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HOW THE MIND WORKS

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The questions addressed by this extract are:

Why do people seek revenge?

Why do people fall in love?

Why do we have emotions that we cannot control?

In each case, Pinker is looking for *Darwinian* answers to these questions.



Animals are nice not just to their relatives. The biologist Robert Trivers developed a suggestion from George Williams on how another kind of altruism could evolve (where altruism, again, is defined as behavior that benefits another organism at a cost to the behaver). Dawkins explains it with a hypothetical example. Imagine a species of bird that suffers from a disease-carrying tick and must spend a good deal of time removing them with its beak. It can reach every part of its body but the top of its head. Every bird would benefit if some other bird groomed its head. If the birds in a group all responded to the sight of a head presented to them by grooming it, the group would prosper. But what would happen if a mutant presented its head for grooming but never groomed anyone else? These freeloaders would be parasite-free, *and* could use the time they saved not grooming others to look for food. With that advantage they would eventually dominate the population, even if it made the group more vulnerable to extinction. The psychologist Roger Brown explains, “One can imagine a pathetic final act in which all birds on stage present to one another heads that none will groom.”

But say a different, grudge-bearing mutant arose. This mutant groomed strangers, groomed birds that in the past had groomed it, but refused to groom birds that had refused to groom it. Once a few of them had gained a toehold, these grudgers could prosper, because they would groom one another and not pay the costs of grooming the cheaters. And once they were established, neither indiscriminate groomers nor cheaters could drive them out, though in some circumstances cheaters could lurk as a minority.

The example is hypothetical, illustrating how altruism among non-kin—what Trivers called reciprocal altruism—can evolve. It is easy to confuse the thought experiment with a real observation; Brown remarks, “When I have used the example in teaching, it has sometimes come back to me on exams as a real bird, often as ‘Skinner’s pigeons,’ sometimes the black-headed gull, and once the robin.” Some species do practice reciprocal altruism, but not many, because it evolves only under special condi-

tions. An animal must be able to grant a large benefit to another at a small cost to itself, and the roles must commonly reverse. The animals must devote part of their brains to recognizing each other as individuals (see Chapter 2), and, if repayment comes long after the favor, to remembering who helped them and who refused, and to deciding how to grant and withhold favors accordingly.

Humans are, of course, a brainy species, and are zoologically unusual in how often they help unrelated individuals (Chapter 3). Our lifestyles and our minds are particularly adapted to the demands of reciprocal altruism. People have food, tools, help, and information to trade. With language, information is an ideal trade good because its cost to the giver—a few seconds of breath—is minuscule compared with the benefit to the recipient. Humans are obsessed with individuals; remember the Blick twins from Chapter 2, one of whom bit a police officer but neither of whom could be punished because each benefited from reasonable doubt that he and not his twin did the deed. And the human mind is equipped with goal-setting demons that regulate the doling out of favors; as with kin-directed altruism, reciprocal altruism is behaviorist shorthand for a set of thoughts and emotions. Trivers and the biologist Richard Alexander have shown how the demands of reciprocal altruism are probably the source of many human emotions. Collectively they make up a large part of the moral sense.

The minimal equipment is a cheater-detector and a tit-for-tat strategy that begrudges a gross cheater further help. A gross cheater is one who refuses to reciprocate at all, or who returns so little that the altruist gets back less than the cost of the initial favor. Recall from Chapter 5 that Cosmides has shown that people do reason unusually well about cheaters. But the real intrigue begins with Trivers' observation that there is a more subtle way to cheat. A subtle cheater reciprocates enough to make it worth the altruist's while, but returns less than he is capable of giving, or less than the altruist would give if the situation were reversed. That puts the altruist in an awkward position. In one sense she is being ripped off. But if she insists on equity, the subtle cheater could break off the relationship altogether. Since half a loaf is better than none, the altruist is trapped. She does have one kind of leverage, though. If there are *other* trading partners in the group who don't cheat at all, or who cheat subtly but less stingily, she can give them her business instead.

The game has become more complicated. Selection favors cheating

when the altruist will not find out or when she will not break off her altruism if she does find out. That leads to better cheater-detectors, which leads to more subtle cheating, which leads to detectors for more subtle cheating, which leads to tactics to get away with subtle cheating without being detected by the subtle-cheater-detectors, and so on. Each detector must trigger an emotion demon that sets up the appropriate goal—continuing to reciprocate, breaking off the relationship, and so on.

