (such as in the ovaries of female fetuses) does not cross the "blood-brain barrier" and therefore cannot masculinize the brain. *Id.*

454. Charles H. Phoenix et al., *Organizing Action of Prenatally Administered Testosterone Proprionate on the Tissues Mediating Mating Behavior in the Female Guinea Pig*, 65 ENDOCRINOLOGY 369 (1959).

455. HOYENGA & HOYENGA, *supra* note 16, at xiii ("The book is feminist...[in that i]t contains 'a core set of assumptions regarding the [desirability of] the elimination of women's secondary status in society'") (quoting C.A. Pollis, *An Assessment of the Impacts of Feminism on Sexual Science*, 15 J. SEX RES. 85 (1988)). Despite its feminist orientation, the authors reject the suggestion that a criterion "for feminist research involves assuming that 'there are no significant differences between women and men not attributable to differences in socialization, current reinforcement, and social expectations.'" HOYENGA & HOYENGA, *supra* note 16, at 12.

456. HOYENGA & HOYENGA, *supra* note 16, at 161. See HOYENGA & HOYENGA, *supra* note 16, at 165–66, Table 7.2, for a catalog of observed differences. *See also* POOL, *supra* note 174, at 109–31.

457. HOYENGA & HOYENGA, *supra* note 16, at 161.

a. The Organizing Effect of Hormones on Developing Fetuses

Levels of human fetal hormones obviously cannot ethically be manipulated experimentally, so evidence of the masculinizing effect of androgens comes primarily from three sources: (1) studies of humans who because of some defect were exposed to atypical endogenous hormones; (2) studies of humans whose mothers were given sex hormones during pregnancy; and (3) animal studies.

One of the best-studied conditions in which females have been exposed to high levels of male hormones in utero is the condition known alternatively as congenital adrenal hyperplasia (CAH) or adrenogenital syndrome.[458] Although the large majority of androgens come from the male testes, small amounts are present in female fetuses as well because small amounts are produced in the adrenal glands of both sexes.[459] CAH results from an excess production of androgens by the fetal adrenal gland, which in turn results from a defect in the synthesis of cortisol, an adrenal hormone.[460] The adrenal gland keeps working in a vain effort to produce cortisol, and a side effect of that effort is an excess production of androgens.[461]

The exposure of the female CAH fetus to androgens comes too late to cause virilization of the internal reproductive system, but it does cause greater or lesser virilization of the external genitalia. The baby when born may have a penis and scrotum (although the scrotum will be empty because the chromosomal female baby has no testes, since she has no Y chromosome), or she may have an enlarged clitoris and partial fusing of the labia majora.[462] The condition is generally diagnosed at, or soon after, birth. The genitalia are surgically corrected, and the cortisol deficiency is remedied through supplementation. When properly treated, these girls develop as normal fertile females often with a delayed onset of menstruation.[463]

CAH girls are of special interest to researchers studying the effects of prenatal hormone exposure, because except for the cortisol deficiency, they are biologically normal girls who were exposed to male hormones in utero but who were raised as girls. The behavioral profile of these girls as children is strikingly similar to that of boys.[464] The seminal studies of these children were conducted by John Money, Anke Ehrhardt, and their colleagues.[465] In comparing a group of fifteen CAH girls to matched controls, they found that

458. JOHN MONEY & ANKE A. EHRHARDT, MAN & WOMAN, BOY & GIRL 96–105 (1972).

459. Thus, both male and female fetuses are exposed to "male" and "female" hormones. The primary hormonal difference between the sexes is that males are exposed to much higher levels of androgens because of their production not only in the adrenal gland but also in the testes.

460. MONEY & EHRHARDT, *supra* note 458, at 96–105.

461. Ralf W. Dittmann et al., *Congenital Adrenal Hyperplasia I: Gender-Related Behavior and Attitudes in Female Patients and Sisters*, 15 PSYCHONEUROENDOCRINOLOGY 401, 402 (1990).

462. MONEY & EHRHARDT, *supra* note 458, at 96.

463. MONEY & EHRHARDT, *supra* note 458, at 97.

464. MONEY & EHRHARDT, *supra* note 458, at 98–105. Although boys suffer from CAH as well, the effects are considerably less, because the additional adrenal androgens are added to the large complement of testicular androgens. As a result, the limited data on boys are inconsistent. Reinisch et al., *supra* note 439, at 271.

465. Anke A. Ehrhardt et al., *Fetal Androgens and Female Gender Identity in the Early-Treated Adrenogenital Syndrome*, 122 JOHNS HOPKINS MED. J. 160 (1968).

CAH girls exhibited more stereotypic male behavior and less stereotypic female behavior than did their controls. Eleven of the fifteen girls considered themselves tomboys throughout their childhood, while none of the control girls did.[466] In fact, only four of the control girls reported any episodes of tomboy behavior, and these were brief, whereas for the CAH girls, tomboyism was a way of life.[467]

The CAH girls also eschewed feminine fashions and "girl" toys such as dolls, preferring functional clothing and "boy" toys.[468] The CAH girls also exhibited far less interest in infants and expressed a lesser desire to have children when they grew up.[469] The majority of the CAH girls indicated that career was more important than marriage or that they wanted a career in addition to marriage, while the control group identified marriage as the most important goal.[470] Money and Ehrhardt concluded from this study:

> The most likely hypothesis to explain the various features of tomboyism in fetally masculinized genetic females is that their tomboyism is a sequel to a masculinizing effect on the fetal brain. This masculinization may apply specifically to [neural] pathways, most probably in the limbic system or paleocortex, that mediate dominance assertion (possibly in association with assertion of exploratory and territorial rights) and, therefore, manifests itself in competitive energy expenditure. Fighting and aggression are not primarily indicated.[471]

A later study by Ehrhardt and Baker using unaffected sisters and mothers as controls, rather than matched controls from the general population, revealed similar results.[472] CAH girls were considerably more likely to choose boys as playmates, be tomboys, and show little interest in their appearance.[473] The CAH girls again showed a lesser interest in dolls, infants, weddings, and motherhood

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466. The researchers defined "tomboyism" as follows: "[I]t consists of extensive outdoor activity in the expenditure of physical energy and great interest in male-associated clothing, play toys, and career preference, versus a minimal interest in female associated frills and dolls and in the anticipation of motherhood and homemaking as the primary occupation of adulthood." *Id.* at 165.

467. *Id.* at 164.

468. *Id.* at 164–65. *See also* Sheri A. Berenbaum & Melissa Hines, *Early Androgens Are Related to Childhood Sex-Typed Toy Preferences*, 3 PSYCHOL. SCI. 203, 204 (1992) (finding that CAH girls spent more time playing with boys' toys than did control girls and about as much time as did the control boys); Melissa Hines & Francine R. Kaufman, *Androgen and the Development of Human Sex-typical Behavior: Rough-and-Tumble Play and Sex of Preferred Playmates in Children with Congenital Adrenal Hyperplasia (CAH)*, 65 CHILD DEV. 1042, 1049–51 (1994) (finding that CAH girls had a much higher preference for male playmates than did female controls but that CAH girls did not engage in significantly more rough-and-tumble play than controls).

469. Ehrhardt et al., *supra* note 465, at 163–64.

470. Ehrhardt et al., *supra* note 465, at 163–64. CAH girls also exhibit a more "male like" pattern of cognitive skills. For example, they score considerably higher on tests of spatial ability than normal girls. Susan M. Resnick et al., *Early Hormonal Influences on Cognitive Functioning in Congenital Adrenal Hyperplasia*, 22 DEVELOPMENTAL PSYCHOL. 191, 195 (1986). CAH girls are also more likely to be lesbians. LEVAY, *supra* note 438, at 126. *See generally* Chandler Burr, *Homosexuality and Biology*, ATLANTIC, Mar. 1993, at 47.

471. MONEY & EHRHARDT, *supra* note 458, at 103.

472. Anke A. Ehrhardt & Susan W. Baker, *Fetal Androgens, Human Central Nervous System Differentiation, and Behavior Sex Differences*, *in* SEX DIFFERENCES IN BEHAVIOR, *supra* note 266, at 33.

473. *Id.* at 41–43. *See also* John Money & Mark Schwartz, *Dating, Romantic and Nonromantic Friendships, and Sexuality in 17 Early-Treated Adrenogenital Females, Aged 16-25*, *in* CONGENITAL ADRENAL HYPERPLASIA 419, 429 (P.A. Lee et al. eds., 1977).

than their sisters, although no difference in career aspirations was found.[474] The researchers emphasized that they were not suggesting that the behavioral differences they observed were caused solely by hormones, but rather that hormones are an important factor contributing to sex differences in temperament.[475] Numerous other studies have replicated these results.[476]

Corroborative evidence for the hormonal hypothesis comes from a condition that is in a sense the converse of CAH—Androgen Insensitivity Syndrome (AIS), also known as testicular feminization. While CAH girls are chromosomal girls who are exposed to high levels of androgens, AIS boys are chromosomal boys whose tissues are insensitive to testosterone; thus, they are in effect subjected to the hormonal environment of a girl.[477]

Because AIS boys have a Y chromosome, they develop testes, which in turn secrete androgens. However, because the boys' tissues are insensitive to androgens, the result is the same as if no androgens had been secreted. Therefore, the Wolffian system never differentiates and male external genitalia do not develop.[478] At birth, they often appear morphologically to be normal females. At puberty, the estrogen that both males and females produce causes the development of female secondary sex characteristics, such as breasts and pubic hair. The condition is often not diagnosed until puberty when medical attention is sought for the failure to menstruate, or adulthood when the patient experiences fertility problems. It is then typically discovered that the vagina is a blind pouch and the internal reproductive tract is incomplete.[479]

AIS patients tend to exhibit stereotypically female preferences (such as being a wife with no outside job) and tend to be interested in infants and dolls, leading researchers to conclude that hormones, rather than chromosomal sex, are responsible for psychosexual differentiation.[480] It should be noted that behavioral studies of AIS patients are harder to interpret than the CAH studies. The difficulty with AIS studies is that, unlike the situation with CAH, the sex of rearing and the pattern of prenatal hormone exposure are congruent. Therefore, it is difficult to determine whether the AIS patients demonstrated normal female behavior because of hormone exposure or because of sex-of-rearing, or both.

In addition to what might be called "experiments of nature"—like CAH and AIS—additional data on prenatal hormonal exposure come from studies of offspring born to mothers treated with exogenous hormones for maintenance of high-risk pregnancy. Studies of such offspring have several advantages over studies of offspring with clinical syndromes, since (1) the offspring have no genetic anomalies; (2) most are born with normal genitalia and in good health; and (3) exposure to atypical hormones ends at birth.[481] The disadvantage of

474. Ehrhardt & Baker, *supra* note 472, at 42.
475. Ehrhardt & Baker, *supra* note 472, at 49–50.
476. *See* Dittmann et al., *supra* note 452.
477. John Money et al., *Fetal Feminization Induced by Androgen Insensitivity in the Testicular Feminizing Syndrome: Effect on Marriage and Maternalism*, 123 JOHNS HOPKINS MED. J. 105, 105 (1968). *See also* Daniel N. Masica et al., *Fetal Feminization and Female Gender Identity in the Testicular Feminizing Syndrome of Androgen Insensitivity*, 1 ARCHIVES SEXUAL BEHAV. 131 (1971).
478. Ehrhardt & Baker, *supra* note 472, at 110.
479. Ehrhardt & Baker, *supra* note 472, at 109–10.
480. Money et al., *supra* note 477, at 113.
481. Reinisch et al., *supra* note 439, at 219.

such studies is that a variety of hormones are administered—sometimes in combination—during high-risk pregnancy, and they are not identical to those involved in normal sexual development, although their effects may be similar.[482]

In a recent comprehensive review of nineteen studies of children born to mothers treated with hormones during pregnancy, June Reinisch, then-director of the Kinsey Institute for Research in Sex, Gender, and Reproduction, concluded: "It appears that prenatal exposure to androgen-based synthetic progestins exerted a masculinizing and/or defeminizing influence on human behavioral development, whereas exposure to natural progesterone and progesterone-based synthetic progestins had a feminizing and/or demasculinizing influence particularly in female subjects."[483]

The behaviors that appeared most affected by administration of hormones were "play-related activities and interests, aggression/assertion, and gender identity/role." Reinisch concluded that the results revealed by these studies are consistent with the results obtained in studies of clinical endocrine syndromes such as CAH and AIS.[484]

Studies in a wide variety of mammals reveal clearly that which is merely suggested by the human studies above: exposure to androgens at a critical time in development is crucial to the development of appropriate species-specific male behavior.[485] Animal studies repeatedly show that males who are castrated—either chemically with anti-androgens or surgically—prior to the critical period for psychosexual differentiation develop stereotypic female behaviors. Conversely, exposure of females to androgens during the critical period leads to stereotypic male behaviors.[486] For example, female rhesus monkeys who are treated with androgens demonstrate play behavior that is stereotypical for both monkey and human males: high frequencies of rough-and-tumble and chasing play.[487]

None of the above-described sources of information is an ideal basis upon which to conclude that biological sex differences are caused by exposure of the fetal brain to sex hormones. The results from the studies of endogenous hormones can be criticized because the populations are abnormal.[488] For example, because adrenogenital syndrome results from a defect in cortisol production, the girls take supplementary cortisol. Also, some have argued that since parents know of the condition of their daughters, this may cause them to be more accepting of male-like behavior.[489] However, the fact that among

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482. Reinisch et al., *supra* note 439, at 270–71.

483. Reinisch et al., *supra* note 439, at 270. *See also* Anke Ehrhardt, *Gender Differences: A Biosocial Perspective*, NEB. SYMP. ON MOTIVATION 37, 51–53 (1984).

484. Reinisch at al., *supra* note 439, at 270.

485. *See, e.g.*, Phoenix et al., *supra* note 454 (guinea pigs); William C. Young et al., *Hormones and Sexual Behavior*, 143 SCIENCE 212, 214 (1964) (rats); Richard E. Whalen & David A. Edwards, *Hormonal Determinants of the Development of Masculine and Feminine Behavior in Male and Female Rats*, 157 ANATOMICAL RECORD 173 (1967) (same).

486. Young et al., *supra* note 485, at 215–16.

487. Robert W. Goy, *Organizing Effects of Androgen on the Behaviour of Rhesus Monkeys*, *in* ENDOCRINOLOGY AND HUMAN BEHAVIOUR 12, 24 (Richard P. Michael ed., 1968).

488. FAUSTO-STERLING, *supra* note 12, at 123–54.

489. David M. Quadagno et al., *Effect of Perinatal Gonadal Hormones on Selected Nonsexual Behavior Patterns: A Critical Assessment of the Nonhuman and Human Literature*,

normal children, those with higher prenatal testosterone levels have a greater lateralization of brain function suggests that prenatal hormones are exerting their effects even on normal individuals.[490]

With respect to the studies on exogenous hormones, these involve pregnancies that were already labeled "at-risk" for one reason or another; that was the reason for the administration of the hormones in the first place. Moreover, animal studies are always subject to the valid criticism that because they are performed on nonhumans, the results may not be applicable to humans, even though the results appear to hold for virtually all other mammals studied.

Any one of these kinds of studies standing alone would be suggestive, but hardly compelling. Taken together, however, a consistent pattern of behavioral and hormonal correlation emerges that is not easy to dismiss by invoking different *ad hoc* criticisms of the individual findings. It is not suggested that a simple cause-and-effect relationship exists—that a particular pattern of hormone exposure is both a necessary and sufficient cause of human behavior. Rather, prenatal hormones appear to *predispose* the subjects to developing sex-typed behavior patterns.[491]

b. The Activational Effect of Circulating Hormones

Circulating androgens are thought to be related to aggression, although the effects tend to be clear only when levels are altered greatly.[492] Levels of circulating testosterone have been found to be correlated with aggression in adolescents,[493] and in old age, as the sex-hormone levels of men and women become more similar, sex differences in aggressiveness recede.[494] A study of saliva testosterone levels of prison inmates found higher concentrations among inmates convicted of violent crimes than in those convicted of nonviolent crimes.[495] It is probably safe to say that most researchers believe that there is some relationship, albeit a complicated one, between testosterone and aggressive behavior.[496] A study of men with chromosomal anomalies and normal controls found that in both the study group and the control group there was a significant

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84 PSYCHOL. BULL. 62, 69 (1977). There is little empirical support for that suggestion, however, and many researchers have argued that the parents' knowledge of their daughters' abnormal exposure might lead them to be even less accepting of male-like behavior. *See* Dittmann et al., *supra* note 452, at 430; Ehrhardt & Baker, *supra* note 472, at 48–49.

490. Gina M. Grimshaw et al., *Relations Between Prenatal Testosterone and Cerebral Lateralization in Children*, 9 NEUROPSYCHOLOGY 68, 74–75 (1995).

491. Ehrhardt, *supra* note 483, at 45–46; Anke Ehrhardt, *The Psychobiology of Gender*, *in* GENDER AND THE LIFE COURSE, *supra* note 134, at 89–90.

492. Robert T. Rubin et al., *Postnatal Gonadal Steroid Effects on Human Behavior*, 211 SCIENCE 1318, 1320 (1981).

493. Dan Olweus et al., *Testosterone, Aggression, Physical and Personality Dimensions in Normal Adolescent Males*, 42 PSYCHOSOMATIC MED. 253 (1980).

494. MOIR & JESSEL, *supra* note 45, at 181 (noting that "[i]n old age, as the hormonal springs begin to run dry, those differences in the brain that they accentuated begin to lose their sharp focus...men become less aggressive as their testosterone level drops, and, in turn, have less power to neutralize their own naturally occurring female hormones").

495. James M. Dabbs, Jr. et al., *Saliva Testosterone and Criminal Violence in Young Adult Prison Inmates*, 49 PSYCHOSOMATIC MED. 174, 177 (1987).

496. Brian A. Gladue, *Aggressive Behavioral Characteristics, Hormones, and Sexual Orientation in Men and Women*, 17 AGGRESSIVE BEHAV. 313, 313 (1991). *See also* James M. Dabbs, Jr. et al., *Testosterone and Personality Among College Students and Military Veterans*, 11 PERSONALITY & INDIVIDUAL DIFFERENCES 1263 (1990) (finding no strong relationships between testosterone and personality other than between testosterone and antisocial behavior).

relationship between testosterone levels and criminal convictions.[497] Yet another study found higher levels of testosterone in trial lawyers than in other lawyers and higher levels in women lawyers than in housewives.[498]

Comparisons between men showing high and low levels of aggressiveness tend to show higher testosterone levels in the more aggressive group, but the meaning of this relationship is subject to question, because the relationship between hormones and behavior is not unidirectional.[499] Studies of nonhuman primates have shown, for example, that after a male animal experiences a rise in status his testosterone levels go up, and after he loses status, his testosterone levels decline.[500] A series of experiments has indicated a similar phenomenon in humans. In one experiment, tennis players were recruited to play in matches for which there was a $100 prize.[501] Winners of decisive matches experienced rises in testosterone levels, while losers and winners of a close contest that was not a clear triumph showed levels that declined steadily, perhaps merely a part of the normal diurnal variation.[502] In another experiment by the same investigators, testosterone levels were measured in subjects before and after a lottery in which there was a $100 prize.[503] Winning the lottery, unlike winning a tennis match, does not represent achievement through the effort of the subject, and there was no clear relationship between winning the lottery and testosterone level.[504] In yet another experiment, testosterone levels of five graduating male medical students were monitored during a several-day period spanning the graduation.[505] The day after graduation, all subjects showed increased testosterone levels.[506] Taken together, these experiments strongly suggest the same relationship between status change and changing testosterone levels found in nonhuman primates.[507]

In nonhuman mammals, the activational effect of androgens is clear.[508] For example, injections of testosterone into female rhesus monkeys not only increase their aggressive behavior, but also increase their dominance status.[509] Testosterone injections have also been shown to reduce nurturant behavior in a variety of species.[510] Even many who question the strength of the evidence of a

497. Raul C. Schiavi et al., *Sex Chromosome Anomalies, Hormones, and Aggressivity*, 41 ARCHIVES GEN. PSYCHIATRY 93, 98 (1984).
498. MOIR & JESSEL, *supra* note 45, at 196.
499. Archer, *supra* note 263, at 21.
500. Robert Rose et al., *Consequences of Social Conflict on Plasma Testosterone Levels in Rhesus Monkeys*, 37 PSYCHOSOMATIC MED. 50 (1975).
501. Allen Mazur & Theodore A. Lamb, *Testosterone, Status, and Mood in Human Males*, 14 HORMONES & BEHAV. 236, 236 (1980).
502. *Id.* at 240.
503. *Id.* at 240–41.
504. *Id.* at 241–42.
505. *Id.* at 242–43.
506. *Id.* at 243.
507. *See* Frances E. Purifoy & Lambert H. Koopmans, *Androstenedione, Testosterone, and Free Testosterone Concentration in Women of Various Occupations*, 26 SOC. BIOLOGY 179, 183 (1980) (finding that women in professional and managerial occupations have higher levels of androgens than housewives and female clerical workers).
508. Archer, *supra* note 263, at 21.
509. W. Danforth Joslyn, *Androgen-Induced Social Dominance in Infant Female Rhesus Monkeys*, 14 J. CHILD PSYCHOL. & PSYCHIATRY 137, 145 (1973). *See also* Milton Diamond & William C. Young, *Differential Responsiveness of Pregnant and Nonpregnant Guinea Pigs to the Masculinizing Action of Testosterone Propionate*, 72 ENDOCRINOLOGY 429 (1963) (finding that female guinea pigs injected with testosterone exhibit male-like sexual behavior).
510. Katz & Konner, *supra* note 106, at 164.

hormonal contribution to human behavior acknowledge that the effect is clear in our primate relatives.[511]

There appears to be a relationship between circulating testosterone levels and "single-mindedness."[512] In one study, the performance of male and female subjects performing repetitive arithmetic computations decreased less in those who were injected with extra testosterone.[513] It is possible that the greater single-mindedness of males may be related to the fact that their brains have more localized functions, compared to females whose brain functions appear to be more diffuse.[514]

Studies show that androgens play both an organizing[515] and activational[516] role in sensation-seeking, as well as aggression,[517] and that there is a substantial genetic component to the trait as well.[518] One group of researchers hypothesized that if prenatal androgens play a role in sensation-seeking behavior, female twins in opposite-sex twin pairs would show a greater tendency toward such behavior, because, having developed in a uterus with a male twin, the female twin would have been exposed to higher than usual levels of male hormones from the amniotic fluid.[519] A comparison of opposite-sex female twins with same-sex female twins supported that hypothesis: female twins who had shared the womb with a male twin scored higher in sensation-seeking than female twins who shared the womb with a female twin.[520]

The evidence for relationships between circulating hormones and behavior is more equivocal than the evidence for activational effects. This is likely because the effect of circulating hormones depends to a large extent on the degree to which the brain has been primed by prenatal exposure.[521] Nonetheless, taken together, the hormonal data powerfully suggest the proximate biological mechanism by which psychological sex differences develop.

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511. *See, e.g.*, Archer, *supra* note 263, at 21.

512. *See* Ellis, *supra* note 453, at 533 (concluding that currently available evidence "suggests that androgenic effects upon brain functioning increase task control-oriented tenacity, and thus may account for some of the average sex differences in such behavior").

513. MOIR & JESSEL, *supra* note 45, at 95.

514. MOIR & JESSEL, *supra* note 45, at 95–96. *See also* Bennett A. Shaywitz et al., *Sex Differences in the Functional Organization of the Brain for Language*, 373 NATURE 607 (1995) (using magnetic resonance imaging to demonstrate greater lateralization of language function in males).

515. Susan M. Resnick et al., *Sensation Seeking in Opposite-Sex Twins: An Effect of Prenatal Hormones?*, 23 BEHAV. GENETICS 323, 327 (1993).

516. Daitzman et al., *supra* note 350, at 402.

517. *See* Ellis, *supra* note 453, at 536 (concluding that status-related aggression is, "beyond doubt," neuroandrogen influenced).

518. *See* Tellegen et al., *supra* note 266, at 1035.

519. Resnick et al., *supra* note 515, at 323–25. In nonhuman animals, this is known as the "littermate effect." *See* Resnick et al., *supra* note 515, at 324.

520. The researchers acknowledged the possibility that psychosocial rearing factors could explain the results. Resnick et al., *supra* note 515, at 328. That is, female co-twins of males may exhibit more male-like traits simply by virtue of spending their time in childhood interacting with their male twins. However, the researchers expressed doubt on that score, because female co-twins of males have not been found to differ from female same-sex twins on measures of sex-role behaviors. *See* P.H. Elizabeth & R. Green, *Childhood Sex-Role Behaviors: Similarities and Differences in Twins*, 33 ACTA GENETICAE MEDICAE ET GEMELLOLOGIAE 173 (1984).

521. *See* Ellis, *supra* note 453, at 524, 527, 537.

C. Socialization Is an Inadequate Explanation for Sex Differences

In the current cultural milieu, the burden of proof is always assumed to rest on those arguing for inherent differences between the sexes. Those who suggest that these differences are socially constructed often simply assert their social construction[522] and fail to deal with not only the genetic, hormonal, and animal data, but also with the cross-cultural uniformity of the differences. Moreover, the stability of personality over decades, "despite biological aging, the acquisition and loss of social roles, and the occurrence of major life events...call[s] into question the prevalent idea that environmental factors are all-important in shaping personality...."[523] Nonetheless, many cling tenaciously to the false hope that males and females are different only because we choose to believe that they are.

