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Flourishing: Positive Psychology and the Life Well-Lived (co-editor)

The Righteous Mind: Why Good People are Divided by Politics and Religion

The Happiness Hypothesis

FINDING MODERN TRUTH IN ANCIENT WISDOM



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The Divided Self

For what the flesh desires is opposed to the Spirit, and what the Spirit desires is opposed to the flesh; for these are opposed to each other, to prevent you from doing what you want.

—St. Paul, Galatians 5:17[1]

If Passion drives, let Reason hold the Reins.

—Benjamin Franklin[2]

I first rode a horse in 1991, in Great Smoky National Park, North Carolina. I'd been on rides as a child where some teenager led the horse by a short rope, but this was the first time it was just me and a horse, no rope. I wasn't alone—there were eight other people on eight other horses, and one of the people was a park ranger—so the ride didn't ask much of me. There was, however, one difficult moment. We were riding along a path on a steep hillside, two by two, and my horse was on the outside, walking about three feet from the edge. Then the path turned sharply to the left, and my horse was heading straight for the edge. I froze. I knew I had to steer left, but there was another horse to my left and I didn't want to crash into it. I might have called out for help, or screamed, "Look out!"; but some part of me preferred the risk of going over the edge to the certainty of looking stupid. So I just froze. I did nothing at all during the critical five

seconds in which my horse and the horse to my left calmly turned to the left by themselves.

As my panic subsided, I laughed at my ridiculous fear. The horse knew exactly what she was doing. She'd walked this path a hundred times, and she had no more interest in tumbling to her death than I had. She didn't need me to tell her what to do, and, in fact, the few times I tried to tell her what to do she didn't much seem to care. I had gotten it all so wrong because I had spent the previous ten years driving cars, not horses. Cars go over edges unless you tell them not to.

Human thinking depends on metaphor. We understand new or complex things in relation to things we already know.[3] For example, it's hard to think about life in general, but once you apply the metaphor "life is a journey," the metaphor guides you to some conclusions: You should learn the terrain, pick a direction, find some good traveling companions, and enjoy the trip, because there may be nothing at the end of the road. It's also hard to think about the mind, but once you pick a metaphor it will guide your thinking. Throughout recorded history, people have lived with and tried to control animals, and these animals made their way into ancient metaphors. Buddha, for example, compared the mind to a wild elephant:

> In days gone by this mind of mine used to stray wherever selfish desire or lust or pleasure would lead it. Today this mind does not stray and is under the harmony of control, even as a wild elephant is controlled by the trainer.[4]

Plato used a similar metaphor in which the self (or soul) is a chariot, and the calm, rational part of the mind holds the reins. Plato's charioteer had to control two horses:

> The horse that is on the right, or nobler, side is upright in frame and well jointed, with a high neck and a regal nose; . . . he is a lover of honor with modesty and self-control; companion to true glory, he needs no whip, and is guided by verbal commands alone. The other horse is a crooked great jumble of limbs . . . companion to wild boasts and indecency, he is shaggy around the ears—deaf as a post—and just barely yields to horse-whip and goad combined.[5]

For Plato, some of the emotions and passions are good (for example, the love of honor), and they help pull the self in the right direction, but others are bad (for example, the appetites and lusts). The goal of Platonic education was to help the charioteer gain perfect control over the two horses. Sigmund Freud offered us a related model 2,300 years later.[6] Freud said that the mind is divided into three parts: the ego (the conscious, rational self); the superego (the conscience, a sometimes too rigid commitment to the rules of society); and the id (the desire for pleasure, lots of it, sooner rather than later). The metaphor I use when I lecture on Freud is to think of the mind as a horse and buggy (a Victorian chariot) in which the driver (the ego) struggles frantically to control a hungry, lustful, and disobedient horse (the id) while the driver's father (the superego) sits in the back seat lecturing the driver on what he is doing wrong. For Freud, the goal of psychoanalysis was to escape this pitiful state by strengthening the ego, thus giving it more control over the id and more independence from the superego.

Freud, Plato, and Buddha all lived in worlds full of domesticated animals. They were familiar with the struggle to assert one's will over a creature much larger than the self. But as the twentieth century wore on, cars replaced horses, and technology gave people ever more control over their physical worlds. When people looked for metaphors, they saw the mind as the driver of a car, or as a program running on a computer. It became possible to forget all about Freud's unconscious, and just study the mechanisms of thinking and decision making. That's what social scientists did in the last third of the century: Social psychologists created "information processing" theories to explain everything from prejudice to friendship. Economists created "rational choice" models to explain why people do what they do. The social sciences were uniting under the idea that people are rational agents who set goals and pursue them intelligently by using the information and resources at their disposal.

But then, why do people keep doing such stupid things? Why do they fail to control themselves and continue to do what they know is not good for them? I, for one, can easily muster the willpower to ignore all the

desserts on the menu. But if dessert is placed on the table, I can't resist it. I can resolve to focus on a task and not get up until it is done, yet somehow I find myself walking into the kitchen, or procrastinating in other ways. I can resolve to wake up at 6:00 A.M. to write; yet after I have shut off the alarm, my repeated commands to myself to get out of bed have no effect, and I understand what Plato meant when he described the bad horse as "deaf as a post." But it was during some larger life decisions, about dating, that I really began to grasp the extent of my powerlessness. I would know exactly what I should do, yet, even as I was telling my friends that I would do it, a part of me was dimly aware that I was not going to. Feelings of guilt, lust, or fear were often stronger than reasoning. (On the other hand, I was quite good at lecturing friends in similar situations about what was right for them.) The Roman poet Ovid captured my situation perfectly. In *Metamorphoses,* Medea is torn between her love for Jason and her duty to her father. She laments:

> I am dragged along by a strange new force. Desire and reason are pulling in different directions. I see the right way and approve it, but follow the wrong.[7]

Modern theories about rational choice and information processing don't adequately explain weakness of the will. The older metaphors about controlling animals work beautifully. The image that I came up with for myself, as I marveled at my weakness, was that I was a rider on the back of an elephant. I'm holding the reins in my hands, and by pulling one way or the other I can tell the elephant to turn, to stop, or to go. I can direct things, but only when the elephant doesn't have desires of his own. When the elephant really wants to do something, I'm no match for him.

I have used this metaphor to guide my own thinking for ten years, and when I began to write this book I thought the image of a rider on an elephant would be useful in this first chapter, on the divided self. However, the metaphor has turned out to be useful in every chapter of the book. To understand most important ideas in psychology, you need to understand how the mind is divided into parts that sometimes conflict. We assume

that there is one person in each body, but in some ways we are each more like a committee whose members have been thrown together to do a job, but who often find themselves working at cross purposes. Our minds are divided in four ways. The fourth is the most important, for it corresponds most closely to the rider and the elephant; but the first three also contribute to our experiences of temptation, weakness, and internal conflict.

First Division: Mind vs. Body

We sometimes say that the body has a mind of its own, but the French philosopher Michel de Montaigne went a step further and suggested that each part of the body has its own emotions and its own agenda. Montaigne was most fascinated by the independence of the penis:

> We are right to note the license and disobedience of this member which thrusts itself forward so inopportunely when we do not want it to, and which so inopportunely lets us down when we most need it. It imperiously contests for authority with our will.[8]

Montaigne also noted the ways in which our facial expressions betray our secret thoughts; our hair stands on end; our hearts race; our tongues fail to speak; and our bowels and anal sphincters undergo "dilations and contractions proper to [themselves], independent of our wishes or even opposed to them." Some of these effects, we now know, are caused by the autonomic nervous system—the network of nerves that controls the organs and glands of our bodies, a network that is completely independent of voluntary or intentional control. But the last item on Montaigne's list—the bowels—reflects the operation of a second brain. Our intestines are lined by a vast network of more than 100 million neurons; these handle all the computations needed to run the chemical refinery that processes and extracts nutrients from food.[9] This gut brain is like a regional administrative center that handles stuff the head brain does not need to bother with. You might expect, then, that this gut brain takes its orders from the head brain

and does as it is told. But the gut brain possesses a high degree of autonomy, and it continues to function well even if the vagus nerve, which connects the two brains together, is severed.

The gut brain makes its independence known in many ways: It causes irritable bowel syndrome when it "decides" to flush out the intestines. It triggers anxiety in the head brain when it detects infections in the gut, leading you to act in more cautious ways that are appropriate when you are sick.[10] And it reacts in unexpected ways to anything that affects its main neurotransmitters, such as acetylcholine and serotonin. Hence, many of the initial side effects of Prozac and other selective serotonin reuptake inhibitors involve nausea and changes in bowel function. Trying to improve the workings of the head brain can directly interfere with those of the gut brain. The independence of the gut brain, combined with the autonomic nature of changes to the genitals, probably contributed to ancient Indian theories in which the abdomen contains the three lower chakras—energy centers corresponding to the colon/anus, sexual organs, and gut. The gut chakra is even said to be the source of gut feelings and intuitions, that is, ideas that appear to come from somewhere outside one's own mind. When St. Paul lamented the battle of flesh versus Spirit, he was surely referring to some of the same divisions and frustrations that Montaigne experienced.

