ONE

Introduction

En notre vie mortelle il n'est d'autre vérité que le chevauchement, tout le restant n'étant que lanternes et fariboles.

(Our mortal life is nothing but coupling; all the rest is just lanterns and nonsense.)

—Albert Cohen, *Belle du Seigneur,* 1968

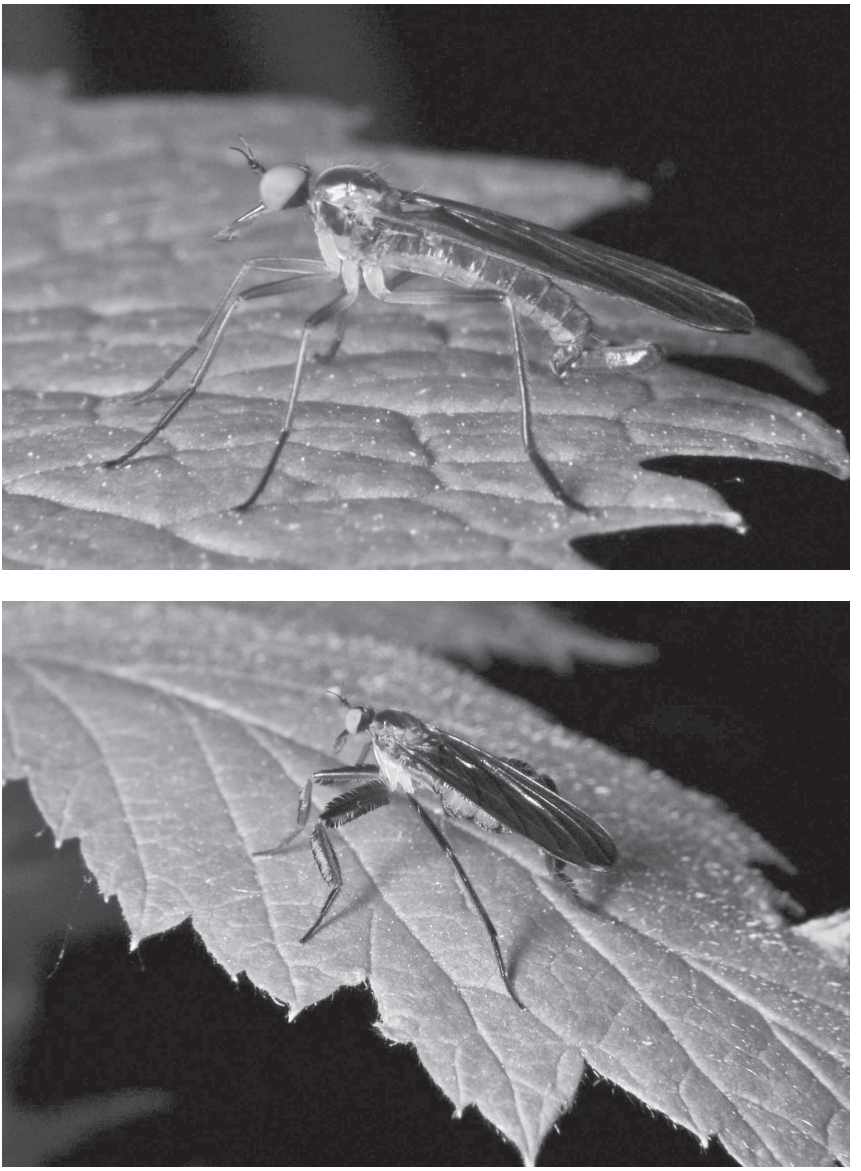
Cooperation and Conflict

A FEW MILES WEST OF CHICAGO, on a warm night in late spring, a fast and fancy courtship is playing out in full view of some admiring bystanders. He's lithe and he's loaded, and she's had her eye on him since the moment he swung into view. The admiration is clearly mutual: he's invited her to join him for a meal, with a sparkle in the eye that suggests he's looking for something in return and that he doesn't expect to receive no for an answer. Her charms are unmistakable: her voluptuous curves single her out unmissably in his eyes from the gaggle of her girlfriends fluttering excitedly about on their night out. It looks at first glance as though they understand each other perfectly, this playful couple. But in fact there's a lot they don't know about each other, things that might surprise them if they did. She doesn't realize that he's much less rich than he looks. And he doesn't realize that she's had herself cosmetically enhanced: those curves aren't as authentic as he thinks they are. He has no idea just how many of her girlfriends have done the same. And if he were capable of giving the matter a moment's thought, he might be a little put out to realize that the admiration they all share for his attributes has everything to do with his offer of dinner and nothing at all to do with his physique. He may be in it for the pleasure, but she is only too

aware that it's also a business deal. She's not a gold digger exactly, but she has a shrewd head on her shoulders.

This fleeting episode of soap opera is not what it seems, either. The characters are not people but insects: specifically, dance flies of the species *Rhamphomyia longicauda*. Like human beings (as well as like some other species, including chimpanzees), these flies make a strong connection between food and sex. Male dance flies compete with one another for the attentions of females by cornering scarce food resources to offer as a sexual bribe, and they have various tricks to make their bribes look bigger than they really are. The females compete in turn for the attentions of the males with the biggest bribes by inflating their physical charms—literally. They blow their abdomens full of air to make themselves look more curvaceous, and thus more fertile, than they are. Each party offers the other something that looks better than it is, and what both receive in exchange is less impressive than they hope. Both males and females use economic strategies to strike a sexual bargain.