The social sciences are still suffering from the influence of behaviorism—the theory that behavior is determined exclusively by environmental stimuli. In its baldest form, behaviorism held "that there is no such thing as inheritance of *capacity, talent, temperament, mental constitution* and *characteristics*."[524] Rather, these traits "depend on training that goes on mainly in the cradle."[525] Although few psychologists would accept that extreme view today, it seems to persist in the other social sciences.[526]

Cross-cultural uniformity is difficult to explain without reference to some underlying component of the human psyche. If this uniformity occurred through independent invention in each culture or group of cultures, the question is why did culture after culture come to the same independent conclusion? The most likely answer would be that there is something about our nature that leads us to come consistently to the same answer. If independent invention is ruled out, then a common origin might be the answer. Anne Fausto-Sterling suggests that the cross-cultural uniformity of sex differences may be attributed to the fact that the entire population of the world all evolved from a small progenitor stock and these behaviors have been faithfully passed down from generation to generation a thousand times over.[527] Her argument itself necessarily rests on an assumption concerning the human psyche and raises certain questions. First, why did the progenitor group decide on the initial "rules"? This group was not transplanted from another planet fully formed; the "progenitor stock" had its own biological progenitors in an ape-like primate, which almost certainly already exhibited its own sex differences.[528] Second, how can one square the faithfulness with which this "cultural artifact" has been transmitted from generation to generation with its being simply an

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522. For example, Kathryn Abrams, in rejecting the notion that women are inherently more nurturant, asserts *without citation of authority*: "nurturance is an attitudinal characteristic that arises in response to certain circumstances and is passed on—to the extent that it is not a function of continuing adaptation to changing circumstances—by women watching and mothering each other." Abrams, *supra* note 15, at 1025–26.

523. Paul T. Costa, Jr. & Robert R. McCrae, *On the Need for Longitudinal Evidence and Multiple Measures in Behavioral-Genetic Studies of Adult Personality*, 10 BEHAVIORAL & BRAIN SCI. 22, 23 (1987).

524. JOHN B. WATSON, BEHAVIORISM 74–75 (1925) (emphasis in original).

525. *Id.* at 75.

526. PLOMIN, *supra* note 7, at 7.

527. *See* FAUSTO-STERLING, *supra* note 12, at 199.

528. Our close relatives, the chimpanzees, exhibit marked sex differences in behavior. *See generally* DE WAAL, *supra* note 337.

arbitrary choice? To explain these traits on the basis of "universally common socialization processes," as Fausto-Sterling does,[529] is to provide no explanation at all. Other cultural traits with apparently strong roots in the human psyche—such as language, religion, and kinship systems—exhibit tremendous cultural variation. Yet somehow, in Fausto-Sterling's view, the arbitrary pattern of male dominance persisted without reversal in thousands of societies over thousands of generations.

The early appearance of many sex differences also makes their social origins suspect. The fact that development of sex-typed preferences precedes children's acquisition of sex-role stereotypes,[530] for example, although not conclusively demonstrating a biological basis for play preferences, certainly calls into question the social-learning explanation. To be sure, children may internalize sex-appropriate behavior in part from observation of the world around them and in part from reinforcement of those behaviors. However, one must wonder how it is that parents who consciously attempt to avoid sex-stereotyping and send their children to schools that go to great lengths to avoid sex-stereotyping still end up with children with the same basic ideas of sex roles. To say that the children pick up subtle cues from the world around them is an incomplete answer. Unless children are biologically "programmed" to internalize sex roles in much the same sort of way they are "programmed" to acquire language,[531] it is difficult to see why after a certain age they choose same-sex models.[532] Put another way, why don't all little boys emulate their mothers or big sisters as much as they emulate their fathers and big brothers? Evolutionarily, it would be strange if they did, but under a purely social view, there would be nothing strange about that at all.

Evidence that some sex-role behaviors are learned does not discredit the biological explanation. The belief that because a behavior is learned it does not have a biological base is a common fallacy.[533] A biological base may prime the animal to learn certain things in certain ways.[534] As psychologist Isaac Marks has observed, "[a]ll species learn some things far more easily than they do others, a facility shaped by natural selection in particular environments."[535]

It is also possible, and perhaps even likely, that when parents differentially reinforce behaviors in boys and girls, they too are acting pursuant to evolved psychological mechanisms. Human young have an exceptionally long period of dependence on their parents, and parents expend great effort in training their children. It would not be at all surprising if some sort of

529. FAUSTO-STERLING, *supra* note 12, at 152.

530. MACCOBY & JACKLIN, *supra* note 262, at 363 (children's play behavior is sex-typed long before the adoption of same-sex role models); David G. Perry et al., *Does Early Sex Typing Result from Children's Attempts to Match Their Behavior to Sex Role Stereotypes?*, 55 CHILD DEV. 2114 (1984).

531. *See* Tooby & Cosmides, *supra* note 4, at 22 (pointing out that even the argument that girls learn gender-appropriate behavior by watching their parents "necessarily entails a psychological mechanism").

532. *See* Omark & Edelman, *supra* note 342, at 87 ("Since no organism can possibly process all aspects of its environment, natural selection has favored those aspects of perceptual reception which maximize the organism's chances for survival."). Children do not prefer same-sex models until approximately age four, and the preference seems to be less strong for girls. Kohlberg, *infra* note 537, at 113–14.

533. MARKS, *supra* note 74, at 229.

534. MARKS, *supra* note 74, at 229.

535. MARKS, *supra* note 74, at 229.

mechanisms involving inculcation of sex roles in offspring had evolved. Parents do seem to reinforce sex-typed behaviors, not just in our society but in all societies, although the extent of the reinforcement varies. Bobbi Low has shown that the variation has a systematic pattern to it that is consistent with the predictions of evolutionary biology. In a study of cross-cultural child-rearing practices, she found that in polygynous societies, where the potential reproductive payoff of competition is highest, parents train their boys to be especially competitive.[536]

Many of the differences that one observes between men and women have clear precursors in childhood. Anyone who has observed children for any length of time knows that little boys and little girls act differently. Many of the differences appear very early,[537] even before children know their own sex.[538] In a study finding that four- to seven-year-old girls have a greater nurturant interest in their infant siblings than do same age boys, the investigator was able to find no evidence of differential maternal reinforcement.[539] It is not until around age five that children begin to model their behavior after the behavior of children of the same sex,[540] yet sex-typed behavior occurs much earlier than this.

Boys generally exhibit a much higher activity level than girls.[541] "Activity level" is defined as "the individual's customary level of energy expenditure through movement."[542] A meta-analysis of studies of activity level found no significant difference among fetuses, but from the first year of life on, boys consistently are more active.[543] The early appearance of these differences led the authors to suggest the possibility that "social influences magnify existing differences rather than create them."[544] When given the opportunity, boys are more likely than girls to participate in activities on their own rather than teacher-organized activities and more likely to engage in some sort of manipulative or constructional play.[545]

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536. Low, *supra* note 336, at 315 (finding that "[a]s intensity (maximum harem size) of polygyny increases, boys, but not girls, are trained to show fortitude, competitiveness, sexual restraint, and obedience (nonstratified societies), or industriousness (stratified societies)").

537. *See* Lawrence Kohlberg, *A Cognitive-Developmental Analysis of Children's Sex-Role Concepts and Attitudes*, *in* THE DEVELOPMENT OF SEX DIFFERENCES 82, 112 (Eleanor Maccoby ed., 1966) ("By the age of two, there are a number of quite clear sex differences in behavior and interests,...including differences in the interest value of toys,...in activity rate, in aggressiveness,...and fearfulness.").

538. *Id.* at 94 ("[C]hildren learn gender self-labeling early (age two-three), and in the next two years learn to label others correctly according to conventional cues.").

539. Blakemore, *supra* note 405, at 53–54.

540. HOYENGA & HOYENGA, *supra* note 16, at 218–19.

541. Warren O. Eaton & Lesley R. Enns, *Sex Differences in Human Motor Activity Level*, 100 PSYCHOL. BULL. 19, 19 (1986).

542. *Id.*

543. *Id.* at 23. The authors expressed surprise that their study found no correlation between measure objectivity, year of publication, or the number of male authors. These results led them to conclude that "finding of AL [activity level] sex differences were not limited only to those looking for them, only to the past, or only to investigators of a particular gender." *Id.* at 25.

544. *Id.* at 25.

545. Diane McGuinness, *Behavioral Tempo in Pre-School Boys and Girls*, 2 LEARNING & INDIV. DIFF. 315, 322 (1990). Young boys also engage in significantly more fantasy play than girls. Karen M. Sanders & Lawrence V. Harper, *Free-Play Fantasy Behavior in Preschool Children: Relations Among Gender, Age, Season, and Location*, 47 CHILD DEV. 1182, 1183–84 (1976).

A study of one-year-old infants found clear sex differences in behavior even at that age.[546] Girls were more reluctant to separate from their mothers and more eager to return when separated.[547] When a barrier was placed between the infants and their mothers, the girls cried and motioned for help more than the boys, and the boys made more active attempts to circumvent the barrier.[548] Even at this age, boys were more independent, more exploratory, and more active.[549] A study of two-and-a-half-year-olds similarly found that boys were "more aggressive, showed more gross motor activity, and manipulated physical objects" more than girls, while girls "showed more imitations of models in a passive, nonaggressive situation, participated in more repetitive and modulated activities [and] showed more continuity of play" than boys.[550]

Boys and girls also consistently differ in the kinds of toys they prefer. Sex differences in children's toy preference are well documented, with boys preferring construction and transportation toys, and girls preferring dolls and kitchen supplies.[551] Although there is clearly a learned component to these preferences,[552] the preferences appear to go much deeper than that.[553] For

546. Susan Goldberg & Michael Lewis, *Play Behavior in the Year-Old Infant: Early Sex Differences*, 40 CHILD DEV. 21, 21 (1969).

547. *Id.* at 24–25.

548. *Id.* at 25–26.

549. *Id.* at 24–26.

550. Frank A. Pedersen & Richard Q. Bell, *Sex Differences in Preschool Children Without Histories of Complications of Pregnancy and Delivery*, 3 DEVELOPMENTAL PSYCHOL. 10, 14 (1970).

551. Berenbaum & Hines, *supra* note 468, at 204; Jane M. Connor & Lisa A. Serbin, *Behaviorally Based Masculine- and Feminine-Activity-Preference Scales for Preschoolers: Correlates with Other Classroom Behaviors and Cognitive Tests*, 48 CHILD DEV. 1411, 1415 (1977).

552. Nancy Eisenberg et al., *Children's Reasoning Regarding Sex-Typed Toy Choices*, 53 CHILD DEV. 81, 81 (1982). *See also* David G. Perry & Kay Bussey, *The Social Learning Theory of Sex Differences: Imitation is Alive and Well*, J. PERS. & SOC. PSYCHOL. 1699 (1979).

The conclusions of some studies purporting to show that environmental factors shape children's toy preferences outstrip their data. One study, for example, showed four- to six-year-old boys and girls videos of familiar puppets discussing the sex appropriateness of particular sex-neutral toys. Nancy J. Cobb et al., *The Influence of Televised Models on Toy Preference in Children*, 8 SEX ROLES 1075 (1982). The puppets gave stereotypical reasons why the toys were good for boys (e.g., you can race it) or for girls (e.g., you can hug it). Immediately following the viewing, the children were more likely to play with that toy if it had been described as appropriate for their sex than if it had been described as appropriate for the other. The researchers concluded that their results "support[] the position that television is highly effective in establishing norms that affect the behavior of its child viewers." *Id.* at 1079.

Irrespective of whether television has such effects, one should hardly be surprised to see children immediately turn to toys that have been described as enjoyable to children of their sex. In order to show a strong effect, one would like to see what would have happened if the characters had commented on toys that were opposite-sex-specific rather than sex-neutral, such as recommending guns to girls and dolls to boys. Moreover, for the preferences observed by the researchers to be meaningful, they would have to be enduring. Rather than merely examining toy choices in the ten-minute period following the video, it would have been instructive to follow up perhaps a month later, or, even better, to give the children repeated exposure to simulate the "bombardment" with messages that children receive and attempt to measure those effects. Immediate short-term effects do not demonstrate anything surprising; most importantly, they do not demonstrate whether the children's long-term preferences are more affected by external messages or by their own experiences. If someone with credibility told a group of law professors that law professors greatly enjoy a particular newspaper comic strip and then left the newspaper lying around, one could predict that the law professors would have a tendency to

example, two-year-old boys prefer boys' toys even though they cannot accurately label the toy as a boys' toy,[554] and the sex-typed preferences of three-year-old boys far exceed their knowledge of sex stereotypes.[555] Even twenty-month-old children have revealed toy preferences matching the adult stereotype.[556] Although by the time they reach three and four years of age children will justify their choices of toys for other children in terms of sex-role stereotypes, they do not justify their own toy preferences in such terms.[557] Rather, they justify their own preferences in terms of what the toy will do or some other characteristic of the toy.[558] Even when boys and girls play with the same toys, they often play with them differently.[559]

The evidence strongly suggests that these play styles have an underlying biological basis. Girls with congenital adrenal hyperplasia (CAH), who are exposed to high levels of androgens *in utero*, spend significantly more time playing with boys' toys than normal control girls, and about as much time as

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look at that strip. One would further expect, however, that having looked at the strip, they would make their own judgments about whether to continue to read it, and their long-term reading habits would be unlikely to be affected by the initial recommendation.

553. *See* Perry et al., *supra* note 530, at 2115 ("Although it is clear that children strive to emulate behavior that they have encoded as sex-appropriate, it is not clear that the earliest manifestations of sex-typed behavior originate through this process.").

554. Judith E.O. Blakemore et al., *Sex-Appropriate Toy Preference and the Ability to Conceptualize Toys as Sex-Role Related*, 15 DEVELOPMENTAL PSYCHOL. 339, 340 (1979); Perry et al., *supra* note 527, at 2118.

555. Perry et al., *supra* note 530, at 2118. The same study showed that the preferences of girls began to develop at roughly the same time that they acquired their knowledge of stereotypes. The hypothesis that the investigators were testing was whether knowledge of sex-appropriate behavior precedes the development of sex-typed preferences—a logical necessity of the social-learning theory of sex typing. *See* Maccoby & Jacklin, *supra* note 262, at 975 ("[K]nowledge about the sex-linked character of certain behaviors [is] a necessary but not sufficient condition for adopting the sex-appropriate ones behaviorally."). Therefore, even with girls, the investigators found no support for the theory that children first learn what sex-appropriate behavior is and then seek to emulate it. MACCOBY & JACKLIN, *supra* note 262, at 2119.

The same study also showed that although boys both accept same-sex activities and reject cross-sex activities, acceptance of same-sex activities in girls was weak, while the tendency to reject cross-sex activities was strong. MACCOBY & JACKLIN, *supra* note 262, at 2119–20. The tendency of girl toddlers to reject boy activities is consistent with several other studies; it is only later that girls become increasingly interested in masculine activities. MACCOBY & JACKLIN, *supra* note 262, at 2120.

556. Greta Fein et al., *Sex Stereotypes and Preferences in the Toy Choices of 20-Month-Old Boys and Girls*, 11 DEVELOPMENTAL PSYCHOL. 527, 528 (1975). *See also* Marion O'Brien & Aletha C. Huston, *Development of Sex-Typed Play Behavior in Toddlers*, 21 DEVELOPMENTAL PSYCHOL. 866, 870–71 (1985) (finding that increases in sex-typed play in males after 20 months were small).

557. Eisenberg et al., *supra* note 552, at 83. This result is consistent with other research that has shown that children are much less likely to stereotype themselves than they are to stereotype others of either the same or opposite sex. *See* MARCIA GUTTENTAG & HELEN BRAY, UNDOING SEX STEREOTYPES: RESEARCH AND RESOURCES FOR EDUCATORS 299 (1976). Also, even though "children of 4 to 5 often know that certain behaviors...are more appropriate for one sex,...they may not see anything wrong in violating the stereotype." Maccoby & Jacklin, *supra* note 262, at 975 (summarizing WILLIAM DAMON, THE SOCIAL WORLD OF THE CHILD (1977)).

558. Eisenberg et al., *supra* note 552, at 83.

559. Marsha B. Liss, *Patterns of Toy Play: An Analysis of Sex Differences*, 7 SEX ROLES 1143, 1148–49 (1981).

the boys playing with such toys.[560] CAH girls also play less with girls' toys than do other girls.[561]

Studies such as the above do not imply that there is a "truck gene." It is not that there is some innate preference for particular kinds of toys, but rather it appears that the important thing is "what the child is able to *do*" with the toys.[562] The precise way in which hormones affect toy choice is not known, but it is hypothesized that hormones may influence activity level, motor skills, abilities, or temperament.[563]

In the same vein, same-sex playmate preferences are exhibited before children can reliably identify which children are the same sex as themselves.[564] As Eleanor Maccoby has pointed out, an innate bias toward same-sex play is suggested by the fact that the same-sex-segregation appears in non-human primates "among whom the cultural transmission of cognitive gender stereotypes is surely minimal."[565]

Psychologists who find sex differences often simply assume that they are caused by socialization differences.[566] Janet Lever's study of school-children's play, which found substantial sex differences in play style, has been discussed previously. Although her study was not designed to identify the causes of the differences, she simply assumed that the reason for the differences in play was socialization pressure from both peers and adults.[567] She viewed the children's play patterns as "part of that vast behavioral repertoire passed on from generation to generation."[568] According to Lever, parents have encouraged contact sports for boys "because they believe the 'male nature' requires rough and tumble action, and organized competition is the best outlet for this surplus energy."[569] On the other hand, "[p]arents believe their girls are frail and less aggressive, and therefore do not enjoy serious competition; rather, they believe girls feel their maternal instincts early and prefer playing with dolls and reconstructing scenarios of the home."[570] She speculated that boys and girls develop different social skills during this childhood play and that those social skills might persist and influence their adult behavior. She further suggested that the experience in competition and team sports that boys obtain in childhood

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560. Berenbaum & Hines, *supra* note 468, at 204.
561. Berenbaum & Hines, *supra* note 468, at 204.
562. McGuinness, *supra* note 545, at 317.
563. Berenbaum & Hines, *supra* note 468, at 205.
564. Maccoby, *supra* note 392, at 235.
565. Maccoby, *supra* note 392, at 235.
566. For example, Waldrop & Halverson, *supra* note 335, at 24, after finding that boys tend to develop extensive peer relations while girls tend to develop intensive ones, go on to assert:

> It is quite likely that socialization pressures play an important part in girls' tendencies toward more intensive peer relations. For protective purposes girls may be told not to roam far from home, and for training sex-appropriate behavior they may be told they should play quietly. It is also possible that mothers have engaged in more one-to-one relations with daughters, in connection with warnings about protecting themselves.

Waldrop & Halverson, *supra* note 335, at 25. Thus, based upon what girls "may be told" and what is "also possible," the authors concluded that it is "quite likely" that socialization was the cause.
567. Lever, *supra* note 324, at 478.
568. Lever, *supra* note 324, at 486.
569. Lever, *supra* note 324, at 486.
570. Lever, *supra* note 324, at 486.

may give them an advantage in their later work lives.[571] In order to redress the disadvantage of girls, she suggested that physical education programs might be broadened "to include learning opportunities now found primarily in boys' play activities."[572]

It may be that Lever's educational prescription is a good one,[573] but it is doubtful that it is supported by the justifications she offers. Lever viewed the boys as acted upon by their peer group and learning ways of thinking through games, ways of thinking that are reflected in adult males. In her words, "the world of play and game activity may be a major force in the development and perpetuation of differential abilities between the sexes...."[574] She did not advert to another possibility, one that does not entail an indictment of the educational system: boys and girls played the games that they did because they were temperamentally suited to their respective games; boys simply enjoy vigorous competition and arguing over the rules more than girls do. Although Lever decried the absence of organized team sports for girls, there is no indication in her articles that any of the play she observed consisted of organized sports leagues or that there was differential reinforcement of activities for the two sexes. Instead, the games that she observed on the playground were spontaneously organized by the children themselves. Nonetheless, of all the team games that she observed during a one-year period, only one was organized by girls.[575]

It is difficult to believe—although resistant to empirical proof—that if a researcher took fifty boys at birth and subjected them to socialization pressures of the kind that girls are currently exposed to, the boys would end up holding hands, singing circle songs, exchanging friendship bracelets, and engaging in quiet conversation about how they would dress their babies.[576] A more parsimonious explanation for Lever's observations is that some people are competitive and rule-oriented by nature. Those people tend as children to gravitate toward sports and other competitive activities and as adults to gravitate toward careers that reward competition. Those people also tend disproportionately to be males.

Play preferences of boys and girls probably evolved to prepare them for the roles they would fill as adults in our ancestral environment. It has long been observed that the activities of young animals prepare them for the challenges of adulthood.[577] Young mammals typically engage in play behaviors. Natural

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571. Lever, *supra* note 324, at 484.
572. Lever, *supra* note 324, at 485.
573. Although if you have to do it, it may no longer be "play."
574. Lever, *supra* note 324, at 485.
575. Lever, *supra* note 324, at 480. Lever also conducted interviews with some of the girls, who told her that they were most comfortable playing in pairs and substantially less comfortable in larger groups. Most of the girls had a single "best friend" whose moods and emotions they got to understand very well. Lever, *supra* note 324, at 484. Although there were no differences between boys and girls in the amount of time spent watching television, there were substantial differences in the types of shows preferred, with girls preferring family-oriented situation comedies and boys preferring adventure shows. Lever, *supra* note 324, at 480.
576. *See* Lever, *supra* note 324, at 484 (noting that the play of girls often involves hand-holding, passing "love notes," and sharing secrets).
577. *See* Anne P. Humphreys & Peter K. Smith, *Rough-and-Tumble in Preschool and Playground*, *in* PLAY IN ANIMALS AND HUMANS 241, 261 (Peter K. Smith ed., 1984); Sue

selection would have favored activities that prepare the young animal for its adult role.[578] It appears that this is true for humans as well. For example, four-year-old boys are substantially more likely than girls to engage in rough-and-tumble play, a sex difference that is paralleled in non-human primates.[579] The rough-and-tumble play and exploratory behavior of boys would have prepared them for their role as hunters, and the centripetal and nurturant social play of girls also anticipates their later social roles.[580]

The belief that these differences are merely social constructs is strengthened in many by studies showing that boys and girls are not in fact treated the same by their parents, peers, and teachers. Boys and girls do tend to receive differential feedback for certain kinds of behaviors,[581] although the scope of that differential reinforcement is less than many believe. For example, a meta-analysis of 172 studies dealing with differential socialization found clear sex differences in encouragement of sex-typed activities and perceptions of sex-stereotyped characteristics, but this was the only one of eight major variables for which the researchers found differences.[582] The authors cautioned against a simplistic view that parental treatment and children's responses are a one-way causal link. Rather, they noted, parental encouragement may build upon the child's already existing preferences, and different children may evoke different responses.[583] As they point out, although it is true that fathers are less likely to give dolls to one-year-old boys than to girls, it is also the case that boys are less likely than girls to play with dolls when given them.[584]

Taylor Parker, *Playing for Keeps: An Evolutionary Perspective on Human Games*, *in* PLAY IN ANIMALS AND HUMANS, *supra*, at 274, 273.

578. Lawrence V. Harper & Karen M. Sanders, *Sex Differences in Preschool Children's Social Interactions and Use of Space: An Evolutionary Perspective*, *in* SEX AND BEHAVIOR 61, 64 (Thomas McGill et al. eds., 1978).

579. Janet A. DiPietro, *Rough and Tumble Play: A Function of Gender*, 17 DEVELOPMENTAL PSYCHOL. 50, 56–57 (1981).

580. Harper & Sanders, *supra* note 578, at 67–69.

581. *See* Beverly I. Fagot, *The Influence of Sex of Child on Parental Reactions to Toddler Children*, 49 CHILD DEV. 459 (1978); Hugh Lytton & David M. Romney, *Parents' Differential Socialization of Boys and Girls: A Meta-Analysis*, 109 PSYCHOL. BULL. 267 (1991). *Cf.* Carol Flake-Hobson et al., *Relationship Between Parental Androgyny and Early Child-Rearing Ideals and Practices*, 49 PSYCHOL. REP. 667, 672 (1981) (finding no difference in child-rearing practices of sex-typed and androgynous parents, except that sex-typed fathers emphasized achievement of both boys and girls more than androgynous fathers).

582. Lytton & Romney, *supra* note 581. The variables were: (1) Amount of interaction (subdivided into undifferentiated, verbal interaction, stimulation of motor behavior, and joint play); (2) Total achievement encouragement (general and specifically with respect to mathematics); (3) Warmth, nurturance, responsiveness; (4) Encouragement of dependency; (5) Restrictiveness/low encouragement of independence; (6) Disciplinary strictness (broken down into undifferentiated, "nonphysical disciplinary strictness, firm control," physical punishment, discouragement of aggression); (7) Encouragement of sex-typed activities, sex-typed perception; (8) Clarity of communication/use of reasoning. Lytton & Romney, *supra* note 581, at 270.

583. *See also* DiPietro, *supra* note 579, at 51 (suggesting that the greater frequency of physical play with male infants is a product of their greater receptivity to such stimulation). *Cf.* Sandra Scarr & Kathleen McCartney, *How People Make Their Own Environments: A Theory of Genotype Environment Effects*, 54 CHILD DEV. 424, 427–28 (1983) (suggesting that a child's disposition will tend to affect the kinds of responses that it evokes from others).

584. Margaret E. Snow et al., *Sex-of-Child Differences in Father-Child Interaction at One Year of Age*, 54 CHILD DEV. 227, 230 (1983). Lytton and Romney also speculated that with increased sensitivity to "sexist" rearing practices, parenting may have become less sex differentiated in recent times. However, the data did not support that hypothesis. Lytton & Romney, *supra* note 581, at 286.