Second Division: Left vs. Right

A second division was discovered by accident in the 1960s when a surgeon began cutting people's brains in half. The surgeon, Joe Bogen, had a good reason for doing this: He was trying to help people whose lives were destroyed by frequent and massive epileptic seizures. The human brain has two separate hemispheres joined by a large bundle of nerves, the corpus callosum. Seizures always begin at one spot in the brain and spread to the surrounding brain tissue. If a seizure crosses over the corpus callosum, it can spread to the entire brain, causing the person to lose consciousness, fall down, and writhe uncontrollably. Just as a military leader might blow up a bridge to prevent an enemy from crossing it, Bogen wanted to sever the corpus callosum to prevent the seizures from spreading.

At first glance this was an insane tactic. The corpus callosum is the largest single bundle of nerves in the entire body, so it must be doing something important. Indeed it is: It allows the two halves of the brain to communicate and coordinate their activity. Yet research on animals found that, within a few weeks of surgery, the animals were pretty much back to normal. So Bogen took a chance with human patients, and it worked. The intensity of the seizures was greatly reduced.

But was there really no loss of ability? To find out, the surgical team brought in a young psychologist, Michael Gazzaniga, whose job was to look for the after-effects of this "split-brain" surgery. Gazzaniga took advantage of the fact that the brain divides its processing of the world into its two hemispheres—left and right. The left hemisphere takes in information from the right half of the world (that is, it receives nerve transmissions from the right arm and leg, the right ear, and the *left* half of each retina, which receives light from the *right* half of the visual field) and sends out commands to move the limbs on the right side of the body. The right hemisphere is in this respect the left's mirror image, taking in information from the left half of the world and controlling movement on the left side of the body. Nobody knows why the signals cross over in this way in all vertebrates; they just do. But in other respects, the two hemispheres are specialized for different tasks. The left hemisphere is specialized for language processing and analytical tasks. In visual tasks, it is better at noticing details. The right hemisphere is better at processing patterns in space, including that all-important pattern, the face. (This is the origin of popular and oversimplified ideas about artists being "right-brained" and scientists being "left-brained").

Gazzaniga used the brain's division of labor to present information to each half of the brain separately. He asked patients to stare at a spot on a screen, and then flashed a word or a picture of an object just to the right of the spot, or just to the left, so quickly that there was not enough time for the patient to move her gaze. If a picture of a hat was flashed just to the right of the spot, the image would register on the left half of each retina (after the image had passed through the cornea and been inverted), which then sent its neural information back to the visual processing areas in the left hemisphere. Gazzaniga would then ask, "What did you see?" Because

the left hemisphere has full language capabilities, the patient would quickly and easily say, "A hat." If the image of the hat was flashed to the left of the spot, however, the image was sent back only to the right hemisphere, which does not control speech. When Gazzaniga asked, "What did you see?", the patient, responding from the left hemisphere, said, "Nothing." But when Gazzaniga asked the patient to use her left hand to point to the correct image on a card showing several images, she would point to the hat. Although the right hemisphere had indeed seen the hat, it did not report verbally on what it had seen because it did not have access to the language centers in the left hemisphere. It was as if a separate intelligence was trapped in the right hemisphere, its only output device the left hand.[11]

When Gazzaniga flashed different pictures to the two hemispheres, things grew weirder. On one occasion he flashed a picture of a chicken claw on the right, and a picture of a house and a car covered in snow on the left. The patient was then shown an array of pictures and asked to point to the one that "goes with" what he had seen. The patient's right hand pointed to a picture of a chicken (which went with the chicken claw the left hemisphere had seen), but the left hand pointed to a picture of a shovel (which went with the snow scene presented to the right hemisphere). When the patient was asked to explain his two responses, he did not say, "I have no idea why my left hand is pointing to a shovel; it must be something you showed my right brain." Instead, the left hemisphere instantly made up a plausible story. The patient said, without any hesitation, "Oh, that's easy. The chicken claw goes with the chicken, and you need a shovel to clean out the chicken shed."[12]

This finding, that people will readily fabricate reasons to explain their own behavior, is called "confabulation." Confabulation is so frequent in work with split-brain patients and other people suffering brain damage that Gazzaniga refers to the language centers on the left side of the brain as the nterpreter module, whose job is to give a running commentary on whatever the self is doing, even though the interpreter module has no access to he real causes or motives of the self's behavior. For example, if the word walk" is flashed to the right hemisphere, the patient might stand up and walk away. When asked why he is getting up, he might say, "I'm going to

get a Coke." The interpreter module is good at making up explanations, but not at knowing that it has done so.

Science has made even stranger discoveries. In some split-brain patients, or in others who have suffered damage to the corpus callosum, the right hemisphere seems to be actively fighting with the left hemisphere in a condition known as alien hand syndrome. In these cases, one hand, usually the left, acts of its own accord and seems to have its own agenda. The alien hand may pick up a ringing phone, but then refuse to pass the phone to the other hand or bring it up to an ear. The hand rejects choices the person has just made, for example, by putting back on the rack a shirt that the other hand has just picked out. It grabs the wrist of the other hand and tries to stop it from executing the person's conscious plans. Sometimes, the alien hand actually reaches for the person's own neck and tries to strangle him.[13]

These dramatic splits of the mind are caused by rare splits of the brain. Normal people are not split-brained. Yet the split-brain studies were important in psychology because they showed in such an eerie way that the mind is a confederation of modules capable of working independently and even, sometimes, at cross-purposes. Split-brain studies are important for this book because they show in such a dramatic way that one of these modules is good at inventing convincing explanations for your behavior, even when it has no knowledge of the causes of your behavior. Gazzaniga's "interpreter module" is, essentially, the rider. You'll catch the rider confabulating in several later chapters.

Third Division: New vs. Old

If you live in a relatively new suburban house, your home was probably built in less than a year, and its rooms were laid out by an architect who tried to make them fulfill people's needs. The houses on my street, however, were all built around 1900, and since then they have expanded out into their backyards. Porches were extended, then enclosed, then turned into kitchens. Extra bedrooms were built above these extensions, then bathrooms were tacked on to these new rooms. The brain in vertebrates

has similarly expanded, but in a forward direction. The brain started off with just three rooms, or clumps of neurons: a hindbrain (connected to the spinal column), a midbrain, and a forebrain (connected to the sensory organs at the front of the animal). Over time, as more complex bodies and behaviors evolved, the brain kept building out the front, away from the spinal column, expanding the forebrain more than any other part. The forebrain of the earliest mammals developed a new outer shell, which included the hypothalamus (specialized to coordinate basic drives and motivations), the hippocampus (specialized for memory), and the amygdala (specialized for emotional learning and responding). These structures are sometimes referred to as the limbic system (from Latin *limbus*, "border" or "margin") because they wrap around the rest of the brain, forming a border.

As mammals grew in size and diversified in behavior (after the dinosaurs became extinct), the remodeling continued. In the more social mammals, particularly among primates, a new layer of neural tissue developed and spread to surround the old limbic system. This neocortex (Latin for "new covering") is the gray matter characteristic of human brains. The front portion of the neocortex is particularly interesting, for parts of it do not appear to be dedicated to specific tasks (such as moving a finger or processing sound). Instead, it is available to make new associations and to engage in thinking, planning, and decision making—mental processes that can free an organism from responding only to an immediate situation.

This growth of the frontal cortex seems like a promising explanation for the divisions we experience in our minds. Perhaps the frontal cortex is the seat of reason: It is Plato's charioteer; it is St. Paul's Spirit. And it has taken over control, though not perfectly, from the more primitive limbic system—Plato's bad horse, St. Paul's flesh. We can call this explanation the Promethean script of human evolution, after the character in Greek mythology who stole fire from the gods and gave it to humans. In this script, our ancestors were mere animals governed by the primitive emotions and drives of the limbic system until they received the divine gift of reason, installed in the newly expanded neocortex.

The Promethean script is pleasing in that it neatly raises us above all other animals, justifying our superiority by our rationality. At the same time, it captures our sense that we are not yet gods—that the fire of ratio-

nality is somehow new to us, and we have not yet fully mastered it. The Promethean script also fits well with some important early findings about the roles of the limbic system and the frontal cortex. For example, when some regions of the hypothalamus are stimulated directly with a small electric current, rats, cats, and other mammals can be made gluttonous, ferocious, or hypersexual, suggesting that the limbic system underlies many of our basic animal instincts.[14] Conversely, when people suffer damage to the frontal cortex, they sometimes show an increase in sexual and aggressive behavior because the frontal cortex plays an important role in suppressing or inhibiting behavioral impulses.

