The New Psychology of

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The Evolution of Love

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"Love is blind," according to a common saying. "Love is a recent invention, a mere few hundred years old," some social scientists have argued. "Love is limited to Western cultures," according to others. This chapter explains why all these beliefs are radically wrong. From an evolutionary perspective, love is an adaptation, or more accurately a complex suite of adaptations, designed to solve specific problems of survival and reproduction. It is an exquisitely honed set of psychological devices that for humans has served critical utilitarian functions in highly specific contexts. These functions are sufficiently numerous to give credence to another aphorism that gets closer to the truth: "Love is a many-splendored thing."

Solitary creatures such as giant pandas and porcupines have little need for love. They live alone and survive alone, coming together only briefly to mate before parting ways. Humans, in contrast, are "the social animal" (Aronson, 2004). Group living is what we do. Other humans are the "vehicles" on which our survival and genetic legacy depend. Some of those vehicles are so critical that we bestow upon them our psychological, emotional, and material investments. Some are so essential to our reproduction that we willingly sacrifice our lives so that they can thrive.

Natural selection, the driving engine of the evolutionary process, favors the creation of adaptations. Adaptations are anatomical, physiological, or
psychological solutions to recurrent problems of survival and reproduction, defined in the modern inclusive fitness formulation (Hamilton, 1964). A strict requirement for the evolution of adaptations is the cross-time statistical recurrence of an environmental structure. Statistical regularities can be of many sorts—a link between abrasive surfaces and damage to the skin; a correlation between a discrepancy in mate value and the odds of infidelity; a correlation between prolonged eye gaze and sexual interest; a correlation between symmetrical features and absence of environmental insults.

When these statistical regularities recur generation after generation, and when they afford information that contributes to reproductive success, selection can exploit these statistical regularities to create adaptations designed to detect and act upon them. Thus, a callus-producing adaptation can solve the problem of damage due to repeated exposure to abrasive surfaces. A jealousy adaptation can alert an individual to an increased risk of a partner's infidelity (Buss, 2000). Courtship initiation adaptations can be designed to respond to signals of sexual interest (Greer and Buss, 1994). And standards of attractiveness can form around cues recurrently associated with physical health (Sugiyama, 2005; Symons, 1979).

Could the complex psychological state we call love, which includes emotional states, information-processing devices, and manifest acts of love, be an adaptation that evolved to solve problems of reproduction (Buss, 1988b)? This chapter explores several hypotheses about the adaptive functions of love. According to an earlier evolutionary analysis, love evolved to serve several functions (Buss, 1988b):

- Displaying reproductively relevant resources
- Providing sexual access
- Signaling sexual fidelity
- Promoting relationship exclusivity through mate-guarding
- Displaying commitment
- Promoting actions that lead to successful reproductive outcomes
- Providing signals of parental investment.

This chapter expands this evolutionary theory by postulating, and providing empirical evidence for, additional adaptive functions of love. Although conclusive proof does not yet exist to support any one of these hypotheses, enough empirical evidence exists to support the notion that a complete understanding of the psychology of love cannot be attained without understanding its functions—the adaptive problems it was designed to solve.
The Universality of Love

One straightforward prediction from the evolutionary theory proposed here is that the psychological circuits dedicated to love should be universal, not limited to Western cultures. Universality of psychological adaptation, of course, does not mean universality of manifest experience. Just as a person could go through life without ever having his or her jealousy circuit activated—if a partner never displayed cues for infidelity or defection, for example—so a person could go through life without experiencing love. Nonetheless, most humans should possess the psychological circuitry, and hence love should be experienced by some people in every single culture around the world—a testable prediction not generated by nonevolutionary theories of love.

One testament to the universality of love and its obstinate refusal to be extinguished can be found in societies that have attempted to banish it (Jankowiak, 1995). In the nineteenth century, the Oneida Society articulated the view that romantic love was merely disguised sexual lust, and saw no reason to encourage such deceit. The Shakers, to take another example, declared romantic love undignified and threatening to the goals of the larger community, and thus sought to banish it. The Mormons in the nineteenth century also viewed romantic love as disruptive, and sought to discourage it. In all three societies, however, romantic love persisted among individuals, sometimes underground, refusing banishment, hidden from the harsh eyes of the group's elders. Within cultures, as the story of Romeo and Juliet declares with universal resonance, love can be fueled by the efforts of others to suppress it. Lovers have no choice; they can quell their feelings temporarily or muffle their expression, but they cannot exorcise them entirely.

Cultures that impose arranged marriage and permit polygyny provide a test case, for what system could be better designed to undermine love? Does love have any place within a mating system where a man's first wife is chosen for him? Even when his elders choose a man's first wife for him, such as in polygynous Arabic cultures, men often marry a second wife for love. Taita women, in fact, state that they prefer to be the second or third wife, not the first. They feel that they are more likely to be married for love, and hence anticipate that they will receive more favorable treatment from their husband and experience more emotional closeness (Jankowiak, 1995, p. 11).