Failure to take into account the fact that parents respond to differences in their children will lead to an overestimation of the impact of socialization.[585] The assumption that the effect of parent/child interactions is a one-way street is pervasive[586] but untrue.[587] Thus, Janet Lever argues that boys are encouraged to engage in "boy" play, which turns them into leaders.[588] Dyanne Tracy argues that playing with boys' toys improves spatial ability and that males' achievement in math is a consequence of practice with such toys.[589] Neither gives serious attention to the fact that what they see as the cause of leadership and math achievement may simply be another effect of an already-existing predisposition.[590] Yet clearly predispositions of children lead them to engage in particular activities. Many physicists and other scientists of past generations obtained an early understanding of science as children, for example, by taking radios apart and figuring out how they worked.[591] The reasoning of Lever and Tracy would lead one to suppose that we could multiply the ranks of Nobel-Prize-caliber scientists simply by handing out radios in the public schools.

The notion that parents cause differences in their children—and especially differences between their male and female children—by treating them differently is far from the whole story and may in fact not be especially accurate.[592] As behavioral geneticist Robert Plomin puts it, "[a]mong behavioral geneticists, there is a saying that parents are environmentalists until they have

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585. *See* RICHARD Q. BELL & LAWRENCE V. HARPER, CHILD EFFECTS ON ADULTS 53, 58 (1977) (criticizing the "[f]our decades of socialization research [that] have pursued a simple and plausible answer to the problems of human development—that most of the child's characteristics are brought about by the behavior of the parents"); Maccoby, *supra* note 392, at 236 (asking whether "little boys like rough-and-tumble play because their fathers have trained them to enjoy it, or because they, as well as their fathers, have a low threshold for initiation of this male-male pattern"); Eleanor E. Maccoby & John A. Martin, *Socialization in the Context of the Family: Parent-Child Interaction*, *in* 4 HANDBOOK OF CHILD PSYCHOLOGY 1, 60 (E. Mavis Hetherington ed., 1983) (suggesting that the fact that "different children within the same family develop different relationships with their parents points strongly to the impact of individual children's characteristics on the relationship").

586. See FAUSTO-STERLING, *supra* note 12, at 152–53 (arguing that the difference in children's genitalia "leads adults to interact differently with different babies whom we conveniently color-code in pink or blue to make it unnecessary to go peering into their diapers for information about gender").

587. *See supra* note 534.

588. Lever, *supra* note 324, at 484.

589. Dyanne M. Tracy, *Toys, Spatial Ability, and Science and Mathematics Achievement: Are They Related?*, 17 SEX ROLES 115 (1987).

590. Similarly, HENNIG & JARDIM, *supra* note 290, at 76–93, attribute the success of the executive women they studied to fathers who engaged in traditionally male activities with them. They do not consider, however, that the reason these fathers did so may have been that these particular girls, unlike many others, enjoyed these activities.

591. *See* JAMES GLEICK, GENIUS: THE LIFE AND SCIENCE OF RICHARD FEYNMAN 17–20 (1992).

592. As Hoyenga and Hoyenga, state:

> The developing individual is not just acted upon, he also elicits reactions from others, based uniquely on the personal characteristics of the pair of actors involved. Individuals can also select their environments; for example, children can select playmates and playgrounds. The process is always an interaction between individual characteristics and changes, on the one hand, and environmental characteristics and changes on the other.

HOYENGA & HOYENGA, *supra* note 16, at 208.

more than one child."[593] At that point, parents tend quickly to abandon the notion that personality is caused by the environment, because they see behavioral differences that are too great to be caused by any differential treatment that they might receive.[594] Those who believe that children are shaped by their parents' stereotyped treatment should ask themselves whether they treat their own children differently because of their sex. It seems likely that they would believe that they treat their own children as "individuals," responding to their individual personalities and needs, but that "other people" regularly stereotype their children.

Many studies show that parents respond to pre-existing differences in their children. One study, for example, examined the assumption that the reason that MZ twins seem to behave more similarly than same-sex DZ twins is that parents assume that the MZ twins are more alike and therefore treat them more alike.[595] The study revealed that, indeed, on a number of measures MZ twins are treated more similarly.[596] However, there was little difference in parent-initiated actions; instead, the differences came in actions that were directly elicited by the children.[597] This finding led the researcher to conclude that the greater similarity of parental behavior toward MZ twins was likely to be a reaction to the MZ twins' more similar behaviors rather than a cause of that similarity.[598] Evidence confirmatory of this conclusion comes from the fact that mothers who are mistaken about the zygosity of their twins (that is, who thought the twins were identical when they were in fact fraternal, or vice versa) tend to treat the twins more in accordance with their actual zygosity than with their perceived zygosity.[599] If mothers treated the children in accordance with their assumptions about similarity, it should have been the perceived, rather than actual, zygosity that was determinative.

If parental treatment rather than intrinsic personality causes similarity of behaviors of twins, one would also expect that the more identical twins resemble each other, the more their personalities should resemble each other. Yet there does not seem to be a relationship between physical resemblance and similarity of personality,[600] and MZ twins whose parents try to treat them the same and dress them the same are no more similar in personality than twins who were treated less similarly.[601]

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593. PLOMIN, *supra* note 7, at 8. *See also* Marvin Zuckerman, *All Parents Are Environmentalists Until They Have Their Second Child,* 10 BEHAVIORAL & BRAIN SCI. 42 (1987).

594. PLOMIN, *supra* note 7, at 8.

595. Hugh Lytton, *Do Parents Create, or Respond to, Differences in Twins?*, 13 DEVELOPMENTAL PSYCHOL. 456 (1977).

596. *Id.* at 457.

597. *Id.* at 458–59.

598. *Id.*

599. *Id.* at 459. *See also* Sandra Scarr, *Environmental Bias in Twin Studies*, 15 EUGENICS Q. 34, 38 (1968) (finding a statistically nonsignificant but "clear" trend in the same direction).

600. Lytton, *supra* note 595, at 456. *See also* Adam P. Matheny, Jr. et al., *Relations Between Twins' Similarity of Appearance and Behavioral Similarity: Testing an Assumption*, 6 BEHAV. GENETICS 343 (1976); Robert Plomin et al., *Resemblance in Appearance and the Equal Environments Assumption in Twin Studies of Personality Traits*, 6 BEHAV. GENETICS 43 (1976).

601. *See* Plomin et al., *supra* note 600, at 45.

Not only do children influence the behavior of their parents toward them, but it also appears that parents have considerably less influence over the development of their children's interests and personalities than is commonly assumed. Studies consistently reveal little relationship between children's treatment by parents—at least within normal limits—and their later behavior.[602] Numerous behavioral-genetic studies show that the environmental portion of trait variance, although substantial, bears little relationship to the shared home environment.[603]

Although the common assumption is that parental behaviors systematically reinforce sex-typical behavior, the motivation for differential parental reinforcement is often difficult to discern. For example, Beverly Fagot found that parents were more likely to respond positively to girls' requests for help than boys', and that girls asked parents for help three times as often as did boys.[604] Asking for help was a positive experience for girls, while for boys it resulted in criticism or being ignored.[605] Fagot's study could not identify the reason for the differential reaction; she suggested that perhaps girls asked for help in a more appealing fashion or on tasks that parents felt were more appropriate for giving help. However, she ruled out what most people would probably suspect was the real reason—that the parents' response was based on the belief that girls need or should receive more help—in large part because the parents in the study had higher estimates of their daughters' competence than of their sons' competence.[606]

It is often asserted that the schools are responsible for sex differences because teachers treat male and female students differently. The reality is, however, that teachers give positive reinforcement to both boys and girls for exhibiting feminine behaviors and negative reinforcement for masculine behaviors. As Warren Farrell has pointed out:

> [F]rom a boy's perspective, school itself is filled with women. It is women teaching him how to be a boy by conforming to what women tell him to do after he's been trained to conform to what his mother tells him to do. On the one hand, history books show him that his role is to be a hero who takes risks and, on the other, his female teacher is telling him not to take risks—to not roughhouse, not shout out an answer spontaneously, not use swear words, not refer to sex, not get his hair mussed, his clothes dirty....[607]

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602. McCrae & Costa, *supra* note 431; Robert R. McCrae & Paul T. Costa, Jr., *Do Parental Influences Matter? A Reply to Halverson*, 56 J. PERSONALITY 445 (1988).

603. *See supra* note 431.

604. Fagot, *supra* note 581, at 464.

605. Fagot, *supra* note 581, at 464.

606. Fagot, *supra* note 581, at 464. In another study, Fagot found that girls exhibiting a high activity level received little positive reinforcement from peers or teachers, whereas such boys received more positive peer feedback. Boys are influenced by feedback from boys, while girls are influenced by feedback from girls. Feedback from teachers influenced the girls, while boys simply ignored it. Beverly I. Fagot, *Teacher and Peer Reactions to Boys' and Girls' Play Styles*, 11 SEX ROLES 691, 700–01 (1984).

607. WARREN FARRELL, THE MYTH OF MALE POWER: WHY MEN ARE THE DISPOSABLE SEX 15 (1993). *See also* Diane McGuinness, *How Schools Discriminate Against Boys*, HUM. NATURE, Feb. 1979, at 82. In a study of sixth through eighth graders, researchers found that the more feminine the gender identity of both boys and girls, the higher their grades in all subjects, irrespective of the sex of the teacher. Peter J. Burke, *Gender Identity, Sex, and School Performance*, 52 SOC. PSYCHOL. Q. 159, 165 (1989).

Despite negative reinforcement, boys continue to exhibit boy-like behavior.[608]

The mere existence of apparently reinforcing behavior does not establish that the reinforcement is effective. Children are more receptive to some kinds of feedback than to others. For example, reinforcement for acting feminine affects girls more than boys, while reinforcement for acting masculine affects boys more.[609] Moreover, girls are influenced by the feedback of other girls but not that of boys, and boys are more influenced by the feedback of other boys than by that of girls.[610]

Attempts to eliminate sex-typing appear to yield little in the way of behavioral change. For example, one study showed that explicitly teaching children that both sexes can perform particular jobs decreased the extent to which children held stereotyped views of the jobs, but it did not affect the children's own highly sex-typed preferences.[611] Another study showed that sex stereotyping by boys actually increased after "nonsexist intervention" in the schools.[612] Other studies have also shown that depicting adults in cross-sex occupations actually increases the stereotyping of the children of the sex for whom the occupation is traditional.[613] Moreover, if the socialization explanation is correct, one would have thought that the tremendous changes in women's roles that have occurred in our society in the last three decades—in addition to conscious attempts by schools to avoid sex bias—would have had a substantial effect on children's behavior. However, traditional sex differences in play behavior have persisted.[614]

Anthropologist Patricia Draper reports that the pattern of childhood sex differences observed in our culture is also found among the egalitarian hunting-and-gathering !Kung Bushmen as well, despite an absence of socialization pressure to engage in sex-specific behaviors.[615] Draper notes that girls stay closer to home base than boys, they spend more time with adults and less in peer-only groups, and they have more physical contact with other people.[616] Although these kinds of traits are often attributed to sex differences in treatment, Draper found no evidence that sex-specific socialization practices or attitudes or values of adults were responsible.[617] Unlike in more sedentary

608. HOYENGA & HOYENGA, *supra* note 16, at 302; Fagot, *supra* note 606; McGuinness, *supra* note 607.

609. Michael E. Lamb et al., *Reinforcement and Punishment Among Preschoolers: Characteristics, Effects, and Correlates*, 51 CHILD DEV. 1230, 1234 (1980).

610. Beverly I. Fagot, *Beyond the Reinforcement Principle: Another Step Toward Understanding Sex Role Development*, 21 DEVELOPMENTAL PSYCHOL. 1097 (1985).

611. Rebecca S. Bigler & Lynn S. Liben, *The Role of Attitudes and Interventions in Gender-Schematic Processing*, 61 CHILD DEV. 1440, 1448 (1990).

612. GUTTENTAG & BRAY, *supra* note 557, at 298.

613. David R. Matteson, *Attempting to Change Sex Role Attitudes in Adolescents: Explorations of Reverse Effects*, 26 ADOLESCENCE 885, 895 (1991).

614. *See* David E. Sandberg & Heino F.L. Meyer-Bahlburg, *Variability in Middle Childhood Play Behavior: Effects of Gender, Age, and Family Background*, 23 ARCHIVES SEXUAL BEHAV. 645 (1994). A recent book examining the purported lack of self-esteem in adolescent girls notes that even though girls were overtly encouraged to fulfill their potential, and even though few had ever been told that girls cannot do what boys do, girls nonetheless "learned to see boys as freer, with fewer concerns, ultimately more powerful." PEGGY ORENSTEIN, SCHOOL GIRLS: YOUNG WOMEN, SELF-ESTEEM, AND THE CONFIDENCE GAP xxviii (1994).

615. Patricia Draper, *Cultural Pressure on Sex Differences*, 2 AM. ETHNOLOGIST 602, 604 (1975).

616. *Id.* at 606.

617. *Id.* at 604.

societies, the foraging !Kung did not assign work to children, and older children were not responsible for tending younger children.[618] Draper concluded that "[t]he sex differences which are expressed are apparently the result of different choices made by the girls and boys themselves."[619]

In contrast to the hunting-and-gathering !Kung, a separate group of !Kung, who had recently become sedentary, showed "the beginning of differential pressure on girls and boys which can be expected to have far-reaching consequences in the area of adult sex role and power relations."[620] Draper's interpretation is that in the hunter-gatherer setting the underlying sex differences are not exploited or intensified by socialization practices, while in the sedentary group "these differential proclivities of girls and boys persist, but in this context they are 'picked up' and put to work."[621]

Perhaps the closest one can come to a laboratory test of the socialization hypothesis comes from the Israeli kibbutzim. The kibbutz movement, which began in 1910, was founded upon an ideology similar to the ideology of many of today's feminists: a necessary and sufficient condition of the emancipation of women is the elimination of sex roles and the liberation of women from the burden of domestic obligations.[622] Kibbutz ideology attributed sexual inequality to the "biological tragedy of women," which caused women to be economically dependent upon men and shackled to the domestic sphere.[623] Freeing women from child-rearing obligations, kibbutz pioneers believed, would result in sexual equality.[624]

In the kibbutz, a system of collective socialization replaced maternal care. Children lived in age-graded children's houses, rather than with their parents; communal kitchens, laundries, and dining rooms were created to relieve women of housekeeping duties.[625] Men and women were free to seek the kinds of work that they chose, and equal participation in the political sphere was expected.

From the very beginning, most positions of authority were held by men. A one-third minimum quota for women in the governing bodies of one of the kibbutz federations was seldom met because so few women were willing to serve.[626] Notwithstanding the ideology to the contrary, neither the sexual division of labor nor other aspects of sex roles disappeared for long. Although in the early years of the kibbutz, work filled a role in the life of women that was nearly equivalent to that of men,[627] by the 1950s, men were doing farming, the highest-status occupation in the kibbutz, and women were acting as nurses and teachers.[628] Laundry and cooking were still done by women, whose jobs were in the service sector. Whereas their grandmothers sought to minimize sexual dimorphism to the extent possible, the granddaughters found a new

618. *Id.* at 609.
619. *Id.* at 610.
620. *Id.* at 604.
621. *Id.*
622. MELFORD E. SPIRO, GENDER AND CULTURE: KIBBUTZ WOMEN REVISITED 7 (1979). *See generally* LIONEL TIGER & JOSEPH SHEPHER, WOMEN IN THE KIBBUTZ (1975).
623. SPIRO, *supra* note 622, at 6–7.
624. SPIRO, *supra* note 622, at 7.
625. SPIRO, *supra* note 622, at 11–13.
626. SPIRO, *supra* note 622, at 23–25.
627. SPIRO, *supra* note 622, at 30.
628. SPIRO, *supra* note 622, at 15–16.

interest in feminine fashion and jewelry.[629] Parents, especially mothers, grew increasingly dissatisfied with the practice of collective sleeping for the children.[630] The emotional centrality of family increased for women, so that women came to view caring for their children as an important source of fulfillment.[631] This "reversion to type" continues into the present,[632] and sex-role distinctions are greater within the kibbutz than outside it.[633]

The kibbutz experiment demonstrates that sex roles, assumed by many to be mere cultural artifacts, have much deeper origins. Melford Spiro describes his study of the kibbutz as forcing upon him "a kind of Copernican revolution" in his thinking: "As a cultural determinist, my aim...in 1951 was to observe the influence of culture on human nature.... In 1975 I found (against my own intentions) that I was observing the influence of human nature on culture."[634] Members of the kibbutzim did not revert to traditional sex roles because they rejected the idea of sexual equality; both men and women of the kibbutz continued to profess a belief in equality.[635] They reverted to traditional roles because they found them more fulfilling, not because they had been indoctrinated into accepting them.

A foundational assumption of the social constructionists seems to be that we are a product, rather than a cause, of society—that we are empty vessels waiting to be filled by whatever our society has in mind for us. However, as John Tooby and Leda Cosmides have argued, "[e]volution could not have produced a psyche that functioned as the passive receptacle of information transmitted from the social group, because (among other reasons) many members of the social group have antagonistic interests."[636] It is indeed difficult to understand how an organism that simply did what it was told could be reproductively successful.

We do, of course, learn from the social group; indeed, the extent to which we do so is unparalleled in the animal kingdom. But there are some things that are easily learned and others that are difficult. Even the most committed social constructionist must concede that if children are absorbing

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629. SPIRO, *supra* note 622, at 42–43.

630. SPIRO, *supra* note 622, at 18–20.

631. SPIRO, *supra* note 622, at 18–20. Tiger and Shepher noted the following findings of their research: (1) there has been an increasing polarization of work, so that the sexual division of labor had reached 80% of maximum; (2) the sexual division of labor was more polarized in succeeding generations than in the first; (3) despite formal equality, men were more active in the General Assembly; (4) the higher the office or committee, the fewer women were found; (5) women had difficulty sustaining all-female work groups, preferring mixed-sex groups or male leadership; (6) although women had a slight edge in number of years of schooling, it tended to be disproportionately in areas such as teaching; (7) from ninth grade on, girls fell below boys in scholarly achievement; (8) although girls were drafted into the army, the overwhelming majority served in secretarial or service jobs; (9) even though the Yom Kippur war resulted in about half the men being called up by the army, no substantial change in the sexual division of labor occurred; (10) the family has risen from its initial "shadowy existence" to become the basic unit of kibbutz social structure; (11) the main instigators of the resurgence of the family were women; and (12) attitudes toward equality have always been more egalitarian than actual behavior was. TIGER & SHEPHER, *supra* note 622, at 262–63.

632. Lionel Tiger, *Alienated from the Means of Reproduction*, *in* MASCULINITY/FEMININITY, *supra* note 308, at 344, 349.

633. *Id.* at 347.

634. SPIRO, *supra* note 622, at 106.

635. SPIRO, *supra* note 622, at 36.

636. Tooby & Cosmides, *supra* note 59, at 44.

their knowledge of sex roles from the society around them, this learning must come very easily. If so, that in itself tells us a great deal about the human mind. Indeed, one of the most fruitful routes toward understanding the psychology of humans or other animals is to ask what it is that is easy for them to learn.[637] It stands to reason that it would have been adaptive for males and females to conform to the pattern of their sex, and it similarly stands to reason that "[t]he species-wide system of human socialization and enculturation should develop in concert with underlying response proclivities, not in opposition to them."[638] Boys who were as likely to adopt female role models as male ones, and girls who were as likely to adopt male role models as female ones, may have been at a decided reproductive disadvantage.

IV. THE GLASS CEILING AND THE GENDER GAP

> [T]he secret of male achievement in the world of work probably lies in the relative male insensitivity to the world of everything—and everybody—else.[639]

The foregoing discussion suggests that men and women differ in fundamental ways. Men are more inclined to take risks, are more oriented toward attainment of status and resources, and are more single-minded in achieving these goals. Women, on the other hand, are more nurturant and empathic, and more centered on relationships than on power and dominance. We will turn now to an examination of how these sex differences may affect outcomes in the workplace.

A. The Glass Ceiling

The glass-ceiling metaphor, describing as it does a result in the guise of describing an agency,[640] is misleading. It is undeniably true that women do not attain the very highest levels in business hierarchies at a level commensurate with their representation in the general labor force, although they are at least proportionately represented in the overall managerial work force.[641] It is less obviously true that the low level of representation at the top is a consequence of flaws within these organizations. It is even less obvious that modification of these organizations—short of legally imposed quotas—will eliminate all, or even the major part, of the differential.

The Glass Ceiling Commission Report, on the basis of little evidence, identified the "underlying cause" of the glass ceiling as "the perception of many white males that as a group they are losing—losing the corporate game, losing control, and losing opportunity."[642] According to the report, "white male managers view the inclusion of minorities and women in management as a

637. Lionel Tiger, *Biology, Psychology, and Incorrect Assumptions of Cultural Relativism*, *in* EVOLUTIONARY BIOLOGY AND HUMAN SOCIAL BEHAVIOR, *supra* note 106, at 511.

638. Draper, *supra* note 615, at 603.

639. MOIR & JESSEL, *supra* note 45, at 167.

640. *See supra* text accompanying note 20.

641. *See supra* note 21.

642. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 31. Despite the Report's repeated references to "white male" attitudes, it provides no support for its implicit message that minority males are less likely to hold "sexist attitudes" and white females are less likely to hold "racist attitudes" than are white males.

direct threat to their own chances for advancement."[643] The paradox seems to have escaped the Commission: male control of the workplace is a consequence of males' perceptions that they are losing control of the workplace. Put another way, what is holding women back is that they are getting ahead. Needless to say, that is not an explanation with a great deal of power; after all, what was holding women back before they were perceived to be gaining control? One seeking an understanding of the status of women in the workplace will have to look elsewhere to find it and will have to consider the possibility that the kinds of fundamental sex differences that have been presented here are a major cause.

It is a common observation—sometimes a complaint—that in order for women to attain the highest levels of success in the working world they must "be like men."[644] Prominent among the qualities of successful female executives are the "male" traits of aggressiveness, ambition and drive, strong career orientation ("a passion for success"), and risk-taking.[645] Women are

643. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 31. The Report makes it sound as though the men were simply resentful that they were obligated to compete in a larger pool. However, it is difficult to believe that they were not expressing their concern that the competition that they faced was an *unfair* competition because of preferences given to women and minorities. If the interviewed men thought that women and minorities who were given promotions were as qualified as—or more qualified than—themselves, it is doubtful that they would have expressed concern about *fair* competition even if they actually felt it.

Judging from the Report's extensive description of programs focusing on career advancement of women and minorities—as well as praise for programs under which employers tie compensation of managers to their success at achieving "diversity" goals—it appears that these "white males" indeed have something to worry about. *See* GLASS CEILING COMMISSION REPORT, *supra* note 21, at 42 ("Managers must be held accountable for the development and advancement of minorities and women. Goals and timetables must be agreed upon, measurable results must be established, and incentives, rewards, and penalties must be tied to performance in meeting the goals and achieving results.").

The Report provides support for the concept of "diversity" in an unintended way. Despite Secretary of Labor Reich's description of the Commission as "an appropriately diverse body, in terms of ethnicity, gender, and political affiliation," GLASS CEILING COMMISSION REPORT, *supra* note 21, at iii, the Secretary is one of only five men on the 21-member Commission, and the only white one. GLASS CEILING COMMISSION REPORT, *supra* note 21, at ii (listing members of the Commission). *See also* Jeffrey Goldfarb, *Glass Ceiling: Commission's Recommendations Fall Short of Agreed on Recommendations*, DAILY LAB. REP. (BNA), June 6, 1995, at D–7 (noting that Secretary Reich was the only white male member). It is perhaps hardly surprising that the problem was blamed on the one major group in society that was barely represented on the Commission.

644. ANN M. MORRISON ET AL., BREAKING THE GLASS CEILING: CAN WOMEN REACH THE TOP OF AMERICA'S LARGEST CORPORATIONS 48–54 (updated ed. 1992) (finding that the determinants for success of both male and female executives are largely similar); Thomas W. Harrell, *The Association of Marriage and MBA Earnings*, 72 PSYCHOL. REP. 955, 961 (1993) (finding that "single women equaled single men in hours of work, job stability, current earnings, and job satisfaction..."); Jennifer Roback, *Beyond Equality*, 82 GEO. L.J. 121, 122 (1993) ("It seems fair to say that, on average, women earn less money income than do men, and that, on average, the more women behave like men, the more similar are the earnings between men and women.").

645. MORRISON ET AL., *supra* note 644, at 28–32.

Morrison et al. assert that although the success factors for men and women are similar, MORRISON ET AL., *supra* note 644, at 48–54, women are held to a higher standard because they were expected to have more of them. MORRISON ET AL., *supra* note 644, at 44. As evidence for this conclusion, the authors point out that when corporate executives were asked to identify contributors to success for specific male and female executives, the executives were more likely to identify certain qualities in women than in men. This led the authors to conclude that it was more important for women to exhibit these traits than for men and therefore the women were being held to a higher standard.

consistently perceived to have a lesser level of these traits than men.[646] Even apart from commitment to children, women as a class differ in important temperamental ways from men. Combined with women's greater commitment to families these temperamental differences have a powerful effect.