There was recently such a case at the University of Virginia's hospital.[15] A schoolteacher in his forties had, fairly suddenly, begun to visit prostitutes, surf child pornography Web sites, and proposition young girls. He was soon arrested and convicted of child molestation. The day before his sentencing, he went to the hospital emergency room because he had a pounding headache and was experiencing a constant urge to rape his landlady. (His wife had thrown him out of the house months earlier.) Even while he was talking to the doctor, he asked passing nurses to sleep with him. A brain scan found that an enormous tumor in his frontal cortex was squeezing everything else, preventing the frontal cortex from doing its job of inhibiting inappropriate behavior and thinking about consequences. (Who in his right mind would put on such a show the day before his sentencing?) When the tumor was removed, the hypersexuality vanished. Moreover, when the tumor grew back the following year, the symptoms returned; and when the tumor was removed again, the symptoms disappeared again.

There is, however, a flaw in the Promethean script: It assumes that reason was installed in the frontal cortex but that emotion stayed behind in the limbic system. In fact, the frontal cortex enabled a great expansion of emotionality in humans. The lower third of the prefrontal cortex is called the orbitofrontal cortex because it is the part of the brain just above the eyes (*orbit* is the Latin term for the eye socket). This region of the cortex has grown especially large in humans and other primates and is one of the most consistently active areas of the brain during emotional reactions.[16] The orbitofrontal cortex plays a central role when you size up the reward

and punishment possibilities of a situation; the neurons in this part of the cortex fire wildly when there is an immediate possibility of pleasure or pain, loss or gain.[17] When you feel yourself drawn to a meal, a landscape, or an attractive person, or repelled by a dead animal, a bad song, or a blind date, your orbitofrontal cortex is working hard to give you an emotional feeling of *wanting* to approach or to get away.[18] The orbitofrontal cortex therefore appears to be a better candidate for the id, or for St. Paul's flesh, than for the superego or the Spirit.

The importance of the orbitofrontal cortex for emotion has been further demonstrated by research on brain damage. The neurologist Antonio Damasio has studied people who, because of a stroke, tumor, or blow to the head, have lost various parts of their frontal cortex. In the 1990s, Damasio found that when certain parts of the orbitofrontal cortex are damaged, patients lose most of their emotional lives. They report that when they ought to feel emotion, they feel nothing, and studies of their autonomic reactions (such as those used in lie detector tests) confirm that they lack the normal flashes of bodily reaction that the rest of us experience when observing scenes of horror or beauty. Yet their reasoning and logical abilities are intact. They perform normally on tests of intelligence and knowledge of social rules and moral principles.[19]

So what happens when these people go out into the world? Now that they are free of the distractions of emotion, do they become hyperlogical, able to see through the haze of feelings that blinds the rest of us to the path of perfect rationality? Just the opposite. They find themselves unable to make simple decisions or to set goals, and their lives fall apart. When they look out at the world and think, "What should I do now?" they see dozens of choices but lack immediate internal feelings of like or dislike. They must examine the pros and cons of every choice with their reasoning, but in the absence of feeling they see little reason to pick one or the other. When the rest of us look out at the world, our emotional brains have instantly and automatically appraised the possibilities. One possibility usually jumps out at us as the obvious best one. We need only use reason to weigh the pros and cons when two or three possibilities seem equally good.

Human rationality depends critically on sophisticated emotionality. It is only because our emotional brains works so well that our reasoning can work at all. Plato's image of reason as charioteer controlling the dumb beasts of passion may overstate not only the wisdom but also the power of the charioteer. The metaphor of a rider on an elephant fits Damasio's findings more closely: Reason and emotion must both work together to create intelligent behavior, but emotion (a major part of the elephant) does most of the work. When the neocortex came along, it made the rider possible, but it made the elephant much smarter, too.

Fourth Division: Controlled vs. Automatic

In the 1990s, while I was developing the elephant/rider metaphor for myself, the field of social psychology was coming to a similar view of the mind. After its long infatuation with information processing models and computer metaphors, psychologists began to realize that there are really two processing systems at work in the mind at all times: controlled processes and automatic processes.

Suppose you volunteered to be a subject in the following experiment.[20] First, the experimenter hands you some word problems and tells you to come and get her when you are finished. The word problems are easy: Just unscramble sets of five words and make sentences using four of them. For example, "they her bother see usually" becomes either "they usually see her" or "they usually bother her." A few minutes later, when you have finished the test, you go out to the hallway as instructed. The experimenter is there, but she's engaged in a conversation with someone and isn't making eye contact with you. What do you suppose you'll do? Well, if half the sentences you unscrambled contained words related to rudeness (such as bother, brazen, aggressively), you will probably interrupt the experimenter within a minute or two to say, "Hey, I'm finished. What should I do now?" But if you unscrambled sentences in which the rude words were swapped with words related to politeness ("they her *respect* see usually"), the odds

are you'll just sit there meekly and wait until the experimenter acknowledges you—ten minutes from now.

Likewise, exposure to words related to the elderly makes people walk more slowly; words related to professors make people smarter at the game of Trivial Pursuit; and words related to soccer hooligans make people dumber.[21] And these effects don't even depend on your consciously reading the words; the same effects can occur when the words are presented subliminally, that is, flashed on a screen for just a few hundredths of a second, too fast for your conscious mind to register them. But some part of the mind does see the words, and it sets in motion behaviors that psychologists can measure.

According to John Bargh, the pioneer in this research, these experiments show that most mental processes happen automatically, without the need for conscious attention or control. Most automatic processes are completely unconscious, although some of them show a part of themselves to consciousness; for example, we are aware of the "stream of consciousness"[22] that seems to flow on by, following its own rules of association, without any feeling of effort or direction from the self. Bargh contrasts automatic processes with controlled processes, the kind of thinking that takes some effort, that proceeds in steps and that always plays out on the center stage of consciousness. For example, at what time would you need to leave your house to catch a 6:26 flight to London? That's something you have to think about consciously, first choosing a means of transport to the airport and then considering rush-hour traffic, weather, and the strictness of the shoe police at the airport. You can't depart on a hunch. But if you drive to the airport, almost everything you do on the way will be automatic: breathing, blinking, shifting in your seat, daydreaming, keeping enough distance between you and the car in front of you, even scowling and cursing slower drivers.

Controlled processing is limited—we can think consciously about one thing at a time only—but automatic processes run in parallel and can handle many tasks at once. If the mind performs hundreds of operations each second, all but one of them must be handled automatically. So what is the relationship between controlled and automatic processing? Is controlled processing the wise boss, king, or CEO handling the most important questions and setting policy with foresight for the dumber automatic processes to carry out? No, that would bring us right back to the Promethean script and divine reason. To dispel the Promethean script once and for all, it will help to go back in time and look at why we have these two processes, why we have a small rider and a large elephant.

When the first clumps of neurons were forming the first brains more than 600 million years ago, these clumps must have conferred some advantage on the organisms that had them because brains have proliferated ever since. Brains are adaptive because they integrate information from various parts of the animal's body to respond quickly and automatically to threats and opportunities in the environment. By the time we reach 3 million years ago, the Earth was full of animals with extraordinarily sophisticated automatic abilities, among them birds that could navigate by star positions, ants that could cooperate to fight wars and run fungus farms, and several species of hominids that had begun to make tools. Many of these creatures possessed systems of communication, but none of them had developed language.

Controlled processing requires language. You can have bits and pieces of thought through images, but to plan something complex, to weigh the pros and cons of different paths, or to analyze the causes of past successes and failures, you need words. Nobody knows how long ago human beings developed language, but most estimates range from around 2 million years ago, when hominid brains became much bigger, to as recently as 40,000 years ago, the time of cave paintings and other artifacts that reveal unmistakably modern human minds.[23] Whichever end of that range you favor, language, reasoning, and conscious planning arrived in the most recent eye-blink of evolution. They are like new software, Rider version 1.0. The language parts work well, but there are still a lot of bugs in the reasoning and planning programs.[24] Automatic processes, on the other hand, have been through thousands of product cycles and are nearly perfect. This difference in maturity between automatic and controlled processes helps explain why we have inexpensive computers that can solve logic, math, and chess problems better than any human beings can (most of us struggle with these tasks), but none of our robots, no matter how costly, can walk through the woods as well as the average six-year-old child (our perceptual and motor systems are superb).

Evolution never looks ahead. It can't plan the best way to travel from point A to point B. Instead, small changes to existing forms arise (by genetic mutation), and spread within a population to the extent that they help organisms respond more effectively to current conditions. When language evolved, the human brain was not reengineered to hand over the reins of power to the rider (conscious verbal thinking). Things were already working pretty well, and linguistic ability spread to the extent that it helped the elephant do something important in a better way. *The rider evolved to serve to the elephant.* But whatever its origin, once we had it, language was a powerful tool that could be used in new ways, and evolution then selected those individuals who got the best use out of it.

