

Go Together Like a Horse and Carriage?

THE EVOLUTIONARY PSYCHOLOGY OF MARRIAGE

It is a mistake to think that marriage is unique to the human species. While, of course, some of the specific accoutrements of human marriage—such as the wedding ceremony—is unique to humans, the institution of marriage itself—the predictable and regulated patterns of matings between a male and a female—is shared by many other species, particularly birds.¹ Further, some of the specifics of a Western marriage—the church wedding, marriage certificates—are not even human universals.

Because marriage is closely related to sex and mating, this is another area where evolutionary psychology has produced a large number of fascinating studies. Perhaps two of the most surprising findings of evolutionary psychology and biology (to be discussed in greater detail in this chapter) are about polygyny (marriage of one man to many women). First, despite the impression you might get from the history of Western civilization in the last millennium,

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humans are naturally polygynous, not monogamous, and as a result, *all* human societies (including the United States) are polygynous to various degrees. Second, contrary to what you might think, most women benefit from polygyny, while, conversely, most men benefit from monogamy.

Intrigued? Then read on. . . .

Q. Why Are There Virtually No Polyandrous Societies?

First, let's get the terminology straight. As we discussed before, *monogamy* is the marriage of one man to one woman, *polygyny* is the marriage of one man to more than one woman, and *polyandry* is the marriage of one woman to more than one man. *Polygamy*, even though it is often used in common discourse as a synonym for polygyny, refers to both polygyny and polyandry. We will not use this ambiguous word in this book.

A comprehensive survey of traditional societies in the world shows that 83.39 percent of them practice polygyny, 16.14 percent practice monogamy, and 0.47 percent practice polyandry.² Almost all of the few polyandrous societies practice what anthropologists call *fraternal polyandry*, where a group of brothers share a wife. Non-fraternal polyandry, where a group of unrelated men share a wife, is virtually nonexistent in human society.³ Why is nonfraternal polyandry so rare?

As we discussed in chapter 2, paternity certainty is low enough in a monogamous marriage, where the woman is "supposed to" be mating with only one man; the estimates of cuckoldry (where the man unknowingly raises another man's genetic child) in *monogamous societies* range from 13–20 percent in the United States, 10–14 percent

in Mexico, and 9–17 percent in Germany.⁴ When multiple men are officially married to one woman, who is “supposed to” mate with all of them, the co-husbands have very little reason to believe that a given child of hers is genetically his, and will therefore not be very motivated to invest in it. If the children receive insufficient paternal investment, they will not survive long enough to become adults and continue the society. Nonfraternal polyandry therefore contains the seeds of its own extinction.

In contrast, fraternal polyandry, where the co-husbands are brothers, can survive as a marriage institution because even when a given husband is not the genetic father of a given child (sharing half of his genes), he is at least the genetic uncle (sharing a quarter of his genes). The child of a fraternal polyandrous marriage could never be completely genetically unrelated to any of the co-husbands (assuming, of course, that the wife has not mated with anyone outside of the polyandrous marriage), so all the co-husbands are motivated to invest in all the children.

By the same token, the most successful type of polygyny is the sororal polygyny, where all the co-wives are sisters (although, unlike nonfraternal polyandry, nonsororal polygyny is very common). While a woman, when given a choice between marrying an unmarried man and marrying a married man, might under some circumstances rationally choose to marry polygynously (see the section “Why (and How) Are Contemporary Westerners *Polygynous*?” later in this chapter), it is never in the existing wife’s material interest for her husband to acquire another wife. Every senior wife who is already married to the man suffers from the addition of each new wife to the household, because each additional wife takes away the husband’s resources, otherwise available to her and her children. Thus, conflict among co-wives in polygynous marriages is very common, and for this reason polygynous men in many traditional societies

maintain a separate household for each wife.⁵ However, the conflict and competition for the limited resources of the husband are somewhat alleviated when the co-wives are sisters because then they will not object so strongly to the diversion of the resources to the new wife and her children, to whom the senior wife is genetically related.⁶

If You Want to Know What Women Have Been Up to, Look at Men’s Genitals

Now, the fact that polyandry is very rare in human society decidedly does *not* mean that married women have always been faithful to their husbands and mated with only one man. On the contrary, *human females have been promiscuous throughout their evolutionary history.* (Recall the dangers of moralistic fallacy from the introduction. The fact that marital fidelity is a virtue means neither that it is natural for us nor that we are always faithful to our spouses. Promiscuity may be morally good or bad, but its evolutionary naturalness has no bearing on the question.) How do we know? There are several pieces of evidence that support this conclusion. First, the very high rates of cuckoldry (men unwittingly raising another man’s genetic children) in many contemporary societies cited above strongly suggest that extra-pair copulation (mating with sex partners to whom one is not formally married) has been an evolved strategy for females (both human and other species).⁷

Second, it turns out that we can measure the degree of female promiscuity rather precisely by *the relative size of testes on the male body.* Across species, the more promiscuous the females are, the larger the size of the testes relative to the male’s body weight. This is because when a female copulates with multiple males within a short period of time—in other words, when they are promiscuous—sperm

from different males must compete with each other to reach the egg to inseminate it. One good way to out-compete others is to outnumber them. Male gorillas, whose females live in a harem controlled by one silverback male and therefore do not have many opportunities for extra-pair copulations, have relatively small testes (0.02 percent of body weight) and produce a very small number of sperm per ejaculate (5×10^7). On the other extreme, male chimpanzees, whose females are highly promiscuous and do not attach themselves to any single male, have relatively large testes (0.3 percent of body weight) and produce a very large number of sperm per ejaculate (60×10^7).⁸ On this scale, humans lie somewhere between the gorilla and the chimpanzee, but closer to the former than the latter. Men's testes are about 0.04–0.08 percent of their body weight, and the approximate number of sperm per ejaculate is 25×10^7 . So human females have been more promiscuous than gorilla females in their evolutionary history, but not nearly as promiscuous as chimpanzee females. The evidence of women's promiscuity throughout evolutionary history is in the relative size of men's testicles. Men would not have such large testicles and produce so many sperm per ejaculate had women not been so promiscuous.

