

The Place of Attachment in Human Mating

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Application of the principles of evolution and natural selection to the phenomena of human mating does not lead inevitably to a single theoretical model. According to the standard evolutionary model, formally known as sexual strategies theory (D. M. Buss & D. P. Schmitt, 1993), biologically based sex differences in parental investment have resulted in hard-wired sex differences in mate preferences and mating strategies. A critical analysis of the logical and empirical foundations of the theory reveals several weaknesses and limitations. This article demonstrates how attachment theory (J. Bowlby, 1969/1982, 1973, 1979, 1980, 1988) can be used to integrate a diverse set of ideas and research findings and provide a more grounded account of human mating.

In the past decade, there has been a resurgence of interest among social scientists in Darwin's theory of evolution. In the field of psychology, this is exemplified by the work of David Buss and colleagues, who have applied the theory to human mating. One measure of the success of this effort is the fact that their model is widely viewed, at least among psychologists, as the definitive evolutionary perspective on the topic. Put differently, many in our field seem to think that application of the principles of natural selection to human mating phenomena inevitably results in the Bussian framework. An unfortunate result is that those who find fault with this particular framework tend to reject outright the possibility that Darwin's grand and elegant

theory, which remains one of the most robust in modern science, has anything of value to contribute to the understanding of mating in our species. Although all theories about the ancestral nature of human mating are necessarily speculative, in what follows we hope to demonstrate that the available evidence supports a very different evolutionary perspective on how *Homo sapiens* go about the business of mating.

The Standard Evolutionary Model

The standard evolutionary model is formally known as sexual strategies theory (Buss & Schmitt, 1993). It is essentially an extension of the theory of parental investment, proposed by Trivers in 1972. He argued that in any species in which differences exist in what it costs members of each sex to reproduce their genes, there will be corresponding sex differences in mating behavior. The biological reality in humans is that males can reproduce their genes with the minimal investment of a few minutes and a few sperm, whereas the cost to females is usually years of investment in the form of gestation, lactation, and offspring care. In theory, such asymmetry has resulted in hard-wired sex-specific strategies for achieving reproductive success. Males "naturally" seek out and take advantage of opportunities to copulate with as many different females as possible, especially ones who display the fertility markers of youth and beauty. The female is "by nature" more sexually cautious, preferring one male who has

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resources and appears willing to share them with her and the offspring she will have to nurture. Although sexual strategies theorists acknowledge that the mating behavior of men and women can be similar in some respects under certain ecological conditions, above all they emphasize sex differences. The inescapable conclusion from their writings is that differences between the sexes represent the hallmark of human mating.

Scores of studies have been conducted to test sexual strategies theory, including one massive survey of more than 10,000 individuals in 37 different cultures (Buss, 1989). The findings indicate that males worldwide assign greater importance than females to the appearance of potential mates, preferring those who are young and physically attractive. In contrast, females generally report caring more than males about the social status, ambition, and earning power of potential mates. In sum, the sex differences in mate preferences that sexual strategies theory predicts appear to be both statistically reliable and culturally universal.

As the name implies, a central tenet of sexual strategies theory is that human mating is inherently strategic. In theory, mating behavior is guided by evolved psychological mechanisms compelling men and women not only to *desire* certain qualities but to *select* mates on the basis of these innate desires. However, the methods used in tests of the theory do not and cannot directly test the selection part of the prediction. Participants (often undergraduate students) are asked to generate a list of the qualities on which they believe their eventual mate selections will be based or, sometimes, simply asked to rank or rate the importance of a list of traits provided by researchers. Lists typically include the full range of desirable qualities: a winning personality, above-average intelligence, great financial prospects, high social status, and good looks. Although the findings are generally consistent with theoretical predictions—at least as they pertain to sex differences in the estimated relative future value of certain qualities—they reveal nothing about whether reported selection criteria translate into actual mate choices. Clearly, the validity of sexual strategies theory hinges on its ability to predict real-world mate selection behavior.

Putting Mate Selection Theories to the Test

The most straightforward way to identify the criteria that people use to select actual as opposed to hypothetical mates would be to study a group of already-mated individuals and determine the basis on which they chose their partners. But simply asking them has obvious limitations. For one, respondents might be reluctant to answer honestly, especially if their selection criteria included qualities that could be judged superficial, such as money or looks. However, concerns about this possible limitation can be easily dismissed in light of the fact that large numbers of respondents in Buss et al.'s studies have voluntarily mentioned such qualities on their lists of mate preferences. A more troublesome possibility is that the average person lacks awareness of the factors that truly influence his or her mating decisions (for a similar point, see Pietromonaco & Feldman Barrett, 2000).

All theories that regard mate choice as a strategic process presume that choices are systematically guided by characteristics of the individuals making them. That is, whether a researcher adopts an assortative mating perspective (one prefers those who are similar), an idiographic view (one's preferences are learned and idiosyncratic), or a sexual strategies model (one's preferences are determined by biological sex), the same prediction would hold: Mate choice is driven primarily by qualities of those doing the choosing. A corollary is that individuals who have similar qualities should also have similar mate preferences. This makes possible an elegant "natural" test of these theories using identical twins. Monozygotic (MZ) twins are as similar as two people can be. Not surprisingly, they tend to make similar choices in a wide range of domains, including jobs, clothing, friends, cars, hobbies, and vacations, to name just a few. If mate selection is lawfully guided by the characteristics of choosers, MZ twins should prefer and select mates who are, themselves, more alike than the mates of less similar pairs of individuals.

Lykken and Tellegen (1993) recently tested this hypothesis using the Minnesota Twin Registry, which contains a wealth of information, including personality, achievement, IQ, attitude, occupation, and physical appearance data, on more than 1,000 twin pairs. Even with this

large sample size and correspondingly strong analytic power, no evidence was found to support any strategic model of mate selection. The unexpected and hugely significant finding was that the mates of MZ twins are no more similar to each other than are the mates of randomly selected pairs.

At first, one might think that this finding deals a bigger blow to theories of assortative or idiographic models than to sexual strategies theory, given that the former attribute mate choice to the chooser's personal characteristics (independent of sex), whereas sexual strategies theory attributes mate choice to the chooser's sex (independent of personal characteristics). But personal characteristics play just as important a role in sexual strategies theory via their link to mate value. Mate value represents an individual's capacity to attract high-quality mates. In other words, the closer one is to the ideal for one's sex, the better able one is to attract partners who are ideal for their sex.

The personal characteristics that factor into these ideals (most notably, social status for men and physical attractiveness for women) are more similar in twins than in randomly paired individuals. Thus, the genetic similarity between twins equalizes their mate value, giving them the same range of "attractable" mates. As a result, twins should end up with mates that are more similar to one another in physical attractiveness and social status than the mates of randomly selected pairs. But it is an empirical fact that they do not.