Human males and females do the same, though in different ways from the dance flies, in different ways from each other, and in different ways in the twenty-first century from the ways they have done in previous centuries. But they have used economic strategies for sexual purposes since the dawn of our species. By *economic strategies* I mean systematic ways of negotiating over things they value, whether these are obviously economic goods like money and food, or other, nonmonetary resources like time, effort, and self-esteem. These dance flies show us that our sexual goals enter into these economic strategies too, and that, consciously and unconsciously, we negotiate in pursuit of our sexual purposes and not just to try to enrich ourselves financially. Understanding these sexual purposes, and the opportunities and conflicts to which they lead, will help us understand better why the economic relations between men and women take the form they do. It will help us see why conflict exists and how it shapes inequalities in power between men and women, inequalities that have shifted over the millennia as economic conditions have changed. Male dance flies corner scarce food not to eat it themselves but to increase their control over the sexual choices



Dance flies (*Rhamphomyia longicauda*), male (above) and female (below). Note the rounded abdomen of the female, under the center wing. © Bruce Marlin.

of females. Human males have similarly accumulated scarce economic resources as a means of exerting control over the choices of human females. As with dance flies, the most interesting questions about economic relations between men and women are not about how much they respectively consume but about how much they each control.

Conflict exists in a particularly complicated form between men and women because human beings are the most cooperative species on earth; that's the central claim of this book. This cooperation in turn has developed because it is necessary, because the course of our evolution has increased drastically the damage we can inflict on each other if we fail to agree. Over the past few million years, the ancestors of human beings began to colonize a very risky evolutionary niche: the long childhood. It was a niche that needed a more complicated form of cooperation than anything previously attempted by any animal. Human children are the pampered movie stars of the animal kingdom: they need care for a longer period, and from a larger and more diverse team of supporting staff, than the offspring of any other species. Hollywood stars who take hours and a retinue of assistants to get dressed are prodigies of self-reliance compared to the average human newborn, who takes a year and the encouragement of many gushing relatives even to stand up. Such a complex period of dependence is an invitation to misunderstanding and conflict between the parents, as well as between the parents and the other relatives. Thus sexual encounters and their prospect of offspring are freighted with potential consequences more complex than those faced by any other animal. But unless the enterprise works, our expensively produced, pampered, and terribly vulnerable offspring will not survive, and natural selection will efface all trace of us. So sex for us, far more than for any other species, is not just about reproduction, about making new humans: it's about all the alliances and rivalries that it stimulates among the vast supporting cast of each new human who appears on the scene.

We're not the only animals who use sex for more than reproduction: among chimps and bonobos, for instance, sex plays a central role in making and breaking alliances and friendships.[1] That's why there's no puzzle about the evolution of homosexuality, which is widespread in nonhuman animals

and plays a particularly powerful role in social bonding in bonobos (it seems like a puzzle only if you think the sole adaptive consequences of sexual encounters are the offspring that directly result from those encounters).[2] But we humans have built more elaborate structures of cooperation than any other animal, and sex has repercussions for all of these, so it's hardly surprising that we have also developed more elaborate strategies of deception, manipulation, and conflict.

At first glance this claim may seem wildly self-contradictory. We humans are the product of evolution by natural selection, and natural selection is the most unforgiving of designers. How can a cooperative partnership built by natural selection come to have conflicts of interest at its very core? To many observers it has seemed that sexual conflict must be a recent by-product of our civilization, about which biology has nothing to say. Yet this picture of human couples, uniquely cursed by their hyperactive brains and the confines of their artificial living conditions to be dissatisfied in their relationships while flies, lizards, birds, and bonobos copulate in untroubled sensuality, contradicts what we know about other species. Sexual conflict, far from being uniquely human, is everywhere in nature, even if in human beings it takes a very developed form.[3] Birds do it, bees do it, even educated fleas fight as they fornicate. Bedbugs, baboons, dolphins, elephant seals, spiders, scorpions, and water striders engage in rape, with the males using brute force, drugs, physical restraint, teamwork, or ingenious mechanical equipment to force themselves on reluctant females. Males of the scorpion species *Parabuthus transvaalicus* have evolved special "lite" poisons to drug their females into acquiescence, as their regular brand appears to be dangerously strong; the dance of male and female scorpions is a heady tango between danger and desire.

Females of many species deploy in turn a startling variety of counterstrategies, ranging from body armor to sperm barriers to sisterly coalition building—expensive biological investments that would be mystifying if resistance to sex were merely the product of Victorian inhibition. Male chimpanzees and dance flies provide dinner for females to bribe them into having sex, and females manipulate the gullibility of males to induce them

to pay more than they want to in order to obtain less than they hope. Both males and females in outwardly monogamous species, such as fairy wrens and fat-tailed dwarf lemurs, engage in surreptitious extraconjugal sex, provoking the hypocritical and sometimes violent jealousy of their partners when they are discovered (and often when they are not).[4] Females of numerous species charm, cajole, and manipulate males into contributing to the care of their young, while males trick and cheat their way out of the explicit or implicit promises that persuaded the females to yield to their advances in the first place. Male lions and gorillas abuse and even kill the infants they believe females to have borne to other males, and the mothers' mourning has barely begun to subside before they are having apparently willing sex with their children's killers.[5] No human soap opera could outstrip in violence, hypocrisy, and manipulation the daily drama of relations between the sexes across the entire animal kingdom. Why does nature work that way, and what does it mean for us?