Finally, according to the pioneer biopsychologist Gordon G. Gallup and his collaborators, another piece of physiological evidence of promiscuity among human females in the evolutionary past is *the precise shape of the human penis*. The shape of the human penis is quite distinct from that of many other primate species. In particular, the glans ("head") of the human penis is shaped like a wedge. "The diameter of the posterior glans is larger than the penis shaft itself, and the coronal ridge, which rises at the interface between the glans and the shaft, is positioned perpendicular to the shaft."⁹

In addition, the human male during copulation engages in

repeated thrusting motions before he ejaculates. The combined effect of the particular shape of the penis glans and the repeated thrusting motions "would be to draw foreign semen back away from the cervix. . . . If a female copulated with more than one male within a short period of time, this would allow subsequent males to "scoop out" semen left by others before ejaculating."¹⁰ In other words, the human penis is a "semen displacement device."¹¹ If human females did not engage in extensive extra-pair copulations throughout human evolutionary history, the human penis would not be shaped as it is, and the human male would not engage in repeated thrusting motions before ejaculating.¹² Clear evidence of women's promiscuity throughout evolutionary history is in the size and shape of men's genitals and what men do with them.

Q. Why (and How) Are Contemporary Westerners Polygynous?

Polyandry (a marriage of one woman to many men) is very rare in human society (see "Why Are There Virtually No Polyandrous Societies?" above). This means that almost all human societies practice either monogamy or polygyny, which is the reason why the term *polygamy* is often used synonymously with *polygyny*. Polygyny is the only form of polygamy widely practiced in human societies, and a vast majority of human societies practice polygyny. Even though those of us in Western industrial societies tend to think of monogamy as both natural and normal, and even though Judeo-Christian religious traditions tell us that monogamy is the only natural form of marriage, monogamous societies are a small minority throughout the world. Why is this?

This is because, contrary to the Judeo-Christian tradition, humans are naturally polygynous.¹³ By *naturally*, we mean that humans have been polygynous throughout most of their evolutionary history. (Recall the danger of naturalistic fallacy from our introduction. “Natural” means neither good nor desirable.) Strict and socially imposed monogamy is a recent invention in human evolutionary history. Unlike physical artifacts, however, human practices (like the institution of marriage) do not leave fossil records. How, then, do we know that our ancestors practiced polygyny more than ten thousand years ago in the ancestral environment?

It turns out that the clear evidence of our ancestors’ polygyny is embodied in each of us. Both among primate and nonprimate species, the species-typical degree of polygyny (how polygynous members of a given species are on average) highly correlates with the degree of sexual dimorphism in size (the extent to which males of a species are larger than females).¹⁴ The more polygynous the species, the greater the size disparity between the sexes. For example, among the completely monogamous gibbons, there is no sexual dimorphism in size; both by height and by weight males are about the same size as females. In contrast, among the extremely polygynous gorillas, males are 1.3 times as large by height and twice as large by weight as females.¹⁵

On this scale, humans are somewhere in the middle, but closer to the gibbons’ end than that of the gorillas. Typically, human males are 1.1 times as large by height and 1.2 times as large by weight as human females.¹⁶ This suggests that, throughout evolutionary history, humans have been *mildly* polygynous, not as polygynous as gorillas but not completely monogamous like gibbons either. This is how we know that humans are *naturally* polygynous.

Why Is Polygyny Related to Sex Differences in Body Size?

However, this begs the question: Why does the degree of sexual dimorphism in size correlate with the degree of polygyny? There are two possible explanations of this correlation. The first, more established theory posits that males have become larger throughout evolutionary history; the second, newer theory argues that females have become smaller.

Did Men Become Bigger . . .

The proponents of the first theory¹⁷ point out that relative to monogamy, polygyny creates greater fitness variance (the distance between the “winners” and the “losers” in the reproductive game) among males than among females by allowing a few males to monopolize all females in the group. (See chapter 2, “Why Are Men and Women So Different?”) The greater fitness variance among males creates greater pressure for men to compete with each other for mates. Under such severe physical competition, only big and tall males can emerge victorious and get mating opportunities, while small and short males are left out of the reproductive opportunities altogether. At the same time, among pair-bonding species like humans, where males and females stay together to raise their children, females prefer to mate with big and tall males who can provide better physical protection for themselves and for their children against predators and other males. Thus, through both competition among men and preference by women, only big and tall males can reproduce and pass on their “big and tall” genes to their sons, while most or all females of all sizes reproduce and pass on their full range of sizes to their daughters. (Remember, the “fitness floor”—the worst one can do—is relatively high for women.) Over many generations,

males will get bigger and taller, while females will retain the same distributions of height and weight in each generation.

Recent critics¹⁸ point out that this theory assumes that body size (height and weight) is transmitted exclusively or largely along the sex lines, from fathers to sons, and from mothers to daughters. The theory assumes that tall men married to short women have tall sons but short daughters. The critics use Finnish data on twins¹⁹ to demonstrate that this assumption is false. The data show that sons are just as likely to inherit their height from mothers as from fathers, and daughters are just as likely to inherit their height from fathers as from mothers. So a tall father will have both tall sons and tall daughters, and a short mother will have both short sons and short daughters. What gives?

... or Did Women Become Smaller?

The critics then point out that under polygyny, there is an evolutionary pressure for girls to mature earlier (see "Why Do Girls of Divorced Parents Experience Puberty Earlier Than Girls Whose Parents Remain Married?" in chapter 5). Under monogamy, most adult males are already married and cannot marry again, so there are no incentives for prepubescent girls to mature earlier; prepubescent boys in their age group are in no position to marry them. In contrast, under polygyny, married adult males can acquire additional wives. So girls who mature early can become a junior wife of a wealthy village chief while their prepubescent age mates cannot. Because girls who mature early attain smaller adult height than girls who mature late throughout the world (because girls essentially stop growing when they reach puberty),²⁰ this suggests that height differences between the sexes should be greater in polygynous societies as a result of girls undergoing earlier puberty and becoming shorter. Cross-cultural data show that this is indeed the

case. Girls in polygynous societies are shorter than girls in monogamous societies, whereas boys from both types of societies are about the same height.^[21]

Whichever theory is correct, it appears to be the case that polygyny and sex differences in height are closely related. This is how we know that humans are naturally polygynous: because men are taller than women.