Previous tests of sexual strategies theory have relied exclusively on self-reports from individuals who are asked about the qualities they believe will influence their eventual mating decisions. The twin findings strongly suggest that the criteria people *think* they will use to select their mates are *not* the factors that ultimately determine their actual mate choices. Equally important is the fact that the twin data challenge the fundamental assumption that mate selection is a strategic process. It is perhaps ironic that social scientists have taken the premise of strategic selection at face value and devoted much research attention to identifying the criteria on which such selections are based. We concur with the twin researchers' conclusion that human mating may be more "adventitious" than is generally assumed.

Overview

If mates are not chosen on the basis of the sex-specific criteria that the standard evolutionary model posits or according to the criteria of other strategic mate selection theories, then what determines who ends up with whom? In the following sections, we outline an alternative evolutionary perspective on human mating that proposes an answer to this burning question. We begin with an overview of mating relationships as seen through the lens of attachment theory (Bowlby, 1969/1982, 1973, 1979, 1980, 1988). It is argued that pair bonding is the norm in our species, that this normative mating pattern is reflected in male as well as female mate preferences, and that it is advantageous in reproductive fitness terms. Propinquity, familiarity, and romantic infatuation are proposed as the mechanisms that explain how actual mate "choices" are made and how mating relationships are established. We conclude by addressing some of the additional empirical and logical limitations of sexual strategies theory and by explicating some of the reasons that pair-bond attachment is an essential component of any theory purporting to offer a comprehensive model of human mating.

Human Mating From an Attachment Theory Perspective

If one wants to know the most reproductively advantageous mating strategy for any species, a safe bet is simply to observe what the members of that species normally do. In species in which conception is all that is needed to achieve reproductive success, sexual partners part ways as soon as a viable pregnancy has been achieved, sometimes after a single copulatory sequence. Yet, this is not the case for our species. Instead, most humans opt to remain with their reproductive partners for an extended period of time (Fisher, 1989, 1992; Lancaster & Kaplan, 1994; Van den Berghe, 1979). This runs counter to the impression conveyed by sexual strategies theory, namely that an enduring relationship between human mates is difficult to achieve and therefore relatively rare as a result of males' evolved inclination to forgo long-term mating associations in favor of multiple inseminations. The reality, however, is that human reproductive partners typically remain together for a

minimum of several years, a fact that any theory of human mating must take into account.

If short-term mating is so advantageous for males, why should this long-term mating pattern ever have evolved? It is thought that a trend toward extended associations between human mates evolved in response to a birthing crisis in which the infant's large head could not easily pass through the birth canal of our bipedal female ancestors (Trevathan, 1987; Washburn, 1960). Infants who were born prematurely, with less developed brains and correspondingly smaller heads, were more likely to survive, as were their mothers. Immaturity at birth offered the additional advantage of a longer period of postnatal neural plasticity and potential for learning, which is important for a highly social species. However, the benefits of premature birth would have posed new adaptive challenges. Specifically, the effort required to adequately nurture exceptionally dependent offspring during a protracted period of immaturity made paternal investment an advantage, if not a necessity (Mellen, 1981; Small, 1993). Helpless and vulnerable offspring would have had little chance of surviving to reproductive age or developing the skills needed for their own eventual mating and parenting roles unless fathers participated in their protection, care, and socialization. Thus, a new adaptive problem arose: how to keep males around and involved in the care of their progeny.

As it happened, our species already had available a specialized but flexible mechanism for fostering an enduring bond between two individuals. The mechanism was attachment, which had helped to ensure a survival-enhancing tie between infant and mother. Given the generally conservative tendencies of evolution and natural selection, it is parsimonious to suppose that this mechanism was exploited for the (new) purpose of cementing a bond between reproductive partners. This co-opting of an evolved structure for a novel purpose is fairly common; such structures are called "exaptations" (Gould & Vrba, 1982). To suggest that the attachment system was exploited to keep adult mates together is to claim that the tie between established pairs is an attachment bond in the strict and specific sense of the term. There is diverse and abundant evidence that this is so (Hazan & Zeifman, 1999).

Defining Components

Bowlby took care to define the specific type of relationship to which his theory of attachment applied and to distinguish this special bond from other kinds of social ties. Attachments have four defining features, all of which are evident in the overt behaviors directed toward an attachment figure: seeking and maintaining physical proximity (*proximity maintenance*), seeking comfort or aid when needed (*safe haven*), experiencing distress on unexpected or prolonged separations (*separation distress*), and relying on the attachment figure as a base of security from which to engage in exploratory and other nonattachment activities (*secure base*).

In infancy, these behaviors are directed almost exclusively toward primary caregivers. Babies often seek and enjoy contact with many individuals and even look for and accept comfort from them. Yet, usually a much smaller number of people, not uncommonly one, qualify as an attachment figure by being the target of all four behaviors. Infants are especially discriminating in the expression of separation distress. This particular component of attachment typically emerges between 6 and 8 months of age, and its appearance is the accepted marker that an attachment bond is in place (Ainsworth, Blehar, Waters, & Wall, 1978). This time course is universal and, within normal ranges, independent of rearing environment (Kagan, 1984).

An explicit prediction of attachment theory is that, in adulthood, these same behaviors will be redirected toward a mate. Two empirical investigations have confirmed this prediction (Fraley & Davis, 1997; Hazan & Zeifman, 1994). Although adults, like infants, seek and enjoy contact with a variety of people and sometimes turn to them for comfort or reassurance, most of these relationships do not qualify as attachment bonds. Those that do, by virtue of containing all four defining components, are almost exclusively formed with romantic partners. Thus, by this standard, mate relationships are attachments in the technical sense of the term.

Reactions to Separation and Loss

Additional evidence that attachment is an integral part of mate relationships comes from the

literature on bereavement. The original inspiration for attachment theory was Bowlby's observations of infants and children separated from their primary caregivers. He found it remarkable that the separations were so distressing even in situations in which nutritional and hygienic needs were being met quite adequately by surrogates. More striking was the similarity across children in how they responded. Bowlby identified what appeared to be a universal pattern of reactions that he labeled the protest-despair-detachment sequence. The initial reaction is characterized by behavioral agitation, hyperactivity, crying, resistance to others' offers of comfort, and extreme anxiety, often to the point of panic. Eventually, active protest subsides and is followed by a period of lethargy, inactivity, depressed affect, disrupted sleep, and reduced appetite. In time, a degree of emotional detachment from the lost attachment figure facilitates the resumption of normal, pre-separation activities and functioning.

Several studies have documented essentially the same sequence in adults grieving the loss of a long-term partner: initial panic and anxiety followed by lethargy and depression and, eventually, recovery through emotional detachment (Fraley & Shaver, 1999; Hazan & Shaver, 1992; Parkes & Weiss, 1983; Weiss, 1975). This sequence of reactions is not limited to situations of permanent loss. Even brief, routine separations are enough to trigger a less intense but essentially identical pattern of responses in marital partners (Vormbrock, 1993).