One use of language is that it partially freed humans from "stimulus control." Behaviorists such as B. F. Skinner were able to explain much of the behavior of animals as a set of connections between stimuli and responses. Some of these connections are innate, such as when the sight or smell of an animal's natural food triggers hunger and eating. Other connections are learned, as demonstrated by Ivan Pavlov's dogs, who salivated at the sound of a bell that had earlier announced the arrival of food. The behaviorists saw animals as slaves to their environments and learning histories who blindly respond to the reward properties of whatever they encounter. The behaviorists thought that people were no different from other animals. In this view, St. Paul's lament could be restated as: "My flesh is under stimulus control." It is no accident that we find the carnal pleasures so rewarding. Our brains, like rat brains, are wired so that food and sex give us little bursts of dopamine, the neurotransmitter that is the brain's way of making us enjoy the activities that are good for the survival of our genes.[25] Plato's "bad" horse plays an important role in pulling us toward these things, which helped our ancestors survive and succeed in becoming our ancestors.

But the behaviorists were not exactly right about people. The controlled system allows people to think about long-term goals and thereby escape the tyranny of the here-and-now, the automatic triggering of temptation by the sight of tempting objects. People can imagine alternatives that are not visually present; they can weigh long-term health risks against present pleasures, and they can learn in conversation about which choices will bring success and prestige. Unfortunately, the behaviorists were not entirely wrong about people, either. For although the controlled system does not conform to behaviorist principles, it also has relatively little power to cause behavior. The automatic system was shaped by natural selection to trigger quick and reliable action, and it includes parts of the brain that make us feel pleasure and pain (such as the orbitofrontal cortex) and that trigger survival-related motivations (such as the hypothalamus). The automatic system has its finger on the dopamine release button. The controlled system, in contrast, is better seen as an advisor. It's a rider placed on the elephant's back to help the elephant make better choices. The rider can see farther into the future, and the rider can learn valuable information by talking to other riders or by reading maps, but the rider cannot order the elephant around against its will. I believe the Scottish philosopher David Hume was closer to the truth than was Plato when he said, "Reason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them."[26]

In sum, the rider is an advisor or servant; not a king, president, or charioteer with a firm grip on the reins. The rider is Gazzaniga's interpreter module; it is conscious, controlled thought. The elephant, in contrast, is everything else. The elephant includes the gut feelings, visceral reactions, emotions, and intuitions that comprise much of the automatic system. The elephant and the rider each have their own intelligence, and when they work together well they enable the unique brilliance of human beings. But they don't always work together well. Here are three quirks of daily life that illustrate the sometimes complex relationship between the rider and the elephant.

Failures of Self Control

Imagine that it is 1970 and you are a four-year-old child in an experiment being conducted by Walter Mischel at Stanford University. You are brought into a room at your preschool where a nice man gives you toys and plays with you for a while. Then the man asks you, first, whether you like marshmallows (you do), and, then, whether you'd rather have this plate here with one marshmallow or that plate there with two marshmallows (that one, of

course). Then the man tells you that he has to go out of the room for a little while, and if you can wait until he comes back, you can have the two marshmallows. If you don't want to wait, you can ring this bell here, and he'll come right back and give you the plate with one; but if you do that, you can't have the two. The man leaves. You stare at the marshmallows. You salivate. You want. You fight your wanting. If you are like most four-year-olds, you can hold out for only a few minutes. Then you ring the bell.

Now let's jump ahead to 1985. Mischel has mailed your parents a questionnaire asking them to report on your personality, your ability to delay gratification and deal with frustration, and your performance on your college entrance exams (the Scholastic Aptitude Test). Your parents return the questionnaire. Mischel discovers that the number of seconds you waited to ring the bell in 1970 predicts not only what your parents say about you as a teenager but also the likelihood that you were admitted to a top university. Children who were able to overcome stimulus control and delay gratification for a few extra minutes in 1970 were better able to resist temptation as teenagers, to focus on their studies, and to control themselves when things didn't go the way they wanted.[27]

What was their secret? A large part of it was strategy—the ways that children used their limited mental control to shift attention. In later studies, Mischel discovered that the successful children were those who looked away from the temptation or were able to think about other enjoyable activities.[28] These thinking skills are an aspect of emotional intelligence—an ability to understand and regulate one's own feelings and desires.[29] An emotionally intelligent person has a skilled rider who knows how to distract and coax the elephant without having to engage in a direct contest of wills.

It's hard for the controlled system to beat the automatic system by willpower alone; like a tired muscle,[30] the former soon wears down and caves in, but the latter runs automatically, effortlessly, and endlessly. Once you understand the power of stimulus control, you can use it to your advantage by changing the stimuli in your environment and avoiding undesirable ones; or, if that's not possible, by filling your consciousness with thoughts about their less tempting aspects. Buddhism, for example, in an effort to break people's carnal attachment to their own (and others') flesh, developed methods of meditating on decaying corpses.[31] By choosing to

stare at something that revolts the automatic system, the rider can begin to change what the elephant will want in the future.

Mental Intrusions

Edgar Allan Poe understood the divided mind. In *The Imp of the Perverse,* Poe's protagonist carries out the perfect murder, inherits the dead man's estate, and lives for years in healthy enjoyment of his ill-gotten gains. Whenever thoughts of the murder appear on the fringes of his consciousness, he murmurs to himself, "I am safe." All is well until the day he remodels his mantra to "I am safe—yes—if I be not fool enough to make open confession." With that thought, he comes undone. He tries to suppress the thought of confessing, but the harder he tries, the more insistent the thought becomes. He panics, he starts running, people start chasing him, he blacks out, and, when he returns to his senses, he is told that he has made a full confession.

I love this story, for its title above all else. Whenever I am on a cliff, a rooftop, or a high balcony, the imp of the perverse whispers in my ear, "Jump." It's not a command, it's just a word that pops into my consciousness. When I'm at a dinner party sitting next to someone I respect, the imp works hard to suggest the most inappropriate things I could possibly say. Who or what is the imp? Dan Wegner, one of the most perverse and creative social psychologists, has dragged the imp into the lab and made it confess to being an aspect of automatic processing.

In Wegner's studies, participants are asked to try hard *not* to think about something, such as a white bear, or food, or a stereotype. This is hard to do. More important, the moment one stops trying to suppress a thought, the thought comes flooding in and becomes even harder to banish. In other words, Wegner creates minor obsessions in his lab by instructing people not to obsess. Wegner explains this effect as an "ironic process" of mental control.[32] When controlled processing tries to influence thought ("Don't think about a white bear!"), it sets up an explicit goal. And whenever one pursues a goal, a part of the mind automatically monitors progress, so that it can order corrections or know when success has been achieved. When that goal is an action in the world (such as arriving at the airport on time), this feedback

system works well. But when the goal is mental, it backfires. Automatic processes continually check: "Am I not thinking about a white bear?" As the act of monitoring for the absence of the thought introduces the thought, the person must try even harder to divert consciousness. Automatic and controlled processes end up working at cross purposes, firing each other up to ever greater exertions. But because controlled processes tire quickly, eventually the inexhaustible automatic processes run unopposed, conjuring up herds of white bears. Thus, the attempt to remove an unpleasant thought can guarantee it a place on your frequent-play list of mental ruminations.

Now, back to me at that dinner party. My simple thought "don't make a fool of yourself" triggers automatic processes looking for signs of foolishness. I know that it would be stupid to comment on that mole on his forehead, or to say "I love you," or to scream obscenities. And up in consciousness, I become aware of three thoughts: comment on the mole, say "I love you," or scream obscenities. These are not commands, just ideas that pop into my head. Freud based much of his theory of psychoanalysis on such mental intrusions and free associations, and he found they often have sexual or aggressive content. But Wegner's research offers a simpler and more innocent explanation: Automatic processes generate thousands of thoughts and images every day, often through random association. The ones that get stuck are the ones that particularly shock us, the ones we try to suppress or deny. The reason we suppress them is not that we know, deep down, that they're true (although some may be), but that they are scary or shameful. Yet once we have tried and failed to suppress them, they can become the sorts of obsessive thoughts that make us believe in Freudian notions of a dark and evil unconscious mind.

The Difficulty of Winning an Argument

Consider the following story:

> Julie and Mark are sister and brother. They are traveling together in France on summer vacation from college. One night they are staying alone in a cabin near the beach. They decide that it would be interesting and fun if they tried making love. At the very least, it would be a new experience for each of them. Julie is already taking birth control pills, but Mark uses a condom, too, just to be safe. They both enjoy making love, but decide not to do it again. They keep that night as a special secret, which makes them feel even closer to each other.

Do you think it is acceptable for two consenting adults, who happen to be siblings, to make love? If you are like most people in my studies,[33] you immediately answered no. But how would you justify that judgment? People often reach first for the argument that incestuous sex leads to offspring that suffer genetic abnormalities. When I point out that the siblings used two forms of birth control, however, no one says, "Oh, well, in that case it's okay." Instead, people begin searching for other arguments, for example, "It's going to harm their relationship." When I respond that in this case the sex has made the relationship stronger, people just scratch their heads, frown, and say, "I know it's wrong, I'm just having a hard time explaining why."