Here is how Trivers reverse-engineered the moralistic emotions as strategies in the reciprocity game. (His assumptions about the causes and consequences of each emotion are well supported by the literature in experimental social psychology and by studies of other cultures, though they are hardly necessary, as real-life examples no doubt will flood into mind.)

Liking is the emotion that initiates and maintains an altruistic partnership. It is, roughly, a willingness to offer someone a favor, and is directed to those who appear willing to offer favors back. We like people who are nice to us, and we are nice to people whom we like.

Anger protects a person whose niceness has left her vulnerable to being cheated. When the exploitation is discovered, the person classifies the offending act as unjust and experiences indignation and a desire to respond with moralistic aggression: punishing the cheater by severing the relationship and sometimes by hurting him. Many psychologists have remarked that anger has moral overtones; almost all anger is righteous anger. Furious people feel they are aggrieved and must redress an injustice.

Gratitude calibrates the desire to reciprocate according to the costs and benefits of the original act. We are grateful to people when their favor helps us a lot and has cost them a lot.

Sympathy, the desire to help those in need, may be an emotion for earning gratitude. If people are most grateful when they most need the favor, a person in need is an opportunity to make an altruistic act go farthest.

Guilt can rack a cheater who is in danger of being found out. H. L. Mencken defined *conscience* as “the inner voice which warns us that someone might be looking.” If the victim responds by cutting off all future aid, the cheater will have paid dearly. He has an interest in preventing the rupture by making up for the misdeed and keeping it from happening again. People feel guilty about private transgressions because

they may become public; confessing a sin before it is discovered is evidence of sincerity and gives the victim better grounds to maintain the relationship. *Shame*, the reaction to a transgression after it has been discovered, evokes a public display of contrition, no doubt for the same reason.

Lily Tomlin said, "I try to be cynical, but it's hard to keep up." Trivers notes that once these emotions evolved, people had an incentive to mimic them to take advantage of other people's reactions to the real thing. Sham generosity and friendship may induce genuine altruism in return. Sham moral anger when no real cheating took place may nonetheless win reparations. Sham guilt may convince a wronged party that the cheater has reformed his ways, even if cheating is about to resume. Feigning dire straits may evoke genuine sympathy. Sham sympathy which gives the appearance of helping may elicit real gratitude. Sham gratitude may mislead an altruist into expecting a favor to be reciprocated. Trivers notes that none of this hypocrisy need be conscious; indeed, as we shall see, it is most effective when it is not.

The next round in this evolutionary contest is, of course, developing an ability to discriminate between real emotions and sham emotions. We get the evolution of *trust* and *distrust*. When we see someone going through the motions of generosity, guilt, sympathy, or gratitude rather than showing signs of the genuine emotion, we lose the desire to cooperate. For example, if a cheater makes amends in a calculating manner rather than out of credible guilt, he may cheat again when circumstances allow him to get away with it. The search for signs of trustworthiness makes us into mind readers, alert for any twitch or inconsistency that betrays a sham emotion. Since hypocrisy is easiest to expose when people compare notes, the search for trustworthiness makes us avid consumers of gossip. In turn, our reputation becomes our most valuable possession, and we are motivated to protect (and inflate) it with conspicuous displays of generosity, sympathy, and integrity and to take umbrage when it is impugned.

Are you keeping up? The ability to guard against sham emotions can in turn be used as a weapon against real emotions. One can protect one's own cheating by imputing false motives to someone else—by saying that a person really isn't aggrieved, friendly, grateful, guilty, and so on, when she really is. No wonder Trivers was the first to propose that the expansion of the human brain was driven by a cognitive arms race, fueled by the emotions needed to regulate reciprocal altruism.