What Women Want

If humans are naturally polygynous, why, then, do many human societies in the world today practice monogamy (even though a large majority still practices polygyny)? One theory suggests that it is because that is what women want. In any species for which the female makes a greater investment in children than does the male (including humans), sex and mating is a female choice. Sexual intercourse occurs if and when the female wants it; the male has very little choice (outside of forcible rape).²² (See "What Do Bill Gates and Paul McCartney Have in Common with Criminals?" in chapter 6.) Humans are no exception. Monogamy emerges as the institution of marriage in the society when many or most women choose to marry monogamously, and polygyny similarly emerges as the institution of marriage when many or most women choose to marry polygynously.²³

What, then, would lead women to choose to marry monogamously or polygynously? One important determinant of the institution of marriage is the degree of resource inequality among men (the difference between the richest men and the poorest men). In societies with a high degree of resource inequality, where rich men are very much richer than poor men, women (and their children) are better off sharing the few wealthy men, because one-half, one-quarter, or even one-tenth of a wealthy man is still better than a

whole of a poor man when resource inequality is extreme. Or, as George Bernard Shaw puts it, "the maternal instinct leads a woman to prefer a tenth share in a first rate man to the exclusive possession of a third rate one."²⁴

In contrast, in societies with a low degree of resource inequality, where rich men are not much richer than poor men, women (and their children) are better off monopolizing a poor man than sharing a rich man, because one-half of a rich man will not be as good as a whole of a poor man.²⁵ Thus, polygyny emerges as the institution of marriage in societies characterized by greater resource inequality among men, while monogamy emerges in societies characterized by lesser resource inequality. This theory is an extension to human society of what is known as the polygyny threshold model in biology, originally formulated to explain the mating systems of birds,^[26] thus once again illustrating the fundamental principle of evolutionary psychology that humans are no different from other species. (See "The Evolutionary Psychological Perspective" in chapter 1.)

The reason most Western industrial societies are monogamous, despite the fact that humans are naturally polygynous, is that men in such societies tend to be more or less equal in their resources, compared to their ancestors in medieval times. The degree of inequality tends to increase as societies become more complex, from hunter-gatherer and pastoral societies, to horticultural and agrarian societies, and typically reaches its maximum in advanced agrarian societies.²⁷ Industrialization tends to decrease the level of inequality in society.

Individual decisions of women to marry monogamously rather than polygynously combine to produce social institution and norms.²⁸ If many or most women choose to marry monogamously, then the society becomes monogamous. However, the true polygynous nature of humans is never too far beneath the surface, even in nominally monogamous societies such as ours.

All Human Societies Are Polygynous, Simultaneously or Serially

Wealthy and powerful men throughout history, even while monogamously married, have always mated polygynously by having mistresses, concubines, and other extramarital affairs.²⁹ (See "What Do Bill Gates and Paul McCartney Have in Common with Criminals?" in chapter 6.) And it is true even today. Whether married or not, wealthier men in the United States and Canada have more sex partners and have sex more frequently than less wealthy men.³⁰ This is not because wealthy men can afford the services of prostitutes; wealthy men are no more likely to have sex with a prostitute than are poorer men. They do not have to. Wealthy men have more sex partners and have sex more frequently because women seek them out.

Most nominally monogamous societies also allow people to get a divorce, and in many societies, such as the United States, divorce is both very easy and very common. Liberal divorce laws allow men in these societies to practice *serial polygyny* (a man having multiple wives, not simultaneously but sequentially, through a series of divorce and remarriage). In the United States, the strongest predictor of remarriage after divorce is sex (male vs. female): men typically remarry, women typically do not. As we discuss in chapter 3, this is because men become more desirable with age to potential mates (thanks to the greater income and higher status that typically accompany age), while women become less desirable with age due to declining reproductive value and fertility. While some women do remarry after divorce and thus practice serial polyandry, a far greater number of men practice serial polygyny through divorce and remarriage. Contemporary Westerners who live in nominally monogamous societies that nonetheless permit divorce are therefore in effect polygynous; they practice serial polygyny.

*Most Women Benefit from Polygyny,
Most Men Benefit from Monogamy*

When there is resource inequality among men (which there always is in every human society), most women benefit from polygyny. This is because under polygyny, women can share a wealthy man, whereas under monogamy, they are stuck with marrying a poorer man. If the resource inequality is large enough, then a fraction of a wealthy man is bigger and thus better than a whole of a poor man.³¹

The only exceptions are extremely desirable women. These women can marry the most desirable, wealthiest men under any circumstance (polygyny or monogamy). Under monogamy, they can monopolize the wealthiest men, whereas under polygyny, they must share them with other, less desirable women. So the most desirable women benefit from monogamy, but all other women benefit from polygyny.

The situation is exactly opposite for men. Most men benefit from monogamy, because it guarantees that every man can find a wife. True, less desirable men can only marry less desirable women, but marrying a less desirable woman is much better than not marrying anyone at all.

Once again, extremely desirable men are the exceptions. Such men can have multiple wives under polygyny, whereas they are limited to only one wife (albeit an extremely desirable one) under monogamy. So extremely desirable men benefit from polygyny, but all other men benefit from monogamy.

When men in monogamous societies imagine what their life might be like under polygyny, they imagine themselves with multiple wives. So they may think they would be better off under polygyny. What they don't realize is that for most men, who are not extremely desirable, polygyny means no wife at all, or, if they are lucky, one

wife who is much less desirable than one they could get under monogamy (because under polygyny, more desirable wives are taken by men who are more desirable than them). If they do the math, they will come to the right conclusion that most of them are better off under monogamy than under polygyny.

**Q. Why Does Having Sons Reduce the
Likelihood of Divorce?**

Sociologists and demographers have discovered that the presence of sons decreases the probability of divorce.³² Couples who have at least one son face a significantly lower risk of divorce than couples who have only daughters. Why is this?

Remember from chapter 3 that a man's mate value is largely determined by his wealth, status, and power, whereas a woman's mate value is largely determined by her youth and physical attractiveness. This means that the father has to make sure that his son will inherit his wealth, status, and power, regardless of how much or how little of these resources he has. A working-class father still has to make sure that his son will inherit what little wealth he has, because the more the son inherits, the greater his expected reproductive success. In sharp contrast, there is relatively little that a father (or mother) can do to affect the daughter's expected reproductive success; once she is born, there is very little parents can do to keep her youthful or make her more physically attractive.

The evolutionary psychological logic therefore predicts that the continued presence of (and investment by) the father is important for the son, but not as much for the daughter. Strictly in reproductive terms, there is very little fathers (or anyone else) can do for daughters beyond keeping them alive and healthy. The presence of

sons therefore deters divorce and departure of the father from the family more than the presence of daughters, and this effect should be stronger among wealthy families.

Of course, strongly wedded to the Standard Social Science Model as they are, the sociologists and demographers who discover that the presence of sons decreases the probability of divorce explain this finding by saying that fathers are *considered* to be more important for their sons' lives than for their daughters', and the presence of sons *encourages* fathers to get more involved in child rearing, thereby lowering the likelihood of divorce. Of course, they are right; fathers *are* generally considered more important for sons than for daughters, and the presence of sons *does* encourage fathers to get more involved. But the Standard Social Science Model cannot explain *why* this is so; evolutionary psychology can.