The point of these studies is that moral judgment is like aesthetic judgment. When you see a painting, you usually know instantly and automatically whether you like it. If someone asks you to explain your judgment, you confabulate. You don't really know why you think something is beautiful, but your interpreter module (the rider) is skilled at making up reasons, as Gazzaniga found in his split-brain studies. You search for a plausible reason for liking the painting, and you latch on to the first reason that makes sense (maybe something vague about color, or light, or the reflection of the painter in the clown's shiny nose). Moral arguments are much the same: Two people feel strongly about an issue, their feelings come first, and their reasons are invented on the fly, to throw at each other. When you refute a person's argument, does she generally change her mind and agree with you? Of course not, because the argument you defeated was not the cause of her position; it was made up after the judgment was already made.

If you listen closely to moral arguments, you can sometimes hear something surprising: that it is really the elephant holding the reins, guiding the rider. It is the elephant who decides what is good or bad, beautiful or ugly. Gut feelings, intuitions, and snap judgments happen constantly and

automatically (as Malcolm Gladwell described in *Blink*),[34] but only the rider can string sentences together and create arguments to give to other people. In moral arguments, the rider goes beyond being just an advisor to the elephant; he becomes a lawyer, fighting in the court of public opinion to persuade others of the elephant's point of view.

This, then, is our situation, lamented by St. Paul, Buddha, Ovid, and so many others. Our minds are loose confederations of parts, but we identify with and pay too much attention to one part: conscious verbal thinking. We are like the proverbial drunken man looking for his car keys under the street light. ("Did you drop them here?" asks the cop. "No" says the man, "I dropped them back there in the alley, but the light is better over here.") Because we can see only one little corner of the mind's vast operation, we are surprised when urges, wishes, and temptations emerge, seemingly from nowhere. We make pronouncements, vows, and resolutions, and then are surprised by our own powerlessness to carry them out. We sometimes fall into the view that we are fighting with our unconscious, our id, or our animal self. But really we are the whole thing. We are the rider, and we are the elephant. Both have their strengths and special skills. The rest of this book is about how complex and partly clueless creatures such as ourselves can get along with each other (chapters 3 and 4), find happiness (chapters 5 and 6), grow psychologically and morally (chapters 7 and 8), and find purpose and meaning in our lives (chapters 9 and 10). But first we have to figure out why the elephant is such a pessimist.

2

Changing Your Mind

The whole universe is change and life itself is but what you deem it.

—Marcus Aurelius[1]

What we are today comes from our thoughts of yesterday, and our present thoughts build our life of tomorrow: our life is the creation of our mind.

—Buddha[2]

The most important idea in pop psychology is contained in the two quotations above: Events in the world affect us only through our interpretations of them, so if we can control our interpretations, we can control our world. The best-selling self-help advisor of all time, Dale Carnegie, writing in 1944, called the last eight words of the Aurelius quote "eight words that can transform your life."[3] More recently, on television and the Internet, "Dr. Phil" (Phil McGraw) stated as one of his ten "laws of life": "There is no reality, only perception."[4] Self-help books and seminars sometimes seem to consist of little more than lecturing and hectoring people until they understand this idea and its implications for their lives. It can be inspiring to watch: Often a moment comes when a person consumed by years of resentment, pain, and anger realizes that her father (for example)

10

Happiness Comes from Between

Who sees all beings in his own Self, and his own Self in all beings, loses all fear. . . . When a sage sees this great Unity and his Self has become all beings, what delusion and what sorrow can ever be near him?

—Upanishads[1]

I was entirely happy. Perhaps we feel like that when we die and become a part of something entire, whether it is sun and air, or goodness and knowledge. At any rate, that is happiness: to be dissolved into something complete and great.

—Willa Cather[2]

Proverbs, sayings, and words of wisdom dignify events, so we often use them to mark important transitions in life. For the graduating class of 1981 at Scarsdale High School, in Scarsdale, New York, choosing a quotation was a rite of passage, an opportunity to reflect on one's emerging identity and express some aspect of it. As I look through the yearbook from that class, at the quotations underneath each photo, I see two main kinds. Many are tributes to love and friendship, appropriate for a time of parting from friends ("You never really leave the friends you love. Part of them you

take with you, leaving a part of you behind." [ANONYMOUS]). The other kind expresses optimism, sometimes mixed with trepidation, about the road ahead. Indeed, it is difficult to think about graduating from high school without using the metaphor that life is a journey. For example, four students quoted the Cat Stevens song "On the Road to Find Out."[3] Two quoted George Washington: "I am embarked on a wide ocean, boundless in its prospect and, in which, perhaps, no safe harbor is to be found."[4] And one student quoted this line from Bruce Springsteen: "Well I got some beer and the highway's free / and I got you, and baby you've got me."[5]

But nestled among these affirmations of life's limitless possibilities is one with a darker tone: "Whosoever shall not fall by the sword or by famine, shall fall by pestilence so why bother shaving?" (WOODY ALLEN).[6] Above those words is a photograph of me.

I was only partly kidding. During the previous year, I had written a paper examining the play *Waiting for Godot,* Samuel Beckett's existentialist meditation on the absurdity of life in a world with no God, and it got me thinking. I was already an atheist, and by my senior year I had became obsessed with the question "What is the meaning of life?" I wrote my personal statement for college admissions on the meaninglessness of life. I spent the winter of my senior year in a kind of philosophical depression—not a clinical depression, just a pervasive sense that everything was pointless. In the grand scheme of things, I thought, it really didn't matter whether I got into college, or whether the Earth was destroyed by an asteroid or by nuclear war.

My despair was particularly strange because, for the first time since the age of four, my life was perfect. I had a wonderful girlfriend, great friends, and loving parents. I was captain of the track team, and, perhaps most important for a seventeen-year-old boy, I got to drive around in my father's 1966 Thunderbird convertible. Yet I kept wondering why any of it mattered. Like the author of Ecclesiastes, I thought that "all is vanity and a chasing after wind" (ECCLESIASTES 1:14).

I finally escaped when, after a week of thinking about suicide (in the abstract, not as a plan), I turned the problem inside out. There is no God and no externally given meaning to life, I thought, so from one perspective it really wouldn't matter if I killed myself tomorrow. Very well, then everything beyond tomorrow is a gift with no strings and no expectations. There is no test to hand in at the end of life, so there is no way to fail. If this really is all there is, why not embrace it, rather than throw it away? I don't know whether this realization lifted my mood or whether an improving mood helped me to reframe the problem with hope; but my existential depression lifted and I enjoyed the last months of high school.

My interest in the meaning of life continued, however, so in college I majored in philosophy, where I found few answers. Modern philosophers specialize in analyzing the meaning of words, but, aside from the existentialists (who caused the problem for me in the first place), they had little to say about the meaning of life. It was only after I entered graduate school in psychology that I realized why modern philosophy seemed sterile: It lacked a deep understanding of human nature. The ancient philosophers were often good psychologists, as I have shown in this book, but when modern philosophy began to devote itself to the study of logic and rationality, it gradually lost interest in psychology and lost touch with the passionate, contextualized nature of human life. It is impossible to analyze "the meaning of life" in the abstract, or in general, or for some mythical and perfectly rational being.[7] Only by knowing the kinds of beings that we actually are, with the complex mental and emotional architecture that we happen to possess, can anyone even begin to ask about what would count as a meaningful life. (Philosophy has, to its credit, become more psychological and more passionate in recent years.)[8]

As I went on in psychology and in my own research on morality, I discovered that psychology and related sciences have revealed so much about human nature that an answer is now possible. In fact, we've known most of the answer for a hundred years, and many of the remaining pieces have fallen into place over the last ten. This chapter is my version of psychology's answer to the ultimate question.

WHAT WAS THE QUESTION?

The question "What is the meaning of life" might be called the Holy Question, in analogy to the Holy Grail: Its pursuit is noble and everyone should

want to find an answer, yet few people expect that one can be found. That's why books and movies that purport to tell us the answer to the Holy Question often do so only in jest. In *The Hitchhiker's Guide to the Galaxy,* a gigantic computer built to answer the Holy Question spits out its solution after 7.5 million years of computation: "forty-two."[9] In the closing scene of the movie *Monty Python's The Meaning of Life,* the answer to the Holy Question is handed to the actor Michael Palin (in drag), who reads it aloud: "Try to be nice to people, avoid eating fat, read a good book every now and then, get some walking in, and try to live in harmony with people of all creeds and nations."[10] These answers are funny precisely because they take the *form* of good answers, yet their *content* is empty or mundane. These parodies invite us to laugh at ourselves and ask: What was I expecting? What kind of answer *could* have satisfied me?

One thing philosophy did teach me is how to analyze questions, how to clarify exactly what is being asked before giving an answer. The Holy Question cries out for clarification. Whenever we ask "What is the meaning of X?" what *kind* of answer could possibly satisfy us?

The most common kind of meaning is definitional. "What is the meaning of 'ananym'?" means "Define the word 'ananym' for me so that I can understand it when I read it." I go to a dictionary,[11] look it up, and find that it means "a pseudonym consisting of the real name written backwards." Very well, what is the meaning of "life"? I go back to the dictionary and find that life has twenty-one meanings, including "the quality that distinguishes a vital and functional being from a dead body or purely chemical matter" and "the period from birth to death." Dead end. This is not at all the right kind of answer. We are not asking about the *word* "life," we're asking about life itself.