Like kin selection, reciprocal altruism has been condemned as painting, even condoning, a bleak picture of human motives. Is sympathy nothing but a cheap way to buy gratitude? Is niceness just a business tactic? Not at all. Go ahead and think the worst about the sham emotions. But the reason the real ones are felt is not that they are hoped to help the feeler; it is that they in fact helped the feeler's ancestors. And it's not just that you shouldn't visit the iniquities of the fathers upon the children; the fathers may never have been iniquitous to begin with. The first mutants who felt sympathy and gratitude may have prospered not by their own calculation but because the feelings made it worth their neighbors' while to cooperate with them. The emotions themselves may have been kind and heartfelt in every generation; indeed, once sham-emotion-detectors evolved, they would be most effective when they *are* kind and heartfelt. Of course, the genes are metaphorically selfish in endowing people with beneficent emotions, but who cares about the moral worth of deoxyribonucleic acid?

Many people still resist the idea that the moral emotions are designed by natural selection to further the long-term interests of individuals and ultimately their genes. Wouldn't it be better for everyone if we were built to enjoy what was best for the group? Companies wouldn't pollute, public service unions wouldn't strike, citizens would recycle bottles and take the bus, and those teenagers would stop ruining a quiet Sunday afternoon with their jet-skis.

Once again I think it is unwise to confuse how the mind works with how it would be nice for the mind to work. But perhaps some comfort may be taken in a different way of looking at things. Perhaps we should *rejoice* that people's emotions aren't designed for the good of the group. Often the best way to benefit one's group is to displace, subjugate, or annihilate the group next door. Ants in a colony are closely related, and each is a paragon of unselfishness. That's why ants are one of the few kinds of animal that wage war and take slaves. When human leaders have manipulated or coerced people into submerging their interests into the group's, the outcomes are some of history's worst atrocities. In *Love and Death*, Woody Allen's pacifist character is urged to defend the czar and Mother Russia with the dubious call to duty that under French rule he would have to eat croissants and rich food with heavy sauces. People's

desire for a comfortable life for themselves, their family, and their friends may have braked the ambitions of many an emperor.

attack, because they would have known retaliation was certain.

This train of reasoning was taken to its logical conclusion in the novel and film *Dr. Strangelove*. A deranged American officer has ordered a nuclear bomber to attack the Soviet Union, and it cannot be recalled. The president and his advisors meet in the war room with the Soviet ambassador to persuade him, and by telephone the Soviet leader, that the imminent attack is an accident and that the Soviets should not retaliate. They learn it is too late. The Soviets had installed the Doomsday Machine: a network of underground nuclear bombs that is set off automatically if the country is attacked or if anyone tries to disarm it. The fallout will destroy all human and animal life on earth. They installed the machine because it was cheaper than pinpoint missiles and bombers, and because they feared the United States might be building one and wanted to prevent a Doomsday gap. President Muffley (played by Peter Sellers) confers with the country's top nuclear strategist, the brilliant Dr. Strangelove (played by Peter Sellers):

“But,” Muffley said, “is it really possible for it to be triggered automatically and at the same time impossible to untrigger?”

. . . Doctor Strangelove said quickly, “But precisely. Mister President, it is not only possible, it is essential. That is the whole idea of this machine. Deterrence is the art of producing in the enemy the fear to attack. And so because of the automated and irrevocable decision-making process which rules out human meddling, the Doomsday Machine is terrifying, simple to understand, and completely credible and convincing.” . . .

President Muffley said, “But this is fantastic, Doctor Strangelove. How can it be triggered automatically?”

Strangelove said, “Sir, it is remarkably simple to do that. When you merely wish to bury bombs there is no limit to the size. . . . After they are buried they are connected to a gigantic complex of computers. A specific and closely defined set of circumstances under which the bombs are to be exploded is programmed into the tape memory banks. . . .” Strangelove turned so he looked directly at [the Soviet Ambassador]. “There is only one thing I don’t understand, Mister Ambassador. The whole point of the Doomsday Machine is lost if you keep it a secret. Why didn’t you tell the world?”

[The ambassador] turned away. He said quietly but distinctly, “It was to be announced at the Party Congress on Monday. As you know, the Premier loves surprises.”

The German-accented, leather-gloved, wheelchair-bound Dr. Strange-love, with his disconcerting tic of giving the Nazi salute, is one of cinema's all-time eeriest characters. He was meant to symbolize a kind of intellectual who until recently was prominent in the public's imagination: the nuclear strategist, paid to think the unthinkable. These men, who included Henry Kissinger (on whom Sellers based his portrayal), Herman Kahn, John von Neumann, and Edward Teller, were stereotyped as amoral nerds who cheerfully filled blackboards with equations about megadeaths and mutual assured destruction. Perhaps the scariest thing about them was their paradoxical conclusions—for example, that safety in the nuclear age comes from exposing one's cities and protecting one's missiles.