Q. Why Are Diamonds a Girl's Best Friend?

Because women make disproportionately greater parental investment in children than men do, their primary task is to discriminate between "dads" and "cads"³³ among male suitors. *Dads* are males who are willing to invest in a woman and her offspring in the long run; *cads* are those who are only looking for cheap thrills for the night and are likely to desert her after having sex. Given that women can have only so many children in their lifetimes and that they must invest much more in each child, the reproductive consequences faced by a woman for failing to discriminate between dads and cads are very large.

How might a woman accomplish this task? How would she know which men will invest resources in her and her offspring? A good dad must possess two qualities: the *ability* to acquire and accumulate

resources, and the *willingness* to invest them in her and her children. A good way to screen for men who are simultaneously able and willing to invest is to demand an expensive gift; only men who are capable of acquiring resources and willing to invest them can afford to give a woman expensive gifts, which are known as *courtship gifts* or *nuptial gifts* in evolutionary biology.³⁴ (Yes, females of other species demand these gifts before they agree to have sex with the males.) Would any expensive gifts do? A Mercedes-Benz? A house in the suburbs?

No, these gifts will not do. A man who is *intrinsically* interested in luxury European cars might buy her a Mercedes. A man who is *intrinsically* interested in real estate might buy her a house in the suburbs. In either case, his gift is not an unequivocal and pure indicator of his *general* and *universal* willingness to invest resources in her and her offspring. The courtship gift for the purpose of screening dads from cads must not only be costly but also lack intrinsic value.

Diamonds make excellent courtship gifts from this perspective because they are simultaneously very expensive and lack intrinsic value. No man (or woman) can be inherently interested in diamonds; you cannot drive them, you cannot live in them, you cannot do *anything* with them. Any man who would buy diamonds for a woman must be interested in making an investment in her. Flowers, another favored gift for women, are also relatively expensive and lack intrinsic value. Of course, diamonds and flowers are beautiful, but they are beautiful precisely because they are expensive and lack intrinsic value, which is why it is mostly women who think flowers and diamonds are beautiful. Their beauty lies in their inherent uselessness; this is why Volvos and potatoes are not beautiful.

Consistent with this evolutionary psychological logic, a recent

analysis using game theory demonstrates that what the researchers call “extravagant” gifts—gifts to women that are “costly but worthless”—facilitate courtship.³⁵ The researchers note that such extravagant gifts have the added benefit *for men* of deterring “gold diggers,” women who promise to mate in exchange for a gift but then desert without mating after receiving it. (Once again, yes, there are such “gold diggers” among other species as well.) It appears that women are not the only ones who must screen their mates very carefully.

Q. Why Might Handsome Men Make Bad Husbands?

Recall from chapter 3 that beauty is *not* in the eye of the beholder or skin-deep. Beautiful people are genetically and developmentally healthier than are unattractive people. So how are handsome men different from unattractive men as husbands? Why would healthier men not make better husbands?

Two leading evolutionary psychologists, Steven W. Gangestad and Jeffrey A. Simpson, suggest one answer.³⁶ Gangestad and Simpson observe that men can maximize their reproductive success by pursuing one of two different strategies: Seek a long-term mate, stay with her, and invest in their joint offspring (the “dad” strategy); or seek a large number of short-term mates without investing in any of the resulting offspring (the “cad” strategy).³⁷

All men may want to pursue the cad strategy; however, their choice of the mating strategy is constrained by female choice. Men do not get to decide with whom to have sex; women do.³⁸ And women disproportionately seek out handsome men for their short-term mates for their good genes. Even women who are already

married would benefit from short-term mating with handsome men if they could successfully fool their husbands into investing in the resulting offspring. The women then get the best of both worlds: Their children carry the high-quality genes of their handsome lover and the parental investment of their unknowingly cuckolded but resourceful husband.

Thus, handsome men get a disproportionate number of opportunities for short-term mating and are therefore able to engage in the cad strategy. Ugly men have no choice. Since women do not choose them as short-term mates, their only option for achieving any reproductive success is to find one long-term mate and invest heavily in their children—the dad strategy.

Consistent with Gangestad and Simpson’s theory, a study shows that more attractive men have a larger number of extra-pair sex partners (sex partners other than their long-term mates).³⁹ Another study shows that more attractive men have more short-term mates than long-term mates, while more attractive women have more long-term mates than short-term mates.⁴⁰ More important, handsome men invest less in their exclusive relationships than ugly men. They are less honest with and less attentive to their partners.⁴¹

We hasten to add that “good” and “bad” are value judgments that we promised not to make in this book. (See “Two Errors in Thinking That We Must Avoid” in the introduction.) However, empirical data do demonstrate that handsome men have more extramarital affairs and are not as committed to their marriages, which many wives may consider undesirable. In this sense, handsome men make better lovers than husbands.

Some Things Are More Important Than Money

THE EVOLUTIONARY PSYCHOLOGY OF THE FAMILY

While the topic of the family receives somewhat less attention in evolutionary psychology than, say, sex and mating do, evolutionary psychologists have nonetheless made significant contributions toward our understanding of the human family. Two of the early pioneers of modern evolutionary psychology, Martin Daly and Margo Wilson, for example, conducted a study in Canada and the United States demonstrating the dangers of stepparents—stepfathers in particular—to children.¹ Infants and children who do not live with two biological parents face 40 to 100 times as great a chance of being injured or killed within the family as those who live with both biological parents. In a sense, Daly and Wilson provided an evolutionary psychological explanation for the “Cinderella Effect.”²

Family is the context for parental investment; it is where children are born and raised by biological and not-so-biological parents (who believe themselves to be biological parents but really are not). While

much of parental investment in children is made consciously by the parents, one of the great and surprising discoveries of evolutionary psychology is that some forms of parental investment are unconsciously made.

For example, parents may invest more or less into sons or daughters simply by having more children of one sex over the other. The sex of the child is not consciously decided by the parents (outside of sex-selective abortion). While parents may wish to have a boy or a girl, they cannot consciously choose to have one or the other. Yet evidence shows that the sex of the child can be predicted by certain features of the parents that are important in evolutionary psychological terms.

That’s where our story begins. . . .

Q. Boy or Girl? What Influences the Sex of Your Child?

It is commonly believed that whether parents conceive a boy or a girl is *entirely* up to chance. Close enough, but not quite; it is *largely* up to chance, but there are factors that very subtly influence the sex of an offspring. It is also commonly believed that exactly half the babies born are boys and the other half are girls. Close enough, but not quite; the normal sex ratio at birth is 0.5122—that is, 105 boys born for every 100 girls. But the sex ratio varies slightly in different circumstances and for different families. So what factors affect the sex of the child?