It is important to note that the protest-despair-detachment sequence is observed almost exclusively in two social relational contexts: infant-caregiver relationships and adult pair bonds. The fact that this three-stage reaction is the norm among adults separated from their mates, and not the normal reaction to the loss of other kinds of social ties, is another indication that the attachment mechanism is operative in pair bonds. And it is another fact of human mating that belongs in theories of what such relationships are like.

Health Effects

It is well established that human infants, as well as the young of other primate species, suffer long-term negative health effects if they are not given an opportunity to bond with an

attachment figure or if an established bond is disrupted (Harlow & Harlow, 1965; Kraemer, 1997; Robertson, 1953; Spitz, 1946; Suomi, 1997). Although adults are clearly less dependent on an attachment figure for basic survival, there is ample evidence that they incur health benefits from having one and are at significantly increased risk for numerous physical and mental health problems if they do not. For example, divorce increases the likelihood of admission to a psychiatric facility, alcoholism and other forms of substance abuse, accidents, suicide, and impaired functioning of the cardiac, endocrine, and immune systems (e.g., Bloom, Asher, & White, 1978; Goodwin, Hurt, Key, & Sarret, 1987; Lynch, 1977; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Among the most common life stressors, attachment-related losses cause the most subjective distress. Death of a spouse is rated as the most stressful event, followed by divorce and marital separation (Holmes & Rahe, 1967). Other losses can be quite painful, but they generally have not been found to jeopardize physical or psychological well-being to the same degree as disruption of a pair-bond attachment. If separation distress is the marker of attachment, then bonds between mates clearly qualify.

Nature of Physical Contact

Like caregivers and their infants, romantic partners (at least initially) spend much time engaged in mutual gazing, cuddling, nuzzling, sucking, and kissing in the context of prolonged face-to-face, skin-to-skin, ventro-ventral contact. These most intimate of human interpersonal exchanges are universally typical of only two types of relationships: those between infants and caregivers and those between mates (Eibl-Eibesfeldt, 1975). Not coincidentally, this type of physical contact is known to foster attachment.

There is even evidence that the chemical basis for the effects of close physical contact may be the same for lovers and mother-infant pairs (for a review, see Insel, 2000). Oxytocin is an endogenous hormone that triggers labor in pregnant women and milk letdown in nursing mothers. It is thought to aid infant attachment and maternal caregiving by inducing a state of calm and contentment and by stimulating a desire for continued close bodily contact. Oxytocin is also

present during sexual exchanges between adult lovers. It builds with sexual stimulation and excitement, is released at climax—in both males and females—and has been implicated in the cuddling or “afterplay” that often follows sexual intercourse (Carter, 1992, 1998). Cuddling or contact comfort, as was famously demonstrated by Harlow, is crucial for the establishment of attachment bonds. Thus, if sexual orgasm triggers release of a hormone that stimulates a desire for bond-promoting contact, it effectively increases the chances that a mating pair will become emotionally attached.

Sexual Anatomy and Physiology

Many unique features of human sexuality foster and help maintain an enduring bond between reproductive partners. The most striking difference in our reproductive physiology in comparison with that of other mammalian species is the absence of outward signs of estrus. Most mammals mate only during the short estrus periods of the female, but human sexual desire and activity are not so restricted. Women can be sexually receptive during any phase of their reproductive cycle, even though conception is possible only during a small fraction of it. This physiological adaptation facilitates a continuous tie between partners on the basis of sexual reward. Among older couples, in which the female's reproductive potential may be practically nonexistent, nearly half continue to have sex an average of once per week (Lauermann, Gagnon, Michael, & Michaels, 1994). All of this suggests that sex in our species serves more than a reproductive function.

Hidden ovulation may also serve to diminish the benefits of straying. Males of many diverse species guard their mates during periods of sexual receptivity so as to ensure paternity. When the fertile period has ended, he can safely move on to another receptive partner. However, if ovulation is hidden, making it impossible for the male to determine just when fertilization will be possible, his optimal strategy may shift toward guarding and remaining with the same sexual partner for longer periods of time (Alcock, 1989).

Genital differences between humans and their closest primate relatives also suggest the important role of sex in maintaining the human pair bond. For example, the average length of

the erect human penis is 13 cm, as compared with approximately 3 cm for the gorilla, a much larger animal in terms of overall body size. The exceptional length of the human penis, in addition to its unique thickness and flexibility relative to that of all the great apes (Eberhard, 1985, 1991), made possible a wide variety of copulatory positions, including more intimate face-to-face, mutually ventral (i.e., bond-promoting) positions. Distinctive features of the human penis also make female orgasm more likely, which in turn increases the probability of conception by causing her cervix to dip rhythmically into the semen pool and her uterus to contract in a manner that helps move sperm toward egg (Baker & Bellis, 1995). In addition, it may have served to heighten her readiness for engaging in sexual activity, thereby strengthening the bond with her mate (G. F. Miller, 1998).

It deserves noting that penis size alone is not an accurate predictor of monogamous versus polygamous mating patterns among primates, nor is our species unique in such reproductive characteristics as hidden ovulation, female orgasm, or face-to-face copulation (Blaffer-Hrdy, 1988). We do not claim that the presence of any of these characteristics represents proof that humans are hardwired for monogamy. As many anthropologists have argued quite convincingly (e.g., Small, 1993), facultative flexibility in mating strategies has been a key component of our survival as a species. Nevertheless, multiple features of human sexual anatomy and physiology support the view that we evolved to bond with our reproductive partners. In addition, the decrease in sexual dimorphism over the course of human evolution is another indication of movement away from opportunistic mating in the direction of more enduring pair bonds, not as a culturally prescribed arrangement but as a pathway to reproductive success for a species whose young fare best with two investing parents. If one gives this capacity for bonding and the reproductive implications of reduced sexual dimorphism their due, one is led to a rather different evolutionary perspective on human mating.

Mate Preferences

If natural selection pressures on human mating operated in a manner that is consistent with our pair-bond attachment hypothesis, then at-

tachment considerations ought to be reflected in mate preferences. Moreover, there is no theoretical basis for predicting that males and females would differ in this respect. The qualities that make one a good attachment figure—being kind, warm, responsive, and competent—do not vary as a function of sex. In contrast, sexual strategies theory makes the explicit prediction that males and females will look for different qualities in a potential mate owing to differences in parental investment that are present even before conception (Trivers, 1972). Earlier we sketched the basic premises of this argument; here we revisit it in greater depth.