The strangest clue is provided by the behavior of praying mantises and many species of spider, whose females eat their males after intercourse, from the head downward, usually beginning their meal even before the male has finished ejaculating.[6] Remarkably, this is not the culmination of the sex war but its ultimate, harmonious resolution. The males usually make little effort to escape their fate, for the simple reason that they lead very solitary lives. Many die without ever meeting a single female: the lucky ones are unlikely to meet a second even if they should escape the first. Their reproductive interests therefore coincide almost totally with those of the first female they happen to meet. Natural selection is stern: in a sexually reproducing species, there's no point in trying to escape a cannibalistic female unless there's some prospect of meeting another female later. Otherwise, in an environment where food is scarce, the male's body does more service to his reproductive interests if, after ejaculating, he can offer it to his partner as a meal. It's enough to make you grateful for the invention of cigarettes.

Cannibalistic spiders are exceptional: most other animals are likely to meet more than one potential mate during a lifetime and face choices that influence how and with whom they mate. It's the element of choice that plants the

seed of sexual conflict. Like a conversation at a party with someone who cannot restrain himself from looking over your shoulder to see who else there might be to talk to, sexual relations in almost all species are clouded by the possibility that either partner might be better off with someone else, now or in the future. Each partner has an interest in steering the interaction in directions that allow for those other possible encounters. With two pairs of hands at the steering wheel and two divergent itineraries, some degree of conflict is no surprise.

To say there's conflict doesn't mean that male and female interests are completely opposed—far from it. It means just that they're not completely aligned. And even a slight difference in priorities can create vast potential for mistrust. In fact, far from being antithetical to cooperation, conflict is at its most difficult and challenging precisely when cooperation has most to offer, because there's more at stake—a bigger potential pie to share and a greater temptation to hurl blame at each other if it all goes wrong. Paradoxically, therefore, sexual conflict in human beings is so intractable because we are, by nature's standards, such a spectacularly cooperative species, one whose sexual partnerships at their best achieve astonishing feats of collaboration. Implacable enmity between males and females would be a relatively easy predicament to handle compared to the mix of cooperation and conflict that we encounter: if you know that anything which benefits your opponent must harm you, it's easy to decide never to concede anything unless you strictly have to. But you and your prospective sexual partner are not opponents. You have something really important to gain from cooperating, so it's easy to be persuaded into contributing a lot to that partnership—and then to feel that you've been manipulated into doing so by someone who wanted to receive a larger share of the benefits or to contribute a smaller share of the costs.

It's worth investigating the logic of this predicament a little further. The conflicts of interest between men and women arise for two distinct reasons. The first is that when couples bargain together, or even just when they decide how much energy and effort to contribute to their shared projects, they're not completely transparent to each other. The second is that even if they

were transparent, they'd be unable to commit completely to doing what they undertake to do, and that makes each of them wary about trusting the other too far. Let's look at the transparency problem first. Instead of sizing each other up, working out how the fruits of their partnership will end up being shared, and cutting straight to the resolution without any bluff or manipulation, couples face a strong temptation to engage in shadow boxing. Each of them seeks to project a mask to signal their better qualities and to protect themselves against being taken for granted by the other, and the fact that the mask may say something truthful about them doesn't make it any less a mask. But the masks can get in the way of the communication they both want. That's why sexual and amorous encounters abound with missed opportunities, regretted outbursts, and unreasonable sacrifices—choices that in retrospect seem insane. And it's worse when there's a prospect of a really important outcome: the bigger the prize, the more easily it can paralyze us.

Consider how two people who are really attracted to one another can fail to seize the opportunity or can seize it only to find it disappointing. He realizes that the day she knows she has secured him is the day her ardor will begin to cool: all that energy seems no longer quite so crucial to the outcome, and in any case she may adjust downward her view of how difficult, and therefore how desirable, a catch he is. She also knows the same will be true of him; and so, if they are lucky and their passion is evenly matched, they play a game of feigned indifference in a futile attempt to ward off the unthinkable, the end of the game. They risk missing the opportunity altogether rather than sell themselves for too low a price, and they escape disappointment only by prolonging the uncertainty for as long as they can. The nineteenth-century French novelist Stendhal's great novel *The Red and the Black* narrates a painfully prolonged version of this predicament: the two lovers are so paralyzed by the fear of revealing themselves to be less valuable catches than the other might think that they find it impossible to express love or tenderness at all. But in one way or another, any compelling soap opera has this theme at its heart. We'd never keep watching if the happy ending were either impossible or inevitable; at the same time, it's the mesmeriz-

ing attractiveness of that ending that throws so many obstacles in the way. Experimental studies have now confirmed what both novelists and soap writers already know: uncertainty about what others are feeling for us is a powerful reinforcer of sexual attraction, and effective seducers avoid appearing predictable if they possibly can.[7]

Think, too, how a marriage may founder because both parties feel that their contributions are underappreciated. So she sighs at him, and he frowns at her, just to avoid being taken for granted. They fall out of the habit of communicating delight in each other's presence, and without delight their marriage sets its course for the rocks. If the couple didn't have so much to lose, they would worry much less about signaling their respective contributions; it's their worrying so much that puts in jeopardy everything they might achieve.