The Genius of Robert L. Trivers

Any discussion of sex ratio at birth must begin with the work of Robert L. Trivers, who is one of the greatest evolutionary biologists

of our time. In 1973, Trivers teamed up with a mathematician, Dan E. Willard, to formulate one of the most celebrated principles in evolutionary biology, called the Trivers-Willard hypothesis.³ The hypothesis states that wealthy parents of high status have more sons, while poor parents of low status have more daughters. This is because children generally inherit the wealth and social status of their parents. Sons from wealthy families, who themselves become wealthy, have, throughout most of evolutionary history, been able to expect to have a large number of wives, mistresses, and concubines, and produce dozens or hundreds of children,⁴ whereas their equally wealthy sisters can have only so many children. So wealthy parents should “bet” on sons rather than daughters.

Conversely, poor sons can expect to be completely excluded from the reproductive game, because no women would choose them as their mates. But their equally poor sisters can still expect to have some children if they are young and beautiful. (Recall from chapter 2 that the “fitness ceiling”—the best one can do—is much higher for men than for women, while the “fitness floor”—the worst one can do—is much higher for women than for men.) So natural selection designs parents to have a biased sex ratio at birth depending upon their economic circumstances—more boys if they are wealthy, more girls if they are poor.

There is evidence for this hypothesis throughout human societies. American Presidents, Vice Presidents, and cabinet secretaries have more sons than daughters.⁵ Poor Mukogodo herders in East Africa have more daughters than sons, both at birth and in the zero to four age group.⁶ Church parish records from the seventeenth and eighteenth centuries in Germany show that wealthy landowners in Leezen, Schleswig-Holstein, had more sons than daughters, while farm laborers and tradesmen without property had more daughters than sons.⁷ Among the Cheyenne Indians on the American Plains,

prestigious, high-status “peace chiefs” have more sons than daughters, while poor and marginal “war chiefs” have more daughters than sons in the zero to four age group.⁸ In the contemporary United States and Germany, the elite—judged by the listing in their respective country’s *Who’s Who*—have a greater proportion of sons among their offspring than does the population in general.⁹ In an international survey of a large number of respondents from forty-six different nations, more wealthy individuals are more likely to indicate a preference for sons if they could only have one child, whereas less wealthy individuals are more likely to indicate a preference for daughters.¹⁰ While there is some counterevidence,¹¹ most evidence is in support of the Trivers-Willard hypothesis.¹²

Extending Trivers’s Genius

Recently, there has been a theoretical extension of the original Trivers-Willard hypothesis, called the *generalized* Trivers-Willard hypothesis.¹³ The idea behind the new hypothesis is the same as that behind the old one, but it extends the idea to many other factors besides the family’s wealth and status. The new hypothesis suggests that if parents have any trait they can pass on to their children that is better for sons than for daughters, then they will have more boys. Conversely, if parents have any trait they can pass on to their children that is better for daughters than for sons, then they will have more girls. Parental wealth and status are just two of the traits they can pass on to their children that are more beneficial for sons than for daughters, but there are many other factors.

Brain types are another example of such heritable traits. Strong “male brains,” which are good at systematizing (figuring things out), are more beneficial for sons than for daughters, while strong “female brains,” which are good at empathizing (relating to people),

are more beneficial for daughters than for sons.¹⁴ Since brain types are heritable, the generalized Trivers-Willard hypothesis would predict that parents with strong male brains, such as engineers, mathematicians, and scientists, are more likely to have sons, while those with strong female brains, such as nurses, social workers, and school teachers, are more likely to have daughters. This is indeed the case.¹⁵ While the sex ratio at birth among the general population is 0.5122—that is, 105 boys for every 100 girls—the study shows that the sex ratio among engineers and other systemizers is 0.5833—that is, 140 boys for every 100 girls. The comparable sex ratio among nurses and other empathizers is 0.4255—that is, 140 girls for every 100 boys.¹⁶

By the same token, tall and big parents have more sons and produce more male fetuses (because size was a distinct advantage in male competition for mates in the ancestral environment, while body size has no particular advantage for women), and short and small parents have more daughters and produce more female fetuses.¹⁷ Because violence was probably a routine means in the male competition for mates in the ancestral environment¹⁸ (as it is among our primate cousins),¹⁹ tendency toward violence was adaptive for ancestral men but not for ancestral women. Accordingly, violent men have more sons, both in the United States and the United Kingdom.²⁰

Why Beautiful People Have More Daughters . . .

Physical attractiveness can also bias the sex of your children. Now, unlike being big and tall or having a tendency toward violence, which increases the reproductive success of only men and not women, being beautiful is good for both men and women. Beautiful women have greater mating success than less attractive women, and handsome

men do better than less attractive men. But beautiful men and beautiful women tend to do “better” in slightly different ways.

Physically attractive women tend to do well both in long-term and short-term mating; men prefer beautiful women for both. In contrast, handsome men tend to do well mostly in short-term mating. Women seek out handsome men for short-term mating (possibly to get good genes for their children by being impregnated by them but then passing the resulting offspring off as that of their unsuspecting husband) but not necessarily for long-term mating, for which other qualities like the man’s resources and status become more important. In fact, as we suggest in chapter 4 (see “Why Might Handsome Men Make Bad Husbands?”), physically attractive men may not make desirable long-term mates for many reasons.

So physical attractiveness, while a universally positive quality, contributes even more to women’s reproductive success than to men’s. The new hypothesis would therefore predict that physically attractive parents should have more daughters than sons. Once again, this is indeed the case. Young Americans who are rated “very attractive” have a 44 percent chance of having a son for their first child (and thus a 56 percent chance of having a daughter). In contrast, everyone else has a 52 percent chance of having a son (and thus a 48 percent chance of having a daughter) for their first child.²¹ Being “very attractive” increases the odds of having a daughter by 36 percent!

. . . and Women Are More Beautiful Than Men

If you look around and rate the men and women around you on their physical attractiveness, you should notice that, whether you are a man or a woman, gay or straight, women on average are objectively more attractive than men. Why might this be the case?

Think about it. If physical attractiveness is heritable, such that beautiful parents beget beautiful children (and less attractive parents beget similarly less attractive children), and if beautiful people are more likely to have daughters than sons, then it logically follows that over time, women will become more attractive on average than men. Once again, studies confirm this implication of the new hypothesis.²² The average level of physical attractiveness among women is significantly higher than the average level of physical attractiveness among men. Women are more beautiful than men because beautiful parents have more daughters than sons.

Far from being random chance, there are a large number of factors that appear to influence, even if only very slightly, whether a couple will have a son or a daughter. The generalized Trivers-Willard hypothesis can explain the evolutionary reasons why these factors affect the sex of the child. Evolution helps parents pass on their genes in the most efficient way possible.