But the unsettling paradoxes of nuclear strategy apply to *any* conflict between parties whose interests are partly competing and partly shared. Common sense says that victory goes to the side with the most intelligence, self-interest, coolness, options, power, and clear lines of communication. Common sense is wrong. Each of these assets can be a liability in contests of strategy (as opposed to contests of chance, skill, or strength), where behavior is calculated by predicting what the other guy will do in response. Thomas Schelling has shown that the paradoxes are ubiquitous in social life. We shall see that they offer great insight into the emotions, particularly the headstrong passions that convinced the Romantics that emotion and reason were opposites. But first let's put the emotions aside and just examine the logic of conflicts of strategy.

Take bargaining. When two people haggle over a car or a house, a bargain is struck when one side makes the final concession. Why does he concede? Because he is sure she will not. The reason she won't concede is that she thinks he will concede. She thinks he will because she thinks he thinks she thinks he will. And so on. There always is a range of prices that the buyer and seller would both accept. Even if a particular price within that range is not the best price for one party, it is preferable to canceling the deal outright. Each side is vulnerable to being forced to settle for the worst acceptable price because the other side realizes that he or she would have no choice if the alternative was to reach no agreement at all. But when both parties can guess the range, *any* price within the range is a point from which at least one party would have been willing to back off, and the other party knows it.

Schelling points out that the trick to coming out ahead is "a voluntary but irreversible sacrifice of freedom of choice." How do you persuade

someone that you will not pay more than \$16,000 for a car that is really worth \$20,000 to you? You can make a public, enforceable \$5,000 bet with a third party that you won't pay more than \$16,000. As long as \$16,000 gives the dealer a profit, he has no choice but to accept. Persuasion would be futile; it's against your interests to compromise. By tying your own hands, you improve your bargaining position. The example is fanciful, but real ones abound. The dealer appoints a salesperson who is not authorized to sell at less than a certain price even if he says he wants to. A homebuyer cannot get a mortgage if the bank's appraiser says he paid too much. The homebuyer exploits that powerlessness to get a better price from the seller.

Not only can power be a liability in conflicts of strategy, communication can be, too. When you are haggling from a pay phone with a friend about where to meet for dinner, you can simply announce that you will be at Ming's at six-thirty and hang up. The friend has to accede if she wants to meet you at all.

Paradoxical tactics also enter into the logic of promises. A promise can secure a favor only when the beneficiary of the promise has good reason to believe it will be carried out. The promiser is thus in a *better* position when the beneficiary knows that the promiser is *bound* by his promise. The law gives companies the right to sue and the right to be sued. The right to be sued? What kind of "right" is that? It is a right that confers the power to make a promise: to enter into contracts, borrow money, and engage in business with someone who might be harmed as a result. Similarly, the law that empowers banks to foreclose on a mortgage makes it worth the bank's while to grant the mortgage, and so, paradoxically, benefits the *borrower*. In some societies, Schelling notes, eunuchs got the best jobs because of what they could not do. How does a hostage persuade his kidnapper not to kill him to prevent him from identifying the kidnapper in court? One option is to deliberately blind himself. A better one is to confess to a shameful secret that the kidnapper can use as blackmail. If he has no shameful secret, he can create one by having the kidnapper photograph him in some unspeakably degrading act.

Threats, and defenses against threats, are the arena in which Dr. Strangelove really comes into his own. There are boring threats, in which the threatener has an interest in carrying out the threat—for example, when a homeowner threatens a burglar that she will call the police. The fun begins when carrying out the threat is costly to the threatener, so its value is only as a deterrent. Again, freedom is costly; the threat is credible

only when the threatener has no choice but to carry it out and the target knows it. Otherwise, the target can threaten the threatener right back by refusing to comply. The Doomsday Machine is an obvious example, though the secrecy defeated its purpose. A hijacker who threatens to blow up a plane if anyone tries to disarm him will have a better chance of seeing Cuba if he wears explosives that go off with the slightest jostling. A good way to win the teenagers' game of chicken, in which two cars approach each other at high speed and the first driver to swerve loses face, is to conspicuously remove your own steering wheel and throw it away.