It's tempting to think that transparency would solve the problem of conflict by making bluffing pointless, but even people for whom bluffing is pointless can face conflict of a second kind. This is because, however sincere their intentions, they can't commit not to change their minds. (Couples aren't alone in this: the US Congress famously cannot bind its successors.) This uncertainty inherently limits the nature of the sacrifices they are prepared to make for their relationship, even if such sacrifices are ones they'd make gladly if only they could be assured of the relationship's durability. And it also means that such sacrifices as they do make can hurt them very badly. Women may give up a career to raise children, only to find, when their marriage breaks down, that they have few marketable professional skills. Men may work long hours to earn enough to bring up their children in comfort, only to find that on divorce they lose custody of the children they had hoped to see more of once they were older. If the relationship didn't have such value while it lasted, its breakdown would not do such terrible damage, and the fear of its breakdown would not have so chilling an effect on mutual trust.

Sexual conflict, then, is the shadow cast by cooperation, and it wouldn't be so painful if we didn't have so much to share or so great a fear of being exploited in the process of sharing. Human couples fight because the human

experiment in cooperation is by nature's standards so productive, so ambitious. They fight because although cooperation requires the partners to signal their needs and their talents to each other both before and after they decide to cooperate, signaling creates opportunities for manipulation and fears of being manipulated. These fears may be corrosive when they are justified and even more corrosive when they are not. Cooperation also requires a couple to hope for more lasting commitments than either is capable of making, and fears about the weakness of these commitments may be corrosive whether or not they are subsequently vindicated by events.

This book deals mostly with what's special about that human experiment and asks in particular why control of the spectacular economic resources it has made possible has been distributed so unequally between the sexes. It also asks what cooperation between the sexes has to teach us about cooperation in other contexts, such as the workplace and political life. But first we need to understand what we share with the rest of nature. Sexual conflict may be particularly intractable for us human beings, but it exists in various forms throughout the natural world.

Different Stakes for Males and Females

Sexual conflict is a fact of life for both males and females, but the two sexes react very differently to it because the stakes are different for each sex (at least in those sexually reproducing species that have two distinct and determinate sexes).[8] Put simply, males in most species have a much greater reproductive interest in the quantity of their offspring, females in their quality (with some important exceptions). This difference in priorities is the result of a simple but profound difference between male and female sex cells. Eggs are large, expensive to make, and scarce, while sperm are small, cheap, and abundant. Indeed, it's the fact of creating the larger sex cells that *defines* females as distinct from males. The contrast in abundance is dramatic: human females, for instance, release one new egg per month, while men produce around one thousand sperm per second—theoretically enough in that same month to fertilize all the women of reproductive age in the world.

The abundance of sperm means that a woman can and must be selective about its source. Her eggs, being scarce, are valuable: not only does she release only one egg per month, but if that egg is fertilized, she will bear the fetus in her body and be unable to produce any more offspring for at least a year. She will then find herself with a child whom she must feed and protect for many years; the male may credibly threaten to have nothing to do with his children, but she cannot.[9] So her opportunities to bear young are far too precious to waste on unsuitable males.

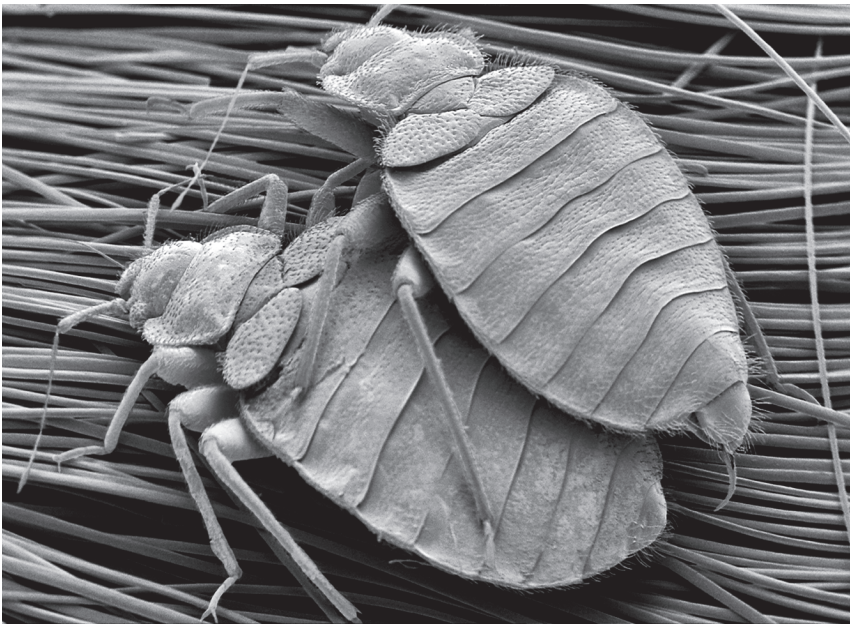
But the female's selectivity creates a challenge for the men. As well as locating a fertile woman, each man must persuade her to accept what he has to offer and compete with any other men who may be trying to do the same thing. Those who have the skills to overcome the selectivity of women and the rivalry of other men can have far more children than those who fail. Because of the privileged access that awaits the successful men, in fact, many of their defeated rivals will fail to father any children at all. It's hardly surprising that the urge to mate should have come to be so dangerously insistent in almost all men: after all, everyone on the planet comes from a line of males who succeeded at least once. The urgency of that challenge turns every man into a potentially deadly rival to every other.