Q. Why Does the Baby Have Daddy's Eyes but Not Mommy's?

As we discussed in chapter 2, because of the sexual asymmetries in reproductive biology, the possibility of cuckoldry exists only for men. Men can be cuckolded and unwittingly invest their limited resources in someone else's genetic children, whereas women could never be cuckolded. In other words, paternity can never be certain, while maternity is always certain. This is well expressed in the common saying "Mommy's baby, Daddy's maybe."

Men who are cuckolded do not manage to transmit their genes to the next generation and achieve no reproductive success. Men are therefore selected to be very sensitive to cues to possible cuck-

oldry and to attempt to guard against the possibility. A man would therefore only invest in his mate's children if he was reasonably certain that they were genetically his. In the absence of DNA tests (which did not exist in the ancestral environment), how could men ever be certain that their children were genetically theirs?

The child's physical resemblance would be one clue available to men in the ancestral environment. If the baby looks like the father, it is more likely that it is genetically his, whereas if the baby looks nothing like him, or, worse yet, looks a lot like his neighbor, then it is doubtful that he is its genetic father. This reasoning leads evolutionary psychologists to predict that, holding constant the probability of cuckoldry, babies who resemble their father are more likely to survive than babies who do not resemble him (or resemble the mother), because the father of babies who resemble him is more likely to be convinced of his paternity and to invest in them, thereby increasing their chances of survival, whereas the father of babies who do not resemble him (or resemble the mother) is less likely to be convinced of his paternity and to invest in them, thereby decreasing their chances of survival. Over many generations throughout evolutionary history, genes that make babies resemble the father therefore survive, whereas genes that make them resemble the mother do not, and so more and more babies come to resemble the father, until most babies are born resembling the father, not the mother.

This is precisely what two psychologists at the University of California, San Diego, Nicholas J. S. Christenfeld and Emily A. Hill, discover in their ingenious study.²³ Christenfeld and Hill show the subjects in their experiment a picture of a child at ages 1, 10, and 20, and a set of three pictures of adults, one of whom is the real parent (mother or father) of the child. They then ask the subjects to match the child with the correct parent. Christenfeld and Hill's subjects therefore have 0.33 probability of selecting the right parent by chance.

If the child truly resembles the parent, then the subjects should be able to match the two pictures at a much higher probability.

A major finding in Christenfeld and Hill's experiment is that children in general do not physically resemble their parents. The subjects are not able to match the picture of the child at any age to the picture of either the mother or the father better than expected by chance. The only exception, however, is the matching of 1-year-old babies to their father. The subjects are able to match both baby boys (0.505) and baby girls (0.480) to their father (though not to their mother) at statistically significantly greater rates than by chance. That means that one-year-old babies resemble their fathers, as might be expected from the evolutionary psychological logic presented above.

Christenfeld and Hill's finding was widely reported in the media, but it has also become one of the most controversial contentions in evolutionary psychology, not least because, although their explanation had impeccable logic, their finding could not be replicated. To date, attempts at replication have shown that newborn babies objectively resemble mothers more than fathers,²⁴ and infants and children resemble both parents equally.²⁵ Thus, the question of whether newborn babies objectively resemble the father more than the mother must be treated as an open one until more experiments are conducted.

But Who Are Newborn Babies Said to Resemble?

There is a related finding that is much less controversial and well replicated, however. Nature may or may not help assure fathers of their paternity by making babies resemble them; however, friends and family—in particular, mothers and their kin—certainly do. In three separate studies conducted in three different North American

countries (Canada, Mexico, and the United States) in three different decades, mothers and maternal relatives are far more likely to allege the baby's paternal resemblance than its maternal resemblance.²⁶ This happens even when the newborn babies in fact do *not* resemble their fathers.²⁷ Such allegations of paternal resemblance assure the fathers of their paternity, whether the babies actually resemble them or not.

Further, in most societies, babies get their last name from the father, not the mother, thereby once again suggesting to the father that he is the father of the baby. (Russians go one step further and give their babies their *middle and last names* after the father.) This is true even in societies where women routinely keep their last name when they get married and do not adopt their husband's name. The children of such parents nonetheless usually get their last name from the father, not the mother. Many Western professional women these days often keep their last name when they get married. Most of their children still get their last names from the father, not the mother. By giving their children the father's last name, these women are essentially (albeit unconsciously) saying, "Honey, it's yours" (even, or *especially*, when it is not). They need to reassure their husbands of their paternity, but do not themselves need to be reassured of their maternity; they know for sure. Mommy's baby, Daddy's maybe. And for 10–30 percent of daddies, it is not.

Q. Why Are There So Many Deadbeat Dads but So Few Deadbeat Moms?

When married couples with children get divorced, chances are that the children stay with the mother, not the father, especially when they are young. According to the 1992 March/April Current Population

Survey in the United States, conducted by the US Census Bureau on a nationally representative sample, 86 percent of custodial parents are mothers.²⁸ Further, many of the noncustodial fathers who have agreed, either voluntarily or via court order, to pay child support default on their commitment and often become "deadbeat dads." The first national survey of the receipt of child support, conducted in 1978, reveals that less than half (49 percent) of women awarded child support actually receive the full amount due to them, and more than a quarter (28 percent) of them receive nothing.²⁹ The percentages have remained more or less constant since. In 1991, 52 percent of custodial parents awarded child support received the full amount; 25 percent of them received nothing.³⁰ Why are women so much more dedicated parents than men? Why are there so many deadbeat dads but so few deadbeat moms?

On the surface, this massive sex difference in the dedication to parenthood might appear puzzling, since both the mother and the father are equally related to their children genetically; each transmits half of their genes to their child. However, there are two biological factors that combine to make fathers far less committed as parents than mothers.

"Mommy's Baby, Daddy's Maybe"

The first is paternity uncertainty. As we discussed in chapter 2 and above in this chapter ("Why Does the Baby Have Daddy's Eyes but Not Mommy's?"), because gestation for all mammals (including humans) takes place internally within the female's body, the male can never be certain of his paternity, whereas maternity is always certain. And paternity uncertainty is not a remote theoretical possibility. As we mention elsewhere (see "The Evolutionary Psycho-

logical Perspective" in chapter 1 and "Why Are There Virtually No Polyandrous Societies?" in chapter 4), the estimated incidences of cuckoldry (men unwittingly investing in another man's genetic offspring) in contemporary industrialized societies is substantial (between 10 and 30 percent), although a comprehensive recent review suggests that the actual incidence among Western populations may be much lower, at around 4 percent.³¹ Thus, this is a very realistic possibility for any father in contemporary Western society (and probably elsewhere throughout history as well). Naturally, men are not motivated to invest in children who have a distinct possibility of not being genetically theirs.