Another testament to the universality of love comes from studies that simply ask men and women whether they are currently in love. Susan Sprecher and her colleagues interviewed 1,667 women and men from three different cultures (Sprecher, Aron, Hatfield, Cortese, Potapova, and Levit-
skaya, 1994). Seventy-three percent of the Russian women and 61 percent of the Russian men confessed to being currently in love. The comparable figures from Japan were 63 percent for women and 41 percent for men. Americans reported roughly the same levels, with 63 percent of the women and 53 percent of the men admitting that they were currently in love. Another study of ethnographies across cultures revealed that the overwhelming majority contained explicit references to the experience of love—observed declarations of love, love songs, expressions of pain upon unrequited love, and many others (Jankowiak and Fisher, 1992).

Finally, in the most massive study ever conducted of mate preferences—in thirty-seven cultures located on six continents and five islands, consisting of 10,047 participants—“mutual attraction and love” proved to be at or near the top in every single culture (Buss, 1989; Buss, Abbott, Angleitner, Asherian, Biaggio, et al., 1990). If the experience and expression of love were limited only to some cultures, the evolutionary theory of love would be a nonstarter. Available evidence suggests that love indeed is a universal experience; no cultures have been shown to lack the experience of love. Universality of love, however, does not imply that the psychological design of love adaptations is identical in women and men.

**Sex Differences in the Psychological Design of Love**

Among the half-dozen or so most replicable findings in the human mating literature is that men place a greater premium than women on physical appearance in their selection of a long-term mate (Buss, 1989, 2003). It is not because men are superficial or brainlessly judge a book by its cover. Physical appearance provides a wealth of information about a woman’s youth and health, and hence her fecundity (probability that an act of sexual intercourse would lead to conception, barring use of modern birth control) and reproductive value (future reproductive potential). It is not that women do not value physical appearance. They do, and physical cues to health are important in women’s mate selection as well (Buss, 2003). But physical appearance provides additional cues to youth, a strong correlate of fecundity, which is more central to men’s than to women’s mate selection.

The features of physical appearance that embody standards of female attractiveness all support the attractiveness-fertility link: clear skin, smooth skin, lustrous hair, long hair, symmetrical features, absence of open sores, pustules, or lesions, relatively small waist, relatively large breasts, and a low waist-to-hip ratio of the empir

Many of the attributes are not readily available, in a resource acquisition contrast with women’s genes, which tend to acquire love at first sight and Scheck, in the design and commitment.

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waist-to-hip ratio (see Sugiyama, 2005, for a recent comprehensive summary of the empirical evidence).

Many of the qualities critical to women's selection of a long-term mate are not readily assessed through physical appearance. These include a man's ambition, industriousness, drive, and status trajectory—qualities linked with resource acquisition (Buss, 1989, 2003; Buss and Schmitt, 1993). These contrast with what women want in a short-term mate, such as signals of good genes, which can be evaluated partly through physical appearance (Gangestad and Thornhill, 1997; Sugiyama, 2005). Love, however, is not an emotion typically linked with casual sex. It emerges mainly in the context of long-term mating.

Because love is an emotion tethered to long-term mating; because fecundity and reproductive value is so critical to men in selecting a long-term mate; and because physical appearance provides an abundance of cues to a woman's fecundity and reproductive value, we can predict that men will experience "love at first sight" more often than women. The empirical evidence supports this prediction. Men, more than women, report falling in love at first sight (Brantley, Knox, and Zusman, 2002; Kanin, Davidson, and Scheck, 1970). This evidence supports one hypothesized sex difference in the design of the psychological circuitry of love. Other evidence centers on commitment.

Short-term mating, on average, tends to be more costly and less beneficial for women than for men (Buss and Schmitt, 1993). By engaging in short-term mating, women historically risked conceiving with a less than ideal man—perhaps one with inferior genes or one who would not stay to invest in her and her children. Although women can benefit from short-term mating in some circumstances (Greiling and Buss, 2000), casual sex historically did not translate into direct linear increments in reproductive success, as it did for men. Because men can reproduce with as little investment as a single act of sex, whereas women require an obligatory nine-month pregnancy to reproduce, selection has favored a more powerful motivation to desire and seek casual sex in men.

Would you agree or disagree with the following statement: "Sex without love is OK"? If you are a man, the chances are that you would agree with this statement. Women, on average, disagree. Indeed, attitudes toward casual sex without love remain one of the largest sex differences in the sexual domain, as revealed by meta-analyses (Oliver and Hyde, 1993) and the cross-cultural evidence (Buss, 2003; Schmitt 2005).

These findings support a critical hypothesis about sex differences in the
psychological design of love. For women, love and sex are typically closely linked. Men find it easier to have sex without love. This brings us to another hypothesis anchored in an evolutionary theory of love: the emotional experience of love as a means to increase the odds of commitment.

LOVE AS A COMMITMENT DEVICE

If love is a universal human emotion, why did evolution install it in the human brain to begin with? Keys to the mystery come from three unique departures of humans from their most recent primate ancestors: (1) the evolution of long-term mating, (2) the concealment of female ovulation, and (3) the heavy investment by men in their children. Chimpanzees, our closest primate relatives, mate primarily when the female enters estrus. Her bright red genital swellings and olfactory scents send males into a sexual frenzy. Outside of estrus, males are largely indifferent to females. Among humans, ovulation is concealed or cryptic, at least for the most part. Although there might be subtle physical changes in women—a slight glowing of the skin or an almost imperceptible increase in her sexual desire—there is no solid evidence that men can actually detect when women ovulate (Buss, 2003).