From puberty through late adulthood, males produce approximately 500 million tiny sperm cells per day (Zimmerman, Maude, & Moldawar, 1965). Females, on the other hand, produce an average of one large egg per month from puberty until middle adulthood. For males, whose contribution to their progeny can be as little as a few cheap sperm, the most effective strategy for achieving reproductive success may be to take advantage of all opportunities for sex with fertile female partners. The female, for whom every sexual encounter is potentially quite costly, is predicted to be far choosier in accepting or encouraging copulations. Once her egg is fertilized, she has to forgo other reproductive opportunities for a relatively long period of time. Thus, her most effective strategy is to limit her sexual encounters to males who possess and appear willing to share valuable resources with her and her offspring.

Previously we cited the 37 cultures study (Buss, 1989) in which it was found that males and females universally differ in the qualities they seek in a mate. Men assign greater weight to physical attractiveness, and women assign greater weight to social status. But what gets little press or theoretical attention is the fact that *neither* physical appearance nor social status is given top billing by *either* sex. When men and women the world over make their mate wish lists, there are other qualities that they rank as more important. The top-ranked qualities are identical for men and women. What are these universally coveted mate traits? The answer is kindness, understanding, and intelligence (Buss & Barnes, 1986), roughly the same qualities that appeal to infants in potential attachment figures (Bowlby, 1969/1982).

But do people really consider a trait such as kindness more important than other qualities when choosing a mate? To address this question, Graziano and colleagues (Graziano, Jensen-Campbell, Todd, & Finch, 1997) conducted a series of experiments in which heterosexual women rated the attractiveness of men whose hypothetical traits of dominance and agreeableness were systematically manipulated. The experimental conditions represented the various combinations of these traits that women might encounter in their real-world dating experiences. Some men are really nice but not very dominant, whereas others may have high status in the dominance hierarchy but be somewhat lacking in agreeableness.

From a sexual strategies perspective, dominance should triumph. After all, agreeableness in a mate is a luxury for females facing years of parental investment. They should favor the male who will reliably beat out other males in the competition for status and resources. This is not what Graziano et al. (1997) found. When women were forced to choose, they consistently preferred the nice guy. Apparently, our chimpanzee cousins do too (Sapolsky, 1998). In fact, agreeableness was three times as powerful as dominance in predicting women's attractions.

Further evidence that mate preferences are not always reducible to sex differences in parental investment comes from studies of male and female facial attractiveness. In a series of detailed analyses involving facial-metric methods and cross-cultural samples, Cunningham and his collaborators (Cunningham, Druen, & Barbee, 1997) have sought to identify the features that make potential mates of both sexes most appealing. The findings vary somewhat as a function of gender, but the overall combination of features judged to be most attractive is essentially the same for men and women. The winning configuration combines three types of facial features: *expressive*, *neotenous*, and *sexual maturational*. Expressive features (e.g., size of smile area) serve as cues of warmth and sensitivity; neotenous features (e.g., large eyes) signal vulnerability; and sexual maturational features (e.g., prominent cheekbones) function as cues of reproductive capability. In other words, judgments about attractiveness do not boil down to the kinds of sex differences that sexual strategies theory would predict. Instead,

attachment qualities figure prominently in the judgments of both sexes.

Such findings demonstrate that human mate preferences are not governed exclusively by a self-contained psychological mechanism custom designed by evolution to propel individuals toward the singular, circumscribed goal of sexual intercourse. Not only is such a system inconsistent with the data, we think it makes little sense in light of the survival problems faced by our ancestors in the environment of evolutionary adaptation (EEA). Just as Bowlby theorized, human mating involves multiple evolved mechanisms. Whereas attachments between infants and caregivers are inherently asymmetric—with infants seeking the emotional security, protection, and care that parents provide—attachments between romantic partners are symmetrical in that both partners mutually seek and provide the same social provisions. In the course of normative development, these evolved psychological mechanisms (attachment and parental caregiving) become integrated with the sexual mating system (Hazan & Shaver, 1994a, 1994b; Hazan & Zeifman, 1994; Shaver & Hazan, 1993; Shaver, Hazan, & Bradshaw, 1988). From an attachment perspective, it thus comes as no surprise that the faces judged most appealing by men and women alike are those that combine the signal stimuli of all three mechanisms.

The differences between a sexual strategies perspective on mating and an attachment approach should now be apparent. For sexual strategies theory, mating is about the reproduction of genes via sexual activity. Emotional bonds are relevant only insofar as they help or hinder this process. From an attachment perspective, these bonds belong at the center, rather than the periphery, of evolutionary theories of human mating. However, to advance this argument requires more than simply citing evidence that pair bonding is our species-typical mating pattern, that the attachment mechanism is operative in pair bonds, that numerous features of human sexual anatomy and physiology foster mate attachment, or that attachment considerations consistently outweigh physical appearance and social status in male and female mate preferences. A case must be made that attachment bonds between reproductive partners carry advantages in terms of reproductive fitness.

Evidence That Pair-Bond Attachment Is Reproductively Advantageous

In our species, reproductive success requires negotiation of at least three adaptive challenges: surviving to reproductive age, acquiring and retaining a mate, and providing adequate care to offspring so that they also survive to reproduce. It was argued previously that the emergence of bipedalism favored premature birth and that the extreme immaturity of human neonates created a situation in the EEA in which survival depended not only on infants forming a strong bond to a protector but also on the joint investment of parents. This necessitated a mechanism that would hold reproductive partners together for an extended period of time. We proposed that attachment, which had evolved to ensure an enduring bond between infants and caregivers, was exploited for this new purpose (for a different view of the adaptive value of pair bonding, see Insel, 2000). In what follows, we argue that the advantages of pair bonding include enhanced survival and reproductive fitness for mates as well as their offspring.

Whether opportunistic, short-term mating strategies are inferior to stable long-term approaches is the source of much debate (e.g., Belsky, 1999; Buss, 1997; Chisholm, 1996), but it is important to remember that these are not mutually exclusive strategies. Pair-bond attachment is not synonymous with sexual exclusivity. In fact, genetic analyses of offspring provide objective evidence that extrapair copulations are common even in species that by all ethological criteria qualify as monogamous (Carter et al., 1997; Mendoza & Mason, 1997). The relative value of short-term versus long-term mating strategies will vary depending on environmental contingencies. According to life history theory (Stearns, 1992), organisms possess a finite amount of resources that must be allocated across various evolutionary challenges, including survival, growth, mating, and parental investment. Local circumstances determine the balance of time and energy an individual devotes to each. Thus, both long- and short-term strategies can be viewed as reasonable and comparably adaptive responses, given a particular ecology.

It is clearly advantageous for humans to be capable of adapting their mating strategies to local ecological conditions (Daly & Wilson,

1988). This does not necessarily mean that short- and long-term mating strategies are different but essentially equal solutions to the same evolutionary challenges (but see Belsky, 1999, for an alternative viewpoint). Adjustments to nonoptimal circumstances are sometimes necessary, but they may not produce optimal results. Take feeding behavior, for example. Survival depends on the regular intake of food, and, if hungry enough, humans will consume almost anything to stay alive. But garbage is unlikely to have the same nutritional value as a well-rounded meal, nor would it be expected to support physical development equally well.