The Best They Can Do Is Better for Men

The second biological factor that makes fathers less committed parents is their higher fitness ceiling (the best they can do reproductively). Fetuses gestate for nine months within the female body, and infants are, at least in the past, nursed by the mother for several years after birth, during which the mother is usually infertile. Women also have a much shorter reproductive life than men do. These two factors combine to create a much higher fitness ceiling for men than for women. Men can potentially have many more children than women can. (Remember Moulay Ismail the Bloodthirsty?) The sex difference in the largest possible number of children means that, while *reproductive success* is equally important to men and women (in fact, to all biological organisms), *each child* is far more important to the mother than it is to the father. Each child represents a far greater portion of a woman's lifetime reproductive potential than it does a man's. If a 40-year-old mother of five deserts her children and they die as a result, she will likely end her life as a total

reproductive loser, having failed to leave any copy of her genes in the next generation. If a 40-year-old father of five does the same, he can go on to produce five (or ten or twenty) more children.

Both paternity uncertainty and the higher fitness ceiling make fathers less committed parents than mothers, and this is why there are so many more deadbeat dads than deadbeat moms; very few women abandon or neglect their children. Ironically, it is the mother's greater commitment to her children that allows the father to neglect them even more.³² Knowing the mother's greater commitment to her children, the father can abandon them, secure in the knowledge that the mother would never do likewise, because if she did, the children would be virtually certain to die. In other words, divorced parents with children are playing a game of chicken, and it is usually the mother who swerves. Most fathers would probably prefer to invest in their children and raise them by themselves rather than see them die, but they normally do not have to make this difficult decision, because they know that the mother would never abandon them. The mother's greater commitment to her children ironically allows the father to have his cake and eat it too, by moving on to the next marriage and family in which to invest.

Are Mothers Always Good Parents?

None of this means that all mothers are always good parents or better parents than fathers. Sometimes mothers even kill their babies. However, evolutionary psychological logic can even explain who is more likely to kill their babies, and why.

Statistics show that very young mothers, by far, are the most likely to kill their babies, and older mothers are the second most likely to do so, but for different reasons.³³ Very young, teenage mothers kill their babies because they still have most of their repro-

ductive lives ahead of them, and they can make more babies in the future even if they kill the one they just had. Having a baby under unfortunate circumstances (such as without the father willing to invest in it) not only threatens the well-being of the baby but also jeopardizes the mother's chance of finding a mate in the future. And teenage mothers are more likely to have their baby under unfortunate circumstances than others.

Older mothers (above the age of 35) kill their babies for a different reason. They are more likely to have defective babies because of their age. Every child (defective or otherwise) consumes parents' resources. Since defective children are much less likely to attain reproductive success, from the purely genetic point of view, any resources invested in children who will not have children themselves are wasted. Such children are taking away valuable resources from other children who have better reproductive prospects. Older mothers are more likely than younger mothers to have other children they must also raise. So parents are designed not to invest in defective children. (By the same token, parents invest more in better-looking children than in less good-looking children, and in more intelligent children than in less intelligent children.)

Yes, the evolutionary logic is very brutal, cold, and heartless. It only cares about the survival of the genes.

Q. Why Is Family More Important to Women Than to Men?

Ask a group of friends, colleagues, and acquaintances (both men and women) to name five of their closest associates. Who are the people they talk to when they have something important to discuss? Chances are that women in your circles mention more family

members among their closest associates, whereas men mention more coworkers and business associates in their personal networks. Studies in social networks repeatedly find that while otherwise comparable men and women have similar personal networks, women typically have more kin and fewer coworkers than men do.³⁴ Why is this? Why are women closer to their family members than men are?

Two sociologists, Lynn Smith-Lovin and J. Miller McPherson, propose an explanation for this universal phenomenon from the Standard Social Science Model perspective.³⁵ Using fictitious characters named Jim and Jane, they explain how the compositions of their personal networks remain more or less the same through adult years because "Jim is serious about his career as an engineer [and] Jane is equally serious about her nursing." However, the change begins when they become parents. "When their first child is born, however, Jane's mother comes to visit for two weeks; Jane begins to use her sister as a babysitter for daytime care while she is working. . . . Because more of her time is taken up with the baby, Jane's networks become more centered on neighborhood and kin, to some extent at the expense of her work and voluntary association friends. Jim's work and group ties are less altered."³⁶

Jane and Jim in Smith-Lovin and McPherson's description accurately mirror what happens to many young couples when they have children. So, in that sense, their explanation is correct. However, it simply begs the question: Why is it Jane's mother, not Jim's, who comes to visit after the baby is born, when Jim's mother is presumably as equally related to the baby as Jane's mother? *Or is she?* Why is it Jane's sister, not Jim's, who becomes their babysitter, when both sisters are equally related to the baby? *Or are they?* Smith-Lovin and McPherson assume that it is Jane, not Jim, who is the primary caretaker of the baby. Why is this so? Their Standard Social Science Model explanation cannot answer these fundamental questions.

(We will return to another fundamental question of why Jim is an engineer and Jane is a nurse in chapter 7, "Why Are Most Neurosurgeons Male and Most Kindergarten Teachers Female?")

Evolutionary psychology can answer all of these questions. We have already addressed why mothers (like Jane) are more committed to their children than fathers (like Jim) are. (See "Why Are There So Many Deadbeat Dads but So Few Deadbeat Moms?" above.) So we know why Jane becomes the primary caretaker of the baby, not Jim (who may or may not be the baby's genetic father and who, if he becomes a successful engineer, might leave Jane and their child when Jane is 40 and marry the 20-year-old receptionist he hired for his engineering firm and start a new family anyway). Even though women are more motivated to make parental investment than men are, they cannot always do it alone; sometimes they need help from others. This was especially true back in the ancestral environment, where resources were scarce and life was precarious.

When mothers need help in their effort to raise their children, nobody is more likely or willing to deliver it than their kin. The mother's kin are more motivated to invest in the children than the father's kin, because the mother's kin know for sure that they are related to the children, whereas the father's kin may or may not be, due to paternity uncertainty. This is why it is Jane's mother, not Jim's, who comes to visit for two weeks, and it is Jane's sister, not Jim's, who babysits during the day. Jane's mother and sister are certain to be related to the child; Jim's mother and sister are not. This is why women today have a larger number of kin in their personal networks than men do. Women need to rely on their kin in case they need help, materially or otherwise.