The concealment of ovulation coincided with several other critical changes. Men and women started having sex throughout the menstrual cycle, not just around ovulation. Men and women engaged in long-term pair-bonded mating over the expanse of years or decades. And men, unlike their chimpanzee cousins, began investing heavily in offspring. Meat from the hunt went to provision the children, not just the mate and kin.

It requires taking a step back to realize how extraordinary these changes are. Some females began allocating their entire reproductive careers to a single male, rather than to whomever happened to be the reigning alpha male when they happened to be ovulating. Males began to guard their partners against rival males who might be tempted to lure their mates. Surplus resources that in many species go to the female as a specific inducement to copulation now were channeled to the wife and children. Indeed, males now had added incentive to acquire surplus resources, mostly in the form of hunted meat. Long-term mating, in short, involved the allocation of reproductively relevant resources to a single mate over a virtually unprecedented span of time.

Elementary economics tells us that those who hold valuable resources do not give them away indiscriminately. Indeed, evolution would ruthlessly select against those who frittered away reproductively valuable resources in long-term matings that had no payoff. The evolution of long-term mating required installing in the human psychological architecture a set of circuits designed to resources to one particular thick and the problem of.

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designed to ensure a reasonable reproductive payoff to allocating all of one's resources to a single partner. It required some means for determining that one particular mate, above all other potential mates, would be there through thick and thin, through sickness and health. It required a solution to the problem of commitment.

My own initial outline of an evolutionary theory of love (Buss, 1988b) accords with that of the evolutionary economist Robert Frank: that the emotion we call love is, in part, an evolved solution to the problem of commitment (Frank, 1988). If a partner chooses you for rational reasons, he or she might leave you for the same rational reasons: finding someone slightly more desirable on all of the "rational" criteria. This creates a commitment problem: How can you be sure that a person will stay with you? If your partner is blinded by an uncontrollable love that cannot be helped and cannot be chosen, a love for only you and no other, then commitment will not waver when you are in sickness rather than in health, when you are poorer rather than richer. Love overrides rationality. It is the emotion that ensures that you will not leave when someone more desirable comes along. Love, in short, may be a solution to the commitment problem, providing a signal to the partner of strong long-term intent and resolve.

The causal arrow almost certainly also runs in reverse. Love may be the psychological reward we experience when the problem of commitment is successfully being solved. It is a mind/body opium that signals that the adaptive problems of mate selection, sexual congress, devotion, and loyalty have been met with triumph (Fisher, 2004). The scientific explanation is that evolution has installed in the human brain reward mechanisms that keep us performing activities that lead to successful reproduction. The downside is that the drug sometimes wears off (Fisher, 2004). Nothing in life comes with a guarantee. And after the drug wears off, we may leave a relationship that has outlasted its warrant, and fall in love with someone new. Commitment does not necessarily mean commitment for life.

Love is both a solution to the commitment problem and an intoxicating reward for successfully solving it. The astonishingly intricate entwinement of love was first revealed in my own study (Buss, 1988b). I started by asking several hundred women and men to describe the behaviors that signal that a person is in love. A separate sample then diagnosed each of the 115 love acts on how much it indicated being in the thrall of love.

Signals of commitment emerged as most diagnostic, but commitment can take many forms. A partner can commit resources such as food, shelter, and physical protection to a lover over the long term. A lover can commit sexual resources by remaining sexually faithful and by making love with wild aban-
don. Lovers commit reproductive resources to their beloved, as in conception, pregnancy, and childbirth. And it follows that lovers commit parental resources to their children, the natural result of the love union.

Many of these acts conveyed self-sacrifice: putting one's own interests aside for the greater needs of the loved one, making a sacrifice of great importance for the partner, and giving up large amounts of free time to be with the partner. Other signals involved a sexual openness and trust that may be lacking in lesser relationships: trying out different sexual positions or acting out the lover's deepest sexual fantasies.

Emotional commitment emerged throughout the acts of love, including listening to problems with real attention and interest, giving up fun activities to be with the lover when he or she really needed it, and showing great concern for a partner's problems. Several lovers described how their partner provided hope during their darkest hours of need, reaching down to pull them out of a pit of depression when the walls of life seemed steep and unscaleable.

These findings support another critical set of design features hypothesized to be linked to love—specialized forms of commitment.

**SNAKES IN THE GARDEN OF LOVE**

Unfortunately that is not the happy end to the evolutionary love story. There are snakes in the garden, troubles in emotional paradise. One sort of trouble comes from the dual strategies in the human menu of mating. Once the desire for love exists, it can be exploited and manipulated ruthlessly. Men deceive women about the depth of their loving feelings, for example, to gain short-term sexual access (Haselton, Buss, Oubaid, and Angleitner, 2005). As Ovid noted hundreds of years ago, "love is ... a sexual behavior sport in which duplicity is used in order that a man might win his way into a woman's heart and subsequently into her boudoir." Women, in turn, have evolved defenses against being sexually exploited by imposing a longer courtship process before consenting to sex, attempting to detect deception, and evolving superior ability to decode nonverbal signals (Buss, 2005).