These pressures on men and on women don't neutralize each other: they're mutually reinforcing. It's a spiral: the selectivity of women encourages the persistence of men, and the more persistent the men, the more selective the women have to be. In other species, we can see this spiral at work in elaborate and sometimes gruesome ways. The water strider, *Rheumatobates rileyi*, has seen an evolutionary "arms race" between evolved resistance in females to male copulation attempts and male armaments to grasp and suppress females who resist. The males have elaborate, hooklike antennae: these are used for holding down females and serve no other known purpose. Or consider the tunnel-web spider, *Agelenopsis aperta:* the male anaesthetizes the female with a powerful toxin and mates with her while she is unconscious. Many male scorpions appear to sting their females during their elaborate mating dance: the scorpion *Parabuthus transvaalicus* produces two types of venom and uses the milder type to immobilize the

female for mating. Perhaps the nastiest weapon of all belongs to the bedbug *Cimex lectularius*, which punctures the female's abdomen with a daggerlike projection and injects sperm directly into the body. The costs to the female (in infection risk, blood loss, and organ repair) can be high. But provided she survives to bear the male's offspring, the violence of the male's assault carries an adaptive advantage regardless of the cost to the female's long-term health.

The tango between the selectivity of females and the persistence of males has taken even more elaborate and often more delicate forms in *Homo sapiens* than in these other species. The power of this simple logic is extraordinary. From one basic difference in cellular architecture between the sex cells of males and females—one large and scarce, the other tiny and abundant—and from the asymmetry in investments that males and females consequently make in gestation and parental care, think of all that has followed: the Trojan War, the Roman empire, the sonnets of Shakespeare, perhaps even the whole of our human civilization, founded as it is on the large brains that enabled our reproductively successful ancestors to assert themselves in prehistory. It may be hyperbole to claim that the shape of a single nose can change the world, but it is no more than simple fact that gangs, robber bands, legions, armies and empires, and all of the pomp and show that accompanies them have been built on the lethal competitiveness of men driven by the urge to leave their genetic imprint on the future and by the knowledge that women are the gatekeepers of that future.[10]

Men, like dance flies, have responded to this female scarcity by cornering scarce economic resources of their own. That scarcity has left its imprint on modern society, first through its imprint on the brains and bodies we have inherited from our ancestors, and second through our use of those brains and bodies to navigate our changing natural and social environments. Those environments are spectacularly different from those of prehistory: we live in mass urban societies; we travel great distances and interact with strangers; we use contraception; we talk, write, and fantasize about sex as an art and a game and not just as a means of procreation. We can communicate without seeing or touching one another directly, and we are surrounded by artificial



Male bedbug (*Cimex lectularius*) mounting a female. Note the daggerlike projection at his tail. © PSMicrographs.

or fictitious representations of others (such as photographs and videos) to which we are constantly having to fashion artificial or fictitious emotional responses. Still, even in this utterly artificial environment, every man and woman alive today has emotions and perceptions that are shaped in part by the simple and natural asymmetry between sperm and eggs.

Natural selection can be compared to a tunnel stretching back billions of years to the dawn of life, a tunnel that has shaped everyone whose ancestors managed to pass through it. Sometimes it has been comfortably wide, sometimes painfully narrow, according to the harshness of the environment and the difficulty of the struggle for survival at various times in the past. Since sexual reproduction first evolved many hundreds of millions of years ago, males and females have had to pass through the tunnel together, each fitting into the space left by the other and shaping the space through which the other must pass. You might think that would have left us cramped, squeezed,

hardly able to breathe, let alone to move. Yet that tunnel has opened out dramatically in the modern world. Humans live in natural and social conditions that are extraordinarily diverse and mostly very different from those in the African woodland savanna in which we first evolved. We may feel cramped by our passage through the tunnel, but now we can stretch our legs, breathe the fresh air, and start to move around. Just as intriguing as the way our sexuality has been shaped by its long passage through the evolutionary tunnel is the way it has begun to adapt to our new and more spacious social world.

During the passage through that evolutionary tunnel, men who could acquire economic resources were able to coerce or bribe their way into sexual reproduction and left more descendants than those who could not. Those conditions have changed beyond recognition today, but if we are to make economic inequality between men and women a thing of the past, we need to understand the psychological marks that the tunnel has left on us. The fundamentals of our inherited sexual psychology are simple, but the details are subtle and often very surprising.

The Impact of Female Scarcity on Human Psychology

Throughout our evolutionary history, women's sexual psychology has been shaped by the need to be selective in their reactions to men, just as men's has been shaped by the need to be persistent in their approaches to women. It's as simple as that. The reason we may not understand this process is that while some of the negotiations between men and women are conducted at a conscious level, many are conducted through the operation of our emotions and our instincts, which influence our choices without our realizing exactly how they are doing so. These emotions were fashioned by natural selection in the physical and social environments of the late Pleistocene era, which in some ways were very different from those of today. Although those environments selected for a psychology that was remarkably flexible compared to that of other animal species, its flexibility was not limitless. We are navigat-

ing the twenty-first century AD with instruments from before the twenty-first millennium BC.