There is a substantial relationship between personality type and career achievement. Commenting on the relationship between personality and attainment of high corporate status, psychologist Bruce Ellis stated, "The relationship between personality and 'leadership,' or 'managerial effectiveness,' has been studied extensively...and these assessments have demonstrated reliable covariation between certain personality variables and rated managerial ability."[647] Specifically, "those individuals who rise to the top of organizations tend to be bright, initiating, self-assured, decisive, masculine, assertive, persuasive, and ambitious."[648]

In one study of career achievement of women, it was found that the more "masculine" the woman, the greater her career achievement.[649] Masculinity and femininity were assessed through use of the well-known Bem Sex Role Inventory.[650] Masculine traits included assertiveness, competitiveness, dominance, and standing up well under pressure, while feminine traits included nurturance, accommodating warmth, and eagerness to soothe hurt feelings. Career achievement was positively correlated with masculinity and negatively correlated with femininity.[651] Interestingly, whether a woman was classified as

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However, the primary traits that the authors suggest are more important for women—because more commonly cited—are such things as taking career risks, being tough, having the desire to succeed, and having an impressive presence. MORRISON ET AL., *supra* note 644, at 44. This hardly indicates, as the authors suggest, that it is more important for a female than a male executive to be a dominant, ambitious, aggressive risk-taker. Given that these traits are generally considered "male" traits, it seems more likely that the executives were specifically commenting on "male" traits in successful women because it is the existence of those traits that sets the successful female executive apart from other women.

646. Benson Rosen & Thomas H. Jerdee, *Perceived Sex Differences in Managerially Relevant Characteristics*, 4 SEX ROLES 837, 838 (1978); Virginia E. Schein, *The Relation Between Sex Role Stereotypes and Requisite Management Characteristics*, 57 J. APPLIED PSYCHOL. 95, 99 (1973) (successful middle managers are perceived to possess those characteristics, attitudes and temperaments more commonly ascribed to men in general than to women in general, including aggressiveness, leadership ability, self-reliance, and a desire for responsibility, which seems to account, in part, for the limited number of women in management positions). These perceptions are shared by women managers themselves. Paul S. Rosenkrants et al., *Sex-Role Stereotypes and Self-Concepts in College Students*, 32 J. CONSULTING & CLINICAL PSYCHOL. 287, 291–94 (1968) (among male and female college students, men were perceived as more aggressive and independent than women, whereas women were seen as more tactful, gentle, and quiet than men); Virginia E. Schein, *Relationships Between Sex-Role Characteristics and Requisite Management Characteristics Among Female Managers*, 60 J. APPLIED PSYCHOL. 340 (1975).

647. Ellis, *supra* note 142, at 275.

648. Ellis, *supra* note 142, at 275.

649. P.T.P. Wong et al., *On the Importance of Being Masculine: Sex Role, Attribution, and Women's Career Achievement*, 12 SEX ROLES 757, 765–67 (1985).

650. *Id.* at 760–61. The Bem Sex Role Inventory is composed of 30 descriptive adjectives: 10 masculine traits (self-reliant, strong personality, defends one's beliefs, forceful, independent, analytical, athletic, has leadership abilities, assertive, willing to take risks); 10 feminine adjectives (yielding, loyal, cheerful, compassionate, shy, sympathetic, affectionate, sensitive to the needs of others, flatterable, understanding); and 10 neutral items.

651. *Id.* at 763. The psychological literature demonstrates a significant relationship between dominance, masculinity-femininity, and leadership perceptions. *See* Robert G. Lord et al., *A Meta-Analysis of the Relation Between Personality Traits and Leadership Perceptions: An Application of Validity Generalization Procedures*, 71 J. APPLIED PSYCHOL. 402, 405–06

masculine or feminine was unrelated to her marital status or fertility.[652] High-achieving masculine women were as likely to be married and have children as other women; indeed, there were no significant differences between masculine and feminine women in education, high school grades, marital status, or number of children.[653] The authors concluded that masculinity is a better predictor of women's career achievement than several other variables that have been linked to women's achievement, such as parental expectations and mother's employment status.[654]

Sex differences in attitudes toward risk cannot help but have an impact on work-force distributions.[655] Studies of successful executives regularly find that one of the primary attributes that sets the successful executive apart from others is the willingness to take risks.[656] Risk-takers "are motivated more by the need to make their own decisions than by their desire for assured employment or steady income."[657] In evaluating the results of a study of over 500 top executives, researchers found a "consistent picture": "a higher degree of success (*i.e.*, wealthier, higher income, higher position, more authority) differentiated the risk-takers from the risk averters."[658] The researchers suggest that "for most businesses, a person gets to the top by taking risks and having them work out for the best."[659]

Elizabeth Arch summarized the relationship between women's risk aversion and achievement as follows:

> [M]any public achievement situations are unattractive and may even be threatening for females, engendering a tendency to pull back rather than motivation to participate. It is not an issue of women wanting consciously to avoid achievement, or responding to poor achievement in

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(1986). Such perceptions have significant impact, in that "[b]eing perceived as a leader allows one to exert greater influence in business or government...." *Id.* at 408.

652. Wong et al., *supra* note 649, at 763.

653. Wong et al., *supra* note 649, at 766–67.

654. Wong et al., *supra* note 649, at 767. A study of women in male-dominated professions likewise shows them to be more "tough-minded" and assertive than women in sex-typical professions. Jeanne P. Lemkau, *Women in Male-Dominated Professions: Distinguishing Personality and Background Characteristics*, 8 PSYCHOL. WOMEN Q. 144, 154 (1983). *See also* HENNIG & JARDIM, *supra* note 290, at 76–93 (finding a "tomboy" background of women in top management positions).

655. *See, e.g.*, Tressie W. Muldrow & James A. Bayton, *Men and Women Executives and Processes Related to Decision Accuracy*, 64 J. APPLIED PSYCHOL. 99, 102 (1979) (finding that female executives "were significantly more conservative in risk taking" than were male executives); Donald L. Sexton & Nancy Bowman-Upton, *Female and Male Entrepreneurs: Psychological Characteristics and Their Role in Gender-Related Discrimination*, 5 J. BUS. VENTURING 29, 33–34 (1990) (finding lesser risk-taking propensity in female entrepreneurs).

656. Ronald J. Grey & George G. Gordon, *Risk-Taking Managers: Who Gets the Top Jobs*, MGMT. REV., Nov. 1978, at 8, 9–11.

657. *Id.* at 9.

658. Kenneth R. MacCrimmon & Donald A. Wehrung, *Characteristics of Risk Taking Executives*, 36 MGMT. SCI. 422, 433 (1990).

659. *Id. See also* R.E. Franken, *Sensation Seeking, Decision Making Styles, and Preference for Individual Responsibility*, 9 PERSONALITY & INDIVIDUAL DIFFERENCES 139, 145–46 (1987) (finding a relationship between sensation-seeking, the willingness to make decisions on incomplete information, and endorsement of the concept of individual responsibility). *Cf.* Yvon Gasse, *Elaborations on the Psychology of the Entrepreneur*, *in* ENCYCLOPEDIA OF ENTREPRENEURSHIP 57, 58 (Calvin A. Kent et al. eds., 1982) ("There is a good deal of agreement about the attitudes and motives that characterize the entrepreneur: independence, desire for prestige, desire for power, internal locus-of-control belief, drive, high involvement, strong self-actualization, and moderate risk-taking.").

> the past, or having actual differences in basic ability that might cause them realistically to expect less of themselves.... [I]t is the presence of potential risks within the social situation that evokes responses oriented to reducing or avoiding that risk. Unfortunately these responses are not encouraging of participation in many of the public achievement opportunities proffered in our modern competitive, mastery-oriented cultural milieu.[660]

The Glass Ceiling Report, although not specifically referring to the issue of risk-taking, provides support for the conclusion that temperamental differences will have an important effect on workplace outcomes. It notes that certain factors are common to successful executives regardless of sex; these include "broad and varied experience in the core areas of the business; access to information, particularly through networks and mentoring; company seniority; initial job assignment; high job mobility; education; organizational savvy; long hours and hard work; and career planning."[661] The report also notes that most female professionals and managers do not work in the private-for-profit sector, but rather hold jobs in the public or non-profit sectors.[662] Moreover, women managers are more likely to be found in staff positions—such as human resources, corporate communications, community and government relations, and the staff side of marketing and finance—than in line positions.[663] Line positions, which are closely related to the corporate bottom line, carry higher career risk,[664] because success or failure can more easily be determined and is more directly related to corporate profits.[665] Staff positions and positions in the public and non-profit sector tend to carry with them lower career risk, less pressure to relocate, and probably fewer irregular hours. Although the Glass Ceiling Report identified women's "clustering in relatively dead-end staff jobs" as a "barrier" to women's advancement, it did not discuss the question whether women actually want private-sector line management jobs or whether women are willing to do what men have had to do to obtain them.[666]

Differential attitudes toward risk may well explain the results of a recent study finding that female middle managers in the banking industry tend to be found more commonly in operations and customer service than in lending.[667] Lending jobs tend to be higher-paid positions that lead to senior management.[668] These positions also carry greater career risk because "bad loans" are very visible. Evaluating positions purely in terms of the possibility of advancement does not capture the entire picture: jobs carrying the greatest possibilities for success often carry the greatest possibilities for failure.

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660. Arch, *supra* note 373, at 8.
661. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 15.
662. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 13 (reporting that 83% of white and Hispanic female professionals work in the public or non-profit sectors, compared to 56% of white male non-Hispanic professionals).
663. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 153.
664. MORRISON ET AL., *supra* note 644, at 30, 87.
665. *See* GLASS CEILING COMMISSION REPORT, *supra* note 21, at iv (noting that "[t]he critical career path for senior management positions requires taking on responsibilities most directly related to the corporate bottom line").
666. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 155.
667. Sandra Morgan et al., *Gender Differences in Career Paths in Banking*, 41 CAREER DEV. Q. 375 (1993).
668. *Id.* at 379.

Although sex differences in motivation appear to be in part a function of differences in risk preference, there is certainly more to it than that. In addition to questions of success or failure are also issues concerning the willingness to make the kind of commitment of time and energy that is required to break into the executive ranks. When a Fortune 500 company (known in the literature as "the XYZ Company") was sued for discrimination for not hiring enough women managers, it commissioned Hoffman Research Associates to conduct a study to determine the reasons.[669] The study concluded that the disparity in promotion rates "reflected differences in behaviors and attitudes of male and female clerks—differences the company and its policies had no part in producing."[670] Among the differences in attitudes were that women were significantly less willing than males to relocate for promotion,[671] less willing to work longer hours, and less inclined to view their job as a stepping stone to higher positions. Among clerks who were potential candidates for promotion to management, forty-four percent of the women reported that they would prefer to work part-time, as opposed to eighteen percent of the men.[672] Sixty-one percent of the male clerks were labeled "highly motivated," while only thirty-one percent of the female clerks were so labeled.[673]

The XYZ study revealed that the largest sex difference was between highly motivated married men and highly motivated married women.[674] Among the former, marriage increased promotion-seeking behavior, while among the latter it decreased it.[675] The presence of children further exaggerated these differences.[676] The study concluded that the lower promotion rates of women were not due to discrimination but rather to differences in motivation: "those women who are prepared to seek and accept responsibility are promoted like men who behave in the same way."[677] Thus, sexual asymmetries in drive, risk-taking, and aggressiveness cannot help but have a major impact on sex ratios at the highest levels.

Like many who have written on the glass ceiling, Felice Schwartz—the founder of Catalyst—views the central cause of women's disproportionately low representation not as inherent temperamental differences between the sexes but rather as the fact that women have babies and take primary responsibility for both rearing the children and other domestic obligations.[678] Schwartz, who has probably devoted as much energy as anyone toward trying to increase the

669. Carl Hoffman & John Reed, *When Is Imbalance not Discrimination?*, *in* DISCRIMINATION, AFFIRMATIVE ACTION, AND EQUAL OPPORTUNITY 187 (Walter Block & Michael Walker eds., 1982). Hoffman had come to the attention of XYZ because of its work for plaintiffs in discrimination suits. *Id.* at 192.

670. *Id.* at 206.

671. Only four percent of the men reported that they would give up their job if their wives' jobs required a move, while 53% of women reported that they would give up their jobs if their husbands needed to move. *Id.* at 201.

672. *Id.* at 198.

673. *Id.*

674. *Id.* at 200.

675. *Id.* at 201. *See also* Harrell, *supra* note 644, at 960 (finding that while married MBA men worked slightly longer hours than single women (56 versus 54), married women worked fewer hours than single women (45 versus 50)).

676. Hoffman & Reed, *supra* note 669, at 203.

677. Hoffman & Reed, *supra* note 669, at 206.

678. *See* FELICE N. SCHWARTZ, BREAKING WITH TRADITION: WOMEN AND WORK, THE NEW FACTS OF LIFE 217 (1992).

representation of women in the upper reaches of management, does not believe that deliberately constructed barriers keep women back. In fact, she states, "I don't know of a CEO in the country who wouldn't like to have at least one or two really talented women at high levels in his company."[679] Instead, she attributes the lack of female representation to at least two related phenomena. First, she believes that businesses have been reluctant to accommodate women's reproductive and domestic lives, largely because they have not yet realized that it is in their interest to do so. Second, she believes that the corporate culture's emphasis on competition and drive has made corporate environments relatively uncongenial to women because women have been socialized in ways to prepare them for their traditional domestic role.[680]

Unlike many who write on this subject, Schwartz at times displays a fairly clear-eyed view of the consequences of institutional change. Whereas many writers simply assert that the problem is that institutions reward driven people,[681] implicitly or explicitly endorsing a modification of the reward structure that would result in an equalization of outcomes,[682] Schwartz acknowledges that there may be a need for such people.[683] She suggests, however, that there should be room, at least at levels lower than the very top, for other personality types. She also acknowledges that even with increased support, many women will yield to the strong desire to remain out of the work

679. *Id.* at 226. Perhaps for political reasons, the tone of the second Glass Ceiling Report, issued on November 21, 1995, differs substantially from the first. *See Excerpts of Glass Ceiling Commission Report: A Solid Investment: Making Full Use of the Nation's Human Capital*, DAILY LAB. REP. (BNA) No. 226, Nov. 24, 1995, at D–28 [hereinafter *Excerpts of Glass Ceiling Commission Report*]. The first report seemed consistent with Schwartz's view, attributing the barriers to "persistent stereotyping, erroneous beliefs that 'no qualified women or minorities are out there,' and plain old fear of change." GLASS CEILING COMMISSION REPORT, *supra* note 21, at v. The second report, however, identifies "discrimination—the glass ceiling in particular" as a "deep line of demarcation between those who prosper and those left behind" and states that "[f]or real change to occur, bias and discrimination must be banished from the boardrooms and executive suites [of] corporate America." *Excerpts of Glass Ceiling Commission Report, supra*, at D-28. One can only surmise that the reason for this change is the fact that the Commission's recommendations heavily emphasize affirmative action. Ever since the Supreme Court's decision in Adarand Constructors, Inc. v. Pena, 115 S. Ct. 2097 (1995), and especially since the introduction of the Equal Opportunity Act of 1995, which would outlaw race and sex preferences in federal employment and prohibit the federal government from imposing such requirements on contractors, the position of the Clinton administration has been that the purpose of affirmative action is not to attain proportional representation, but rather to "correct...any unlawful race-based and sex-based obstacles to equal employment opportunity." *See* Office of Federal Contract Compliance Programs, Numerical Goals Under Executive Order 11246 (Memorandum of Shirley J. Wilcher, Deputy Assistant Secretary for Federal Contract Compliance) (July 26, 1995).

680. SCHWARTZ, *supra* note 678, at 103, 217. Like so many, Schwartz merely assumes that these sex differences are products of socialization. SCHWARTZ, *supra* note 678, at 217 ("Historically women have been socialized to be nurturing, a quality that has not served them as well in the corporation as the aggressive, risk-taking behavior that until recently has been imparted more readily to men.").

681. *See* Lucinda M. Finley, *Transcending Equality Theory: A Way out of the Maternity and the Workplace Debate*, 86 COLUM. L. REV. 1118, 1120 (1986) (complaining that our legal system "leaves unquestioned the notion that life patterns and values that are stereotypically male are the norm, such as the idea that competitiveness and focus on work to the exclusion of other concerns is necessary to the productive functioning of the workplace").

682. *See* Margo E. Garen, *A Management Model for the '80s*, TRAINING & DEV. J., Mar. 1982, at 41, 42 ("The time has come for a male/female approach—an androgynous style—attuned to the new worker, new environment and new realities of the 1980s.").

683. *See* SCHWARTZ, *supra* note 678, at 246–48.

force and be with their children. As a result, many women, no matter what their intentions when they commence their maternity leave, will remain out of the work force for an extended time.[684] Whether or not they receive pregnancy and maternity benefits, large numbers of women do not return to their jobs after having babies.[685] Given what we know about natural selection, it is hardly surprising that mammalian mothers would find it difficult to separate from their helpless infants.

If a substantial contributor to the "glass ceiling" is the fact that women tend not to display, to the same degree that men do, the temperamental traits and accompanying behaviors that result in achieving the highest levels, then in order for women to achieve parity, something must change: either the job requirements or women themselves. Many students of the glass ceiling have advocated both changes: employers should stop rewarding driven and ambitious people, and girls should be socialized to manifest the same drive and ambition as males. For a whole host of reasons, both of these suggestions are unlikely to bear fruit.

It seems unlikely in the extreme that employers will cease rewarding employees who exhibit a high degree of commitment to the employer. All else being equal—and in the absence of some prohibition—an employer will generally prefer a worker who puts in more hours to one who puts in fewer; it will prefer a worker who will travel or relocate to one who will not; and it will prefer a worker whose career is not interrupted by lengthy absences from the labor market to one whose is. Those employees are simply more valuable. Moreover, it is a fact of life in modern America that men work more hours, are more willing to travel and relocate, and are less likely to leave the labor force for extended periods.[686] It is no doubt true that employers have been able

684. SCHWARTZ, *supra* note 678, at 45: "The truth is that no matter how conscientious, no matter how career committed, a woman is, she can never know for certain what she'll do until she has given birth and experiences her desire to be with the baby." *See also* Kristine M. Baber & Patricia Monaghan, *College Women's Career and Motherhood Expectations: New Options, Old Dilemmas*, 19 SEX ROLES 189, 197 (1988) (in a survey of college women, finding that fewer than half expected to return to the work force within one year of having a baby; of those who intended to return to work, a majority preferred to work part-time, at least until their children entered pre-school).

685. SCHWARTZ, *supra* note 678, at 59. Although Schwartz recognizes the flaw in assuming that women will ever be just like men, she probably overestimates the extent to which behaviors of the two sexes will come together: "In the decades ahead, as the socialization of boys and girls and the experience and expectations of young men and women grow steadily more androgynous, the differences in workplace behavior will continue to fade." Felice N. Schwartz, *Management Women and the New Facts of Life*, HARV. BUS. REV., Jan.–Feb. 1989, at 65, 67. As shown above, behavioral differences that are commonly ascribed to socialization differences have a substantial underlying biological basis.

686. *See* SCHWARTZ, *supra* note 678, at 229 (noting that women are less willing to relocate); Michael Berger et al., *You and Me Against the World: Dual-Career Couples and Joint Job Seeking*, 10 J. RES. & DEV. EDUC. 30 (1977) (finding that professional couples seeking jobs generally give priority to the husband's career); Cynthia Deitch & Susan W. Sanderson, *Geographic Constraints on Married Women's Careers*, 14 WORK & OCCUPATIONS 616, 622 (1987) (in a study of dual-career marriages, finding that far more women relocated for their husbands' careers than vice versa); Karen McElrath, *Gender, Career Disruption, and Academic Rewards*, 63 J. HIGHER EDUC. 269, 273 (1992) (finding in a study of academic criminologists that women were substantially more likely to interrupt their careers than men and that the most common reason was to follow a moving husband rather than maternity); Deborah J. Merritt et al., *Family, Place, and Career: The Gender Paradox in Law School Hiring*, 1993 WIS. L. REV. 395, 419 (finding that among applicants for law teaching positions, women were approximately twice as likely to impose major geographic constraints on their searches); Rhode, *supra* note

to impose these kinds of demands because there has been a "seemingly unending supply of men who were more than willing to jockey for position on that narrowing avenue" to the top of the management pyramid,[687] but it is less obvious that the supply of men is drying up or that the pool will become equally female. Although Schwartz predicts that women will become increasingly willing to relocate as their earnings come to represent an increasing proportion of household income,[688] she also acknowledges that "[b]oth men and women feel at a very deep level that it is natural for the man to be the provider."[689] Thus, it will not necessarily be the case that the couple will relocate for the benefit of the wife's career simply because the wife earns more than the husband.[690] In sum, as long as women are, on average, less single-minded about their careers than men, employers will continue, on average, to

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284, at 1758 (noting that women are more likely to take extended leaves, work part-time, and place a lower priority on occupational advancement). *See also* Janice M. Steil & Karen Weltman, *Marital Inequality: The Importance of Resources, Personal Attributes, and Social Norms on Career Valuing and the Allocation of Domestic Responsibilities*, 24 SEX ROLES 161, 175 (1991) (finding that "[w]ives, regardless of their earnings, were more likely to say that they would move on their husbands' behalf").

Reuben Gronau has argued that the conclusion that women invest less in their careers because they expect to be leaving the labor force may mistake cause and effect. Reuben Gronau, *Sex-Related Wage Differentials and Women's Interrupted Labor Careers — The Chicken or the Egg*, 6 J. LAB. ECON. 277 (1988). According to Gronau, what may be happening is that employers confine women to jobs requiring little investment because they expect them to leave, and when the women then have children it is not worthwhile for them to remain in the labor force. Thus, the prediction that women will leave the labor force becomes a self-fulfilling prophecy. Although this may be true in some circumstances, it does not appear to be a full explanation, since women at all levels are more likely to leave the labor force than men. *See* William B. Lacy et al., *Job Attribute Preferences and Work Commitment of Men and Women in the United States*, 36 PERS. PSYCHOL. 315, 323 (1983). *See also* Eccles, *supra* note 308, at 245 (noting that highly educated women are more likely to be out of the work force than comparable men and that they are more likely to work part-time and move in and out of the work force).

687. SCHWARTZ, *supra* note 678, at 241–42.

688. SCHWARTZ, *supra* note 678, at 229–30.

689. SCHWARTZ, *supra* note 678, at 51.

690. The Glass Ceiling Commission reports that women are not asked to relocate as often as men, a fact that may prejudice their chance for advancement. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 151. Given women's concentration in staff positions, a sex disparity in relocation requests is not surprising.

reward them less,[691] unless, of course, the government prevents them from doing so.[692]

This is not to say that workplace changes cannot or should not be made. Some companies are making concerted efforts to accommodate women in the work force, including dealing with the perceived conflict between personal and business lives.[693] It remains to be seen how effective these changes will be in the long run and whether the reduced demands will apply to men as well as women. It also remains to be seen whether these companies are merely establishing a "mommy track" that may raise the so-called glass ceiling but not eliminate it altogether.

If employers' incentive structures are not modified—and there seems little reason to believe that they will be to the degree desired by critics as long as employers can find employees of either sex who display the kinds of commitment that they desire—then the other way to achieve parity between men and women is to change women so that they more closely resemble men. Many have for this reason advocated an end to "sexist" child rearing and have called for a "sex-free" form of socialization.[694] As established above, however, socialization accounts for less of the temperamental sex difference than is commonly recognized, and there seems little reason to think that we will be any more successful in eliminating these differences than the kibbutzniks were.

The focus on achievements of males and females as groups should not obscure the fact that just as most women do not rise to the top of the pyramid, neither do most men. High executive positions are scarce, and the men who hold them had to compete against other men to get them. The Glass Ceiling Commission seems oblivious to this fact. For example, it quotes one woman as complaining, "If I want to succeed, I have to accept the white male notion of what constitutes the good life. But even when we do that and demonstrate excellent performance by their standards, it doesn't guarantee a trip to the

691. The fact that men have these traits to a greater extent than women does not, of course, mean that all men have these traits and no women do. Because it is natural to expect that what usually happens is what will happen, employers may assume unfairly that any particular woman will match the stereotype. Thus, an employer hiring for a job requiring extensive travel may tend, perhaps unconsciously, to favor a man for the position. *See* Benson Rosen et al., *Dual-Career Marital Adjustment: Potential Effects of Discriminatory Managerial Attitudes*, J. MARRIAGE & FAM., Aug. 1975, at 565. These authors report that a male candidate for promotion who made the statement, "My first duty is to my family," suffered for that statement less than an equally qualified female candidate. *Id.* at 571. However, it may be that the decision-maker believed, perhaps correctly, that the implications of such a statement from a man are different from the implications of such a statement from a woman. That is, the man's statement may translate into a much smaller decrease in organizational commitment, because a man's commitment to the family is often demonstrated through his financial contribution, while a woman's commitment to the family is more often measured in terms of her domestic contributions.

692. The Glass Ceiling Commission Report suggests that "effective government monitoring and sanctions are required" to enforce employers' affirmative-action obligations. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 30.

693. *See* GLASS CEILING COMMISSION REPORT, *supra* note 21, at 201–08. *See also* Julia Lawlor, *Executive Exodus: Women Managers Leaving Corporations*, 19 WORKING WOMEN 38 (Nov. 1994) (describing efforts by corporations to encourage and promote women managers).