Women, too, engage in deception, but of a different sort. Whereas men are more likely to feign love in order to get sex, women are more likely to use sex as a means of getting love (Buss, 2005). One strategy is the "bait and switch" tactic, whereby a woman might offer what appears to be "costless sex" in the context of short-term mating, and then intercalate herself into a man's mind, transforming the relationship into one of long-term love. Just as women have evolved defenses against false declarations of love at the hands of men, so it is reasonable to assume that men have evolved defenses against interpretations, of
defenses against being lured into long-term love when it is against their fitness interests to do so. The arms race of deception and detection of deception, of strategies and counterstrategies, continues with no end in sight. Because the reproductive interests of a man and a woman are rarely perfectly aligned, evolution has favored strategies in each sex that can be carried out only at the expense of the other sex. One of the most important domains of intersexual conflict centers around the dangerous emotion of jealousy.

The Dangerous Passion

Jealousy poses a paradox. Consider these findings: 46 percent of a community sample stated that jealousy was an inevitable consequence of love (Mullen and Martin, 1994). St. Augustine noted this link when he declared that “He that is not jealous, is not in love” (Claypool and Sheets, 1996). Shakespeare’s tormented Othello “dotes, yet doubts, suspects, yet strongly loves.” Women and men typically interpret a partner’s jealousy as a sign of the depth of his or her love; a partner’s absence of jealousy, as lack of love.

Mathes (1986) asked a sample of unmarried, but romantically involved, men and women to complete a jealousy test. Seven years later, he contacted the participants and asked them about the current status of their relationship. Roughly 25 percent of the participants had married, while 75 percent had broken up. The jealousy scores from seven years earlier for those who married averaged 168, whereas the scores for those who broke up registered significantly lower, at 142. These results must be interpreted cautiously; it is one study with a small sample. Nonetheless, it points to the possibility that jealousy might be inexorably linked with long-term love.

Contrast this with another finding: in a sample of 651 university students who were actively dating, more than 33 percent reported that jealousy posed a significant problem in their current relationship (Riggs, 1993). The problems ranged from the loss of self-esteem to verbal abuse, from rage-ridden arguments to the terror of being stalked.

Jealousy, paradoxically, flows from deep and abiding love, but can shatter the most harmonious relationships. The paradox was reflected in O. J. Simpson’s statement: “Let’s say I committed this crime [the slaying of his ex-wife, Nicole Brown Simpson]. Even if I did do this, it would have to have been because I loved her very much, right?” (Newsweek, December 28, 1998, p. 116). The emotion of jealousy, designed to shelter a relationship from intruders, “turns homes that might be sanctuaries of love into hells of discord and harc” (E. Gillard, quoted in Ellis, 1928).
Jealousy is one of the most commonly found correlates of being in love (Mathes, 1991). It evolved to protect love not merely from the threat of loss, but also and more profoundly, from the threat of loss to a rival. Consider the following scenarios that would make you most jealous:

Loss due to fate: Your [partner], with whom you are deeply in love, is killed in an automobile accident.

Loss due to partner's destiny: Your [partner], with whom you are deeply in love, obtains a promotion and moves to a faraway city. You know that you will never see him (her) again.

Loss due to rejection: Your [partner], with whom you are deeply in love, explains that he (she) does not love you anymore and ends the relationship. You know that you will never see him (her) again.

Loss due to a rival: Your [partner], with whom you are deeply in love, falls in love with another and ends his (her) relationship with you. You know that you will never see him (her) again. (Mathes, 1991, pp. 93–94)

In an experiment, Mathes asked men and women, “If this happened to you, would you feel jealous?” Out of a possible range of 4 to 28, loss of a love due to fate scored only 7 on the jealousy scale. Loss due to destiny scored nearly double, at 13. Loss due to rejection came out at 16. But loss to a rival provoked the greatest jealousy score, at 22. Evolution designed jealousy not just to protect against the loss of love. Because evolution is an inherently competitive process, jealousy evolved to prevent the “double whammy” of the loss of love to a same-sex rival.

In my studies, I discovered that signs of jealousy are accurately interpreted as acts of love (Buss, 1988a). When a man unexpectedly drops by to see what his partner is doing, this mode of jealous vigilance functions to preserve the safe haven of exclusivity while simultaneously communicating love. When a woman loses sleep thinking about her partner and wondering whether he's with someone else, it simultaneously indicates the depth of her love and the intensity of her jealousy. When a man tells his friends that he is madly in love with a woman, it serves the two purposes of conveying love and communicating to potential rivals that they must keep their hands off.

The failure of “open marriages” that became popular in the late 1960s and early 1970s is stark testament to the failure of experiments to expunge jealousy from the lives of lovers. Few marriages can endure third-party intruders. One of the positive benefits of jealousy is to preserve that inner sanctum, protecting it from interlopers who have hidden agendas. According to Pines, protecting love is the primary function of jealousy: “jealousy aims
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to protect romantic relationships. It is not a useless flight of irrationality, but a useful signal people can learn to interpret correctly. . . . Jealousy makes people examine their relationship. . . . It teaches couples not to take each other for granted. . . . ensures that they continue to value each other and. . . . indicates that people value the love relationship it protects” (Pines, 1998, pp. 205–206).