Beyond these simple truths lies a whole landscape of varied and surprising consequences, in which many of the stock generalizations of folk psychology (of the "Men are from Mars" kind) fail to hold up. Being selective in their reactions to men is compatible with a large repertoire of psychological responses to the many different situations in which women find themselves. Consider the traditional idea that men are incorrigibly promiscuous, women fundamentally monogamous. It's not clear how many people ever really believed it, as opposed to wanting to believe it. At any rate, it gains scant support from biology today. In the early days of evolutionary psychology, and even well into the 1980s and 1990s, some researchers drew hasty conclusions from the contrast between female selectivity and male persistence. Men's greater reproductive interest in quantity, it was said, meant that promiscuity was inherent in the male brain; selectivity was similarly assumed to imply an instinct for monogamy in women.

Such conclusions led to great controversy, and evolutionary psychologists were often accused of peddling a reactionary and sexist agenda. This was partly because they seemed to endorse an unflattering Victorian picture of women as passive creatures of limited libido,* and partly because they appeared to endorse the common double standard that condemns infidelity in women while condoning it in men. Those who disliked such conclusions were often driven to reject the very idea that our psychology might have been significantly shaped by natural selection or that natural selection might have operated differently upon women and men. This is invalid reasoning: natural selection has no interest in either flattering or demeaning us or in justifying or condemning our common patterns of behavior. There are good reasons to think that natural selection has shaped such admirable human traits as altruism as well as such deplorable traits as our capacity for vio-

* An extreme version of this view was expressed by William Acton in 1857: he opined that "the majority of women (happily for them) are not much troubled by sexual feelings of any kind" (Acton 2009, 112).

lence. Indeed, one plausible theory even suggests that the two kinds of trait evolved together, each helping the other along.[11] So the way to judge a theory about our evolutionary origins is certainly not according to whether it makes us feel uncomfortable (a trap into which many of Darwin's original critics fell). But even if it were justifiable to reject a scientific argument on the grounds that we dislike its conclusions, the view that natural selection has made men promiscuous and women monogamous is factually incorrect. That in many species males vary greatly in the number of their sexual partners may come as no surprise. But the same is true of females.

Thanks to careful animal observation in the wild, to DNA studies, and to more careful reasoning about the evolutionary logic of various patterns of behavior, we now know that females of many species, including many birds and mammals, are sexually adventurous, have high libido, and are often far from sexually monogamous even when they live in socially monogamous pairs.[12] This doesn't make them undiscriminating: in group-living species, there are usually enough available males to allow a female to have multiple sexual partners while still being highly selective about who those partners are. Nor does it mean that female sexual appetites are just like those of males: on the contrary, while males and females may both display clear enthusiasm for high-quality sex, females are more likely to prefer no sex to mediocre sex, while males of many species are quite happy to accept mediocre sex if the alternative is no sex at all.[13] But there is nothing shy or inhibited about the profile of female sexuality that emerges from current work in animal behavior and in evolutionary psychology. If anything, it is even more complex and Machiavellian than that of male sexuality, since it reveals just how much females have to gain from deception.

The benefits to males from deception are not quite as great, for an interesting reason that has its origin in the way females are obliged to care for their offspring while males are not. A male who has sex with many females within a short period of time can potentially have many viable offspring. Each of the females has an interest in contributing to the care of her own offspring, whatever she may know about the habits of the father. It doesn't pay

a male to make too much effort to cover his tracks after the event, from the females at least (the rival males are another story).

Things are different for a female who has sex with multiple males within a short time; this pattern may have been fairly common for human females during prehistory (see chapter 4). She may gain contributions from these different males, some in the form of DNA and some in the form of food or protection. But there will normally be only one child, if any, from closely spaced sexual encounters, and only one of the males can be its father, so that the reproductive interest of multiple males in contributing to nurturing the fetus and raising the child will depend on uncertainty on their part as to which of them is the real father—a confusion the female can only benefit from encouraging.[14] Coyness may not be an inherently female strategy, but it's sometimes in the interests of females to make their males think it is, especially in response to the sometimes violent jealousy of males. If Victorian moralists were under the impression that women's sexual appetites were inherently limited, that shows only how effectively the wool had been pulled over their eyes by countless generations of women.

If monogamy is often not what it seems, the alternatives to monogamy can take strikingly different forms in different settings. The sheer variety of sexual behavior across animal species, as well as across human societies, makes it difficult to generalize about how natural selection has affected relations between the sexes. Who would think, for instance, that human males are undiscriminating in their sexual pursuits while women are selective, when the cosmetics and fashion industries worldwide make sales of several hundred billion dollars every year largely on the promise of making women more attractive to men? But there's a reason for all that variety between species and between societies: in every animal or human setting, males and females develop their strategies, consciously or not, in the context of the environment created for them by the strategies of the other sex. It makes sense to drive on the right if everyone else is doing so but to drive on the left if everyone else is doing *that*. Similarly, the sexual strategies of females in any species are tuned to the strategies of the males of that species and vice

versa. Otherwise-similar countries have different rules about which side of the road to drive on and conventions about how the sexes should behave to each other (men and women can exchange playful and flirtatious glances on a Parisian street, but identical expressions might be considered lewd, aggressive, and offensive on a street in Washington, DC).* Otherwise-similar species (like gorillas, chimpanzees, and bonobos) have arrived at very different models of relations between the sexes. But that doesn't make it redundant to try to understand the evolution of sexual behavior in terms of adaptation to an environment: instead it reminds us that we have to include in that term the conditions created for each sex by the behavior of the other.