694. *See, e.g.*, MYRA SADKER & DAVID SADKER, FAILING AT FAIRNESS: HOW AMERICA'S SCHOOLS CHEAT GIRLS 251–80 (1994); BARRIE THORNE, GENDER PLAY: GIRLS AND BOYS IN SCHOOL 157–73 (1993).

top."[695] She is certainly correct that even excellent performance does not "guarantee a trip to the top"—for either sex; anyone who thinks to the contrary does not understand the business world.[696]

The Glass Ceiling Report is suffused with disingenuousness. For example, it substantially downplays the fact that women are in fact represented in management in accordance with their number. Moreover, although the Report itself notes the fact that the executive "pipeline" takes twenty to twenty-five years to get through,[697] the Report does not compare the representation of women at the top with their representation in the labor force of twenty years ago, but rather with the labor force of today.[698]

It should be noted that the fact that men try harder to reach the managerial ranks does not necessarily mean that they do a better job when they get there. The literature is ambiguous on the question whether male and female managers have different management styles and personality traits.[699] Some might argue that the cooperation of women is more beneficial than the competitiveness of men. However, such a suggestion would rest on an inaccurate view of the differences between men and women. Although men are more inclined to competitive behavior, they are also better at shifting between competition and cooperation, a fact that many feminists have noted through their complaints about inadequate team sports for girls.[700]

It may well be that the answer is that men do better in some managerial positions and women do better in others. Managerial jobs are not uniform in their demands; different jobs require a different mix of abilities. Some may primarily require an entrepreneurial spirit, while others may require "people skills." It would not be at all surprising to find that men are better in the former positions and women better in the latter,[701] but the subjectivity of performance makes it difficult for researchers to investigate the question in a serious way.[702]

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695. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 35.

696. George Gilder, *Still Seeking a Glass Slipper*, NAT'L REV., Dec. 14, 1992, at 38, 38:

> These are the facts of life in enterprise. You don't get to be the boss because of credentials or good behavior. You don't zoom to the top in a glass slipper. You get to the top by devoting your life to the pursuit. And at the summit the slopes are slippery. Most of the time there is no glass floor to catch you if you fall.

697. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 15.

698. *See also* GLASS CEILING COMMISSION REPORT, *supra* note 21, at 10 ("The data show that minorities and white women are increasingly earning the credentials that business needs. However, data also show that women hold only 3 to 5 percent of the senior-level jobs in major corporations.").

699. *See* ROSABETH M. KANTER, MEN AND WOMEN OF THE CORPORATION 197–99 (1977) (describing the lack of evidence for sex differences in leadership style); Michael C. White et al., *Achievement, Self-Confidence, Personality Traits, and Leadership Ability: A Review of Literature on Sex Differences*, 48 PSYCHOL. REP. 547, 557–63 (1981) (discussing the conflicting literature on the question whether male and female managers have different personality characteristics). *See also* Jaclyn Fierman, *Do Women Manage Differently?*, FORTUNE, Dec. 17, 1990, at 115.

700. *See* Lever, *supra* note 324, at 485–86.

701. *See* Robert F. Scherer et al., *Entrepreneur Career Selection and Gender: A Socialization Approach*, 28 J. SMALL BUS. MGMT. 37 (1990) (finding that men have a greater preference for entrepreneurial activity).

702. There is substantial evidence for sex differences in the spontaneous emergence of leaders. Alice Eagly and Steven Karow have suggested that men emerge disproportionately as

The male drive to achieve status is in large part biological, and our biology is not changing, at least not at a perceptible rate. Moreover, a major, although by no means the exclusive, reason for the lack of single-mindedness of women concerning their careers is their commitment to their children. This drive is also a product of our evolutionary heritage, and the notion that women will in large numbers shunt aside their children in favor of their careers is no more realistic than the notion that one can simultaneously have a completely satisfying high-powered career and be fully involved with the lives of one's children.

The "glass ceiling" metaphor may be completely backwards. That metaphor describes imperceptible barriers that prevent women from reaching the executive suite. Perhaps a more apt metaphor would be the "gossamer ceiling"—a barrier that people "see" but that is not strong enough to hold back those women who choose to cross it.

B. The Gender Gap in Compensation

The term "gender gap" is a label attached to the fact that full-time female employees on average earn less than three-quarters what full-time male employees earn. Like the glass ceiling, the gender gap is a group-based phenomenon. Women whose productivity-related traits and occupational choices are similar to men's tend to be compensated like men, but because of differences in productivity-related traits and occupational choice, women as a group earn less than men. Although one hears rhetoric to the contrary, few students of the gender gap believe that wage discrimination by employers is a substantial contributor.[703]

Many of the factors contributing to the gender gap are precisely the sorts of things that one would expect to result in differential earnings, and many of them are just the kind for which evolutionary theory would predict differences. Full-time female employees work eight to ten percent fewer hours than full-time male employees.[704] Victor Fuchs has reported that "[a]mong white married women with eighteen years or more of schooling and at least one child under twelve at home, only one in ten works more than 2,250 hours per year"; in contrast, half the husbands of those women work that many hours.[705] Moreover, one-third of the men work more than 2500 hours per year.[706] Just as a lesser willingness to work long hours is an impediment to advancing up the hierarchy, it is also a cause of lower earnings.[707] Similarly, although the rate at

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leaders in large part because of the tendency to define leadership in terms of task-oriented contributions. Alice H. Eagly & Steven J. Karow, *Gender and the Emergence of Leaders: A Meta-Analysis*, 60 J. PERS. SOC. PSYCHOL. 685, 701 (1991). Although men tend to emerge as overall leaders, there is also a tendency for women to emerge as social leaders, attentive to interpersonal relations and group harmony. *Id.* at 703.

703. *See, e.g.*, SCHWARTZ, *supra* note 678, at 279.

704. O'Neill & Polachek, *supra* note 27, at 208 n.1. *See also* Harrell, *supra* note 644, at 959–60 (in a study of MBA graduates from Stanford from 1973–1985, finding that men averaged 55.7 hours per week, while women averaged 47.1).

705. VICTOR FUCHS, WOMEN'S QUEST FOR ECONOMIC EQUALITY 47–48 (1988).

706. *Id.* at 48.

707. *See, e.g.*, Thomas W. Harrell & Bernard Alpert, *Attributes of Successful MBAs: A 20-Year Longitudinal Study*, 2 HUM. PERFORMANCE 301 (1989) (finding a significant positive relationship between work hours and earnings after 5, 10 and 15 years from graduation; at 20 years from graduation, the difference was not statistically significant).

which women leave the labor force has been decreasing in recent years, women still leave the labor force at a rate approximately three times that of men.[708] These child-rearing hiatuses may have a significant effect on subsequent earnings.[709]

Women as a group have a lower level of job-related schooling and work experience. To a large extent, this difference is a consequence of older cohorts of female workers who never expected to spend an extended period of time in the work force. For example, only twenty-eight percent of white women ages fourteen through twenty-four in 1968 reported that they planned to be working at age thirty-five. When these women actually reached thirty-five, more than seventy percent of them were working.[710] The disparity between expectation and actuality led to large numbers of undertrained women in the work force. One of the primary reasons that the compensation gap is currently shrinking is that women are making more accurate judgments about their future labor-force participation.[711] Nonetheless, women planning for their future careers still often take into account the potential future work-family conflict and adjust their plans accordingly.[712] The Glass Ceiling Commission reports that "more men than women continue to earn the degrees and credentials that are now generally considered to be prerequisites for senior management positions in the private sector."[713] For example, in 1994, fourteen percent of the master's degrees awarded to women were in the field of business management, while forty-four percent of white non-Hispanic men's master's degrees were in that field.[714] In contrast, the advanced degrees earned by women "continue to be heavily concentrated in education."[715] This important fact seems to have been ignored by Labor Secretary Reich when he complained in the second Glass Ceiling Report that "[o]ver half of all Master's degrees are now awarded to women, yet

708. O'Neill & Polachek, *supra* note 27, at 219. *See also* Samuel Issacharoff & Elyse Rosenblum, *Women and the Workplace: Accommodating the Demands of Pregnancy*, 94 COLUM. L. REV. 2154, 2159–71 (1994) (describing the relationship between wages and work-force participation).

709. Victor Fuchs, *Sex Differences in Economic Well-Being*, 232 SCIENCE 459, 462 (1986).

710. June O'Neill, *Women and Wages*, AM. ENTERPRISE, Nov.-Dec. 1990, at 25, 29. *See also* Lois B. Shaw & David Shapiro, *Women's Work Plans: Contrasting Expectations and Actual Work Experience*, 110 MONTHLY LAB. REV. 7 (1987) (finding that women with early expectations of adult work activity have wage rates 30% higher than those who did not plan to work).

711. O'Neill, *supra* note 710, at 27. An additional factor contributing to the "undercompensation" of women may be that married women are often overqualified for their jobs. Married couples often make relocation decisions on the basis of maximization of family income. Because husbands tend to work more hours and possess larger stocks of human capital, couples will tend to move to the location of the best job for the man, leading to the greater compromise in the wife's job. Robert H. Frank, *Why Women Earn Less: The Theory and Estimation of Differential Overqualification*, 68 AM. ECON. REV. 360 (1978).

712. Baber & Monaghan, *supra* note 684, at 191 (finding differences in expected age at marriage and birth of first child depending upon the traditionalism of the woman's expected career).

713. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 152.

714. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 152. The Report did not provide statistics on minority males.

715. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 152. *Cf.* Eric Eide, *College Major Choice and Changes in the Gender Wage Gap*, 12 CONTEMP. ECON. POL. 55 (1994) (finding that increasing representation of women in high-skill fields has contributed to a decline in the wage gap for college graduates).

95 percent of senior-level managers of the top Fortune 1000 industrial and 500 service companies are men."[716]

Part of the wage gap may also be related directly to the allocation of domestic responsibilities in the home. There is evidence suggesting that the household responsibilities of women affect women's wages by decreasing both human capital investments and the amount of effort available for market work.[717]

It is occasionally asserted that the persistence of the gender gap is a measure of societal opposition to equality for women. For example, Rosemary Hunter asserts that "[t]he fact that the compensation gap has reduced little in response to feminist campaigns over the past twenty years signifies the extent of opposition to those campaigns, as might be expected when what is being fought for is a radical reshaping of the labor market."[718] On the contrary, the persistence of the gap was largely a reflection of women's *success* in entering the labor market. During the 1960s and 1970s, women entered the work force at unprecedented rates. These new entrants into the work force were not only young women who had trained for labor-force participation but also older women with comparatively low levels of schooling and experience.[719] The net result was a dilution of the overall skill level of employed women.[720] If only young women with increasing productivity-related traits had been entering the work force, the gap would have closed much faster. It is because the labor market was opened up more broadly that large numbers of women who had never expected to be permanent participants in the labor force joined it and were paid in accordance with their skills and experience.

Since 1976, the compensation gap has shrunk approximately one percent per year.[721] Paralleling this rise in relative female income is a rise in women's years of experience,[722] an increase in schooling levels of women,[723] and a decreased rate of labor-force turnover of women.[724] As these trends appear to

716. *See Excerpts of Glass Ceiling Commission Report*, *supra* note 679.

717. Gary S. Becker, *Human Capital, Effort, and the Sexual Division of Labor*, 3 J. LAB. ECON., Supplement, at S33–S58 (1985); Joni Hersch, *Male-Female Differences in Hourly Wages: The Role of Human Capital, Working Conditions, and Housework*, 44 INDUS. & LAB. REL. REV. 746, 756 (1991). *See also* Shelley Coverman, *Gender, Domestic Labor Time, and Wage Inequality*, 48 AM. SOC. REV. 623 (1983) (finding that time spent in domestic activities exerts a negative influence on earnings); Fuchs, *supra* note 709, at 462–63 (reporting that motherhood has an adverse effect on women's earnings); James E. Long, *The Effects of Tastes and Motivation on Individual Income*, 48 INDUS. & LAB. REL. REV. 338, 345 (1995) (finding that being married had no impact on earnings of full-time employees, but that each child in the family reduced women's income by about five percent); Richard B. Primack & Virginia E. O'Leary, *Cumulative Disadvantages in the Careers of Women Ecologists*, 43 BIOSCIENCE 158, 161 (1993) (finding that the majority of male ecologists reported that they are more involved in their careers than are their spouses, while a majority of female ecologists reported that their spouses have greater career involvement).

718. Rosemary Hunter, *Afterword: A Feminist Response to the Gender Gap in Compensation Symposium*, 82 GEO. L.J. 147, 148 (1993).

719. O'Neill & Polachek, *supra* note 27, at 207.

720. O'Neill & Polachek, *supra* note 27, at 207.

721. O'Neill & Polachek, *supra* note 27, at 205.

722. O'Neill & Polachek, *supra* note 27, at 207.

723. O'Neill & Polachek, *supra* note 27, at 221.

724. O'Neill & Polachek, *supra* note 27, at 219.

be continuing, it is expected that the gender gap in compensation will likewise be diminished.[725]

In addition to differences in human capital, men and women also differ in the kinds of jobs and job attributes they favor.[726] "Wages are paid not for...hours of labor supplied but rather for hours of labor supplied doing a particular job."[727] Thus, wages are not merely a return on human capital investment, they are also "compensation for disagreeable aspects of the job."[728] If two jobs are identical in their human capital requirements but one carries with it a substantial risk of physical injury, for example, one would expect the risky job to carry a higher rate of pay. Indeed, that is precisely what one sees.[729]

Individuals differ substantially in terms of the amount of risk in the workplace that they are willing to bear, so one would properly expect individuals to sort themselves according to their own risk-dollar trade-off.[730] Thus, workers who smoke (who manifest through their smoking behavior a preference for risk) receive lower wage compensation from their employers per unit of risk, and seatbelt users (who manifest through their behavior an aversion to risk) receive higher compensation for risk.[731] In combination, "nonsmokers who wear seatbelts receive the greatest compensation for risk" in their jobs, and "smokers who do not wear seatbelts receive the least...."[732] Not surprisingly, there is also a negative correlation between risk-aversion and occupational disability.[733]

Differences in attitude toward physical risk are not random with respect to sex. A look at the work force immediately reveals that men are engaged in the riskiest jobs; occupations that expose workers to the greatest risk of death are largely male. For example, recent statistics issued by the Department of Labor indicate that over ninety percent of workplace fatalities are males.[734] Although women are increasingly represented in some traditionally male risky

725. O'Neill & Polachek, *supra* note 27, at 225. *See also* FUCHS, *supra* note 705, at 14–15 (suggesting that "[i]t will take another generation for the employment statistics to reflect fully recent changes in the willingness and opportunity of young women to prepare themselves for careers requiring large investments of time, money, and effort").

Richard Epstein has pointed out that part of the shrinking of the wage gap "is attributable to the rise in new forms of discrimination"—in the form of affirmative action—rather than an elimination of the old forms. Richard A. Epstein, *Some Reflections on the Gender Gap in Employment*, 82 GEO. L.J. 75, 83 (1993).

726. *See* Clifford E. Jurgensen, *Job Preferences (What Makes a Job Good or Bad?)*, 63 J. APPLIED PSYCHOL. 267, 269 (1978).

727. Randall K. Filer, *Male-Female Wage Differences: The Importance of Compensating Differentials*, 38 INDUS. & LAB. REL. REV. 426, 426–27 (1985).

728. *Id.* at 426–27. *Cf.* Joni Hersch & W. Kip Viscusi, *Cigarette Smoking, Seatbelt Use, and Differences in Wage-Risk Tradeoffs*, 25 J. HUM. RES. 215–18 (1990).

729. W. KIP VISCUSI, RISK BY CHOICE 42–45 (1983); W. Kip Viscusi, *Toward a Diminished Role for Tort Liability: Social Insurance, Government Regulation, and Contemporary Risks to Health and Safety*, 6 YALE J. ON REG. 65, 79–82 (1989).

730. Hersch & Viscusi, *supra* note 728, at 204.

731. Hersch & Viscusi, *supra* note 728, at 219–20.

732. Hersch & Viscusi, *supra* note 728, at 219–20.

733. J. Paul Leigh, *An Empirical Analysis of Self-Reported, Work-Limiting Disability*, 23 MED. CARE 310, 318 (1985).

734. *See supra* note 30. Moreover, a large percentage of women killed on the job are murdered. *See supra* note 30. To the extent that these murders are committed by persons known to the victim, such as a spouse or boyfriend, those deaths are not a reflection of the riskiness of the job.

jobs, such as fire-fighting, these jobs are still overwhelmingly male. Of *volunteer* firemen, that is, people who risk their lives for no money, approximately ninety-nine percent of the almost one million volunteers are men.[735]

The relevance of attitudes toward risk is not limited to physical risk. Men are more likely than women to choose fields entailing "career risk," meaning that success is possible but not guaranteed.[736] In accordance with the general rule that with greater risk comes the possibility of greater rewards, a study of female executive compensation has revealed that ambition and willingness to take risks were positively related to compensation.[737]

In addition to attitudes toward risk, men and women exhibit systematic differences in the value that they place on other job features. Men attach more importance to financial aspects of the job,[738] while women value various interpersonal and other non-wage aspects of the job, such as freedom to take time off,[739] shorter commute time, opportunity to help others,[740] and safer working conditions.[741] For both men and women, the importance assigned to financial success is positively correlated with earnings.[742] Tests of vocational interest consistently reveal sex differences.[743] Randall Filer has concluded that a

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735. FARRELL, *supra* note 607, at 36.

736. Dorothy M. Kipnis, *Intelligence, Occupational Status, and Achievement Orientation*, *in* EXPLORING SEX DIFFERENCES, *supra* note 412, at 95, 108.

737. Robin L. Bartlett & Timothy I. Miller, *Executive Compensation: Female Executives and Networking*, 75 AM. ECON. REV. 266 (1985).

738. In a study of recent college graduates, for example, men were more likely than women to report that making a lot of money was very important to their career choice. Thomas N. Daymont & Paul J. Andrisani, *Job Preferences, College Major, and the Gender Gap in Earnings*, 19 J. HUM. RES. 408, 414 (1984).

739. Filer, *supra* note 727, at 428–29.

740. Daymont & Andrisani, *supra* note 738, at 414, also found that men were more likely to view as important in career choices the opportunity to be a leader, while women were more likely to view the opportunity to be helpful to others or to society as important.

741. Filer, *supra* note 727, at 427–28. Filer observes that "[w]omen attach greater importance than men to the social aspects of the job, relations with coworkers and supervisors, opportunity to serve others, and the intrinsic interest of the work." Filer, *supra* note 727, at 427 n.1. *See also* Judith S. Bridges, *Sex Differences in Occupational Values*, 20 SEX ROLES 205, 206–08 (1989) (finding that women rated more highly than men the job attributes of personal rewards, helping others, schedule flexibility, and opportunity to work part-time); Lacy et al., *supra* note 686, at 321 (finding that women were more likely than men to identify "meaningfulness of work" as a first preference); Michael A. Murray & Tom Atkinson, *Gender Differences in Correlates of Job Satisfaction*, 13 CANADIAN J. BEHAV. SCI. 44, 48 (1981) (finding that women rate physical surroundings, co-workers, supervisors, and recognition as being more important than men, while men give higher ratings to advancement, skills, influence and freedom); Jon E. Walker et al., *Men and Women at Work: Similarities and Differences in Work Values Within Occupational Groupings*, 21 J. VOC. BEHAV. 17, 26 (1982) (finding that even within broad occupational categories, women attach greater importance to "convenience" factors of job). *Cf.* James A. Roberts, *Sex Differences in Socially Responsible Consumers' Behavior*, 73 PSYCHOL. REP. 139 (1993) (finding that women show more concern for others and for society as consumers than men).

Although one might not necessarily expect that attaching significance to such factors as "opportunity to serve others" would have significant economic consequences, economist Robert Frank found in a study of Cornell graduates that "salaries fall dramatically with increases in [employer] social responsibility, even after controlling for gender, curriculum, academic performance, and sector of employment." Robert H. Frank, *What Price the Moral High Ground?*, at 16 (1995) (unpublished manuscript, on file with the author).

742. Long, *supra* note 717, at 345.

743. *See, e.g.*, Grotevant et al., *supra* note 434, at 668–70. On the Strong-Campbell Interest Inventory, sex differences were found in five of the six scales. Males scored higher than

substantial portion of the wage gap can be explained by the fact that men tend to take jobs that are less attractive than those filled by women, or, put another way, "by differentials paid by women in order to obtain more attractive jobs."[744] Significantly, most studies find no differences between the sexes in overall job satisfaction.[745]

The differential preferences of men and women are reflected even within occupations.[746] Among physicians, for example, women are less likely to specialize, and when they do they tend to concentrate in low-prestige specialties.[747] "[M]en are more likely to be in private practice, while women tend to be salaried employees in non-entrepreneurial settings...."[748] Even within specialties these differences hold. Among obstetrician/gynecologists, for example, women are more likely than men to work in salaried positions with regular hours, and men are more oriented toward higher incomes and private practice.[749] Women are considerably more likely to work for health maintenance organizations than men,[750] and women ob/gyns work significantly fewer hours than men.[751] Consistent with data from other studies, the presence of children in the home increases the number of work hours for men and decreases the number for women.[752]

The fact that men's jobs are often less attractive than women's jobs is a fact that tends to be obscured in the discussion of occupational segregation and work-force equality. It is true that the jobs carrying the very highest *status* tend to be disproportionately occupied by men; it is also true that many—although

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females on the following scales: *realistic* (practical, rugged, aggressive persons who enjoy working outdoors and with their hands); *investigative* (scientifically oriented persons who enjoy thinking through problems); and *enterprising* (persons who enjoy selling, dominating, and leading). Females scored higher on: *artistic* (self-expressive and creative persons); and *social* (responsible, humanistic, or religious persons concerned with the welfare of others). No significant sex difference was found in *conventional* (persons who prefer highly ordered verbal or numerical activities). Grotevant et al., *supra* note 434, at 668.

744. Filer, *supra* note 727, at 433–34. *See also* Hersch, *supra* note 717, at 757 (women in study were found in "more pleasant and safer jobs").

745. *See* Murray & Atkinson, *supra* note 741, at 50. When occupational group and other determinants of the job situation were controlled, Murray and Atkinson found greater job satisfaction among women than men. *See also* Laura Kalb & Larry Hugick, *The American Worker: How We Feel About Our Jobs*, PUB. PERSP., Sept.-Oct, 1990, at 21 (finding that equal proportions of men and women report satisfaction in their jobs).

746. Lynn Zimmer, *Tokenism and Women in the Workplace: The Limits of Gender-Neutral Theory*, 35 SOC. PROBS. 64, 70 (1988) (pointing out that men are more likely to hold administrative jobs in social work, be head librarians, school principals, nursing directors, and president of nursing associations).

747. S. Redman et al., *Determinants of Career Choices Among Women and Men Medical Students and Interns*, 28 MED. EDUC. 361, 368–69 (1994); Diane Shye, *Gender Differences in Israeli Physicians' Career Patterns, Productivity and Family Structure*, 32 SOC. SCI. MED. 1169, 1169 (1991).

748. Shye, *supra* note 747, at 1169.

749. Alan J. Margolis et al., *Survey of Men and Women Residents Entering United States Obstetrics and Gynecology Programs in 1981*, 146 AM. J. OBSTETRICS & GYNECOLOGY 542 (1983). Similar results have been obtained in other professions. *See, e.g.*, Michael Betz & Lenahan O'Connell, *Gender and Work: A Look at Sex Differences Among Pharmacy Students*, 51 AM. J. PHARM. EDUC. 39, 42 (1987) (finding that women were more drawn to pharmacy by the opportunity to help people and noting that female pharmacists are much more likely to be employees and much less likely to be solo owners than males are).

750. Carol S. Weisman et al., *Sex Differences in the Practice Patterns of Recently Trained Obstetrician-Gynecologists*, 67 OBSTETRICS & GYNECOLOGY 776, 777 (1986).

751. *Id.* at 778.

752. *Id.* at 779.

far from all—of the jobs carrying the lowest *wages* are disproportionately occupied by women. But those two data do not tell the whole story. *On average*, jobs held by women are rated as slightly higher in status than jobs held by men, because although men hold the highest-status jobs, they also hold the lowest ones.[753] Moreover, although women hold many of the lowest-*paying* jobs, men have a virtual monopoly on the least *attractive* jobs. Warren Farrell has pointed out that twenty-four of the twenty-five "worst" jobs as rated in *The Jobs Rated Almanac*[754] (rated on a combination of salary, stress, work environment, outlook, security, and physical demands) were 95 to 100 percent male; the twenty-fifth job was equally male and female.[755] As Filer reported earlier, many of the low-paid jobs occupied by women are low-paid because they have desirable characteristics such as safety, flexible hours, and higher fulfillment, and are therefore more in demand.[756] Although it is commonly asserted that increasing the proportion of women in a profession reduces the status of the position,[757] evidence in support of that proposition is equivocal.[758]

As can be seen from the foregoing discussion, the simplistic observation that men and women have different average earnings tells one very little, but the fact that earnings are easier to quantify and compare than other important job attributes has led to an undue focus on wage disparities.[759] To the extent

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753. Linda S. Gottfredson, *Circumscription and Compromise: A Developmental Theory of Occupational Aspirations*, 28 J. COUNSELING PSYCHOL. 545, 553 (1981). *See also* Paula England, *Women and Occupational Prestige: A Case of Vacuous Sex Equality*, 5 SIGNS 252, 261 (1979) (finding that the mean occupational prestige of women is equal to that of men).

It thus appears that Christine Littleton is simply wrong when she argues: "The social construction of 'woman' has not just been a matter of men taking the best for themselves and assigning the rest to women. It has also been a matter of perceiving the "worst" as being whatever women were perceived to be." Littleton, *supra* note 40, at 1333.

Steven Goldberg has argued that "it is not primarily the maleness of a role that gives the role high status, but the high status that attracts males to the role." GOLDBERG, *supra* note 44, at 36. As Goldberg points out, men who cannot attain high-status roles may become ditch-diggers, but their maleness does not result in ditch-digging becoming a high-status occupation.