Likewise, quick and frequent copulations coupled with an avoidance of parental investment may be the best available strategy in some circumstances, but it hardly stands as the best route to reproductive success. The clearest objective evidence of this fact is that infant mortality rates are significantly higher among children without an investing father (Hill & Hurtado, 1995). Even putting aside issues of offspring survival, there is other evidence that long-term bonds between partners directly enhance their own reproductive success. For example, women ovulate more often and more regularly if they are in a stable sexual relationship (Cutler, Garcia, Huggins, & Preti, 1986; Veith, Buck, Getzlaf, Van Dalfsen, & Slade, 1983). They also tend to continue ovulating longer and reach menopause significantly later. Earlier we cited evidence that partners in long-term relationships enjoy more robust physical and mental health. The more fit an individual, the better able he or she is to function in all of the various roles adults are required to fill, including those of mate, parent, and grandparent. A healthy member of any social group is more valued, more valuable, and more capable of protecting the self as well as loved ones. A stable bond with a trusted and reliable companion also promotes the kind of exploration and engagement in constructive activity on which family welfare depends (Hazan & Shaver, 1990). Like children, adults benefit from having someone to look out for and keep track of them, someone to initiate a search if they fail to show up at the expected time, to care for them when they are sick, dress their wounds, and help defend them against external threats.

Other evidence that pair bonding is a superior reproductive strategy is the finding that the off-

spring of stable pairs are better equipped to attract and retain their own mates. Adolescents from father-absent homes show precocious sexual interest, relatively early sexual maturation, more negative attitudes toward potential mates, and less interest in long-term relationships than do their counterparts in father-present homes (Draper & Belsky, 1990; Draper & Harpending, 1982; Surbey, 1990). In other words, when reproductive partners do not maintain a long-term bond, their children are more likely to adopt approaches to mating that emphasize quantity over quality. Parental divorce has also been found to affect offspring mating behavior. Female children of divorce tend to fear intimacy and have difficulty establishing committed relationships, whereas the effects for males are evidenced in a lack of achievement orientation (Wallerstein, 1994) and lower eventual socioeconomic status (Lillard & Gerner, in press). Thus, the failure of reproductive partners to maintain a long-term bond can negatively affect the mating appeal and success of their offspring.

Attachment plays an important role in the three adaptive challenges that our species must negotiate to achieve reproductive success: surviving to reproductive age, mating, and nurturing offspring to reproductive age. Why, then, is attachment nowhere to be found in the predominant evolutionary model of human mating? The (over)emphasis on sex differences has distracted us from the reality that men and women are basically similar in what they seek in a mate, the processes by which they become attached to a mate, and the benefits that accrue to them as a result of being in a stable pair bond (Zeifman & Hazan, 1997).

A Mechanism to Foster Mate Attachment

How does one get from attraction to pair bonding? An enduring emotional bond between reproductive partners takes time to develop. The attachment mechanism can maintain the bond, but it would have required a different kind of psychological mechanism to hold the pair together long enough for an attachment to form. Ideally, this mechanism would engender a single-minded focus on the partner at hand, to the exclusion of other potential mates. In addition, it would need to operate at least as strongly, if not more so, in males as females. Moreover, it would have to promote and sustain a strong

desire for the type of close physical contact known to foster attachment.

In fact, such a mechanism exists; it is called romantic infatuation. In the largest and most systematic investigation of romantic infatuation, Tennov (1979) conducted a content analysis of the questionnaire and interview responses of hundreds of men and women. From this database, she was able to identify the common features of this highly common phenomenon. In addition to a reduction in perceived need for or interest in food and sleep and a paradoxical increase in energy, the symptoms include mental preoccupation with and idealization of the target of infatuation and an intense longing for intimate physical contact. The overwhelming majority of male and female participants in Tennov's study had experienced this constellation of feelings. Leibowitz (1983) proposed that the physiological arousal and idealization that typify romantic infatuation are mediated by phenylethylamine, an endogenous amphetamine that also has mild hallucinogenic effects.

Whatever the source of these symptoms, the available empirical evidence indicates that they strike men and women with equal frequency and intensity. If sexual strategies theory were correct in its postulation of a powerful evolved male preference for short-term mating, why would men be so susceptible to falling in love with the female targets of their attraction? It makes perfect sense within an attachment model of mating but is more difficult to explain from a sexual strategies theory perspective. Perhaps this is because sexual strategies theory is a rational model of mating, and everyone knows that there is nothing rational about romantic infatuation!

How Specific Mates Are "Chosen"

Although romantic infatuation explains why two potential mates would engage in the kinds of intimate interaction that might result in their becoming attached to each other, it begs the question of how and why one particular individual becomes the sole focus of attention and passion. The sexual strategies model implies specific triggers for infatuation. In our view, it would be maladaptive for the triggers to be very specific. From an attachment perspective, the mental image of a suitable figure is only schematic. Imagine how survival would be jeopardized

if infants rejected any protector who failed to match some ideal of the perfect caregiver. And, in actuality, the attachment mechanism in human infants can be engaged by almost any conspecific. Although babies are happiest and develop optimally when caregivers are consistently warm and responsive (Ainsworth et al., 1978), they become fully attached to abusive caregivers (Crittenden, 1995) and even other children if adult figures are not available (Freud & Dann, 1951). Both Harlow and Lorenz demonstrated rather dramatically the flexibility of the attachment mechanism in other species. It is worth seriously considering the possibility that the search image for human mating is also inherently flexible.

As noted previously, sexual strategies research on mate selection has tended to focus on qualities of the ideal mate, usually assessed by asking people to describe the kind of individual they would most like to have as their partner. Evolutionary theorists assign special importance to the finding that males and females reliably differ in their relative rankings of physical appearance and status-resources. However, rankings and ratings of hypothetical partner qualities, no matter how consistent within gender or across cultures, represent only weak evidence that any of these qualities figure into or influence mate selection.

In the twin study described earlier, selection criteria were examined not by asking people what they desired in a mate or what they thought influenced their decisions but by exploring the outcomes of actual matings. The findings are not consistent with those from studies based on evaluations of hypothetical partners, nor do they support predictions derived from sexual strategies theory. In fact, the pattern of pairings observed in this large sample of couples led the authors to conclude that mating is not lawfully guided by any of the factors that relationship researchers have proposed as important.

The authors raised the intriguing possibility that human mating may be a largely "adventitious" process. After all, if our hominid ancestors lived in relatively small and isolated bands, as many anthropologists contend, there may not have been many choices available to them. If choice was not an adaptive problem faced by our predecessors in the EEA, then there would have been no need for—and thus no pressure

for—the development of a mate choice mechanism. This possibility questions the core premise underlying decades of research on mate selection. Have the countless hours spent theorizing about and investigating the criteria by which humans choose their mates been for naught because, in the end, there is little or no active choosing going on?