In the evolution of the human species, males found ways to compensate for the cheapness and abundance of their sperm. One of the most powerful ways to do that was to corner the scarce economic resources in their societies, for which women learned to compete in their turn. This gave the relations between men and women an intriguing twist that was quite different from what we see in most other animals, including our close relatives, the great apes. How did these relations develop, and what do they mean for modern societies, where access to economic resources is much less unequal than it was in the environments where human beings evolved?

The Structure of This Book

This book asks how an understanding of our biological inheritance can cast light on the forces shaping relations between men and women in the twenty-first century. Chapter 2 focuses on that biological inheritance, surveying what we share with other sexually reproducing species in general and with other primates in particular. It explores in particular how signaling, and the opportunities for manipulation that come with it, dominate courtship activ-

* There are many other intriguing cultural differences between France and the United States: to take just one, French has no equivalent for the English *date*, meaning a meeting between potential lovers at which they size each other up. In the French language, it appears that sizing up occurs whether or not there is a prior agreement to do so.

ity. It looks at the different strategies used by males—the impoverished sex, launching their gametes hungry into the world—to manipulate females, whose gametes come with a dowry of food and protection and who have to be very choosy about whom they share that dowry with. And it looks at the strategies used by females to manipulate males in their turn.

Chapter 3 explores the way our emotions interact with our conscious rationality in sexual signaling. The strange thing about our emotions—the fact that we have so little conscious control over them—turns out to be a strength in signaling our trustworthiness to potential sexual partners. It allows us to make more solid commitments than would ever be made possible by the use of rational calculation alone. Much of the elusive, infuriating, and enchanting nature of sexual courtship comes from the way we hide from ourselves the true nature of what we feel and why we feel it. Far from being a flaw in our makeup, it is a testimony to the complexity of the problems natural selection had to solve to enable us to handle sexual reproduction at all.

Chapter 4 looks in detail at our primate inheritance, at how we have expressed it, and how we have changed it. This chapter explores what has made us different from other primates and looks in particular at the ways in which our ancestors used resource scarcity as weapons in the sex war. Humans are unusual among primates in having young that take many years to rear; this meant that our female ancestors needed the resources of group living, including the economic resources contributed by males, to reproduce successfully. This dependence on males had its price, for men became more possessive about their children and the women who bore them. Whether men's possessiveness was felt as a minor nuisance or as an oppression depended on the physical and economic circumstances of the societies concerned: farming communities could bully and confine their women much more than hunter-gatherers, for instance. And one extraordinary long-term consequence of this shift to intensive child rearing was that it gave human beings the opportunity to develop large brains that made them flexible and adaptable, able to transcend the behavior patterns that had evolved for one environment and refashion them to suit another.

Chapters 5 to 7 look at relations between men and women today, when the social and economic conditions in which we live have changed beyond all recognition from those of the hunter-gatherer communities in which our brains evolved. We start by looking at the great experiment of gender mixing that took place in the twentieth century, when formal barriers to women's participation in almost all areas of economic life were removed in most of the industrialized countries, and the gender division of labor that had existed since prehistory collapsed under a tide of talented and energetic women who moved into large areas of economic and social life previously monopolized by men. Why did this tide not reach everywhere? Why have relative incomes for women stagnated at around 80 percent of those of men, and why have some occupations and positions of power remained so persistently masculine when others have become so rapidly and uncomplicatedly mixed? Chapters 5 and 6 look at two possible explanations: differential talent and differential motivation. Neither one can really make sense of the facts. In particular, though there are indeed differences on average between men and women in their talents and aptitudes, it's remarkable how small these differences are and how inadequate they are to explain the large differences that still persist in the representation of women in positions of economic power in modern societies. Women do have different preferences from men, on average, and they do have somewhat different aptitudes (again on average). The puzzle is how high an economic price they still seem to pay for these differences, a price that seems inappropriate to the needs of the modern world.

Chapter 7 puts forward a different explanation. It looks especially at the different ways in which men and women form coalitions and networks, an activity central to the life of all primates that live in groups. We all build around ourselves a web of contacts and affinities that bring us closer to some of those on whom our happiness and prosperity depend while simultaneously distancing us from others. It seems that the lack of congruence between women's and men's networks makes it harder for women and men to interact on equal terms. While men's networks play an important role in giving them access to positions of economic power, there's evidence that

women's networks don't have the same effect. Whether that's because of how women deploy their networks or how men respond to them, or to a subtle interplay between the two, is hard to tell. At all events, it's in these more subtle interactions that we can find an explanation for why such apparently small differences in preferences and aptitudes can lead to such persistent exclusion of women from positions of economic power.

Chapter 8 sets out to look at human cooperation more widely. Cooperation and conflict between the sexes may have a particularly urgent tug on our intellect and our emotions, but the whole edifice of modern life is built on similar challenges. However much technical progress may expand the economic possibilities for humankind, realizing those possibilities will require us to solve some large and primitive obstacles to effective cooperation. In particular, modern working life is not just about learning how to function efficiently in concert with technology; it also involves sorting ourselves into groups that work well together. The chapter discusses how technology can help us do this sorting more effectively, but it also points to some fundamental limits to what technology can do.