754. LES KRANTZ, THE JOBS RATED ALMANAC (1992).

755. FARRELL, *supra* note 607, at 105. Among the 25 worst jobs were seaman, cowboy, roustabout, construction laborer, police officer, truck driver, fisherman, and farmer. Because the criteria used included stress, opportunities for advancement, job security, and long hours, one very high-status position was included in the worst-job list—President of the United States.

756. Farrell also points out that occupations in which more than 90% of the occupants are women almost always have at least seven of the following eight characteristics: ability to "check out" psychologically at the end of day, physical safety, indoor, low risk, desirable or flexible hours, no demands to relocate, high fulfillment relative to training, and contact with people. FARRELL, *supra* note 607, at 105.

757. *See* John C. Touhey, *Effects of Additional Women Professionals on Rating of Occupational Prestige and Desirability*, 29 J. PERSONALITY & SOC. PSYCHOL. 86 (1974).

758. *See* White et al., *supra* note 699, at 550. Of course, virtually any conceivable fact can be enlisted in support of a view of male occupational dominance. For example, one study showed that both male and female subjects rated most occupations slightly higher in prestige when the hypothetical incumbent was a female rather than a male. The male responses were interpreted as possibly being due to "chivalry": "[s]ince chivalry often reflects the presumed higher status of the giver, men may be indirectly recognizing their own status." CHRISTINE E. BOSE, JOBS AND GENDER: A STUDY OF OCCUPATIONAL PRESTIGE 42 (1985). *See* Linda S. Gottfredson, *Do We Need Sex-Specific Occupational Prestige Scales?*, 33 CONTEMP. PSYCHOL. 315 (1988) (book review).

759. In fact, much of the compensation gap disappears if fringe benefits are included in the earnings analysis. In a recent study based upon data from the 1991 National Longitudinal Survey of Youth, researchers found that while the average wage rate of women between the ages of 26 and 34 was 87.4% of the average male rate, when fringe benefits are included the figure

that compensation differences are due to the kinds of differences described above, it is not clear why there should be societal intervention. The studies described above suggest that if women make the same kinds of human-capital investments and occupational choices as men, their compensation will be much more similar to men's than it is now.[760] If they choose to work fewer hours, seek less job-related training, and select jobs that have advantages that for them outweigh the lower pay, it is difficult to see why there is any need for correction. Preventing employers from giving higher pay to employees who work more hours, have greater job-related training, or occupy riskier jobs seems foolish.

Critics of the wage gap have sought to place the burden of explaining it on the other side. Although numerous studies have been conducted that explain part—indeed most—of the gap, a small part of it remains unexplained in virtually every study.[761] The assumption is usually that any unexplained differential must be attributed to some discriminatory factor.[762] Yet, the logic of that assumption is unclear. It would be one thing if wage equations could precisely predict men's wages but not women's wages. But the fact is that even the most sophisticated wage equations do not precisely predict wages even in all-male occupations.[763] There is no reason to conclude that the failure of the equations to explain men's wages is a reflection of incompleteness of the model but failure to explain women's wages, or the differential between men and women, is a reflection of improprieties in the compensation system.[764] In any event, it is not clear why the mere existence of an overall disparity between male and female earnings presumptively requires correction.[765]

The foreword to a recent symposium on the gender gap characterized the participants as agreeing that in order to "understand and to devise government

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rises to 96.4%. Eric Solber & Teresa Laughlin, *The Gender Pay Gap, Fringe Benefits, and Occupational Crowding*, 48 INDUS. & LAB. REL. REV. 692, 706 (1995).

760. *See* Fuchs, *supra* note 709, at 463 ("For women to earn as much as men in competitive markets, however, they would have to behave like men with respect to subjects studied in school, choice of jobs, post-school investment, and commitment to career.").

761. One set of factors that appears in some studies, but not others, to have explanatory power is the effect of marriage and children on earnings. For example, married men tend to earn more than unmarried men, but it is unclear whether this is because being married causes men to become more productive or whether it is because the same traits that cause men to be productive also cause them to be attractive as husbands. *See* Sanders Korenman & David Neumark, *Does Marriage Really Make Men More Productive?*, 26 J. HUM. RES. 282, 303–04 (1991) (expressing doubt about the latter based upon their findings that the wage growth occurs after marriage and finding no relationship between wage growth of unmarried men and the probability that they marry). Studies of the relationship between number of children and earnings for men and women have produced mixed results. *See* Hersch, *supra* note 717, at 747, 756–57.

762. *But see* Frank, *supra* note 711, at 371 (observing that the influence of unobservable characteristics "will be visible to researchers only as part of the residual estimate, where it will be empirically indistinguishable from the influence of discrimination"); Hersch, *supra* note 717, at 755.

763. *See* Roback, *supra* note 644, at 123 (pointing out that regressions measuring the earnings of men explain only about half the variance). *See also* Kingsley R. Browne, *Comparable Worth: An Impermissible Form of Affirmative Action?*, 22 LOY. L.A. L. REV. 717, 721 n.22 (1989).

764. *See* Goldin & Polachek, *supra* note 28, at 149–50 (arguing that the residual is a flawed measure of discrimination and that the residual as a percentage of the wage gap has increased over time not because of increased discrimination, but because of increased heterogeneity of the female labor force).

765. *See* Richard A. Epstein, *Some Reflections on the Gender Gap in Employment*, 82 GEO. L.J. 75, 77 (1993).

policy" it is necessary to determine why men and women do different work.[766] The foreword further described the participants as in agreement that we do not understand why men and women differ in their intensity of commitment to work, as measured by amounts of training, number of hours worked, and frequency of departure from the work force.[767] In large part, the reason for the lack of understanding is the assumption that at bottom the answer is an economic one. In a sense, of course, the answer is economic because the question is economic, but as long as an explanation is sought that assumes that men and women are fundamentally the same and that they will (or should) respond to economic incentives in the same way, the answer will continue to elude investigators.

The underlying answer to the question is in large part a biological one. For evolutionary reasons, men and women are not the same; they have different temperaments and values. These differences in turn cause them to behave differently in the labor market, and these behavioral differentials have economic consequences.

C. The Feminist Critique of the Status of Women in the Workplace

1. The Argument that Women Are Disadvantaged by Current Workplace Structures that Force Them to Choose Between Work and Family

The feminist literature on the status of women in the workplace generally starts from the premise that the glass ceiling and the gender gap in compensation are measures of disadvantage.[768] If the sole measure of advantage is proportional representation at the highest levels of employment hierarchies and equivalence in compensation with men, women as a class are indeed disadvantaged. It is far from clear, however, that this is a proper measure of disadvantage.

The argument that women are disadvantaged by current arrangements is possible only under an inappropriately narrow measure of outcomes, because the disadvantage of women is demonstrated purely by the lack of equal outcomes in the economic sphere.[769] However, feminists acknowledge that a major reason that women do not receive equal extradomestic outcomes is that they have opted for a larger measure of satisfaction in the domestic sphere. As Nancy Dowd has observed, "[f]or each sex, the ideal relation between work and family is constructed differently...."[770] Women maximize their reward at a particular mix of family versus job satisfaction; they invest more than men domestically and get more in return, and they invest less extradomestically and

766. Warren F. Schwartz, *Foreword: The Gender Gap in Compensation*, 82 GEO. L. J. 27 (1993).

767. *Id.*

768. I do not mean to imply a uniformity of thought among feminists, but the arguments discussed here are common ones. *See* Dowd, *supra* note 11, at 113 ("Social science has extensively chronicled women's disadvantaged status in the workplace...."); Catharine A. MacKinnon, *Legal Perspectives on Sexual Difference, in* THEORETICAL PERSPECTIVES, *supra* note 5, at 213, 225 ("To the extent that the biology of one sex is a social disadvantage while the biology of the other is not, or is a social advantage, the sexes are equally different but not equally powerful.").

769. *See* Roback, *supra* note 644, at 121 (arguing that equalizing earnings is a "flawed social goal").

770. Dowd, *supra* note 11, at 91.

get less in return.[771] Numerous studies have shown that the self-esteem of men is much more closely related to success in the extradomestic sphere than is the self-esteem of women, which is more tied to affiliative success.[772] This is simply another way of saying that the psychic rewards of working are different for men and women. As psychologists Garai and Scheinfeld observed almost thirty years ago—an observation that remains true today—"[e]ach sex seems to have a different definition of what constitutes success in life."[773] But now, after men and women have made work/family tradeoffs based upon their respective views of success, some argue in effect that there should be a "bonus" to make women equal to men in the extradomestic sphere without requiring them to pay the price in the domestic sphere that men had to pay to achieve their positions.[774] Yet, if men and women make different choices based upon their own view of success, the case for subsequent adjustment is hardly compelling.

Many feminists acknowledge, either explicitly or implicitly, that one of the primary reasons that men hold a disproportionate number of the highest-paying jobs is that men have a greater commitment to the workplace.[775] As Nancy Dowd has observed, the "clash between occupational and family life cycles has produced starkly different patterns of labor force attachment for men and women."[776] Thus, "[w]omen continue to fit work to families, and men vice versa."[777] Women's lesser commitment to the workplace is caused not only by their greater domestic role,[778] but also by the fact that they "have placed lower priority than men on objective forms of recognition in employment such

771. A 1986 *Newsweek* poll found that only 50% of the women polled believed that a full-time working mother can adequately fulfill her responsibilities to her child. NEWSWEEK, Mar. 31, 1986, at 51. Of the working mothers polled, 43% had either changed jobs or hours to spend more time with their family. Moreover, only 36% of working mothers and 25% of nonworking mothers viewed the ideal work arrangement as being full-time employment (even if flexible hours were available).

772. HOYENGA & HOYENGA, *supra* note 16, at 346; MOIR & JESSEL, *supra* note 45, at 162, 166. Moir and Jessel ask the question, "Would a woman stockbroker jump out of a Wall Street skyscraper if the market crashed?" MOIR & JESSEL, *supra* note 45, at 161.

773. Garai & Scheinfeld, *supra* note 286, at 216.

774. *See infra* notes 787–90 and accompanying text.

775. Dowd, *supra* note 11, at 101 n.76 (noting that women have more frequent job interruptions, which are almost entirely for family reasons, and that absenteeism rates of women are nearly twice that of men); Sylvia A. Law, *Rethinking Sex and the Constitution*, 132 U. PA. L. REV. 955, 965 n.29 (1984) ("Exercise of significant ambition today demands a single-minded, egotistic devotion that is inconsistent with primary responsibility for the care of children."); Rhode, *supra* note 284, at 1767 ("The dominant assumption is that effective professional performance requires 'total commitment,' which is incompatible with part-time work, flexible schedules, and extended caretaking leaves."); Williams, *supra* note 392, at 1596–97 (criticizing the "notion of an ideal worker without primary responsibility for children: a worker absent from home a minimum of nine hours a day, five or six days a week, often with overtime at short notice and at the employer's discretion"). *See also* CORINNE HUTT, MALES AND FEMALES 138 (1972) ("To reach the top, as apart from reaching an interesting and responsible post at middle level, would, as the women see it, call for a maximum commitment of time and energy, and so a sacrifice of other interests which they are not prepared to make." (citation omitted)).

776. Dowd, *supra* note 11, at 88.

777. Dowd, *supra* note 11, at 88. *See also* Walker et al., *supra* note 741, at 33 (suggesting that the presence of children in the home promotes reduced work involvement among working women).

778. *See* Rhode, *supra* note 284, at 1772 ("Women continue to assume about 70% of the domestic responsibilities in an average household and employed wives spend twice as much time on family obligations as employed men.").

as money, status, or power...."[779] In other words, women care less about climbing hierarchies than men, a conclusion that is consistent with both evolutionary theory[780] and psychological data.[781]

Why is it that women play a greater role domestically? At least in part because "most mothers are much less willing than fathers to view children's needs as completely delegable."[782] Nancy Dowd has described the source of women's "disadvantage" as follows:

> Another reason women are disproportionately disadvantaged is that women perceive their role as parents differently than do men. This is not simply because they do more parenting. Rather, they see their parenting role as qualitatively different. Men may be less likely to experience conflict between work and family because they expect less of themselves as parents than do women.[783]

If women place a higher priority on parenting responsibilities and a concomitantly lower priority on workplace involvement than men, then one might conclude that women's lesser workplace rewards are not a cause for worry.[784] Yet, that is not the typical feminist response. Instead, the response is that notwithstanding the lower priority placed by women on workplace success, workplace outcomes should not be unequal.[785] If women are not willing to put in sixty hours per week in a law practice, then a sixty-hour week requirement is not a "gender neutral" requirement and it should be modified.[786] Of course, under such an analysis, a fifty-hour per week requirement would not be "gender neutral," nor would a forty-hour requirement.

Why should women who are unwilling to invest in careers to the same extent as men reap equal career rewards? According to Deborah Rhode, it is because "[w]omen ought not to have to seem just like men to gain equal respect, recognition, and economic security."[787] According to Christine Littleton,[788] it is because "[t]he difference between human beings, whether perceived or real, and whether biologically or socially based, should not be permitted to make a

779. *See* Rhode, *supra* note 284, at 1774.
780. *See supra* text accompanying notes 132–39.
781. *See supra* text accompanying notes 282–347.
782. Williams, *supra* note 392, at 1620.
783. Dowd, *supra* note 11, at 113–14.
784. Studies show that for both men and women, "annual income varies significantly between individuals who express differing desires for monetary rewards and unequal degrees of motivation or drive to achieve." Long, *supra* note 717, at 348.
785. Dowd, *supra* note 11, at 130 (suggesting that the workplace structure should be reformed "to permit women or men to follow the traditional female work-family role without the consequence of occupational limitation and economic impoverishment"); Finley, *supra* note 681, at 1144 ("To make the competition equal, people may need varying underlying substantive entitlements. Individual needs and positions may have to be taken into account in any particular situation in order to achieve equality of outcome."). *But see* LEVIN, *supra* note 34, at 37 (arguing that "it is logically impossible for not wanting something to be a handicap to its pursuit").
786. *See* Rhode, *supra* note 284, at 1783 n.253. Thomas Harrell found that female MBAs were significantly more likely than men to express dissatisfaction with hours of work, despite the fact that the men worked approximately 20% more hours per week. Harrell, *supra* note 644, at 960.
787. Deborah L. Rhode, *Theoretical Perspectives on Sexual Difference, in* THEORETICAL PERSPECTIVES, *supra* note 5, at 1, 7.
788. Littleton, *supra* note 40, at 1284–85.

difference in the lived-out equality of those persons."[789] Littleton writes, "if women currently tend to assume primary responsibility for childrearing, we should...figure out how to assure that equal resources, status, and access to social decisionmaking flow to those women (and few men) who engage in this socially female behavior."[790]

If women are less willing to sacrifice family for career, and therefore elect not to do so, then one might at least characterize these decisions as the product of free choice. Rather than celebrate the fact that a woman might make the apparently selfless choice to nurture her children,[791] a common response of feminists is to deny that there is any choice at all; at best there is "choice."[792] According to Nancy Dowd, a "consequence of the adjustment of family to work is the 'choice' of particular occupations and of part-time work as a way to accommodate work and family responsibilities." For women, "the choices are complete separation of work and family, or 'choosing' marginal work."[793]

Perhaps the most extensive rejection of the notion that women's "choices" are actually choices is that offered by Joan Williams.[794] Merely placing quotation marks around a word, however, is not enough to demonstrate that the concept is inapplicable. What is it that women "choose"—that is to say, do not choose? Some "choose" to "scale back work commitments in deference to their children's needs."[795] Some "choose" to "remain childless."[796] They "are forced to choose between work and family."[797] They "choose" careers that accommodate their children's needs.[798] Or they "choose" to drop out of the paid labor force.[799] Why are these not real choices? According to Williams, there

789. Littleton, *supra* note 40, at 1284–85. The same could be said about intelligence, of course.

790. Littleton, *supra* note 40, at 1297. *See also* Issacharoff & Rosenblum, *supra* note 708, at 2214 (arguing that because reproduction is a "societal good," working women "are not the appropriate cost-bearers for what is at bottom a social and biological imperative").

791. Of course, as a matter of evolutionary biology that is not a selfless choice at all; by caring for their children, parents of both sexes advance their own genetic self-interest.

The issue of whether maternal home care is better for the development of the child than day care is an important one, but it is beyond the scope of this article. *Compare* SELMA FRAIBERG, EVERY CHILD'S BIRTHRIGHT: IN DEFENSE OF MOTHERING (1987); Draper & Belsky, *supra* note 117, at 153 (infants exposed to extensive nonmaternal care in their first year are at higher risk of developing insecure attachment relationships and exhibiting aggressive behavior); Burton L. White, *Should You Stay Home with Your Baby?*, 37 YOUNG CHILDREN 11 (1981) (arguing that children benefit from being cared for most of the time by their parents) *with* A. Farel, *Effects of Preferred Maternal Roles, Maternal Employment, and Sociodemographic Status on School Adjustment and Competence*, 51 CHILD DEV. 1179 (1980); Joanne C. O'Connell, *Children of Working Mothers: What the Research Tells Us*, 38 YOUNG CHILDREN 62, 68 (1983) (arguing that studies have not demonstrated any consistent adverse effects of out-of-home child day care).

792. *See* Dowd, *supra* note 11, at 89–90 ("Those who argue that these patterns are not the result of discrimination, but rather of 'choice,' nevertheless concede that the choice is *required* due to the conflict of occupational time or career demands with family responsibilities and priorities." (emphasis added)). Deborah Rhode, on the other hand, asserts that when men decline to make career concessions, they are exercising choice. Rhode, *supra* note 284, at 1783.

793. *See* Dowd, *supra* note 11, at 102 n.81.

794. *See* Williams, *supra* note 392.

795. Williams, *supra* note 392, at 1562.

796. Williams, *supra* note 392, at 1598.

797. Williams, *supra* note 392, at 1598.

798. Williams, *supra* note 392, at 1607.

799. Williams, *supra* note 392, at 1621.

are two reasons: first, because the range of choices is substantially restricted;[800] second, because it is usually the woman, rather than the man, who makes the choice to forsake career for family.[801] Both of these observations are empirically true, but neither demonstrates that the decisions are not choices.

As to the restriction on the range of choices, there are limits on virtually every activity we engage in. We are constantly making tradeoffs based upon our own priorities; the fact that we prefer A to B does not mean that when we choose A it is not a free choice. The fact that the sexes tend to make different tradeoffs simply demonstrates that the two sexes have different priorities, and the fact that these choices are influenced by biology does not make them any less choices. One might fairly say that our biological need for nutrition may leave us no real choice but to eat, and it may not be inappropriate to say that one *"chooses"* to eat rather than *chooses* to eat. However, one does have choices about *what* to eat. When faced with the option of a plain lettuce salad and a plate of unseasoned rice and beans or a thick juicy hamburger, french fries, and a milk shake, there is a choice. As fast-food retailers have reason to know, however, the evolutionary history of mankind has predisposed people to make the choice in a particular way—that is, to prefer the meal that is high in fat, salt, and sugar. Nonetheless, our selection of the hamburger is a choice, and it is nonsense to say that we chose the hamburger but did not choose the fat and cholesterol, and it is equally nonsense to assert when we get fat that we had no choice about what to eat.[802]

It is ironic that feminists seize on the lack-of-choice issue, since women have a much broader range of work/family choices than men do. A woman can choose to be a "career primary" worker, a "career and family" worker, a part-time worker, or a full-time housewife; all of these are socially respected choices. Men, on the other hand, have little choice at all. They are expected to be full-time workers who, in most circumstances, are the primary family breadwinners.[803]

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800. Williams, *supra* note 392, at 1611–12 (characterizing the range of choices as "fundamentally unacceptable").

801. Williams, *supra* note 392, at 1607–08 (commenting on the "truly stunning consistency with which it 'happens' to be wives who 'choose' careers that 'accommodate their children's needs,' while husbands continue (as they always have) to perform as ideal workers").

802. *See* LEVIN, *supra* note 34, at x ("Man is never freer than when he is acting on his biologically determined preferences."). In the same vein, a man who cannot find a willing sexual partner does not "choose" to rape; he chooses to, and he should bear the consequences. *But see* Littleton, *supra* note 40, at 1296–97 (arguing that if "women do in fact 'choose' to become nurses rather than real estate appraisers,...they certainly do not choose to be paid less").

803. FARRELL, *supra* note 607, at 57. Even when feminists acknowledge the more restricted role of men, *see* Dowd, *supra* note 11, at 115 ("there is less flexibility in the workplace structure" for men), they still view women as the disadvantaged ones, *see* Dowd, *supra* note 11, at 114 ("most women are less able than men to resolve the logistical considerations of work-family conflict simply because they make less money and hold fewer of the more flexible managerial/professional jobs"). Any flexibility in the workplace that women do have is either "mandated" or "paternalistically conferred on women."

The greater restrictions on the male workplace role follow the male's generally more restricted sex role. *See* Elizabeth & Green, *supra* note 520, at 178 (comparing the stigma attached to "girl-like" (sissy) behavior in boys with the general acceptance of "boy-like" (tomboy) behavior in girls); Kohlberg, *supra* note 537, at 121 (noting that "the girl can have 'opposite sex' interests, and yet maintain her same-sex values more readily than the boy"); Donald R. McCreary, *The Male Role and Avoiding Femininity*, 31 SEX ROLES 517 (1994) (concluding that the more negative response to male deviations from sex-role expectations is due

Some feminists argue that we need to "change the paradigm"—that societal expectations should be broad enough to encompass the "house husband" model. Rhona Mahony has argued for "throw[ing] away the stereotypes" that lead men to do less than half the work of raising children.[804] The key to workplace equality, she argues, is abolition of the sexual division of labor at home:

> When the sexual division of labor has disappeared, men will be doing half the total amount of child-raising work. Roughly half the primary breadwinners will be women and roughly half will be men. Roughly half the homemakers will be women and roughly half will be men. Also, it will mean that roughly half the primary parents—the ones who stay home when Junior is sick, who carpool to soccer practice, who cook chili for the bake sale—will be men. Those men will be economically dependent on their wives. They'll do what millions of women have done for so long: they'll focus on their children.[805]

While surely there should be no prohibition on such choices, an understanding of evolutionary psychology reveals the naiveté of the belief that many families would choose that model or that failure to choose that model is a reflection of societal failings.[806] Men's desire for status and tangible rewards is a biologically ingrained one, as is the desire of women for men with high status and resources. The notion that female executives and professionals would in large numbers be willing to marry men who would stay home and take care of the home and children is nothing short of fanciful.[807] Successful women not only want husbands who work, they—to a much greater extent than men—want mates who are also highly successful;[808] studies show that they generally get them.[809] It will be the rare man who is willing to stay home with the children and be supported by his wife for an extended period, and it will be the probably

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not to lower status of feminine behavior but rather to the fact that males who deviate from norms are more likely to be considered homosexual). However, McCreary did not examine whether responses to such deviations are less in societies where homosexuality is looked on more benignly.

804. RHONA MAHONY, KIDDING OURSELVES: BREADWINNING, BABIES, AND BARGAINING POWER 5 (1995).

805. *Id.* at 216.

806. To her credit, Mahony briefly adverts to the evolutionary psychology literature; unfortunately, it is relegated to a dismissive note in the back of the book. *Id.* at 244–45.

807. Reporting on a study conducted on medical students, John Townsend has concluded that "although some of these women do not want to assume the majority of [domestic] tasks themselves, neither do they want husbands who, given the demands of the husbands' careers, would be willing or able to assume a majority of these responsibilities." Townsend, *supra* note 141, at 250–51.

808. *See* Townsend, *supra* note 141, at 247 (reporting on a sample of medical students in which "no woman preferred a husband with lower status and income than she had, and no man preferred a wife with higher status and income than he had"). Townsend also found a strong aversion among the women to having a husband who did not work, while the men viewed having a non-working wife much more positively. Townsend, *supra* note 141, at 249.

809. For example, a study of obstetrician/gynecologists showed that most of the married men were in single-earner families and only 12% of the married men had wives who were professionals or executives. Ninety-six percent of the husbands of the married women ob/gyns were employed, and the husbands of 78% were professionals or executives. Weisman et al., *supra* note 750, at 780. *See also* Dalia Etzion, *The Experience of Burnout and Work/Non-Work Success in Male and Female Engineers: A Matched-Pairs Comparison*, 27 HUM. RESOURCE MGMT. 163, 167 (1988) (In a study of male and female engineers matched by profession, seniority, training, and job experience, 80% of the women but only 32% of the men had spouses who were engineers, scientists, or top professionals.).

rarer wife who is willing to support such a husband.[810] Suggestions that "men just need to change"[811] will be no more fruitful and are no more appropriate than suggestions that women should.[812]

A lack of understanding of biologically based behavioral tendencies has caused most observers of workplace and family issues to assume that the primary forces acting upon husbands and wives are economic ones. However, the feminist argument that the glass ceiling is caused in substantial part by the lack of "quality, affordable day care"[813] is almost certainly wrong. The women who are potential top executives and law-firm partners are the women who can best afford quality day care. Yet many of these talented, well-compensated women leave the work force for substantial periods of time because they want to be with their young children.[814] A high proportion of the wives of executives do not work full time, despite the fact that they can afford child care; presumably, many of these wives are the talented, formerly well-compensated women referred to above.[815] Although it has been argued that, by marrying, "elite males tap a flow of domestic services that reinforces their ability to conform to workaholic norms,"[816] if the issue were simple economics, the husband and wife would both work and hire domestic help to facilitate both of their careers.