With threats, as with promises, communication can be a liability. The kidnapper remains incommunicado after making the ransom demand so he cannot be persuaded to give up the hostage for a smaller ransom or a safe escape. Rationality is also a liability. Schelling points out that "if a man knocks at the back door and says that he will stab himself unless you give him \$10, he is more likely to get the \$10 if his eyes are bloodshot." Terrorists, kidnappers, hijackers, and dictators of small countries have an interest in appearing mentally unbalanced. An absence of self-interest is also an advantage. Suicide bombers are almost impossible to stop.

To defend yourself *against* threats, make it impossible for the threatener to make you an offer you can't refuse. Again, freedom, information, and rationality are handicaps. "Driver does not know combination to safe," says the sticker on the delivery truck. A man who is worried that his daughter may be kidnapped can give away his fortune, leave town and remain incommunicado, lobby for a law that makes it a crime to pay ransom, or break the hand with which he signs checks. An invading army may burn bridges behind it to make retreat impossible. A college president tells protesters he has no influence on the town police, and genuinely wants no influence. A racketeer cannot sell protection if the customer makes sure he is not at home when the racketeer comes around.

Because an expensive threat works both ways, it can lead to a cycle of self-incapacitation. Protesters attempt to block the construction of a nuclear power plant by lying down on the railroad tracks leading to the site. The engineer, being reasonable, has no choice but to stop the train. The railroad company counters by telling the engineer to set the throttle so that the train moves very slowly and then to jump out of the train and walk beside it. The protesters must scramble. Next time the protesters handcuff themselves to the tracks; the engineer does not dare leave the train. But the protesters must be certain the engineer sees them in

enough time to stop. The company assigns the next train to a nearsighted engineer.

In these examples, many of them from Schelling, the paradoxical power comes from a physical constraint like handcuffs or an institutional constraint like the police. But strong passions can do the same thing. Say a bargainer publicly announces that he will not pay more than \$16,000 for the car, and everyone knows he could not tolerate the [shame] of going back on his word. The unavoidable shame is as effective as the enforceable bet, and he will get the car at his price. If Mother Teresa offered to sell you her car, you would not insist on a guarantee because presumably she is constitutionally incapable of cheating you. The hothead who can figuratively explode at any moment enjoys the same tactical advantage as the hijacker who can literally explode at any moment. In *The Maltese Falcon*, Sam Spade (Humphrey Bogart) dares the henchmen of Kasper Gutman (Sidney Greenstreet) to kill him, knowing that they need him to retrieve the falcon. Gutman replies, "That's an attitude, sir, that calls for the most delicate judgment on both sides, because as you know, sir, in the heat of action men are likely to forget where their best interests lie, and let their emotions carry them away." In *The Godfather*, Vito Corleone tells the heads of the other crime families, "I'm a superstitious man. And if some unlucky accident should befall my son, if my son is struck by a bolt of lightning, I will blame some of the people here."

Dr. Strangelove meets The Godfather. Is passion a doomsday machine? People consumed by pride, love, or rage have lost control. They may be irrational. They may act against their interests. They may be deaf to appeals. (The man running amok calls to mind a doomsday machine that has been set off.) But though this be madness, yet there is method in it. Precisely these sacrifices of will and reason are effective tactics in the countless bargains, promises, and threats that make up our social relations.

The theory stands the Romantic model on its head. The passions are no vestige of an animal past, no wellspring of creativity, no enemy of the intellect. The intellect is designed to relinquish control to the passions so that they may serve as guarantors of its offers, promises, and threats against suspicions that they are lowballs, double-crosses, and bluffs. The apparent firewall between passion and reason is not an ineluctable part of the archi-

tructure of the brain; it has been programmed in deliberately, because only if the passions are in control can they be credible guarantors.