Safe havens, however, are rarely possible in the modern world. As the journalist Judith Viorst noted, “Unfortunately there is an endless supply of women out there in the big world—secretaries and dental assistants and waitresses and women executives. . . . And wives with traveling husbands have an even wider selection of potential temptations to get aggravated over—TWA stewardesses, San Francisco topless dancers, old flames in Minneapolis, new models in Detroit” (Viorst, 1998, p. 24).

The maintenance of love, ironically, may hinge on the ever-present threat of rivals and the jealousy they evoke. “On those days when I happen to be feeling mature and secure,” Viorst observes, “I’m also going to admit that a man who wasn’t attractive to other women, a man who wasn’t alive enough to enjoy other women, a man who was incapable of making me jealous, would never be the kind of man I’d love” (Viorst, 1998, p. 24).

**When Love Kills**

Another problem is that what comes up, often comes down. People fall out of love as crashingly as they fall in love. We cannot predict with certainty who will fall out of love, but recent studies provide some critical clues. Just as the fulfillment of desire looms large when falling in love, violations of desire portend conflict and dissolution. A man who was chosen in part for his kindness and drive may be rejected when he turns cruel or lazy. A woman chosen in part for her youth and beauty may lose out when a newer model beckons her partner. An initially considerate partner may turn condescending. And a couple’s infertility after repeated episodes of sex prompts each to seek a more fruitful union elsewhere (Betzig, 1989).

The most crushing blow to long-term love comes from the harsh metric of the mating market. A mated couple initially equivalent on overall desirability may experience a widening gap over time. Consider an entry-level professional couple. If the woman’s career skyrockets and the man gets fired, it puts a strain on both because their market values now differ. Sudden increases in status open up new mating opportunities. A “9” who was previously out of reach now becomes available. In the evolutionary jungle of mating, we may admire a woman who stands by her loser husband. But few
of those who did are our ancestors. Modern humans descended from those who traded up when the increment was sufficient to outweigh the manifold costs people experience as a consequence of breaking up (Buss, 2000).

Falling out of love has many dark sides. “Love’s pleasure lasts but a moment; love’s sorrow lasts all through life” (Celestine, a French writer of fables). The crash can be physically dangerous for women and psychologically traumatic for both sexes. Hearts broken from love lost rate among the most stressful life events a person can experience, exceeded in psychological pain only by horrific events such as a child dying. Men who are rejected by the women with whom they are in love abuse them, often emotionally and sometimes physically. Some men start stalking their exes with repeated phone calls, unexpected visits, and threats of violence. Victims of stalking experience psychological terror, disruption of work, and interference with new mateships. In our recent studies, we found that an alarming number of men who are unceremoniously dumped begin to have homicidal fantasies (Buss, 2005). Unfortunately, these fantasies sometimes turn into reality.

The loss of love is enough to make a man homicidal. The following case, from a systematic compilation of all homicides that occurred within one year in the city of Houston, Texas, illustrates the centrality of the power of love and its loss.

Case No. 191 begins as a domestic quarrel. A 37-year-old woman and her 42-year-old husband were drinking and quarreling. The woman first ran next door to her sister’s apartment but only found her 11-year-old nephew awake. She left her sister’s house to seek assistance from a neighbor. Her husband intercepted her as she crossed their driveway, a further argument ensued, and the woman shouted for help as she walked away from her husband. The neighbors found the woman lying bleeding on the sidewalk and called an ambulance. The husband told police that the whole thing started because his wife did not love him anymore... [this] led him to pull out a pocketknife and stab his wife in the chest. (Lundsgaarde, 1977)

Losing love, in short, remains traumatic, both for the rejector and for the rejectee. Just as evolution has installed serotonin reward mechanisms that flood our brains with pleasure when we mate successfully, so it has also equipped us with brain circuits that deliver searing psychological pain when we experience mating failure. The many failures of love can bring catastrophic costs, creating adaptive problems of great moment.

On the evening of July 24, 2002, in Houston, Texas, Clara Harris, age forty-four, got into her Mercedes Benz and killed her husband, David Harris, a forty-four-year-old orthodontist, in the parking lot of a hotel (Austin American Statesman, January 24, 2003, p. 1). Using her car as her weapon, she ran into her husband, hit him on the head, and ran over his body. The remains of the least unedges.

David Harris was a former office executive who confronted her. He said he began to see a hotel, accused her of cheating, and said he would find out who she was. He then killed her and held her in his arms, saying, “I’m so upset.”

David’s description of Clara’s hands illustrated the “real pretty” said. During a conversation with Clara, David mentioned the possibility of her gaining weight, and mentioned the ‘pretty’ to her. They both had provocative names.

What might have been the real reason behind the murder? Did she find out that her husband was cheating on her with another woman? Did she want to get back at him for being unfaithful? These are just a few of the questions that come to mind.