If low-income women were leaving the workplace and high-income women were remaining, accessibility of day care might be a plausible explanation of that phenomenon, although lack of day care could not then explain the dearth of women in the highest positions. Yet, that does not appear to be what is happening in any event. Women who can afford to remain out of the work force for an extended period of time often do so. Women at the *bottom* of the economic ladder may not be able to earn enough to make it worthwhile to work in light of the cost of day care; free day care would no

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810. *See* BLANKENHORN, *supra* note 154, at 93 (noting that "[a]n androgynous or ungendered paternity...is incompatible with fatherhood as a social role"); Diane H. Felmlee, *Who's on Top? Power in Romantic Relationships*, 31 SEX ROLES 275 (1994) (finding that the higher the relative degree of power attributed by respondents to the male partner, the lower the rate of marital dissolution); David Popenoe, *Parental Androgyny*, SOCIETY, Sept.-Oct. 1993, at 5, 10 (noting that "role-reversed" families have a high rate of break-up).

811. *See* BETH M. ERICKSON, HELPING MEN CHANGE: THE ROLE OF THE FEMALE PSYCHOTHERAPIST 5 (1993) (asking "[w]hat good does it do women to liberate themselves, if men are still unfree—limited either by their own expectations or by society's decrees—to actualize their full emotional as well as intellectual potential as human beings?"). Erickson also praises group therapy because "[t]he issues that typify most male interactions (power, competition, achievement, isolation) become less prominent for men in these groups as they progress." *Id.* at 367.

812. *See* Dowd, *supra* note 11, at 94–95 ("[I]n order for men to truly achieve the egalitarian model, they must undergo nothing less than a reconstruction of self."). *See also* Coverman, *supra* note 717, at 635 (arguing that "an equitable distribution of work in the home is necessary before gender inequalities in the labor market are ameliorated").

813. *See* Dowd, *supra* note 11, at 114 ("At least one partial solution to certain kinds of work-family conflicts is the ability to purchase services such as childcare, after school programs, etc. But women, due to their poor economic position in the workplace, are less likely than men to possess the means to purchase such services.").

814. *See* Townsend, *supra* note 141, at 247–48 (finding in a sample of medical students that only 25% of women preferred to continue working full-time while their children are small).

815. *See* Eccles, *supra* note 308, at 245 (noting that the general tendency of men to focus on work and women to spread time across work and family is especially true among those holding professional and other high-status jobs).

816. Williams, *supra* note 392, at 1602–03.

doubt be of value to them. However, these are not the women who would be breaking the glass ceiling. That leaves the great middle, women whose earnings are important for family support, whether as primary or secondary earner, but who must struggle to afford day care. These, presumably, are among the women who we are often told "work because they have to not because they want to."[817] They probably have some sort of day-care arrangement, although it may not be optimal.[818] It is not clear that any of these three groups of women would be smashing the glass ceiling if only there were "quality, affordable day care."

Rather than identifying women as the "victims" of current arrangements, one could as easily argue that it is men who are disadvantaged.[819] Because of their drive for status and resources, in addition to social expectations that the man be the breadwinner, men "choose" more money, little time with family, and unpleasant working conditions. Under the views of Christine Littleton,[820] one could say that men chose more money, but they did not choose to be away from their families and to work in unpleasant surroundings. A comparison along one dimension, however, does not allow one to determine whether the situation is an advantage, a disadvantage, or neither. As Jennifer Roback has observed, "[o]nce we observe that people sacrifice money income for other pleasurable things we can infer next to nothing by comparing the income of one person with another."[821] Many of the readers of this article probably gave up the opportunity to make more money practicing law in exchange for different rewards in the academy, but it would be nonsense to argue that they are therefore "disadvantaged" in comparison to practicing lawyers. The answer—for lawyers and for law professors, for men and for women—is that they made their choices based upon their own individual situations and values; they engaged in a tradeoff, and there is no basis for later examining the situation along only one dimension and declaring inequality.

The price that men pay for what their competitiveness earns them is not limited to decreased domestic participation. The competitive, testosterone-driven nature of men that drives them to seek status and resources also drives them to an early grave.[822] Like almost all mammals, the male human has a lesser life expectancy than the female.[823] Marianne Frankenhaeuser has

817. Victor Fuchs has pointed out that marital status has a much smaller effect on the propensity of black women to work part-time than it does on white women, "at least in part because black husbands earn less than white." FUCHS, *supra* note 705, at 45.

818. Significantly more women than men report that they would cease working if it were not economically necessary. *See* Lacy et al., *supra* note 686, at 323. This difference is particularly apparent in married men and women. *See* Lacy et al., *supra* note 686, at 323.

819. Sylvia Law has argued that "[m]en are profoundly disadvantaged by the reality that only women can produce a human being and experience the growth of a child in pregnancy." Sylvia A. Law, *Rethinking Sex and the Constitution*, 132 U. PA. L. REV. 955–56 (1984). She has not explained, however, what societal changes we should make to redress this disadvantage.

820. See the parenthetical discussion of Littleton's views, *supra*, at note 802.

821. *See* Roback, *supra* note 644, at 124.

822. *See* BUSS, *supra* note 110, at 200 (observing that "[t]he reason for men's higher mortality, like that of males of many mammalian species, stems directly from their sexual psychology, and in particular from their competition for mates").

823. *See* Wilson & Daly, *supra* note 140, at 67 (noting that "it is characteristic of a polygynous species [including our moderately polygynous one] that the males tend to suffer higher mortality than the females"). *See also* Ray Collins, *Why Do Women Last Longer Than Men*, NEW SCIENTIST, Oct. 23, 1993, at 45; Marianne Rasmuson, *Men, The Weaker Sex?*, 21 IMPACT SCI. ON SOC'Y. 43 (1971).

suggested that the greater vulnerability of men to coronary heart disease may be related to the male's "more intense and more frequent neuroendocrine stress responses."[824] However, this is not viewed as a social problem, and there are no public policy initiatives to close the "life-expectancy gap."

A further irony in the feminist complaint about lack of choice is its embrace of a deterministic world view. The crux of their argument is that the constraints on women are so great that their choices are essentially preordained. Yet they criticize any argument that women are biologically predisposed to choosing in a particular way as "determinism."[825] A comparison of the arguments of those arguing for biological influences and those arguing against them reveals that there is a great deal more cultural determinism in the arguments of the social constructionists than there is biological determinism in the arguments of the evolutionary psychologists.

One unfortunate consequence of the feminists' focus on workplace equality and their denial of the reality of choice is the explicit or implicit denigration of the domestic role.[826] Notwithstanding frequent demurrers, a clear message is that the status of housewife is the status of an oppressed victim; women fill that role because they were forced into it or too gullible to realize that it was not in their interest. This has the potential of placing women in a position in which there is little chance of winning. If the role of wife and mother carries a high status, women may achieve status by filling those roles. However, if high-status roles are found exclusively in the extra-domestic sphere—a sphere in which men's temperament gives them an advantage—the overall status of women is bound to decline rather than increase.[827]

Notwithstanding a level of complaint that would lead one to conclude otherwise, not all or even most women seem to feel disadvantaged. Surveys show that women are generally happy with their lives and with their jobs,[828] a finding that is consistent with the view that the workplace/family accommodations they have reached are satisfying to them. However, it is precisely this satisfaction that is viewed as a problem by some. Deborah Rhode has characterized the fact that women's economic opportunities have been increasing as a "central problem in generating perceptions of a problem among women,"[829] a characterization that makes sense only if the goal is the perception of oppression rather than its elimination.

What is the way out of this problem? Women are staying home with their children and refusing to work the long hours that men have always had to work to get ahead. The typical responses are a "broad range of initiatives regarding child care, part-time work, flexible schedules, health insurance, and family

824. Frankenhaeuser, *supra* note 299, at 161. *See also supra* text accompanying notes 291–300.

825. *See, e.g.*, Dowd, *supra* note 20, at 456–57.

826. *See generally* F. Carolyn Graglia, *The Housewife as Pariah*, 18 HARV. J.L. & PUB. POL'Y 509 (1995) (describing the contempt of many contemporary feminists for women who choose the domestic life).

827. *See* GOLDBERG, *supra* note 44, at 56.

828. *See supra* note 745.

829. Rhode, *supra* note 284, at 1775. *But see* Jane Friesen, *Alternative Economic Perspectives on the Use of Labor Market Policies to Redress the Gender Gap in Compensation*, 82 GEO. L.J. 31, 50 (1993) (stating that "[t]he most important evidence against the view that 'all's right with the world' may be that so many women think that all is not right as evidenced by their concern with gender-related employment issues").

support services."[830] Those initiatives should be considered on their own merits, but the suggestion that they will result in elimination of the glass ceiling or the gender gap in compensation is simply naive.

2. The Argument that Women Must Make Choices that Men Have Never Faced

It is often said that a major unfairness facing women in the workplace is that they have to choose between career and family while men do not.[831] Thus, the argument goes, even if one accepts that women choose rather than "choose," it is nonetheless unfair because men have never had to face that choice. Equality therefore requires that the workplace accommodate the family responsibilities of women to avoid imposing upon them a choice that men do not face.[832] That assertion rests on the false premise that men have not had to make tradeoffs between family and career. On the contrary, stories of male executives who seldom see their children are a commonplace. The woman who has sufficient capacity and desire for a high-powered career can pursue it and still "have a family," just as a man can.

The assertion that women cannot have a high-powered career and family is based upon a sexual asymmetry in what is meant by "having a family." A male executive who has a wife who does not work outside the home and who seldom sees his children is considered to "have it all"[833]—career and family. Even if his wife works and his children are in day care all day, he still "has it all." The female executive—perhaps the wife of the male executive described above—who seldom sees her children, who spend their days in day care, is seen as having sacrificed family for career; she does not "have it all," even if she has exactly what her husband has. Yet, the woman executive can do the same as a man *if she chooses*. By taking only a brief leave for an uncomplicated pregnancy and placing the childcare responsibilities on someone else (for example, a willing husband or a paid provider), there is little reason that all else being equal the woman cannot have career and family the same way that a man can.

The reason that the model of the absentee mother is not deemed acceptable returns to the definition of what it means for a woman to "have a family"; for many women (and more women than men), it means spending substantial time nurturing the child. This difference is reflected in the linguistic

830. Deborah L. Rhode, *Definitions of Difference*, *in* THEORETICAL PERSPECTIVES, *supra* note 5, at 197, 211. *See also* Dowd, *supra* note 11, at 129 (stating that "[e]limination of biological disadvantage would require job-protected, paid maternity leave for pregnancy-related disability and accommodating pregnancy-related modifications in work tasks").

831. *See, e.g.*, Williams, *supra* note 392, at 1596–1608.

832. There is some irony in the suggestion that employers should modify job requirements and compensation structures to accommodate women's disproportionate domestic burden. When employers paid men more on the ground that their families were financially dependent upon them, women's-rights advocates argued that employer should not consider employees' obligations outside the workplace and should consider only their contribution to the employer's business. Now the argument returns in a different form, with employers being told that they *should* consider the home life of their employees if failing to do so disadvantages women.

833. *See* Williams, *supra* note 392, at 1617 (referring to a husband whose wife was leaving the work force as "the only one who could 'have it all.'"). The "all" that he now has is the complete financial responsibility for his family and less time to spend with his children. For a recent discussion of "the myth of having it all," see Jennifer R. Morse, *Beyond "Having It All,"* 18 HARV. J.L. & PUB. POL'Y 565, 567–68 (1995).

distinction between "fathering a child" and "mothering a child," the former meaning contributing to conception and the latter meaning contributing to ongoing care. Only by failing to realize that what they mean by the phrase "having a family" is different for the two sexes is it possible for these writers to argue that women are asking only for what men already have.

Why is it that men and women have different attitudes toward work and family issues? Is it that men do not care about their children? It seems unlikely; children are commonly cited as the greatest rewards by both men and women. Many successful men have later regrets about not spending more time with their children when they were young.[834] No matter how much they would have enjoyed spending time with their young children, however, they were unwilling at that time to make a tradeoff of some career success for family. After the fact, it is easy to long for the road not taken; in hindsight, the tradeoff between career and family does not have to be made—the career is established and financial security is achieved. All these men may be saying with their expressions of regret is that, all else being equal, they would have preferred more time with their children. However, the preferences acted upon at the time caused them to devote energy to career at the price of time with family.

Some studies have shown that fathers are more emotionally involved with their families than with their paid employment and that they derive more satisfaction and self-worth from family involvement than from paid employment.[835] These studies are sometimes invoked as proof that sex differences in workplace status cannot be attributed to differential commitment to family.[836] There is good reason, however, to doubt that interpretation. First, and perhaps least important, there is clearly a "correct" answer. There is a stigma attached to a parent, whether a male or a female, who says, "My family comes second." Second, to the extent that this datum is intended to shed light on the glass ceiling, the issue is whether the finding fits the men who hold top executive positions.[837] Third, since the issue is the relative positions of men and women, the question is not whether in some absolute sense men are committed to their families, but rather whether they are as committed as women.[838] Fourth, the most important question for our purposes is whether men's psychological commitment translates into an equivalently reduced work commitment.[839] Evidence already referred to, showing that the birth of a child decreases labor-force commitment of women but increases that of men,

834. As Moir and Jessel put it, with age "[m]en become less aggressive as their testosterone level drops, and, in turn, have less power to neutralize their own naturally occurring female hormones; as they contemplate the garden, they wonder why they wasted so much time struggling up the corporate career ladder." MOIR & JESSEL, *supra* note 45, at 181.

835. *See, e.g.*, Joseph H. Pleck, *Husbands' Paid Work and Family Roles: Current Research Issues*, 3 RESEARCH IN THE INTERWEAVE OF SOCIAL ROLES: FAMILIES AND JOBS, 251, 291–99 (1983).

836. *See, e.g.*, Martin H. Malin, *Fathers and Parental Leave*, 72 TEX. L. REV. 1047, 1057–59 (1994).

837. *See* Pleck, *supra* note 835, at 298 (noting that "[t]here is a small group of men with greater work than family involvement and they are doubtless overrepresented among the more educated and occupationally successful").

838. *See* Pleck, *supra* note 835, at 298 (reporting that men's level of involvement, though high, is less than women's).

839. *See* Pleck, *supra* note 835, at 298 (noting that the results do not take into account qualitative rather than quantitative differences in husbands' and wives' psychological involvement in the family).

suggests that there is indeed a very important qualitative difference in the manifestation of family commitment.

It may be that in some sense women desire career success as much as men, and men desire family involvement as much as women. Perhaps, for example, if men and women were asked how important these two attributes are, they would both rate the two attributes a "ten" on a ten-point scale. But in a more important sense, it is clear that women as a group do not desire career success as much as men and that men do not desire the same degree of involvement with children that women do, no matter how much they may love them. What counts are the priorities attached to these two goals, not whether they are desired in the abstract. If men place greater relative priority on career and women greater relative priority on family, we should hardly be surprised if men's career success is greater than women's, just as we should not be surprised if women's involvement with their children is greater than men's.[840] Not only should we not be surprised at these outcomes, we should not be dismayed. It is difficult to articulate a principle of justice that would require equal career success for those for whom career is a top priority and those for whom it is not. Men and women both make choices; those choices entail consequences. At most, equality requires that women be free to make the "male" choice and men be free to make the "female" choice. However, if men tend to make the "male" choice and women the "female" choice—with men reaping the male rewards and women the female—so be it.

The simple fact is that women cannot "have it all" and neither can men.[841] The incompatibility of a high-powered career and a substantial commitment to childrearing was not considered a serious social problem until women began to face the same tradeoffs that men have always faced. The demands of some women for immunity from these tradeoffs are made in the name of sexual equality, but no standard of equality with a basis in economic reality can justify such demands, any more than it could support the similar demand that the earnings of part-time employees must be the same as the earnings of full-time employees.

When the argument is made that comparable men and women enjoy comparable economic outcomes—an argument that is invited by claims that women are disadvantaged relative to men[842]—the next level of responsive

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840. Harrell, *supra* note 644, at 961.

841. Felice Schwartz notes:

> For some time women had the illusion they could "do it all" and "have it all" because they had the illusion that men "had it all." Now that illusion has been cast aside, and women know they have to order priorities and make trade-offs, just as men have always done. If they want high-achieving careers, that probably means they're going to have less time with their children. Conversely, if they want to participate actively, day by day, in their children's lives, they'll probably have to put a ceiling on their career aspirations, at least for a finite period.

SCHWARTZ, *supra* note 678, at 196. *See also* Pleck, *supra* note 835, at 318 (noting that "men who are highly involved in and accommodate their work role to their families are less ambitious in their occupation, and if they work in highly demanding career lines, devalue themselves for it" (citations omitted)).

842. *See* Herma H. Kay, *Models of Equality*, 1985 U. ILL. L. REV. 39, 87 (1985) (arguing that if women are claiming to be oppressed, "then an implicit comparison with men seems built into the standard"). *But see* Martha Minow, *The Supreme Court 1986 Term, Foreword: Justice Engendered*, 101 HARV. L. REV. 11 (1987) (complaining that "[l]egal treatment of difference tends to take for granted an assumed point of comparison: women are

argument is often the query, "Why should you have to be the same as a man to get what a man gets simply because he is one?"[843] Why do women "have to show in effect that they are a man in every relevant respect, unfortunately mistaken for a woman on the basis of an accident of birth?"[844] This argument can be made only by doing what many feminists say one should not do—using men as the standard of comparison. Successful men do not get what they have simply by being men; for every successful executive, there are many men who desired that status and did not get it because they were outcompeted. If a man makes tradeoffs of career success for family involvement, he, just like a woman, will face an economic penalty. At bottom, the answer to the question why a woman must make the same workplace investments as a man is that she need not, unless she wants the same workplace rewards as the man. The implicit argument that women should not have to work as hard as men for equivalent rewards is not one that has been explicitly defended.[845]

Although comparable men and women enjoy comparable economic outcomes in the workplace,[846] it appears that they may not enjoy comparable psychic outcomes. The life-satisfaction that a successful career brings to a man does not necessarily come to a woman. In a study of burnout in men and women engineers, for example, there was a significant positive correlation between self-perceptions of work and non-work success in men but not in women.[847] The researcher concluded that "unlike men, when women assign importance to success in their life outside work, they tend to be burned out and lack enjoyment."[848] For women engineers, "burnout is associated with attaching high importance to success in either career or personal life."[849] In contrast, "[t]hose women who maintained a balanced, moderate attitude towards the two spheres were less burned out," while for men the two spheres were more compatible.[850]

If there were no systematic difference between the tradeoffs made by men and the tradeoffs made by women, there would probably be little support for the proposition that it is unfair for people who devote more time and energy to career to receive greater career rewards. In fact, most people would probably be shocked to learn of a requirement of equal rewards for different levels of career investment. But that is precisely the claim that many feminists

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compared to the unstated norm of men"); Rhode, *supra* note 830, at 204 (arguing that "[t]o pronounce women either the same or different leaves men as the standard of analysis"). The argument of Rhode and Minow is incoherent. On the one hand, men are not supposed to be the standard of comparison; on the other hand, the measure of disadvantage is whether it results in "gender disparities in political power, social status, and economic security." *See* Rhode, *supra* note 830, at 284.

843. MacKinnon, *supra* note 768, at 221. In a similar vein, Ann Scales has argued that "[t]o demand only the chance to compete is to embrace the status quo in a way that tends to sanction oppressive arrangements—for example, the necessity of choosing between children and career." Ann Scales, *Towards a Feminist Jurisprudence*, 56 IND. L.J. 375, 427 (1980-1981).

844. MacKinnon, *supra* note 768, at 221.

845. Issacharoff & Rosenblum, *supra* note 708, at 2214–15 (asserting that "there is something rather disturbing in having a wealthy society maintain economically-compelled divisions between women who fully join the labor force and women who serve primarily on the reproductive front," but they do not demonstrate why we should find it so).

846. *See supra* note 760.

847. Etzion, *supra* note 809, at 170.

848. Etzion, *supra* note 809, at 171.

849. Etzion, *supra* note 809, at 175.

850. Etzion, *supra* note 809, at 175.

make. The labor market is criticized for rewarding high levels of commitment on the theory that to do so disadvantages women, but it disadvantages women only to the extent that women make their own choices not to invest, and it disadvantages men on the same basis.

Feminist writers have offered a number of solutions to the perceived lower workplace status of women, but it is difficult to take many of the proposed solutions seriously. Nancy Dowd, for example, has raised the question whether the law should require husbands to assume equal responsibility for domestic obligations.[851] Lucinda Finley has suggested that mothers should receive the same kind of job protection and workplace preference that returning veterans receive.[852] Christine Littleton has suggested that the government might pay mothers the way it does soldiers, or, it might achieve equality by ceasing to pay combat troops;[853] alternatively, the government might require that "women and men who opt for socially female occupations, such as child-rearing, be compensated at a rate similar to those women and men who opt for socially male occupations, such as legal practice."[854] Littleton has also suggested that we need to "interven[e] in socialization processes...to stop the lie of 'womanhood' from affecting female children."[855] Susan Moller Okin has argued that the state should intervene to require equal splitting of wages between spouses or "the complete and equal sharing of both paid and unpaid labor."[856]

Martin Malin has argued that part of the solution is to encourage men to take paternal leave. He notes that even when such leaves are available, men tend not to take advantage of them, in part, he argues "because of pervasive workplace hostility."[857] Malin relies upon a study in Sweden that showed that fathers who took parental leave were more involved in child-rearing tasks than men who did not for his conclusion that paternal leave would lead to a more equitable division of child care between mothers and fathers. He asserts that this study demonstrates the "effects" of paternal leave, without considering the fact that the causal conclusion depends on the assumption that men who take leave and men who do not are otherwise the same. However, fathers take parental

851. Dowd, *supra* note 11, at 132 n.177. *See also* Scales, *supra* note 843, at 441 & n.341 (stating that "[t]he abdication of fatherly responsibility on any level can no longer be tolerated" and citing with approval the Cuban Family Code, which requires a father's participation in all aspects of family life).

852. Finley, *supra* note 681, at 1176.

853. Littleton, *supra* note 40, at 1329–30.

854. Littleton, *supra* note 40, at 1301.

855. Christine A. Littleton, *Feminist Jurisprudence: The Difference Method Makes*, 41 STAN. L. REV. 751, 758 (1989).

856. SUSAN M. OKIN, JUSTICE, GENDER, AND THE FAMILY 181–82 (1989).

857. Malin, *supra* note 836, at 1089. Taking a cue from the sexual harassment literature, Malin suggests that if a man is deterred by even a "single negative statement" about his taking parental leave, the statement should be actionable. Malin, *supra* note 836, at 1093. Malin does not mention the serious First Amendment issues that such a rule would raise. *See generally* Kingsley R. Browne, *Title VII as Censorship: Hostile Environment Harassment and the First Amendment*, 52 OHIO ST. L.J. 481 (1991). Other commentators have been no less willing to subordinate important liberties to the goal of sexual equality. *See, e.g.*, Mary E. Becker, *Needed in the Nineties: Improved Individual and Structural Remedies for Racial and Sexual Disadvantages in Employment*, 79 GEO. L.J. 1659, 1689 (1991) ("Title VII should be amended to require explicitly that all jobs as rabbis, ministers, and priests be open to women" in order both to "open these powerful employment opportunities to women and to moderate the sexism in mainstream religion.").

leave in Sweden at a much lower rate than mothers do, so those who do take leave have already, by that very fact, demonstrated an unusually large interest in involvement with their children. That this group should end up being more involved in their children's care is hardly surprising, especially since the fact that most leave is allocated to the couple means that fathers and mothers must compete for parental-leave time.[858]

Pressuring fathers into greater domestic roles, a favorite prescription of many feminists,[859] is unlikely to result in an overall net gain in life satisfaction, and it may not even benefit women. Although many women may say they want more help around the house,[860] especially with non-child care duties,[861] forcing the man to trade extradomestic success—which is his primary source of self-esteem—for domestic contributions may cause the husband to be "less satisfied with his work, his marriage, and his personal life."[862] Conversely, pressuring employers to promote women into management positions at a rate higher than the pool of interested and committed women would warrant may result in women facing pressure to accept promotions that lead to inadequate performance or unwanted stress and changes in family life.[863] These results are likely to be negative for man, woman, and child.[864]

Much of the feminist criticism seems to be based on an unstated assumption that the primary function of employers should be to encourage their employees' self-fulfillment. Therefore, many find fault with an economic system that rewards long hours and competition; others criticize rigid workplace structures, such as the eight-hour day.[865] The eight-hour day, after all, "conflicts with employees' needs to do shopping and errands, to attend children's school functions or doctor's appointments, to be available to children when they are out of school, or to meet similar needs of other dependents."[866] The benefits to a woman from working, one commentator complains, "are not seen as enhancing a woman's contributions to her roles as wife, lover, friend, or mother."[867] However, the issue is not the woman's self-fulfillment, either at home or at work. The employer is appropriately concerned about the woman's contributions at work; the children are appropriately concerned about her contributions at home. The simple fact is that life is full of conflicting demands.

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858. Malin, *supra* note 836, at 1058.

859. *See, e.g.*, NANCY CHODOROW, THE REPRODUCTION OF MOTHERING: PSYCHOANALYSIS AND THE SOCIOLOGY OF GENDER 215 (1978) (calling for "a fundamental reorganization of parenting, so that primary parenting is shared between men and women").

860. Despite the asymmetry in domestic work, studies suggest that most women believe the allocation is "fair." This is the "no problem" problem referred to in Rhode, *supra* note 284.

861. Surveys have shown that most mothers do not want greater involvement of their husbands in child care. Pleck, *supra* note 835, at 276–80.