A second kind of meaning is about symbolism or substitution. If you dream about exploring a basement and finding a trap door to a subbasement, you might ask, "What is the meaning of the subbasement?" The psychologist Carl Jung had such a dream[12] and concluded that the meaning of the subbasement—the thing it symbolized or stood for—was the collective unconscious, a deep set of ideas shared by all people. But this is another dead end. Life does not symbolize, stand for, or point to anything. It is life itself that we want to understand.

A third way in which we ask about meaning is as a plea for help in making sense of something, usually with reference to people's intentions and beliefs. Suppose you walk into a movie half an hour late and have to leave half an hour before the end. Later that night you are talking with a friend who saw the whole film and you ask, "What did it mean when the guy with the curly hair winked at that kid?" You are aware that the act had some significance for the plot of the movie, and you suspect that you need to know certain facts to understand that act. Perhaps a prior relationship between the two characters had been revealed in the opening scenes? To ask, "What was the meaning of the wink?" really means, "What do I need to know to understand that wink?" Now we're making progress, for life is much like a movie we walk into well after its opening scene, and we will have to step out long before most of the story lines reach their conclusions. We are acutely aware that we need to know a great deal if we are to understand the few confusing minutes that we do watch. Of course, we don't know exactly what it is that we don't know, so we can't frame the question well. We ask, "What is the meaning of life?" not expecting a direct answer (such as "forty-two"), but rather hoping for some enlightenment, something to give us an "aha!" experience in which, suddenly, things that we had not before understood or recognized as important begin to make sense (as they did for the square taken to the third dimension).

Once the Holy Question has been re-framed to mean "Tell me something enlightening about life," the answer must involve the kinds of revelations that human beings find enlightening. There appear to be two specific sub-questions to which people want answers, and for which they find answers enlightening. The first can be called the question of the purpose *of* life: "What is the purpose *for which* human beings were placed on Earth? *Why* are we here?" There are two major classes of answers to this question: Either you believe in a god/spirit/intelligence who had some idea, desire, or intention in creating the world or you believe in a purely material world in which it and you were not created *for* any reason; it all just happened as matter and energy interacted according to the laws of nature (which, once life got started, included the principles of Darwinian evolution). Religion is often seen as an answer to the Holy Question because many religions offer

such clear answers to the sub-question of the purpose *of* life. Science and religion are often seen as antagonists, and, indeed, they battle over the teaching of evolution in the United States precisely because they offer conflicting answers.

The second sub-question is the question of purpose *within* life: "How ought I to live? What should I do to have a good, happy, fulfilling, and *meaningful* life?" When people ask the Holy Question, one of the things they are hoping for is a set of principles or goals that can guide their actions and give their choices meaning or value. (That is why the form of the answer in the Monty Python movie is correct: "Try to be nice to people, avoid eating fat . . . "). Aristotle asked about *aretē* (excellence/virtue) and *telos* (purpose/goal), and he used the metaphor that people are like archers, who need a clear target at which to aim.[13] Without a target or goal, one is left with the animal default: Just let the elephant graze or roam where he pleases. And because elephants live in herds, one ends up doing what everyone else is doing. Yet the human mind has a rider, and as the rider begins to think more abstractly in adolescence, there may come a time when he looks around, past the edges of the herd, and asks: Where are we all going? And why? This is what happened to me my senior year of high school.

In my adolescent existentialism, I conflated the two sub-questions. Because I embraced the scientific answer to the question of the purpose *of* life, I thought it precluded finding purpose *within* life. It was an easy mistake to make because many religions teach that the two questions are inseparable. If you believe that God created you as part of His plan, then you can figure out how you ought to live if you are going to play your part properly. *The Purpose Driven Life*[14] is a forty-day course that teaches readers how to find purpose *within* life from the theological answer to the question of the purpose *of* life.

The two questions can, however, be separated. The first asks about life from the outside; it looks at people, the Earth, and the stars as *objects*—"Why do *they* all exist?"—and is properly addressed by theologians, physicists, and biologists. The second question is about life from the inside, as a *subject*—"How can *I* find a sense of meaning and purpose?"—and is properly addressed by theologians, philosophers, and psychologists. The second question is really empirical—a question of fact that can be examined by

scientific means. Why do some people live lives full of zest, commitment, and meaning, but others feel that their lives are empty and pointless? For the rest of this chapter I will ignore the purpose *of* life and search for the factors that give rise to a sense of purpose *within* life.

LOVE AND WORK

When a computer breaks, it doesn't fix itself. You have to open it up and do something to it, or bring it to a specialist for repair. The computer metaphor has so pervaded our thought that we sometimes think about people as computers, and about psychotherapy as the repair shop or a kind of reprogramming. But people are not computers, and they usually recover on their own from almost anything that happens to them.[15] I think a better metaphor is that people are like plants. During graduate school, I had a small garden in front of my house in Philadelphia. I was not a very good gardener, and I traveled a lot in the summers, so sometimes my plants withered and nearly died. But the amazing thing I learned about plants is that as long as they are not completely dead, they will spring back to full and glorious life if you just get the conditions right. You can't fix a plant; you can only give it the right conditions—water, sun, and soil—and then wait. It will do the rest.

If people are like plants, what are the conditions we need to flourish? In the happiness formula from chapter 5, H(appiness) = S(etpoint) + C(onditions) + V(oluntary activities), what exactly is C? The biggest part of C, as I said in chapter 6, is love. No man, woman, or child is an island. We are ultrasocial creatures, and we can't be happy without having friends and secure attachments to other people. The second most important part of C is having and pursuing the right goals, in order to create states of flow and engagement. In the modern world, people can find goals and flow in many settings, but most people find most of their flow at work.[16] (I define work broadly to include anyone's answer to the question "So, what do you do?" "Student" and "full-time parent" are both good answers). Love and work are, for people, obvious analogues to water and sunshine for plants.[17] When Freud was asked what a normal person should be able to do well, he is reputed to have said, "Love and work."[18] If therapy can help a person do those

two things well, it has succeeded. In Maslow's famous hierarchy of needs, once people have satisfied their physical needs (such as food and safety), they move on to needs for love and then esteem, which is earned mostly through one's work. Even before Freud, Leo Tolstoy wrote: "One can live magnificently in this world, if one knows how to work and how to love, to work for the person one loves and to love one's work."[19] Having earlier said everything I want to say about love, I will say no more here. But I must say much more about work.

When Harry Harlow took his students to the zoo, they were surprised to find that apes and monkeys would solve problems just for the fun of it. Behaviorism had no way to explain such unreinforced behavior. In 1959, the Harvard psychologist Robert White[20] concluded, after surveying research in behaviorism and psychoanalysis, that both theories had missed what Harlow had noticed: the overwhelming evidence that people and many other mammals have a basic drive to *make things happen*. You can see it in the joy infants take with "busy boxes," the activity centers that allow them to convert flailing arm movements into ringing bells and spinning wheels. You can see it in the toys to which older children gravitate. The ones I most intensely longed for as a boy were those that caused movement or action at a distance: remote-controlled cars, guns that shot plastic pellets, and rockets or airplanes of any kind. And you can see it in the lethargy that often overtakes people who stop working, whether from retirement, being fired, or winning a lottery. Psychologists have referred to this basic need as a need for competence, industry, or mastery. White called it the "effectance motive," which he defined as the need or drive to develop competence through interacting with and controlling one's environment. Effectance is almost as basic a need as food and water, yet it is not a deficit need, like hunger, that is satisfied and then disappears for a few hours. Rather, White said, effectance is a constant presence in our lives:

> Dealing with the environment means carrying on a continuing transaction which gradually changes one's relation to the environment. Because there is no consummatory climax, satisfaction has to be seen as lying in a considerable series of transactions, in a trend of behavior rather than a goal that is achieved.[21]

The effectance motive helps explain the progress principle: We get more pleasure from making progress toward our goals than we do from achieving them because, as Shakespeare said, "Joy's soul lies in the doing."[22]

Now we can look at the conditions of modern work. Karl Marx's criticism of capitalism[23] was based in part on his justified claim that the Industrial Revolution had destroyed the historical relationship between craftsmen and the goods they produced. Assembly-line work turned people into cogs in a giant machine, and the machine didn't care about workers' need for effectance. Later research on job satisfaction supported Marx's critique, but added nuance. In 1964, the sociologists Melvin Kohn and Carmi Schooler[24] surveyed 3,100 American men about their jobs and found that the key to understanding which jobs were satisfying was what they called "occupational self direction." Men who were closely supervised in jobs of low complexity and much routine showed the highest degree of alienation (feeling powerless, dissatisfied, and separated from the work). Men who had more latitude in deciding how they approached work that was varied and challenging tended to enjoy their work much more. When workers had occupational self-direction, their work was often satisfying.