It was the stepdaughter of David Harris who discovered the body in the hotel parking lot. She had just returned from a vacation and was surprised to find her stepfather dead. She immediately notified the police, who arrived on the scene shortly thereafter.

The police found a note in the car that read, “I hope you’re happy now.” This, along with other evidence, led them to conclude that Clara Harris had murdered her husband in a fit of rage.

The trial of Clara Harris was one of the most high-profile cases in recent history. She was found guilty of capital murder and sentenced to life in prison without the possibility of parole. Her trial was both a testament to the power of love and the consequences of losing it.
she ran into him once. Her anger still not calmed, she circled the lot and ran over him again. Videotape from the hotel security cameras revealed that she hit him three times. When she finally stopped, the Mercedes was on top of him. Some think that Clara Harris is evil and deserves to rot in jail for the remainder of her life. But some view the homicide as justifiable, or at least understandable.

David Harris had been having a torrid sexual affair with Gail Bridges, his former office coworker. Clara Harris discovered the infidelity through a private detective agency she hired when she initially became suspicious. She confronted David, who on the morning of his death, swore to Clara that he would end the affair. Later that night, Clara, with her stepdaughter Lindsey, began to search for David Harris. When they finally tracked him down at a hotel, according to Lindsey, "She said she could kill him and get away with it for what she's been through." Indeed, Clara had gone to great efforts to win her husband back after she discovered his affair. Clara had been a beauty queen, and after the affair was discovered, David made point-by-point comparisons between Clara and his lover. He described his wife as overweight; his mistress, as petite and having "the perfect fit to sleep with, holding her all night" (Austin American Stateman, February 8, 2003, p. A4).

David seemed obsessed with the ample size of his mistress's breasts, and described her as having a "perfect body," although he conceded that Clara's hands, feet, and eyes were prettier. Clara vowed to make herself "real pretty so Dad would want her and not Gail [the mistress]," Lindsey said. During the week before the murder, Clara Harris joined a fitness club, spent time at a tanning salon, and went daily to a hairdresser. She also consulted a plastic surgeon and agreed to pay a $5,000 deposit for liposuction and breast implants. By the day of the murder, Clara had lost fifteen pounds, had had her hair lightened, and had begun wearing more sexually provocative clothing.

What might have aggravated Clara's jealous rage was that the hotel was the one where she and David had been married a decade earlier. When she saw her husband emerge from the hotel elevator hand in hand with his mistress, Clara went "ballistic." She screamed at her rival: "You...! He's my husband!" She ripped the blouse off her rival's body, and wrestled her to the ground. Her husband pulled Clara off his mistress. Hotel clerks escorted Clara out of the hotel. As she left the lobby, David shouted to her, "It's over! It's over! It's over!"

It was then that Clara Harris became strangely calm, according to her stepdaughter. She silently stepped into her Mercedes. Her tears had stopped flowing. David Harris walked toward his Chevrolet Suburban, and everyone
thought the conflict was over. Clara suddenly stomped on the accelerator and, with tires squealing, rammed her car into her husband. She then circled the parking lot and ran over him again. And then circled and ran over him yet again. "You killed my Dad," Lindsey said, when the car finally stopped.

As David Harris lay pinned under the front tire, Clara got out of the car and apologized, and told him that she loved him. During her trial, Clara continued to maintain that she still loved her husband. In light of the circumstances, many in Texas do not judge Clara's horrific deed as evil. Some think that David Harris got exactly what he deserved. The judge and jury did not agree. They went with the prosecutor, who argued that "If the man is cheating on you, you do what every other woman in this country does—you take him to the cleaners. You don't get to kill him" (Madigan, 2003). They sentenced her to twenty years in prison and fined her $10,000.

The jealous emotions that drove Clara Harris to attack her sexual rival in the hotel lobby are not unusual. Nor was her experience of a murderous rage toward her husband upon the discovery of his betrayal. Nor was the fact that the couple lived an upper-middle-class life in a house valued at more than $600,000. Women of all classes react with jealous rage when they discover a cheating husband. What is unusual in this case is that most women do not act on their homicidal passions upon discovering a partner's infidelity. Far more men do.

In the United States between 1976 and 1984, 4,507 women were murdered annually, on average (Campbell, 1992). Race was no barrier to being murdered. Just over a third of the victims were African-American women; two-thirds were women of European descent. The majority were killed by men who loved them deeply. One study of women murder victims in Dayton, Ohio, reveals proportions similar to those of most studies: 19 percent were murdered by their husbands, 8 percent by a current boyfriend, 17 percent by an estranged husband, and 8 percent by a prior sex partner. These figures total to an astonishing 52 percent of the women killed in Dayton. In sharp contrast, in a typical year, only 3 percent of men murder victims die at the hands of a female lover.

Dayton is not unique. A massive study of homicides committed within the United States between 1976 and 1998 revealed that more than a third of the women were killed by an intimate partner, whereas only 4 percent of the men were killed by a wife or lover (Greenfield, Rand, Craven, Klaus, Perkins, Ringel, Warchol, Maston, and Fox, 1998). Similar statistics show up worldwide, from the Australian aborigines to murder among the Mundus of India (Eastail, 1993; Saran, 1974).