862. *See* HOYENGA & HOYENGA, *supra* note 16, at 300. *See also* Sandra C. Stanley et al., *The Relative Deprivation of Husbands in Dual-Earner Households*, 7 J. FAM. ISSUES 3, 18 (1986) (noting that "whether through the direct effects of participation in child care or the indirect impact of the overload on an employed wife, a dual-earning household is not optimal for men of ambition").

863. *See* Hoffman & Reed, *supra* note 669, at 206. *See also* Harrell, *supra* note 644, at 961 (finding that female MBAs showed higher job stress than men and that this was due largely to job, family, and leisure issues).

864. See Popenoe, *supra* note 810, at 11 (observing that gender differentiation of roles within childrearing families may be important for both child development and marital stability).

865. Dowd, *supra* note 11, at 100–01; Finley, *supra* note 681, at 1126.

866. Finley, *supra* note 681, at 1127.

867. Finley, *supra* note 681, at 1165.

Underlying much of the feminist critique of the asymmetry of sex roles seems to be a value judgment about whether male traits or female traits are "better." Yet, it is quite clear that we need people with "male" traits and people with "female" traits. Perhaps the only issue is how much congruence there is between the traits and the biological sex of those who carry them, but it is unclear why a tendency for men to exhibit male traits and women to exhibit female traits is inferior to a situation in which the traits are distributed at random. Certainly, a world peopled exclusively by male personalities or by female personalities would be a lesser world than the one in which we live, even assuming that it continued to be populated.

Although there is some inconsistency in the feminist literature—some of it within a particular piece of literature—the general thrust of much of it is that men and women should come to be more alike—usually in the female direction: we need to tame the aggressiveness, competitiveness, and risk-taking nature of the male.[868] However, many of the greatest human achievements have been possible only through the kind of single-minded devotion and willingness to take risks that men disproportionately display. Scientific achievements are often a consequence of a consuming obsession.[869] Perhaps not coincidentally, most studies of scientific productivity show that men, on average, publish substantially more than women, whether or not the women have children.[870] Entrepreneurial geniuses exhibit the same sort of work ethic and risk-taking nature that scientific ones do. In a study of thirteen such people, Gene Landrum found that they shared the following attributes: autocratic, charismatic, competitive, confident, driven, focused, impatient, intuitive, passionate, persistent, persuasive, rebellious, and risky.[871] In the absence of a compelling reason—which has not yet been offered—it is not clear that we should discourage such people.

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868. There is a contrary thread—women should be taught to be more assertive—but that seems often to be viewed as a stopgap measure until we can create a world where assertiveness is not valued.

869. *See* GENE N. LANDRUM, PROFILES OF GENIUS: THIRTEEN CREATIVE MEN WHO CHANGED THE WORLD 15 (1993) (noting that work is the "elixir" of life for most creative geniuses, and observing that Thomas Edison worked 18-hour days and Einstein quit wearing socks because they diverted his attention from his work); P.B. MEDAWAR, ADVICE TO A YOUNG SCIENTIST 22 (1979) (describing scientists as "in the grip of a powerful obsession that is likely to take the first place in their lives outside the home, and probably inside too"); Meredith M. Kimball, *A New Perspective on Women's Math Achievement*, 105 PSYCHOL. BULL. 198, 209–10 (1989) ("Highly creative female mathematicians in comparison with female mathematicians of average creativity are distinguished by their willingness to subordinate other activities to professional goals. Highly creative male mathematicians differ from their average counterparts in their desire to accomplish great things and achieve fame....").

870. Jonathan R. Cole & Harriet Zuckerman, *Marriage, Motherhood and Research Performance in Science*, 256 SCI. AM. 119–25 (Feb. 1987); Svein Kyvik, *Motherhood and Scientific Productivity*, 20 SOC. STUD. SCI. 149, 149 (1990); J. Scott Long, *Measures of Sex Differences in Scientific Productivity*, 71 SOC. FORCES 159 (1992); Caroline H. Persell, *Gender, Rewards and Research in Higher Education*, 8 PSYCHOL. WOMEN Q. 33, 39 (1983); Richard B. Primack & Virginia O'Leary, *Research Productivity of Men and Women Ecologists: A Longitudinal Study of Former Graduate Students*, 70 BULL. ECOLOGICAL SOC'Y AM. 7 (1989).

871. LANDRUM, *supra* note 869, at 15.

3. The Argument that Underrepresentation of Women in Particular Jobs Demonstrates Discrimination

Underlying much of the feminist argument is the assumption that a lack of proportional representation in a class of jobs—at least attractive jobs—presumptively demonstrates discrimination.[872] That assumption is also incorporated into the rules of proof under Title VII.[873] The basis for this rule is what I have elsewhere referred to as the "Central Assumption" of statistical discrimination cases—the assumption that, except for chance variations, a nondiscriminating employer's work force will mirror the profile of the "qualified population."[874] Because the "qualified population" generally means the group possessing the minimum objective qualifications for the job—without regard to subjective or unquantifiable factors like drive or interest[875]—differences between men and women in these traits may lead to inappropriate findings of employer liability.[876]

The Report of the Glass Ceiling Commission explicitly incorporates the assumption that each employer's work force should resemble statistically the general labor force (not even the "qualified" work force). The report states:

> Ideally, each cohort should have the same proportion of the workforce population as their respective population representations. For instance, as the African American population represented 10% of the workforce populace, ideally about 10% of the manufacturing executive/administrative/managerial population should be African American. However, that is not the case; they represent only 2.5% of the manufacturing executive/administrative/managerial population. Therefore, African Americans are proportionately highly underrepresented in this industry, thus indicating plausible glass ceiling barriers.[877]

As long as proportional representation is viewed as the ideal, the labor market will necessarily be viewed as flawed, because people will not voluntarily sort themselves randomly.

The conflict between the Central Assumption and an accurate understanding of human psychology is perhaps nowhere better illustrated than in the litigation by the EEOC against Sears, Roebuck and Company.[878] The EEOC sued Sears for sex discrimination in the hiring of commission salespersons. At trial, the EEOC introduced massive statistical evidence showing that women

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872. *See generally* Vicki Schultz, *Telling Stories About Women and Work: Judicial Interpretations of Sex Segregation in the Workplace in Title VII Cases Raising the Lack of Interest Argument*, 103 HARV. L. REV. 1749 (1990).

873. 42 U.S.C. §§ 2000e–e-17 (1988). *See* International Bhd. of Teamsters v. United States, 431 U.S. 324, 339–40 n.20 (1977) ("[A]bsent explanation, it is ordinarily to be expected that nondiscriminatory hiring practices will in time result in a work force more or less representative of the racial and ethnic composition of the population in the community from which employees are hired.").

874. Kingsley R. Browne, *Statistical Proof of Discrimination: Beyond "Damned Lies,"* 68 WASH. L. REV. 477, 503 (1993).

875. *Id.* at 518–22.

876. Deborah Calloway finds my critique of the Central Assumption "distressing," because it uses "stereotypes about women" to question claims of discrimination. Deborah A. Calloway, St. Mary's Honor Center v. Hicks: *Questioning the Basic Assumption*, 26 CONN. L. REV. 997, 1013 (1994). Her distress seems unconnected to the question whether the stereotypes have a basis in fact.

877. GLASS CEILING COMMISSION REPORT, *supra* note 21, at 160.

878. EEOC v. Sears, Roebuck & Co., 839 F.2d 302 (7th Cir. 1988).

were underrepresented in these positions, although it introduced not a single woman to testify that she had been discriminatorily denied a position. In response, Sears presented evidence that commission sales jobs were significantly different from the noncommission sales jobs held predominantly by women. Commission sales usually involved "big ticket" items, entailed financial risk, required "a high degree of technical knowledge, expertise, and motivation," and often required both irregular hours and visits to the homes of customers.[879]

Sears presented testimony from both managers and experts to the effect that its affirmative-action efforts had met only limited success because women were less interested in commission sales, in large part because of the "cut-throat competition" and the high degree of pressure and risk associated with the positions.[880] The Seventh Circuit affirmed a judgment for Sears based on Sears' evidence of differential interest and qualifications coupled with the EEOC's failure to introduce anecdotal evidence of discrimination. Although Sears ultimately prevailed, it took fifteen years of litigation, a trial involving 20,000 pages of transcripts, forty-nine witnesses, and 2172 exhibits,[881] and no doubt tens of millions of dollars in attorneys' fees.

Judge Cudahy, in dissent, expressed outrage that Sears could prevail by demonstrating that women tend to be the way that people think that women tend to be:

> These conclusions, it seems to me, are of a piece with the proposition that women are by nature happier cooking, doing the laundry and chauffeuring children to softball games than arguing appeals or selling stocks. The stereotype of women as less greedy and daring than men is one that the sex discrimination laws were intended to address.[882]

Most of the academic commentary on the *Sears* case has endorsed Judge Cudahy's view.[883]

A legal regime based upon an accurate understanding of the nature of men and women would not require an employer to spend fifteen years litigating the question whether women are less competitive and more risk-averse than men. Despite the fact that Sears prevailed, the next defendant faced with a similar claim will have to start from scratch.[884] In each case, the defendant will

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879. *Id.* at 319–20.

880. *Id.*

881. *Id.* at 307 n.2.

882. *Id.* at 361 (Cudahy, J., dissenting).

883. *See* Gillian K. Hadfield, *Households at Work: Beyond Labor Market Policies to Remedy the Gender Gap*, 82 GEO. L.J. 89, 98 n.36 (1993) (expressing dismay that the Seventh Circuit "has explicitly found evidence of *women's* lack of interest in a job relevant to a determination of whether the underrepresentation of women was caused by intentional discrimination" (emphasis in original)); Rhode, *supra* note 284, at 1768–70; Vicki Schultz & Stephen Petterson, *Race, Gender, Work, and Choice: An Empirical Study of the Lack of Interest Defense in Title VII Cases Challenging Job Segregation*, 59 U. CHI. L. REV. 1073, 1076 (1992) (arguing that the "lack of interest defense has the potential to eviscerate Title VII's role in dismantling job segregation"); Williams, *supra* note 392, at 1610 (stating that "[a]t the extreme, as in [*Sears*], choice rhetoric can be used to justify outright discrimination by calling up vivid images of selfless mothers choosing family over career..."); Joan C. Williams, *Deconstructing Gender*, 87 MICH. L. REV. 797, 819 (1989) (stating that *Sears* constituted a "dramatic reversal of existing Title VII law," enshrining gender stereotypes at the core of Title VII).

884. Vicki Schultz has suggested that the very fact of an employer's willingness to raise the argument of differential interest should be taken as evidence of discriminatory attitudes on the part of the employer. Schultz, *supra* note 872, at 1779 n.117.

be required to find expert witnesses who are courageous enough to take a position that is contrary to current orthodoxy and trust that the trier of fact has an open mind.[885]

V. CONCLUSION

Men and women are different; they have—on average—different temperaments, priorities, and definitions of success. These differences are produced in substantial measure by underlying biological differences that were adaptive in our evolutionary history. The sex differences we see in our society are replicated both in other societies and, in many cases, throughout the mammalian world. They are fundamentally products of the interaction of hormones and the brain, and they are not simply products of western civilization, capitalism, or industrialism.

The existence of a biological basis for sex differences in temperament explains much of what we see in the workplace. By itself, however, it does not tell us how to react to what we see. Matt Ridley has argued, for example, that the greater competitiveness of men justifies affirmative action for women.[886] Lionel Tiger argued more than two decades ago that because of basic sex differences, modifications of the male-oriented workplace may be appropriate to guarantee the economic equality of women.[887] One might, however, argue that because these differences are "natural," rather than arbitrary social constructs, we should not worry about them and just "let nature take its course."

The purpose here is not to attempt to resolve the normative question of what our policy responses to these differences should be, but rather to foster a recognition of what the issues are and to question the assumptions underlying current discourse. Too much policy has been debated and legal doctrine developed in ignorance of the nature of men and women. A more complete understanding of those natures should lead to sounder legal doctrine. Where legal doctrine is based upon the faulty assumption that men and women are the same in all respects relevant to the workplace, our knowledge should lead us to reject the doctrine unless it is also supported by sound alternative assumptions.

Given the undeniable differences between men and women, the nature of sex-discrimination litigation must change. If the goal is to prevent employers from improperly discriminating against women, then proof of actual

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885. For a description of the vilification suffered by feminist historian Rosalind Rosenberg for her testimony on behalf of Sears, see Thomas Haskell & Sanford Levinson, *Academic Freedom and Expert Witnessing: Historians and the* Sears *Case*, 66 TEX. L. REV. 1629 (1988).

886. RIDLEY, *supra* note 14, at 263:

> Since the bane of all organizations, whether they are companies, charities, or governments, is that they reward cunning ambition rather than ability (the people who are good at getting to the top are not necessarily the people who are best at doing the job) and since men are more endowed with such ambition than women, it is absolutely right that promotion should be biased in favor of women—not to redress prejudice but to redress human nature.

See also Wright, *supra* note 103.

887. Lionel Tiger, *The Possible Biological Origins of Sexual Discrimination*, 20 IMPACT SCI. ON SOC'Y 29, 39 (1970) (the measures suggested included providing proportional benefits to part-time employees and accommodating women's child-rearing absences).

discrimination should be required.[888] If the true goal is proportional representation of women at all levels of the work force irrespective of work-force commitment, then that goal should be candidly acknowledged and defended on its own terms.

Understanding of the origins of observed differences should also affect the way that we evaluate arguments for social change, even if it does not alter our conclusions. The feminist argument that sex roles are something that society has imposed upon female victims is inadequate; if current workplace arrangements are the products of choices made by men and women predisposed to make choices in a particular way, arguments that society must remedy the injustice that it has visited on women are based upon an erroneous premise of societal culpability. It may be that the same policy prescriptions will be forthcoming, but they must rest on an alternative rationale, a rationale that has not yet been offered. We may also conclude that the remedies advocated by many feminists, such as changes in the workplace and increased childcare, will not produce the results that they expect.

Our fundamental nature places restrictions on the kinds of social institutions we are likely to develop and behavior patterns we are likely to adopt. Matt Ridley has observed that "[w]e stick to the same monotonously human pattern of organizing our affairs":

> If we were more adventurous, there would be societies without love, without ambition, without sexual desire, without marriage, without art, without grammar, without music, without smiles—and with as many unimaginable novelties as are in that list. There would be societies in which women killed each other more often than men, in which old people were considered more beautiful than twenty-year-olds, in which wealth did not purchase power over others, in which people did not discriminate in favor of their own friends and against strangers, in which parents did not love their own children.[889]

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888. *See* Browne, *supra* note 874, at 541–56.

889. RIDLEY, *supra* note 14, at 7. David Hume made essentially the same point two and a half centuries ago:

> Should a traveler, returning from a far country, bring us an account of men wholly different from any with whom we were ever acquainted; men, who were entirely divested of avarice, ambition, or revenge; who knew no pleasure but friendship, generosity, and public spirit; we should immediately, from these circumstances, detect the falsehood, and prove him a liar, with the same certainty as if he had stuffed his narration with stories of centaurs and dragons, miracles and prodigies. And if we would explode any forgery in history, we cannot make use of a more convincing argument, than to prove, that the actions ascribed to any person are directly contrary to the course of nature, and that no human motives, in such circumstances, could ever induce him to such a conduct.

DAVID HUME, AN ENQUIRY CONCERNING HUMAN UNDERSTANDING 86–87 (1907). In contrast to the views of Ridley and Hume, Anne Fausto-Sterling has described a version of the feminist vision as follows:

> Parents would share equally in child care while mates—both hetero- and homosexual—would live in relationships of mutual respect, openness, fidelity, and honesty. In this world of the future men and women would fully share political and financial power; no one would be unable—in the midst of great wealth—to feed and clothe their children adequately. Men and women would be represented equally, according to their equal abilities, in all walks of life.

FAUSTO-STERLING, *supra* note 12, at 207.

We do not see these patterns in large part for the same reason that pigs do not fly, ants do not play cribbage, and hyenas are not warm and loving—such behaviors are simply not characteristic of the species.[890]

Although the focus of many feminists is on work and family issues, the temperamental sex differences that have been described here will have an impact on workplace outcomes whether there are children to be cared for or not. As the kibbutz example showed, basic temperamental differences cause sex roles to persist even when women are relieved of child care responsibilities. Although freeing up time for a woman may give her more hours that she might devote to her career if she chooses, she will still be a woman, less competitive and single-minded—on average—than men. Men are competitive risk-takers to an extent that women are not, irrespective of whether they are parents, and these traits are related to success at the highest corporate levels.[891]

One possible response would be to attempt to make the sexes more similar. One could, for example, attempt to increase women's preference for risk, although it is not clear why one would not also attempt to increase the risk preference of risk-averse males at the same time. Although risk-taking propensities seem to have roots in basic personality, they may still be subject to modification. However, one should not overlook the disadvantages of risk preference. The focus of this article has been on workplace success; as a result, it has given a somewhat one-sided view of risk. For the most part, successful executives are people who have taken risks and won, but by definition many risk-takers lose.[892] The positive value that a risk-preferrer places on success is greater than the negative value that he places on failure. Modifying the relative values that women place on success and failure may increase the number of women who succeed spectacularly, but it would also surely increase the number of spectacular failures. Some women would benefit; some would be harmed.

As a practical matter, there are good reasons to think that the above prescription would not work. First, in order to achieve "equality," the risk-taking propensities of women would have to increase to match those of men. Because this appears to go "against the grain" of the human psyche, it may be difficult to achieve. Second, it is difficult to imagine how a society-wide emphasis on risk-taking for girls would not at the same time encourage greater risk-taking in boys, since boys and girls attend the same schools. Unless there are sex-segregated classes where girls are taught the value of risk-taking while boys are taught something else, the net result of this societal modification may

890. There is great irony in the arguments of some who oppose an evolutionary explanation for human nature. When the choice is between evolution and creationism, they are firm believers that humans are a product of the same natural forces that produced all other living beings. *See* Brief of People for the American Way et al. for Appellees, Edwards v. Aguillard, 482 U.S. 578 (1987) (stating that "[e]volution has been described as 'the greatest unifying theory in biology'") (quoting ERNST MAYR, POPULATIONS, SPECIES AND EVOLUTION 1 (1970)). However, when the choice is between evolution and "social construction," they are skeptical that natural selection has much to tell us. As Michael Levin has noted, although creationism is usually viewed as a religious doctrine, "from a methodological point of view, belief in the special creation of the human species is entailed by *any refusal to apply evolutionary theory to man.*" LEVIN, *supra* note 34, at 66 (emphasis in original). Thus, "social constructionism" might fairly be called "social creationism." However, it must be accepted that humans are a part of nature and are governed by nature's laws and processes.

891. *See* MORRISON ET AL., *supra* note 644, at 57–58.

892. *See* MacCrimmon & Wehrung, *supra* note 658, at 433 (noting that career plans are often thwarted by risks that do not work out).

be to increase, rather than decrease, sex differences in risk-taking, because risk-taking is something that comes more easily to boys.

Much of the disagreement over the status of women in the workplace is a philosophical one: is the appropriate focus of social policy on groups or on individuals? If current workplace arrangements are largely a result of individual choices of men and women guided by the male and female psyches, are the outcomes of those choices rendered suspect—if not illegitimate—by group differences in the choices made? The fact that some people prefer to focus their energies on their families while others prefer to concentrate on their careers does not seem to be the perceived problem. The demand for social intervention arises from the fact that the former group is disproportionately female, while the latter group is disproportionately male. Similarly, the fact that the business world rewards competitive risk-takers is not by itself a problem; the problem is that risk-takers tend to be men.

At bottom, the feminist case is based upon a normative vision of what women *should* want, rather than on what they *do* want. Many feminists are hostile to the process that allows women to make these decisions because they are hostile to the results. But to deny the effect of choice because of that which is chosen is ultimately an authoritarian response.[893] In a very real sense, the patterns we now see are in fact a product of female choice; over thousands of generations, women have chosen men who display the traits that feminists now claim to disdain.[894]

A fundamental inconsistency plagues many of the feminist arguments. They reject what they view as the male obsession with status, competition, and acquisition of resources. However, when they measure women's position in society, they measure it along this male dimension and conclude that women have an inferior social status, without incorporating into their measurement the attributes that women value. Notwithstanding feminist arguments that women are perceived as inferior, however, existing research shows that "the stereotype of women is more positive overall than the stereotype of men...."[895] Although some of the positive characteristics often ascribed to women ("niceness-nurturance") may be related to their lack of representation in certain jobs, it is wrong to view this as a consequence of a general belief in their inferiority.[896]

It is also far from clear that women in general believe that they are disadvantaged. Polls show that men and women are generally equally satisfied with their jobs.[897] These results tend to be dismissed as products of a "false consciousness." Consider the following report on a *Washington Post* opinion poll:

> In the past decade, the percentage of working women in Washington has increased at a rate faster than the rate of their counterparts in other cities. That most of the women polled seem to find satisfaction in the work place may be a credit to their optimism, or to the "wisdom" of

893. For discussions of the authoritarian nature of much of feminist doctrine, see LEVIN, *supra* note 34; Browne, *supra* note 17, at 698–702; Richard A. Epstein, *The Authoritarian Impulse of Sex Discrimination Law: A Reply to Professors Abrams and Strauss*, 41 DEPAUL L. REV. 1041 (1992).

894. BUSS, *supra* note 110, at 211–14.

895. Eagly, *supra* note 257, at 155.

896. Eagly, *supra* note 257, at 155.

897. *See* Kalb & Hugick, *supra* note 745.

> accepting the inevitable. Many women work, of course, because they need the money—even though they consider themselves to be underpaid. But, perhaps to their undoing, most find fulfillment from their jobs.[898]

Again, the fact that women are not dissatisfied seems to be viewed as a problem.

Proponents of social construction have been extremely successful in preventing the biological explanation of differences from affecting public-policy discussions. They have had this success only because of a gross asymmetry in burdens of proof. Without convincing evidence of their own, social constructionists have been permitted to shift the burden to those favoring a biological explanation simply by uttering the word "socialization." Yet broad arguments of social construction are fundamentally unscientific, because no specific predictions flow from a social constructionist view and its tenets are not falsifiable. Since "social construction" can provide a *post hoc* explanation for any conceivable pattern, it ultimately explains nothing. Unfortunately, for those who believe that biology is necessary for a full understanding of the differences, the standard of proof that is applied to biological explanations seems to be something approaching proof beyond a reasonable doubt. If social-construction explanations had faced the same skepticism that biological explanations face, they could not have persisted as they have.

Many people resist a biological perspective on human nature out of fear that such a perspective will, regardless of its factual basis, produce adverse social consequences. A socialization perspective, they believe, is more in accordance with liberal notions of human autonomy and dignity. Thus, whether human behavior in general, and sex differences in behavior in particular, are biologically constrained, public policy should rest on the assumption that behavior and temperament are completely malleable. However, there is seldom any articulated basis for the belief that a Utopian vision of human perfectibility poses less danger than a vision of humans as organisms with the same kind of "nature" that we have always understood other species to possess. Indeed, as Noam Chomsky has observed, the notion of the human mind as *tabula rasa* is a powerful tool in the hands of a totalitarian: "If people are, in fact, malleable and plastic beings with no essential psychological nature, then why should they not be controlled and coerced by those who claim authority, special knowledge, and a unique insight into what is best for those less enlightened?"[899] If any desired state of affairs is possible with the appropriate social inputs, decision-makers have an enormous incentive to increase social regulation.

The belief that the sexes are effectively identical has led to a number of policies of doubtful wisdom and effectiveness. Employers are pressured to eliminate statistical disparities in their work forces even at the cost of productivity; schools have been converted into organs of propaganda for the view of sexual sameness, without regard to the loss of credibility that may flow

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898. Chris Spolar, *1,200 Women Can't Be Wrong; The First Washington Post Magazine Working Women's Poll*, WASH. POST MAG., May 24, 1987, at W14.

899. NOAM CHOMSKY, REFLECTIONS ON LANGUAGE 132 (1975). Philosopher Mary Midgley has made the same point. *See* MARY MIDGLEY, BEAST AND MAN: THE ROOTS OF HUMAN NATURE xviii (1978) (noting that "if we were genuinely plastic and indeterminate at birth, there could be no reason why society should not stamp us into any shape that might suit it").

from propaganda so at variance with children's own experience; military readiness has been seriously compromised, according to many, by the admission of women into almost all positions and the changes in standards that have been necessary to accomplish that end.[900] A biological perspective cannot answer the normative question of whether these policies should be adopted, but it can provide insight into the correctness of the assumptions on which they are based, as well as into their costs and potential effectiveness. The Glass Ceiling Commission, in contrast, spent three million dollars examining the glass ceiling and apparently never considered that differences in work-force outcome might be a consequence of inherent differences between the sexes. The Commission's response is characteristic of those believing that societal flaws are responsible for all disfavored conditions: failure of social intervention to yield the desired result is considered proof of the need for further intervention rather than an indication that their diagnosis is incorrect or that the conditions might not be susceptible of productive modification.

In evaluating competing claims concerning the origins of human behavior, the question should not be whether those finding answers in biology can prove their case to a moral certainty. No claim is made that the data and analysis presented in this article are the last word—the "truth" in some absolute sense. Some of the specifics will no doubt require future revision as our understanding of human behavior increases. The important question should be whether the explanation offered here—that genuine and deep-seated differences between the sexes are a substantial cause of current workplace arrangements—is a more plausible account than the social-constructionists have provided. It is hoped that those who still have doubts concerning the biological explanation will bring the same degree of skepticism, and the same demand for rigorous proof, to the purely sociological explanations.

900. *See, e.g.*, John Luddy, *Congress Should Hold Hearings Before Allowing Women in Combat*, HERITAGE FOUND. REP., Backgrounder Update No. 230 (July 17, 1994).