The doomsday-machine theory has been proposed independently by Schelling, Trivers, Daly and Wilson, the economist Jack Hirshleifer, and the economist Robert Frank. Righteous anger, and the attendant thirst for redress or vengeance, is a credible deterrent if it is uncontrollable and unresponsive to the deterrer's costs. Such compulsions, though useful in the long run, can drive people to fight far out of proportion to the stakes. In 1982 Argentina annexed the British colony of the Falklands, desolate islands with virtually no economic or strategic importance. In earlier decades it might have made sense for Britain to defend them as an immediate deterrent to anyone with designs on the rest of its empire, but at that point there was no empire left to defend. Frank points out that for what they spent to reclaim the islands, Britain could have given each Falklander a Scottish castle and a lifetime pension. But most Britons were proud that they stood up to the Argentinians. The same sense of fairness makes us sue expensively for small amounts or seek a refund for a defective product despite red tape that costs us more in lost wages than the product was worth.

The lust for revenge is a particularly terrifying emotion. All over the world, relatives of the slain fantasize day and night about the bittersweet moment when they might avenge a life with a life and find peace at last. The emotion strikes us as primitive and dreadful because we have contracted the government to settle our scores for us. But in many societies an irresistible thirst for vengeance is one's only protection against deadly raids. Individuals may differ in the resolve with which they will suffer costs to carry out vengeance. Since that resolve is an effective deterrent only if it is advertised, it is accompanied by the "emotion" traditionally referred to as honor: the desire to publicly avenge even minor trespasses and insults. The hair-trigger of honor and revenge can be tuned to the degree of threat in the environment. Honor and vengeance are raised to godly virtues in societies that lie beyond the reach of law enforcement, such as remote horticulturalists and herders, the pioneers of the Wild West, street gangs, organized crime families, and entire nation-states when dealing with one another (in which case the emotion is called "patriotism"). But even within a modern state society where it serves no purpose, the emotion of vengeance cannot easily be turned off. Most legal theories, even from the highest-minded philosophers, acknowledge that retribution is one of the legitimate goals of criminal punishment,



As Strangelove explained, the whole point of a doomsday machine is lost if you keep it a secret. That principle may explain one of the longest-standing puzzles of the emotions: why we advertise them on our face.

Darwin himself never argued that facial expressions were naturally selected adaptations. In fact, his theory was downright Lamarckian. Animals have to move their faces for practical reasons: they bare the teeth to bite, widen the eyes for a panoramic view, and pull back the ears to protect them in a fight. These measures turned into habits that the animal performed when it merely anticipated an event. The habits were then passed to their offspring. It may seem strange that Darwin was no Darwinian in one of his most famous books, but remember that Darwin was fighting on two fronts. He had to explain adaptations to satisfy his fellow biologists, but he also made much of pointless features and animal vestiges in humans to combat creationists, who argued that functional design was a sign of God's handiwork. If God had really designed humans from scratch, Darwin asked, why would he have installed features that are useless to us but similar to features that are useful to animals?

Many psychologists still can't understand why broadcasting one's emotional state might be beneficial. Wouldn't the proverbial smell of fear just egg on one's enemies? One psychologist has tried to revive an old idea that facial muscles are tourniquets that send more blood to the parts of the brain that have to cope with the current challenge. Aside from being hydraulically improbable, the theory cannot explain why we are more expressive when there are other people around.

But if the passionate emotions are guarantors of threats and promises, advertising is their reason for being. But here a problem arises. Remember that real emotions create a niche for sham emotions. Why whip yourself into a rage when you can *simulate* a rage, deter your enemies, and not pay the price of pursuing dangerous vengeance if it fails? Let *others* be doomsday machines, and you can reap the benefits of the terror they sow. Of course, when counterfeit facial expressions begin to drive out

the real ones, people call each other's bluffs, and the facial expressions, real and fake, become worthless.

Facial expressions are useful only if they are hard to fake. As a matter of fact, they *are* hard to fake. People don't really believe that the grinning flight attendant is happy to see them. That is because a social smile is formed with a different configuration of muscles from the genuine smile of pleasure. A social smile is executed by circuits in the cerebral cortex that are under voluntary control; a smile of pleasure is executed by circuits in the limbic system and other brain systems and is involuntary. Anger, fear, and sadness, too, recruit muscles that can't be controlled voluntarily, and the genuine expressions are hard to fake, though we can pantomime an approximation. Actors must simulate facial expressions for a living, but many cannot avoid a mannered look. Some great actors, like Laurence Olivier, are highly coordinated athletes who have doggedly learned to control every muscle. Others learn method acting, inspired by Konstantin Stanislavsky, in which actors make themselves *feel* an emotion by remembering or imagining a charged experience, and the expression pops on the face reflexively.