It may seem strange to have the warm fuzzy emotion of love lead to vicious leads to positive—opposite emotion

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Then she said that since she came back in April she had fucked this other man about ten times. I told her how can you talk about love and marriage and you been fucking this other man. I was really mad. I went to the kitchen and got the knife. I went back to our room and asked: Were you serious when you told me that? She said yes. We fought on the bed, I was stabbing her. Her grandfather came up and tried to take the knife out of my hand. I told him to go and call the cops for me. I don’t know why I killed the woman, I loved her. (Confession of a thirty-one-year-old man to police after he stabbed his twenty-year-old wife to death, following their reunion after a six-month separation)

The killing of a mate, however, poses a more serious puzzle. How could this bizarre form of behavior possibly have evolved? Killing a mate destroys a key reproductive resource. Evolution by selection should favor preserving, not destroying, vital reproductive resources. Mate-killing seems outrageously counter to self-interested reproductive survival.

The solution to this mystery requires delving into the underlying particulars of mating market logic (Buss, 2005). First, in most cases, killing a mate who has been unfaithful usually would have been detrimental to the killer. An unfaithful woman might still be a valuable reproductive resource to her husband. If she continued to be his sexual resource, then killing her would be damaging his own fitness, an instance of futile, venal, spite. As Wilson and Daly correctly observe, “murdered women are costly to replace” (1998). If the woman has borne a man children, then killing her dramatically hurts his children’s chances to survive and thrive. Finally, by killing her, the cuckolded man risks retribution. The woman’s brother or father might be motivated to exact vengeance. For all these reasons, killing a mate is usually a remarkably ineffective solution to the problem of cuckoldry.

But sometimes the elements in the cost-benefit equation become rearranged. An act of infidelity might signal the man’s permanent loss of sexual access to his mate, not just a temporary or fractional loss. She might not have children by him, and hence killing her would not impair his existing children’s survival. She might lack a father or brothers in the vicinity, something quite common in traditional societies where marriage is usually exogamous (women migrate away from their own kin group and move in with
the husband's kin group when they marry). Furthermore, a man's social reputation might be severely damaged by his wife's infidelity unless he took dramatic action to halt the slide. Status loss cascades into a decline in mate value, undermining the man's ability to attract another mate. Finally, the man's sexual loss might become a rival's sexual gain, a valuable reproductive resource flowing to an archenemy.

Consider for a moment the logic of the argument outside the context of mating. If you have just killed a game animal to feed yourself and your hungry family, and a scavenger comes along and steals it before you can eat it, you suffer a loss. But if your rival steals the meat, the loss becomes compounded in the currency of evolutionary fitness, since selection operates on the principle of relative reproductive success. Your loss becomes a gain for your immediate rival, whose children survive and thrive while yours go hungry or perish.

The same logic applies to mating. If your mating loss bestows a sexual gain on your immediate rival, then the fitness costs of being cuckolded become compounded. This theory leads to a counterintuitive prediction: the younger, healthier, and more attractive the woman, the greater the loss to the cuckolded man and the greater the gain for the rival who now sleeps in her bed. This leads to a disturbing prediction of the theory: that the more appealing, healthy, and fertile the woman, the more motivated the man will be to kill her upon discovering a sexual infidelity.

What is extraordinary is that roughly half of the 3,400 women who are murdered in America every year are killed by the ones who presumably love them—their husbands, boyfriends, ex-husbands, or ex-boyfriends—in circumstances that are remarkably similar. The permanent loss of love sometimes activates evolved homicidal circuits in men.

In our own studies, we found that aside from outright estrangement and leaving the relationship, a woman’s infidelity is one of the two most powerful predictors of when men have recurrent, persistent thoughts about killing their romantic partner. Here is one example:

She accused me of cheating on her, I got mad and broke off the relationship, even though I still loved her. She then decided to start fucking my best friend. I was pissed off because she said I was the only one for her. She is a bitch, and unfortunately has to be pretty. I want her to be gone and I want my best friend to die, too. . . . We are on her boat and I start talking to her. She asks me to leave and starts getting nervous, so I tie her hands and feet together and strap her to the steering wheel, where I proceed to fuck her brains out. Then I make her drink a lot of alcohol so she can't think straight. The cliffs the boat is at are fat and edge to edge to friend w
think straight. I jam the steering wheel so that she is on a one-way push to the cliffs that are in front of her house. That’s where I jump off and watch the boat explode. [What prevented you from killing her?] I’m a sane human being and I realize that she is just a stupid bitch, and hopefully will become fat and ugly when she gets older. [What would have pushed you over the edge to kill her?] If I would have caught her fucking around with my best friend while we were still going out.