Two implications follow from this logic. First, if women maintain their ties to their kin in case they need help with their parental investment, then women who are materially better off should need

less help from their kin, and therefore have less need to maintain their ties with them. Second, women who are currently married should need less help from their kin than women without husbands, because even with residual paternity uncertainty, the putative fathers should be motivated to make some parental investment in the children and thereby lessen the mothers' burden. The presence of the spouse should be of at least some help. Further, the logic implies that family income and being currently married should have no effect on the extent to which men have kin in their personal networks.

An analysis of a large American data set confirms both of these predictions. A woman's family income and her currently being married both significantly decrease the proportion of kin in her personal network, whereas a man's family income and marital status have no effect on the proportion of kin in his network.³⁷ The Standard Social Science Model explanation cannot account for these patterns.

Q. Why Do Girls of Divorced Parents Experience Puberty Earlier Than Girls Whose Parents Remain Married?

Developmental psychologists have known for nearly two decades that girls whose parents divorce early in their lives, particularly before the age of five, experience puberty earlier than their counterparts whose parents stay married.³⁸ Such girls are also more likely to start having sex at an earlier age, have a larger number of sex partners, get pregnant while still a teenager, and experience divorce in their first marriage.³⁹ Since the biological purpose of puberty is to mark the onset of the reproductive career, it makes perfect evolu-

tionary sense that girls who undergo puberty at an earlier age start having sexual intercourse, have more sex partners, and get pregnant at an earlier age. (Recall once again the dangers of naturalistic fallacy. Just because something makes perfect evolutionary sense does not mean it is good or desirable.) But why does the presence or absence of the father at home during early childhood affect the age of puberty and thus the onset and promiscuity of sexual activity?

There are two competing explanations. One is that girls who experience puberty early are genetically different from those who experience it late. The other explanation is that girls have similar genetic makeup but respond to the environment differently, by starting puberty early or late. So which model is correct?

In the case of pubertal timing, both models are likely to be partially correct.⁴⁰ In support of the genetic model, there is substantial evidence that a girl's pubertal timing is largely heritable; about 50–80 percent of its variance is explained by genetic differences.⁴¹ In this model, girls who undergo puberty early are *simultaneously* more likely to get a divorce because of their greater tendency toward sexual promiscuity, *and* to pass on their early puberty-greater promiscuity genes to their daughters. Hence, girls who grow up without a father (because their mother got a divorce or was never married) are more likely to experience puberty early and to become more sexually promiscuous because they have inherited the genes that will predispose them to do so.

While evidence supports the genetic model, environmental influences can also affect the actual timing of puberty within a window set by the genes.⁴² This phenomenon is similar to other biological traits, such as height, weight, or intelligence. Height, for example, is highly heritable, so children of tall parents on average become taller than children of shorter parents; genes set the boundaries of potential

adult height. Within these boundaries, however, environmental influences, such as nutrition or childhood exposure to disease, can determine the actual adult height.

Between 20 and 50 percent of pubertal timing is unaccounted for by the genes, so environmental conditions can still influence the actual onset of puberty within the windows set by the genes. One of the most important early childhood influences is the absence of the father.⁴³ In this model, girls who grow up without a father learn that men do not form lasting relationships with women and invest in their offspring. These girls then adopt a more promiscuous reproductive strategy of undergoing puberty early and forming short-term relationships with a large number of sex partners because they sense they cannot rely on men to form a committed relationship with them and provide parental investment in their offspring. In contrast, girls who grow up with a father at home learn the opposite lesson—that men do form lasting relationships with women and invest in their offspring. These girls then adopt a more restrained reproductive strategy of delaying their puberty and forming a committed long-term relationship with a partner who will invest in their offspring.⁴⁴ Hence, the presence or absence of a father in a girl's home before the age of five can explain both her age of puberty and her reproductive strategy.

Hold On . . .

There is a piece missing from this explanation, however. In order for this strategy to evolve among women, men's tendency toward forming committed relationships and making parental investment must be stable across generations; the mother's experience with her mates must be highly predictive of the daughter's experience one

generation later. One suggestion is that girls use the presence or absence of the father in the home as an indicator of the institution of marriage in the society.⁴⁵ In this view, father absence signifies not the man's unwillingness to form long-term relationships but a high degree of polygyny in society. In a highly polygynous society, married men are spread thinly among their multiple wives, and they cannot spend much time with any one of their wives or their offspring. Thus, the more polygynous the society, the less time any girl (or boy) spends with the father. In contrast, in monogamous societies, married men have only one wife, so they can spend all of their time with their wife and children. So the degree of father absence might be a microlevel indicator (within the family) of a macrolevel degree of polygyny (within the society).

In polygynous societies, there is an incentive for girls to mature early because any pubescent girl can become a junior wife of a wealthy polygynist while a prepubescent girl cannot. In contrast, there is no incentive for girls to mature early in monogamous societies because all adult men in such societies are already married (and cannot marry again), given a 50-50 sex ratio, and pubescent girls can only marry young teenage boys, who do not have the wealth or status to support a family. Consistent with this logic, an analysis of cross-cultural data shows that girls undergo puberty significantly earlier in polygynous societies and in nominally monogamous societies with a high incidence of divorce (and thus a higher incidence of serial polygyny; see "Why [and How] Are Contemporary Westerners *Polygynous*?" in chapter 4).⁴⁶ From this perspective, the average age of puberty has dropped precipitously in the United States in recent decades⁴⁷ because the divorce rate (and thus the incidence of remarriage for men, that is, serial polygyny) has increased dramatically.

The biochemical mechanism by which parental divorce

precipitates early puberty in girls is not well known. The evolutionary developmental psychologist Bruce J. Ellis⁴⁸ suggests that pheromones (a chemical substance that travels from one individual to another in order for the former to influence the behavior of the latter) emitted by the stepfather and other unrelated men in the household might trigger early puberty in girls. This is one of the remaining mysteries in evolutionary psychology.

6

Guys Gone Wild

THE EVOLUTIONARY PSYCHOLOGY OF CRIME AND VIOLENCE

While there have not been many evolutionary psychological studies in the area of crime and violence, one of the early classics in the field was on this topic.¹ Martin Daly and Margo Wilson's 1988 book *Homicide* demonstrates that all types of homicide—killing children, killing parents, men killing other men, men killing women, husbands killing wives, and wives killing husbands—can be explained by Darwinian logic.

At first sight, it appears that killing children makes no sense from the evolutionary psychological perspective, which emphasizes reproductive success. Why would parents kill their own children? Daly and Wilson have two answers to this question. The first answer is that they don't. Daly and Wilson discovered that what often passes as parents killing their children in police statistics is actually stepfathers killing their stepchildren, who do not carry their genes. It looks as though biological parents are killing their genetic children in the statistics because the police, uninformed by Darwinian