More recent research finds that most people approach their work in one of three ways: as a job, a career, or a calling.[25] If you see your work as a job, you do it only for the money, you look at the clock frequently while dreaming about the weekend ahead, and you probably pursue hobbies, which satisfy your effectance needs more thoroughly than does your work. If you see your work as a career, you have larger goals of advancement, promotion, and prestige. The pursuit of these goals often energizes you, and you sometimes take work home with you because you want to get the job done properly. Yet, at times, you wonder why you work so hard. You might occasionally see your work as a rat race where people are competing for the sake of competing. If you see your work as a calling, however, you find your work intrinsically fulfilling—you are not doing it to achieve something else. You see your work as contributing to the greater good or as playing a role in some larger enterprise the worth of which seems obvious to you. You have frequent experiences of flow during the work day, and you neither look forward to "quitting time" nor feel the desire to shout, "Thank God it's Friday!" You would continue to work, perhaps even without pay, if you suddenly became very wealthy.

You might think that blue-collar workers have jobs, managers have careers, and the more respected professionals (doctors, scientists, clergy) have callings. Although there is some truth to that expectation, we can nonetheless paraphrase Marcus Aurelius and say, "Work itself is but what you deem it." Amy Wrzesniewski, a psychologist at New York University, finds all three orientations represented in almost every occupation she has examined.[26] In a study of hospital workers, for example, she found that the janitors who cleaned bed pans and mopped up vomit—perhaps the lowest-ranking job in a hospital—sometimes saw themselves as part of a team whose goal was to heal people. They went beyond the minimum requirements of their job description, for example, by trying to brighten up the rooms of very sick patients or anticipating the needs of the doctors and nurses rather than waiting for orders. In so doing, they increased their own occupational self-direction and created for themselves jobs that satisfied their effectance needs. Those janitors who worked this way saw their work as a calling and enjoyed it far more than those who saw it as a job.

The optimistic conclusion coming out of research in positive psychology is that most people can get more satisfaction from their work. The first step is to know your strengths. Take the strengths test[27] and then choose work that allows you to use your strengths every day, thereby giving yourself at least scattered moments of flow. If you are stuck in a job that doesn't match your strengths, recast and reframe your job so that it does. Maybe you'll have to do some extra work for a while, like the hospital janitors who were acting on strengths of kindness, loving, emotional intelligence, or citizenship. If you *can* engage your strengths, you'll find more gratification in work; if you find gratification, you'll shift into a more positive, approach-oriented mindset; and in such a mindset it will be easier for you to see the bigger picture[28]—the contribution you are making to a larger enterprise—within which your job might turn into a calling.

Work at its best, then, is about connection, engagement, and commitment. As the poet Kahlil Gibran said, "Work is love made visible." Echoing Tolstoy, he gave examples of work done with love:

> *It is to weave the cloth with threads drawn from your heart,*
> *even as if your beloved were to wear that cloth.*

> *It is to build a house with affection,*
> *even as if your beloved were to dwell in that house.*
> *It is to sow seeds with tenderness and reap the harvest with joy,*
> *even as if your beloved were to eat the fruit.*[29]

Love and work are crucial for human happiness because, when done well, they draw us out of ourselves and into connection with people and projects beyond ourselves. Happiness comes from getting these connections right. Happiness comes not just from within, as Buddha and Epictetus supposed, or even from a combination of internal and external factors (as I suggested as a temporary fix at the end of chapter 5). The correct version of the happiness hypothesis, as I'll illustrate below, is that happiness comes from *between*.

VITAL ENGAGEMENT

Plants thrive under particular conditions, and biologists can now tell us how sunlight and water get converted into plant growth. People thrive under particular conditions, and psychologists can now tell us how love and work get converted into happiness and a sense of meaning.

The man who found flow, Mihalyi Csikszentmihalyi, thinks big. Not content to study moments of flow (by beeping people several times a day), he wanted to know what role flow plays in life as a whole, particularly in the lives of creative people. So he turned to the experts: paragons of success in the arts and sciences. He and his students have interviewed hundreds of successful painters, dancers, poets, novelists, physicists, biologists, and psychologists—all people who seem to have crafted lives for themselves built around a consuming passion. These are admirable lives, desirable lives, the sort that many young people dream of having when they look to these people as role models. Csikszentmihalyi wanted to know how such lives happened. How does a person come to make such a commitment to a field and then become so extraordinarily creative?

His interviews showed that every path is unique, yet most of them led in the same direction: from initial interest and enjoyment, with moments of

flow, through a relationship to people, practices, and values that deepened over many years, thereby enabling even longer periods of flow. Csikszentmihalyi and his students, particularly Jeanne Nakamura, have studied the end state of this deepening process and called it "vital engagement," which they define as "a relationship to the world that is characterized both by experiences of flow (enjoyed absorption) and by meaning (subjective significance)."[30] Vital engagement is another way of saying that work has become "love made visible"; Nakamura and Csikszentmihalyi even describe vital engagement in words that could almost have been taken from a romance novel: "There is a strong felt connection between self and object; a writer is 'swept away' by a project, a scientist is 'mesmerized by the stars.' The relationship has subjective meaning; work is a 'calling.'"[31]

Vital engagement is a subtle concept, and the first time I taught a course on positive psychology, the students weren't getting it. I thought that an example would help, so I called on a woman who had been quiet in class, but who had once mentioned her interest in horses. I asked Katherine to tell us how she got involved in riding. She described her childhood love of animals, and her interest in horses in particular. At the age of ten she begged her parents to let her take riding lessons, and they agreed. She rode for fun at first, but soon began riding in competitions. When it came time to choose a college, she chose the University of Virginia in part because it had an excellent riding team.

Katherine was shy, and, after narrating these basic facts, she stopped talking. She had told us about her increasing commitment to riding, but vital engagement is more than just commitment. I probed further. I asked whether she could tell us the names of specific horses from previous centuries. She smiled and said, almost as if admitting a secret, that she had begun to read about horses when she began to ride, and that she knew a great deal about the history of horses and about famous horses in history. I asked whether she had made friends through riding, and she told us that most of her close friends were "horse friends," people she knew from horse shows and from riding together. As she talked, she grew more animated and confident. It was as clear from her demeanor as from her words that Katherine had found vital engagement in riding. Just as Nakamura and Csikszentmihalyi had said, her initial interest grew into an ever-deepening

relationship, an ever-thickening web connecting her to an activity, a tradition, and a community. Riding for Katherine had become a source of flow, joy, identity, effectance, and relatedness. It was part of her answer to the question of purpose within life.

Vital engagement does not reside in the person or in the environment; it exists in the relationship *between* the two. The web of meaning that engulfed Katherine grew and thickened gradually and organically, over many years. Vital engagement is what I was missing during my senior year of high school. I had love, and I had work (in the form of reasonably challenging high school classes), but my work was not part of a larger project beyond getting into college. In fact, it was precisely when the college project was ending—when I had sent off my college applications and was in limbo, not knowing where I would go next—that I became paralyzed by the Holy Question.

Getting the right relationship between you and your work is not entirely up to you. Some occupations come ready-made for vital engagement; others make it difficult. As market forces were reshaping many professions in the United States during the 1990s—medicine, journalism, science, education, and the arts—people in those fields began to complain that the quality of work and the quality of life were sometimes compromised by the relentless drive to increase profits. Csikszentmihalyi teamed up with two other leading psychologists—Howard Gardner at Harvard, and William Damon at Stanford—to study these changes, and to see why some professions seemed healthy while others were growing sick. Picking the fields of genetics and journalism as case studies, they conducted dozens of interviews with people in each field. Their conclusion[32] is as profound as it is simple: It's a matter of alignment. When doing *good* (doing high-quality work that produces something of use to others) matches up with doing *well* (achieving wealth and professional advancement), a field is healthy. Genetics, for example, is a healthy field because all parties involved respect and reward the very best science. Even though pharmaceutical companies and market forces were beginning to inject vast amounts of money into university research labs in the 1990s, the scientists whom Csikszentmihalyi, Gardner, and Damon interviewed did not believe they were being asked to lower their standards, cheat, lie, or sell their souls. Geneticists believed that their field was in a golden age in which excellent work brought great benefits to

the general public, the pharmaceutical companies, the universities, and the scientists themselves.

Journalists, on the other hand, were in trouble. Most of them had gone into journalism with high ideals—respect for the truth, a desire to make a difference in the world, and a firm belief that a free press is a crucial support of democracy. But by the 1990s, the decline of family-run newspapers and the rise of corporate media empires had converted American journalism into just another profit center where the only thing that mattered was will it sell, and will it outsell our competitors? Good journalism was sometimes bad for business. Scare stories, exaggeration, trumped up conflict, and sexual scandal, all cut up into tiny digestible pieces, were often more profitable. Many journalists who worked for these empires confessed to having a sense of being forced to sell out and violate their own moral standards. Their world was unaligned, and they could not become vitally engaged in the larger but ignoble mission of gaining market share at any cost.