Two elements in this fantasy warrant note. First, the victim is both young and pretty, signifying that she is highly reproductively valuable. Second, she has sex with the man’s best friend, who has now become a rival. In research conducted by evolutionary psychologists Bleske and Shackelford, the most bitter sexual rivals can lurk among one’s closest friends (2001). Friends can be more effective mate poachers than strangers because they have special knowledge of our mates, know when we are present and absent, and have an intimate understanding about when rifts in our relationships might widen. Fully 29 percent of women and 18 percent of men reported that a same-sex friend had sometimes flirted with their romantic partner, figures that undoubtedly underestimate incidence, since most mate poachers initiate overtures surreptitiously. Bleske and Shackelford discovered that same-sex friends deceived their “friends” about these issues. Deception about encroaching on a friend’s mate was the most frequently mentioned form of deception in same-sex friendships. Women are especially apt to misinform their same-sex friends about the extent of their prior promiscuity and the number of sex partners they have had, presumably in an attempt to minimize the perceived threat of mate-poaching.

The intensity of love a man feels for a woman is often mirrored in the intensity of his homicidal thoughts, as shown in the next case.

Case #145: I knew her for five years and shared the best times of my life with her... I screamed and yelled and broke all the pictures of her and beat the shit out of the guy she cheated on me with... My girlfriend of 1 1/2 years, who I had been friends with for over 5 years, started hanging out with some cocaine addicts and started calling me less and less. Now she is a “coke head” and having sex with these fucks that she met. I tried everything I could to help her out but I eventually gave up... I wanted to grab her by the throat and lift her in the air and just scream into her face all the horrible acts she had committed and how I felt about it. I then wanted to shoot her and the assholes that got her hooked... Sometimes my bare fists, sometimes a gun... [what prevented you?] My conscience and my being connected to reality. I know that there is really no reason to
take a loved one’s life. I realize that there is a consequence to every one of my actions. . . . The fact that I loved this girl more than anything I had ever loved in my entire life. I would have happily died for her and would have married her in a heartbeat. Because of this she hurt me more than I had ever been hurt in my life. I didn’t want to live and I didn’t want her to live.

The volatile mix of love and infidelity was revealed in a study of seventeen cases of mate murder from a Canadian study conducted by Wilson and Daly. Six of these cases were attributed to “psychiatric disorders.” Of the remaining eleven cases, however, “all professed that they were deeply in love with their victims” (Wilson and Daly, 1992). Furthermore, “in all 11 cases, the victim was engaged in an affair with another man or had led the offender to believe that she was unfaithful to him. In 10 of the cases, the victim made no attempt to conceal her other relationships.”

Our studies discovered a close correspondence between thought and deed. Just as a woman’s sexual infidelity powerfully evokes homicidal fantasies in her mate, so it drives some men to carry out the deadly deed.

The cross-cultural record supports the contention that sexual infidelity by the woman is one of the two leading motives for men murdering their mates. Among the Yapes, the man cuckolded “had the right to kill her and the adulterer or to burn them in the house” (Muller, 1917, p. 229). In Melanesia, the law specifies that the rage a man experiences when his wife is found having sex with another man is both predictable and excusable. The islanders say “he is like a man whose pig has been stolen,” but with anger justifiably amplified (Hogbin, 1938, 236-237).

Conclusions

The evolutionary theory of love proposed here contains key features lacking in nonevolutionary theories of love: hypotheses about the functionality of love in solving specific adaptive problems that have recurrently faced humans over deep time in the quest for mating success. It also contains testable (hence falsifiable) predictions about the psychological design of love, including critical sex differences in design features. Although this evolutionary theory requires more extensive empirical tests, the available evidence supports several of its key predictions.

First, the evidence suggests that the experience of love is a human universal, not something limited to Western cultures. Second, the evidence supports the hypothesis that love emerges primarily in the context of long-term mating, and rarely in the context of short-term mating. Third, men experience “love at first sight” more than women, a design feature that supports the notion more central to the a men, more than: love is OK,” suppor linked in the minds

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Acknowledgment

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supports the notion that physical appearance and physical attractiveness are more central to the activation of men’s than to women’s love circuits. Fourth, women, more than men, disagree with the attitude statement “sex without love is OK,” supporting the hypothesis that love and sex are more closely linked in the minds of women than of men.

Fifth, jealousy shows links to love in ways precisely predicted by the evolutionary theory, including the proposition that women experience more intense jealousy than men when a partner falls in love with someone else, whereas men experience more intense jealousy than women at signals of sexual infidelity (despite recent claims to the contrary, the sex difference in the design of jealousy is extremely robust across methods—see Buss and Haselton, 2005; Pietrzak, Laird, Stevens, and Thompson, 2003; Sagarin, 2005; Schutzwohl and Koch, 2004). Sixth, several lines of evidence support the hypothesis that the psychology of love is in part a commitment device signaling the devotion of reproductively valuable resources to a partner over time.

Tragically, loss of love, particularly when a woman permanently leaves a man who loves her, places a woman in peril of violence, stalking, and murder—findings that support the hypothesis that men’s psychology of love contains design features that motivate them to keep a woman they love and go to desperate measures to prevent male rivals from possessing her.

Love permeates all aspects of human mating. People place a premium on love in their selection of a mate. They use acts of love to attract a mate. They use love acts to retain a mate. Loss of love, or its redirection to another person, triggers jealousy, conflict, violence, and relationship dissolution. Love leads to the greatest peaks of personal ecstasy. Its loss leads to the darkest horrors of human nature.

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