There are data to support a less extreme conclusion. After all, logic dictates that mating decisions cannot be completely random. Our species would have expired long ago had we not succeeded in choosing mates who were capable of reproducing. Thus, at a minimum, there must be some species-typical mechanism for eliminating infertile partners from the pool of eligibles. An important foundation of sexual strategies theory is the claim that this was a problem faced by men but not women because postpubescent males are reproductively capable throughout their lives. This is not actually the case. Male fertility and reproductive capability also decline with age, albeit not as precipitously as for females. For example, the proportion of morphologically abnormal sperm increases starting at about 35 years of age (Schwartz et al., 1983), and the ability to achieve full erection decreases steadily from middle adulthood through old age (Rowland, Greenleaf, Dorfman, & Davidson, 1993). Needless to say, sperm are of little use in reproductive fitness terms if the delivery system is nonfunctional. The fact that life expectancy for males and females during the Pleistocene probably did not extend far beyond the age of menopause (Mellen, 1981) may render the whole debate somewhat moot anyway.

Putting aside issues of sex differences for the moment, it clearly would have been important for members of our species, like all others, to choose reproductively capable mates. The question is whether this was, as sexual strategies theory posits, a *problem* to be solved. If one examines fertility in contemporary hunter-gatherer societies, the usual comparison group for speculations about life in the EEA, it does not appear that it was. In such societies, more than 90% of postpubescent young people are fertile (Symons, 1979). Thus, it may have sufficed for our ancestors to (a) avoid mating with conspecifics who had not yet reached puberty and (b) avoid mating with those who showed signs of aging or disease. The markers of puberty are

easy enough to recognize to satisfy the first requirement; the innate disgust response could serve to satisfy the second.

There are three important points to be made here. First, if nearly every postpubescent young person is fertile and there is a “natural” aversion to sexual contact with those who display age- or disease-related cues of infertility, it is doubtful that natural selection would have needed to exert pressure for the development of a fertility-detecting mechanism. Second, if our mate selection mechanisms evolved in an environment characterized by small and relatively isolated groups, the average person would not have had the wide range of mate options that typify the contemporary undergraduate on whose mate preferences sexual strategies theory is largely based. Thus, it is quite possible that, in the EEA, there was never strong selection pressure for the development of any highly specific mate choice mechanism. Third, given these considerations, evolution may have equipped us with mate rejection as opposed to mate selection criteria. That is, our mating system may be designed to steer us away from fatal choices rather than toward ideal ones. Everyone can describe his or her ideal mate, but even those who qualify as high in mate value often have to compromise. Yet, there are undoubtedly limits to the compromises that any individual is willing to make. To be in the running, a potential mate must simply surpass some threshold of acceptability.

Does this mean that mating decisions (within the pool of acceptable partners) are random? No, but neither are they necessarily strategic. We agree with the twin researchers that there may be an adventitious or chance factor driving mate choice, and we propose that propinquity is this factor. In other words, the true pool of eligibles is not defined as those individuals who are the best match to one's ideals (even controlling for one's own mate value), nor does it include every fertile person under the sun. Rather, it consists of those individuals who both exceed one's rejection criteria and happen to be living or working or playing nearby. This may seem so commonsensical as to be trivial, but we view it as a critically important point that is routinely overlooked. A cost-benefit evaluation would favor mating with one who is adequately attractive and readily accessible. It might be possible to find a marginally more attractive or higher status mate with a longer and wider

search, but a small incremental change on either dimension would probably make little difference in the final (reproductive fitness) analysis. Furthermore, familiarity generally breeds attraction (Rubin, 1973). Familiarity effects are themselves thought to reflect an evolved tendency to respond favorably to individuals who have passed the friend-versus-foe test. Proximity affords not only opportunities for mating but the kind of prolonged association that increases familiarity and, in turn, enhances the mutual attractiveness of potential mates. As every zookeeper knows, a nearly sure-fire way to get two members of any species to mate is simply to house them in the same cage. Why must it be different for *Homo sapiens*?

The evidence suggests that it is not. Most humans end up with a mate who lives within walking distance (Eckland, 1968). Yet, of course, "lives within walking distance" would never appear on anyone's wish list of ideal mate characteristics. This is important for what it reveals about the mate selection process in our species. Specifically, the factors that exert the strongest influence on humans' mating behavior may be those that operate outside of their conscious awareness.

We have yet to address the question of why a particular pair ends up together. Proximity and familiarity, along with individual qualities and preferences, obviously narrow the pool considerably, but what determines the pairing of specific mates? Stated differently, what triggers romantic infatuation? What is responsible for the transition from merely finding another person attractive to making him or her the sole focus of intense longing and preoccupation? In one of only a small number of mating studies to use individuals who were already paired, Aron and his colleagues (Aron, Dutton, Aron, & Iverson, 1989) discovered a possible answer.

The approach they took was to ask participants to provide detailed accounts of their falling-in-love experiences. According to the findings, the factor primarily responsible for the shift from attraction to infatuation is reciprocal liking, or the perception that the person one is interested in feels the same way. Whether expressed in a warm smile or a prolonged gaze, the message is unmistakable: "It's safe to approach. I like you, too. I'll be nice. You're not in danger of being rejected." Recall that when people are asked to make lists of the qualities

they would ideally like in a mate, the traits most valued by both males and females include kindness and understanding. In other words, they say they want a mate who will respond positively to and treat them well. Reciprocal liking can be interpreted as a signal that one has found just such a person, and the fact that this person is acceptably attractive and possesses all of the "right" body parts may be enough to send most people head over heels. For a significant number, this alone is enough to capture and hold their interest until a more enduring bond develops. How long does that take? In adult pairs, it requires approximately 2 years, give or take 6 months (Hazan & Zeifman, 1994). Not coincidentally, this time frame corresponds to the average duration of romantic infatuation (Tenov, 1979).

Further evidence that infatuation is more powerful than strategic choice comes from research detailing its effects on social perception. For example, although physical attractiveness can be defined objectively, how attractive one perceives a particular individual to be depends in large part on how one happens to feel about him or her. More than 20 years ago, Murstein (1976) conducted a study in which members of married couples were asked to (secretly) rate the physical attractiveness of their respective spouses. Eighty-five percent of the husbands rated their wives as above average on looks, whereas fewer than 25% were judged to be above average in physical attractiveness by a panel of judges using the same rating scale. It is often assumed that a woman is desired because she is attractive. This study demonstrates that the causal arrow can run in the opposite direction.