The explanation is incomplete, because it raises another question: *why* did we never evolve the ability to control our expressions? You can't just say that it would hurt everyone if counterfeit expressions were circulated. True enough, but in a world of honest emoters the faker would prosper, so fakers should always drive out emoters. I don't know the answer, but there are obvious places to look. Zoologists worry about the same problem: how can honest animal signals, like cries, gestures, and advertisements of health, evolve in a world of would-be fakers? One answer is that honest signals can evolve if they are too expensive to fake. For example, only a healthy peacock can afford a splendiferous tail, so healthy peacocks bear the burden of a cumbersome tail as a display of conspicuous consumption that only they can afford. When the healthiest peacocks display, the less healthy ones have no choice but to follow, because if they hide their health altogether the peahens will assume the worst, namely that they are at death's door.

Is there anything about emotional expressions that would make it inherently costly to put them under voluntary control? Here is a guess. In designing the rest of the human, natural selection had good engineering reasons to segregate the voluntary, cognitive systems from the systems that control housekeeping and physical-plant functions such as the

regulation of heartbeat, breathing rate, blood circulation, sweat, tears, and saliva. None of your conscious beliefs are pertinent to how fast your heart ought to beat, so there's no point in letting you control it. In fact, it would be downright dangerous, since you might forget to pump when you got distracted, or you might try out your own harebrained ideas on what the best pulse rate should be.

Now, say selection handcuffed each emotion to a physiological control circuit, and the activity of the circuit was visible to an observer as flushing, blushing, blanching, sweating, trembling, quavering, croaking, weeping, and the facial reflexes Darwin discussed. An observer would have good reason to believe that the emotion was genuine, since a person could not fake it unless he had voluntary control of his heart and other organs. Just as the Soviets would have wanted to show everyone the wiring of the Domsday Machine to *prove* that it was automatic and irreversible and their description of it no bluff, people might have an interest in showing everyone that an emotion is holding their body hostage and their angry words are no bluff. If so, it would explain why emotions are so intimately tied to the body, a fact that puzzled William James and a century of psychologists after him.

The handcuffing may have been easy for natural selection, because the major human emotions seem to have grown out of evolutionary precursors (anger from fighting, fear from fleeing, and so on), each of which engaged a suite of involuntary physiological responses. (This might be the grain of truth in the Romantic and triune-brain theories: modern emotions may *exploit* the involuntariness of older reflexes, even if they did not inherit it by default.) And once the handcuffs were in place for honest emoters, everyone else would have had little choice but to don them too, like the unhealthy peacocks forced to muster tails. A chronic poker face would suggest the worst: that the emotions a person declares in word and deed are shams.

This theory is unproven, but no one can deny the phenomenon. People are vigilant for sham emotions and put the most faith in involuntary physiological giveaways. That underlies an irony of the telecommunications age. Long-distance phone service, electronic mail, faxes, and videoconferencing should have made the face-to-face business meeting obsolete. But meetings continue to be a major expense for corporations and support entire industries like hotels, airlines, and rental cars. Why do we insist on doing business in the flesh? Because we do not trust someone until we see what makes him sweat.

FOOLS FOR LOVE

Why does romantic love leave us bewitched, bothered, and bewildered? Could it be another paradoxical tactic like handcuffing oneself to railroad tracks? Quite possibly. Offering to spend your life and raise children with someone is the most important promise you'll ever make, and a promise is most credible when the promiser can't back out. Here is how the economist Robert Frank has reverse-engineered mad love.

Unsentimental social scientists and veterans of the singles scene agree that dating is a marketplace. People differ in their value as potential marriage partners. Almost everyone agrees that Mr. or Ms. Right should be good-looking, smart, kind, stable, funny, and rich. People shop for the most desirable person who will accept them, and that is why most marriages pair a bride and a groom of approximately equal desirability. Mate-shopping, however, is only part of the psychology of romance; it explains the statistics of mate choice, but not the final pick.