The greatest predicament of our sexual lives is the fear—sometimes well founded, and often corrosive even when it is not—that those we want as partners may not want us in return. And this predicament—exclusion from cooperation with those whose cooperation we most value—recurs in many ways throughout our social and economic lives. It's certainly not confined to women. In fact, in parallel with the puzzle about why women are so systematically excluded from positions of economic power, there's a puzzle about why men are so heavily overrepresented not only in the top echelons of society but also among the undereducated, the unemployed, the homeless, and the incarcerated. This so-called crisis of men is sometimes thought to undermine the complaints of women about exclusion. But this is a mistake. Both the prevalence of men at the bottom of society and the exclusion of women at the top are cause for concern. And a broader, more sobering conclusion is that whatever the promises of information technology for enabling collaboration in our social and professional lives, nothing is going to solve the predicament of those with whom no one wants to collaborate. The most

sophisticated matching methods can identify for us the most likely willing partners for social, sexual, and economic partnerships of all kinds. No technology in the world can ensure that those partners really are willing to cooperate with us.

Chapter 9 draws conclusions from these findings that can help guide our ethical and political choices. There are good reasons to think that economic change is undermining the conditions that made possible the massive subjection of women in traditional agricultural societies. So if an understanding of biology can sometimes make us feel we are the victims of our inheritance, an understanding of economics shows that we can adapt that inheritance to shape our future. Our ability to do so is due to the sensitive interplay between the bodies and minds that we have inherited from our ancestors and the wide range of natural and social environments in which our species has learned to live. The human species has learned to use its large brain to refine its survival strategies in an extraordinarily flexible and creative way. This capacity doesn't mean that anything is possible, because large brains are expensive to build and maintain, and natural selection has taken risky shortcuts in designing them—shortcuts that limit how we can live. All our emotions and desires are shortcuts that allow humans to economize on expensive brain tissue and steer us in directions that have proved advantageous for us in the past. Our taste for sugar, for instance, was a reliable guide to adaptive eating in the Pleistocene era, but in the very different conditions of modern life, it threatens us with obesity and diabetes.

But if biology teaches us which of those shortcuts men and women have inherited from our ancestors, economics invites us to admire how intelligently and flexibly those shortcuts can be put to use in modern environments. The economic circumstances in which we live today are much more favorable to a resolution of many of our conflicts than was true for much of the recent past, though we may need to engage in some ingenious manipulation of our emotions and instincts in order to achieve such an outcome. Learning how our emotions and instincts are constructed helps us to navigate more flexibly in the world we have created.

But the message from biology is not entirely reassuring. Sex has evolved through the clash of conflicting interests, and it remains a turbulent area of our lives, with few easy rules to follow. Each of us is descended from innumerable generations of men who lied, cheated, charmed, bullied, or killed their way to sexual intercourse, and from innumerable generations of women who charmed, seduced, lied, or manipulated their way to extracting economic privileges in return for access to their bodies. All of those men and women have planted their seed in us: it's hardly surprising that its flower in us, their descendants, should have some trouble growing straight. Everything they did, all their ambitions and their dreams, would have left no trace on us had they not succeeded in reproducing, and we will not understand those ambitions and dreams unless we understand the sexual contest that shaped them.

If the diagnosis is not as reassuring as we would like, realistic prescriptions may also have to be more modest than we might hope. Placing our faith entirely in the law to remove discrimination and inequality will make reformers grow melancholy while bringing smiles to the faces of their attorneys. The law is part of the solution, but it needs to take account of the complex causes of current injustice. Powerful desires, emotions, and attitudes can often simmer inside us, confounding the efforts of respectable society to tame them. Nor should we expect too much from a policy of recommending honesty and openness in all situations: sex is too rooted in deception, exaggeration, and manipulation for us ever to be entirely straightforward about it. If we clamor for openness and pretend that it is attainable, we may be ill prepared for navigating the shadows that are inevitably cast by the sexual life. A more modest hope is to be lucid about, and unafraid of, the confusions and deceptions that we are certain to encounter.

If men and women were negotiating entirely consciously, we could at least be lucid about our disappointments. But when our emotions are guiding the transactions for us, the disappointments hit us with the full force of the unexpected. His twenty-first-century rational brain can see that she likes him and wonders why she resists his sexual overtures (so much pleasure, so

little cost), not understanding that her emotions may be sizing up the proposition as it would have appeared to her in the Pleistocene: a massive commitment, fraught with risk. Her twenty-first-century rational brain wonders why sex is such a big deal to him, not understanding that to his Pleistocene emotions it's not just a big deal—it's the only deal. His rational brain wonders why, if she's not interested in sex, she should get so upset if he starts to show a sexual interest in someone else. Her rational brain wonders why, if he's so relaxed about his wandering appetites, he should become suddenly so anxious if her appetites start to wander too. Their hormones are filling in the scenery for both of them with the sounds, the scents, the fears and dreams, the whole emotional meteorology of the Upper Paleolithic, when sexuality was not just a matter of lifestyle but of life and death.

Lucidity is hard to come by, too, in social and public life. It is vain to hope that whole areas of public life—politics, say, or the workplace—could one day simply operate as though we were asexual workers and citizens. Biology warns us clearly that the average behavior of women will not grow to be just like the average behavior of men (fortunately so, given men's greater disposition for violence). Men, on average, will continue to want different things from what women, on average, want. Men and women will continue to use different strategies to pursue their ambitions. All individuals, men and women, will also want contradictory things: to be successful and to be protected, to choose our partners and to be chosen by them, to be passionate and to be reasonable, to be forceful and to be tender, to make shrewd choices and to be seduced. With such contradictory impulses, all of us will sometimes make choices we regret. Sex is about danger as well as about tenderness: the two are inseparable, and they are what has made us such a tender and dangerous species.