Another example of the influence of romantic infatuation on social perception comes from a study conducted by Simpson and colleagues (Simpson, Gangestad, & Lerma, 1990). Heterosexual participants with steady dating partners rated opposite-sex age-mates as less physically and sexually attractive than did participants without steady partners. The two groups did not differ in their ratings of much younger or much older opposite-sex individuals, suggesting that the effect was specific to potential mates. Along the same lines, Murray and Holmes (1993, 1994; Murray, Holmes, & Griffin, 1996) have, in numerous studies, documented the benefits of mutual idealization in couples. Given that the

availability of attractive alternative partners constitutes one of the greatest threats to the stability of an existing relationship (Rusbult, 1980, 1983), the power of idealization to simultaneously inflate perceptions of a mate's appeal and reduce the appeal of potential rivals underscores its importance in maintaining the integrity of pair bonds. In short, romantic infatuation leaves people with the feeling that they have found the ideal mate, their "one and only."

More Limitations of Sexual Strategies Theory

We believe that the empirical evidence reviewed thus far presents a serious challenge to sexual strategies theory and makes a compelling case for a very different evolutionary model of human mating. But an obvious question at this point is, If the evidence for sexual strategies theory is so weak, why does it appear to be so strong? In the remaining sections, we offer a possible explanation.

As previously noted, a major limitation of the support for sexual strategies theory is a reliance on self-reports and hypothetical mating scenarios. But there are some behavioral data that Buss and Schmitt (1993) cited to bolster their theory. For example, in a study by Clark and Hatfield (1989), an attractive male or female research confederate approached opposite-sex strangers on a college campus and, after announcing that he or she found the stranger attractive, posed one of three randomly selected invitations: to go for dinner, to go to the confederate's apartment, or to have sex. The biggest sex difference was found for the third condition. Fully 75% of the men accepted the invitation for sex, whereas none of the women consented. The results have been questioned on the grounds that the risks associated with accepting an invitation to visit the apartment or to have sex with a complete stranger are quite different for men and women, and thus have ambiguous implications for their respective interest in sex per se (Small, 1995). Nevertheless, this finding and others like it are offered as evidence that males have evolved qualitatively different mating tactics than females and that their "best" strategy for achieving reproductive success is to have sex with as many fertile females as they can.

As in the study just cited, sometimes findings that appear to be supportive of sexual strategies theory have plausible alternative explanations. Another example is a study conducted by DeSteno and Salovey (1996). Sexual strategies theory predicts sex differences in reactions to a partner's infidelity depending on whether the indiscretion is sexual or emotional. Specifically, men are predicted to show greater concern and upset over a female partner's sexual infidelity for the reason that it undermines paternity certainty. Women are predicted to be less bothered by a male mate's sexual wanderings than by his emotional involvement with another woman, because the latter raises the possibility of losing his valued resources. In a study that involved multiple indexes of distress, including heart rate, perspiration, and frowning, these theory-based predictions were confirmed (Buss, Larsen, Westen, & Semmelroth, 1992).

DeSteno and Salovey took issue with the authors' interpretation, arguing that the results could be explained in terms of participants' beliefs concerning the covariation between sexual and emotional infidelity. Leaving aside for now questions about whether sex differences in sexual behavior reflect evolved mating strategies, it is nonetheless true that males are more likely than females to engage in casual sex. More important, males and females are aware of this sex difference. DeSteno and Salovey reasoned that participants' knowledge of this difference could explain the findings. Specifically, women might reasonably assume that male emotional infidelities are strongly suggestive of sexual infidelity as well, and men can safely assume that female sexual unfaithfulness also involves emotional infidelity. In other words, maybe Buss et al.'s participants were showing the greatest distress not to a single type of infidelity but instead to the type of infidelity that implied both: what DeSteno and Salovey called the "double-shot" hypothesis. And when participant beliefs about the covariation between sexual and emotional infidelity were assessed, beliefs were more powerful in predicting distress than was biological sex.

Do Men "Naturally" Prefer Short-Term Mating?

There is probably no issue on which sexual strategies theory depends more, and thus no

issue on which the merits of the theory can be more critically evaluated, than the sex difference in casual sex, or what has been termed sociosexuality (Simpson & Gangestad, 1992). Accordingly, in their original comprehensive exposition of the theory, Buss and Schmitt (1993) devoted three separate figures to demonstrating sex differences in sexual promiscuity. Participants were asked about the degree to which they seek short-term (one-night-stand) as opposed to long-term (marriage) partners, the estimated likelihood of sexual intercourse after acquaintanceships or relationships ranging from 1 hr to 5 years, and the ideal number of sexual partners over periods of time extending from 1 month to 30 years. By all measures, males *on average* were more interested in and more willing and eager to pursue casual sexual liaisons.

Arithmetic averages are sometimes informative and sometimes misleading. L. C. Miller and Fishkin (1997) set out to replicate one of these studies. They asked a large group of undergraduates "Ideally, how many sex partners would you like to have in the next 30 years?" The results were consistent with those reported by previous investigators (e.g., Buss & Schmitt, 1993). The mean number of ideal future sexual partners for women was 2; for men, it was 64. The findings appear to support sexual strategies theory in that reported male desires confirm hypothesized sex differences in "best" reproductive strategies, with males preferring larger numbers of sex partners than females. However, another measure of central tendency paints a qualitatively different picture. The median ideal number of future sexual partners reported by women was one; for men, the number was also one!

The demographic characteristics of the sample are also informative. The typical male undergraduate is young, has yet to commit to a long-term relationship, and has access to what is arguably the largest pool of potential mates he will ever encounter in his lifetime (almost certainly larger than his hominid ancestors had access to in the EEA), and he says that what he would "ideally" like is one sexual partner over the next 30 years. It is difficult to imagine an empirical finding more contradictory to the predictions of sexual strategies theory. If human males are programmed by evolution to desire and seek out multiple sexual partners, why is

this hard-wired preference not evident in the self-reports of men who are at their sexual peak and living in the midst of extraordinary numbers of young and beautiful potential mates? Could the answer be that they have been designed by evolution for pair bonding? As for those few men who skewed the distribution by reporting a desire for 100 or more future sexual partners, Miller and Fishkin found that most were insecurely attached, especially to their *fathers*. A general theory of human mating must be based on the behavior of people in general, not a minority of atypical and poorly adjusted young men.

Another problem is that in much of the research on short- and long-term mating, the two strategies are presented in a forced-choice format (for an exception, see Kenrick, Groth, Trost, & Sadalla, 1993). This approach sets up a false dichotomy. Although rates of sexual infidelity vary somewhat across samples and historical periods, a significant number of long-term mated of both sexes engage in short-term extrapair copulations (Fisher, 1989). And despite the fact that males consistently report higher rates of infidelity than females, some members of both sexes pursue both strategies in tandem, even though the risks for females sometimes include death (Small, 1993).

This raises a related issue. In line with sexual strategies theory, one could argue that a man who has sex with 50 women could conceivably end up with 50 offspring, whereas a woman who has sex with 50 men can still get pregnant by only one. Theoretically, then, it never really pays for her to be sexually promiscuous. But, in fact, it can be quite advantageous for women to be sexually unfaithful to their partners. An estimated 99% of sperm in each ejaculate functions not to fertilize an egg but, rather, to fight off other men's sperm (Baker, 1996). By having sex with multiple males, a female can help ensure that her offspring are of the highest possible genetic quality. Not coincidentally, human females are most likely to stray when they are ovulating.