Somewhere in this world of five billion people there lives the best-looking, richest, smartest, funniest, kindest person who would settle for you. But your dreamboat is a needle in a haystack, and you may die single if you insist on waiting for him or her to show up. Staying single has costs, such as loneliness, childlessness, and playing the dating game with all its awkward drinks and dinners (and sometimes breakfasts). At some point it pays to set up house with the best person you have found so far.

But that calculation leaves your partner vulnerable. The laws of probability say that someday you will meet a more desirable person, and if you are always going for the best you can get, on that day you will dump your partner. But your partner has invested money, time, childrearing, and forgone opportunities in the relationship. If your partner was the most desirable person in the world, he or she would have nothing to worry about, because you would never want to desert. But failing that, the partner would have been foolish to enter the relationship.

Frank compares the marriage market with the rental market. Landlords desire the best of all tenants but settle for the best they can find, and renters want the best of all apartments but settle for the best they can find. Each invests in the apartment (the landlord may paint it the tenant's favorite color; the tenant may install permanent decorations), so

each would be harmed if the other suddenly terminated the agreement. If the tenant could leave for a better flat, the landlord would have to bear the costs of an unrented unit and the search for a new tenant; he would have to charge a high rent to cover that risk, and would be loath to paint. If the landlord could evict the tenant for a better one, the tenant would have to search for a new home; she would be willing to pay only a low rent, and would not bother to keep the apartment in good shape, if she had to expose herself to that risk. If the best tenant were renting the best apartment, the worries would be moot; neither would want to end the arrangement. But since both have to compromise, they protect themselves by signing a lease that is expensive for either to break. By agreeing to restrict his own freedom to evict, the landlord can charge a higher rent. By agreeing to restrict her own freedom to leave, the tenant can demand a lower rent. Lack of choice works to each one's advantage.

Marriage laws work a bit like leases, but our ancestors had to find some way to commit themselves before the laws existed. How can you be sure that a prospective partner won't leave the minute it is rational to do so—say, when a 10-out-of-10 moves in next door? One answer is, don't accept a partner who wanted you for rational reasons to begin with; look for a partner who is committed to staying with you because you are you. Committed by what? Committed by an emotion. An emotion that the person did not decide to have, and so cannot decide not to have. An emotion that was not triggered by your objective mate-value and so will not be alienated by someone with greater mate-value. An emotion that is guaranteed not to be a sham because it has physiological costs like tachycardia, insomnia, and anorexia. An emotion like romantic love.

"People who are sensible about love are incapable of it," wrote Douglas Yates. Even when courted by the perfect suitor, people are unable to will themselves to fall in love, often to the bewilderment of the matchmaker, the suitor, and the person himself or herself. Instead it is a glance, a laugh, a manner that steals the heart. Remember from Chapter 2 that spouses of one twin are not attracted to the other; we fall in love with the individual, not with the individual's qualities. The upside is that when Cupid does strike, the lovestruck one is all the more credible in the eyes of the object of desire. Murmuring that your lover's looks, earning power, and IQ meet your minimal standards would probably kill the romantic mood, even though the statement is statistically true. The way to a person's heart is to declare the opposite—that you're in love because you can't help it. Tipper Gore's Parents' Music Resource Center notwith-

standing, the sneering, body-pierced, guitar-smashing rock musician is typically not singing about drugs, sex, or Satan. He is singing about love. He is courting a woman by calling attention to the irrationality, uncontrollability, and physiological costs of his desire. I want you so bad, it's driving me mad, Can't eat, can't sleep, Heart beats like a big bass drum, You're the only one, Don't know why I love you like I do, You drive me crazy, Can't stop lovin' you, Ain't nobody can do it to me the way you can, I like the way you walk, I like the way you talk, et cetera, et cetera.

Of course, one can well imagine a woman not being swept off her feet by these proclamations. (Or a man, if it is a woman doing the declaring.) They set off a warning light in the other component of courtship, smart shopping. Groucho Marx said that he would not belong to any club that would have him as a member. Usually people do not want any suitor who wants them too badly too early, because it shows that the suitor is desperate (so they should wait for someone better), and because it shows that the suitor's ardor is too easily triggered (hence too easily triggerable by someone else). The contradiction of courtship—flaunt your desire while playing hard to get—comes from the two parts of romantic love: setting a minimal standard for candidates in the mate market, and capriciously committing body and soul to one of them.