Assume, for the sake of argument, that human males are "naturally" more sexually promiscuous than human females. This alone would not constitute proof that high male relative to female sociosexuality reflects an evolved sex difference in mating strategies. High levels of androgens are necessary to produce sperm,

and androgens are known to powerfully influence sexual desire in both sexes (Carani, Granata, Fustini, & Marrama, 1996). Male sexual promiscuity could be simply a by-product of hormonal activity as opposed to an adaptive, selected-for mating strategy.

For both empirical and logical reasons, we question whether an exclusive short-term mating strategy was ever adaptive for human males. It has been estimated that in contemporary hunter-gatherer societies—the model for speculations about the EEA—the typical female is pregnant or lactating (and therefore not ovulating) during approximately 24 of the average 26 years between puberty and menopause (Symons, 1979). As a result, she would be fertile on only about 80 of these 8,000 or so days. In other words, only 1 of 100 random copulations could even *potentially* result in conception. Normally, it takes several months of unprotected sex to produce a viable pregnancy. In light of these facts, it seems quite improbable that moving from one-night stand to one-night stand would have been an effective strategy for achieving reproductive success or that such a strategy would ever have been selected for.

Why has so much store been placed in the sex difference in promiscuity? Perhaps the reason is that it is so salient. What person, male or female, has failed to observe that males are generally more willing and eager than females to have sex on a moment's notice with a total stranger? It is a biological fact that men can enjoy sex without concerns about becoming pregnant, and it is a sociological fact that males, relative to females, are more often rewarded and less often punished for their sexual exploits. Surely these facts have some degree of significance. Whatever its origins, the sex difference in casual sex could be what makes sexual strategies theory so intuitively appealing and right-sounding to some. In fact, it may well be the critical "hook" that leads many to swallow the entire theory, line and sinker.

Do Women "Naturally" Care More About Status and Resources?

There is one additional issue on which sexual strategies theory appears to have strong support, and that is sex differences in the value of a potential mate's status and resources. In theory, given the reality that the minimal requisite in-

vestment in offspring is so much greater for females than males—years versus minutes—females should care more than males about a mate's social standing and financial prospects. And worldwide, this appears to be the case (Buss, 1989). The finding that this sex difference is universal is taken as an indication that it is part of an evolved female mating strategy.

There are, however, universal features of the EEA that support an equally plausible account of this reliable cross-cultural sex difference. As Bem (1993) has pointed out, early humans did not have access to the modern conveniences of birth control or digestible substitutes for mother's milk enjoyed today. In addition, much of the work of daily survival depended on physical strength, which males (then and now) possess to a greater degree than females. It is not improbable that all human groups would arrive at the same sex-based division of labor: She would stay home with the babies while he and his friends took care of the business of hunting and looking after the group. As human civilization evolved, males had a power and status advantage relative to females that continues today. Even contemporary professional women cannot anticipate financial rewards equal to those of their male counterparts.

If this environmental universal, rather than an evolved psychological mechanism, is at the heart of female concern about a potential mate's status and resources, then the degree to which women judge men on the basis of their social position and earning capacity should vary as a function of the local financial standing of women. In fact, it does. Eagly and Wood (1999) reanalyzed the 37 cultures data collected by Buss and found exactly this kind of covariation. It is also noteworthy that one female characteristic universally valued by males that was not included in the original published report (Buss, 1989) is that she be a good housekeeper and cook. Was there selection pressure in the EEA for female housekeeping skills (before people had houses) or culinary talents (before people did any cooking)? The possibility strikes us as unlikely. But the findings are important for what they can reveal about human mate preferences. Some may reflect evolved tendencies and some may simply mirror socially constructed gender roles, and the mere universality of their mention by research participants cannot settle disputes about which is which.

Conclusion

A recent *American Scientist* article on the evolutionary psychology of human mating (Buss, 1994) includes a photograph of businessman Donald Trump and his (then) wife Marla Maples. According to the photo caption, they represent "species-typical mating preferences." We think not. Admittedly, when mating decisions are fully conscious and calculated, youth and good looks can be traded for status and resources. But this rule seems also to apply in cases in which the one with resources is female. More celebrity examples, this time rich women with "boy toys," come to mind: Madonna, Cher, Roseanne, Jackie Collins. But they are no more typical of mating in our species than are Donald and Marla. The truly typical human being ends up with a mate who is roughly his or her socio-economic and physical attractiveness equal (Buss, 1984).

An alternative evolutionary model of the process might go something like this: The physiological and psychological changes that accompany puberty motivate individuals of both sexes to begin the search for a mate. A natural aversion to sexual intimacy with those who are physically repulsive for any number of reasons (e.g., wrinkled skin, sagging body parts, open sores, or gross asymmetries) helps ensure that they avoid mating with anyone who has "bad" genes or is unlikely to be fertile. Most members of their local group who reached sexual maturity before them will already be paired; all remaining postpubescent members of the desired sex who exceed their threshold of acceptability constitute the pool of eligibles.

Proximity and familiarity further narrow the pool. Potential mates who are encountered daily at the river's edge have an advantage over those residing on the other side. Within this pool, they are vigilant for signs of reciprocal interest, expressed in easily recognized flirtation behaviors (the proceptive program; Eibl-Eibesfeldt, 1989). A slightly prolonged gaze, a smile, or a subtle violation of personal space may trigger romantic infatuation. If mutual, the psychological and neurochemical processes that ensue make each person the sole focus of the other's attention and passion and render alternative potential mates less desirable. The same processes stimulate a seemingly insatiable longing for close physical contact. This physical

intimacy in turn triggers a release of hormones that boost desire for continued contact. In time, their neurobehavioral systems become mutually conditioned to the stimulus of the mate such that she or he comes to have a uniquely powerful effect on physical and psychological well-being. A pair bond is in place. The two are attached.

Admittedly, not all mating relationships turn out this way. As many as half may dissolve before an attachment bond is fully formed. Even so, most endure long enough to see at least one infant through the most vulnerable early years (Fisher, 1992).

If the goal is to understand human mating, one must go beyond self-reported ideals and hypothetical scenarios to a thorough investigation of the processes by which mating relationships are actually established and what such relationships are really like. There can be no comprehensive evolutionary theory of human mating without a full accounting of our species-typical mating pattern. Moreover, given the irrefutable necessity for successful negotiation of the adaptive challenges associated with infant survival, mate acquisition, and offspring care—and the central place of attachment in all three—we contend that an evolutionary theory of human mating that does not include attachment is hollow at its core. Bowlby's grand and elegant theory complements Darwin's by providing the foundations of a new and more accurate model of mating in our species.

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