CROSS-LEVEL COHERENCE

The word "coherence" literally means holding or sticking together, but it is usually used to refer to a system, an idea, or a worldview whose parts fit together in a consistent and efficient way. Coherent things work well: A coherent worldview can explain almost anything, while an incoherent worldview is hobbled by internal contradictions. A coherent profession, such as genetics, can get on with the business of genetics, while an incoherent profession, like journalism, spends a lot of time on self-analysis and self-criticism.[33] Most people know there's a problem, but they can't agree on what to do about it.

Whenever a system can be analyzed at multiple levels, a special kind of coherence occurs when the levels mesh and mutually interlock. We saw this cross-level coherence in the analysis of personality: If your lower-level traits match up with your coping mechanisms, which in turn are consistent with your life story, your personality is well integrated and you can get on with the business of living. When these levels do not cohere, you are likely

to be torn by internal contradictions and neurotic conflicts.[34] You might need adversity to knock yourself into alignment. And if you do achieve coherence, the moment when things come together may be one of the most profound of your life. Like the moviegoer who later finds out what she missed in the first half hour, your life will suddenly make more sense. Finding coherence across levels feels like enlightenment,[35] and it is crucial for answering the question of purpose within life.

People are multilevel systems in another way: We are *physical* objects (bodies and brains) from which *minds* somehow emerge; and from our minds, somehow *societies* and *cultures* form.[36] To understand ourselves fully we must study all three levels—physical, psychological, and sociocultural. There has long been a division of academic labor: Biologists studied the brain as a physical object, psychologists studied the mind, and sociologists and anthropologists studied the socially constructed environments within which minds develop and function. But a division of labor is productive only when the tasks are coherent—when all lines of work eventually combine to make something greater than the sum of its parts. For much of the twentieth century that didn't happen—each field ignored the others and focused on its own questions. But nowadays cross-disciplinary work is flourishing, spreading out from the middle level (psychology) along bridges (or perhaps ladders) down to the physical level (for example, the field of cognitive neuroscience) and up to the sociocultural level (for example, cultural psychology). The sciences are linking up, generating cross-level coherence, and, like magic, big new ideas are beginning to emerge.

Here is one of the most profound ideas to come from the ongoing synthesis: *People gain a sense of meaning when their lives cohere across the three levels of their existence.*[37] The best way I can illustrate this idea is to take you back to Bhubaneswar, India. I have already explained the logic of purity and pollution, so you understand why Hindus bathe before making an offering to God, and why they are careful about what they touch on the way to the temple. You understand why contact with a dog, a menstruating woman, or a person of low caste can render a person of high caste temporarily impure and unfit to make an offering. But you understand all this only at the psychological level and, even then, only as a set of propositions grasped by the

rider and stored away as explicit knowledge. You do not feel polluted after touching the arm of a woman you know to be menstruating; you do not even know what it would feel like to feel polluted in that way.

Suppose, however, that you grow up as a Brahmin in Bhubaneswar. Every day of your life you have to respect the invisible lines separating pure from profane spaces, and you have to keep track of people's fluctuating levels of purity before you can touch them or take anything from their hands. You bathe several times a day—short baths or brief immersions in sacred water—always before making a religious offering. And your offerings are not just words: You actually give some food to God (the priest touches your offering to the image, icon, or object in the inner sanctum), which is returned to you so that you may eat what God left over. Eating someone's leftovers shows a willingness to take in that person's saliva, which demonstrates both intimacy and subordination in Bhubaneswar. Eating God's leftovers is an act of intimacy, and subordination, too. After twenty years of these practices, your understanding of Hindu rituals is *visceral*. Your explicit understanding is supported by a hundred physical feelings: shivering during the morning bath at sunrise; the pleasure of washing off dust and putting on clean clothes after a bath on a hot afternoon; the feeling of bare feet on cool stone floors as you approach the inner sanctum; the smell of incense; the sound of mumbled prayers in Sanskrit, the bland (pure) taste of rice that has been returned to you from God. In all these ways, your understanding at the psychological level has spread down to your physical embodiment, and when the conceptual and visceral levels connect, the rituals *feel* right to you.

Your understanding of ritual spreads up to the sociocultural level, too. You are immersed in a 4,000-year-old religious tradition that provided most of the stories you heard as a child, many of which involved plot elements of purity and pollution. Hinduism structures your social space through a caste system based on the purity and pollution of various occupations, and it structures your physical space with the topography of purity and pollution that keeps temples, kitchens, and right hands pure. Hinduism also gives you a cosmology in which souls reincarnate by moving up or down on the vertical dimension of divinity. So every time you make an offering to God, the three levels of your existence are all aligned and mutually interlocking. Your physical feelings and conscious thoughts cohere with your actions, and all of it makes perfect sense within the larger culture of which you are a part. As you make an offering to God, you don't think, "What does this all mean? Why am I doing this?" The experience of meaningfulness just happens. It emerges automatically from cross-level coherence. Once again, happiness—or a sense of meaningfulness that imparts richness to experience—comes from between.

In contrast, think about the last empty ritual you took part in. Maybe you were asked to join hands and chant with a group of strangers while attending a wedding ceremony for a friend who is of a different religion. Perhaps you took part in a new age ceremony that borrowed elements from Native Americans, ancient Celts, and Tibetan Buddhists. You probably understood the symbolism of the ritual—understood it consciously and explicitly in the way that the rider is so good at doing. Yet you felt self-conscious, maybe even silly, while doing it. Something was missing.

You can't just invent a good ritual through reasoning about symbolism. You need a tradition within which the symbols are embedded, and you need to invoke bodily feelings that have some appropriate associations. Then you need a community to endorse and practice it over time. To the extent that a community has many rituals that cohere across the three levels, people in the community are likely to feel themselves connected to the community and its traditions. If the community also offers guidance on how to live and what is of value, then people are unlikely to wonder about the question of purpose within life. Meaning and purpose simply emerge from the coherence, and people can get on with the business of living. But conflict, paralysis, and anomie are likely when a community fails to provide coherence, or, worse, when its practices contradict people's gut feelings or their shared mythology and ideology. (Martin Luther King, Jr., forced Americans to confront contradictions between practices of racial segregation and ideals about equality and freedom. Many people didn't like that.) People don't necessarily need to find meaning in their national identity—indeed, in large and diverse nations such as the United States, Russia, and India, religion might hold greater promise for cross-level coherence and purpose within life. Religions do such a good job of creating coherence, in fact, that some scholars[38] believe they were designed for that purpose.

GOD GIVES US HIVES

When I first began to study morality as a philosophy major in college, my father said, "Why aren't you studying religion, too? How could people have morality without God?" As a young atheist with a strong sense of morality (well over the border into self-righteousness), I was insulted by my father's suggestion. Morality, I thought, was about relationships among people; it was about a commitment to doing the right thing, even when it goes against your self-interest. Religion, I thought, was a bunch of rules that made no sense and stories that could never have happened, written down by people and then falsely attributed to a supernatural entity.

I now believe my father was right—morality has its origins in religion—but not for the reasons he believed. Morality and religion both occur in some form in all human cultures[39] and are almost always both intertwined with the values, identity, and daily life of the culture. Anyone who wants a full, cross-level account of human nature, and of how human beings find purpose and meaning in their lives, must make that account cohere with what is known about morality and religion.

From an evolutionary perspective, morality is a problem. If evolution is all about survival of the fittest, then why do people help each other so much? Why do they give to charity, risk their lives to save strangers, and volunteer to fight in wars? Darwin thought the answer was easy: Altruism evolves for the good of the group:

> There can be no doubt that a tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to aid one another, and to sacrifice themselves for the common good would be victorious over most other tribes, and this would be natural selection.[40]

Darwin proposed that groups compete, just like individuals, and therefore psychological features that make groups successful—such as patriotism, courage, and altruism toward fellow group members—should spread like any other trait. But once evolutionary theorists began testing predictions rigorously, using computers to model the interactions of individuals who use various strategies (such as pure selfishness versus tit for tat), they quickly came to appreciate the seriousness of the "free-rider problem." In groups in which people make sacrifices for the common good, an individual who makes no such sacrifices—who in effect takes a free ride on the backs of the altruists—comes out ahead. In the cold logic of these computer simulations, whoever accumulates the most resources in one generation goes on to produce more children in the next, so selfishness is adaptive but altruism is not. The only solution to the free-rider problem is to make altruism pay, and two back-to-back breakthroughs in evolutionary thinking showed how to do that. In chapter 3 I presented kin altruism (be nice to those who share your genes) and reciprocal altruism (be nice to those who might reciprocate in the future) as two steps on the way to ultrasociality. Once these two solutions to the free-rider problem were published (in 1966 and 1971, respectively),[41] most evolutionary theorists considered the problem of altruism solved and essentially declared group selection illegal. Altruism could be explained away as a special kind of selfishness, and anyone who followed Darwin in thinking that evolution worked for the "good of the group" instead of the good of the individual (or better yet, the good of the gene),[42] was dismissed as a mushy-headed romantic.

The ban on group selection had one loophole. For creatures that really do compete, live, and die as a group, such as the other ultrasocial animals (bees, wasps, ants, termites, and naked mole rats), group selection explanations were appropriate. There is a real sense in which a beehive or an ant colony is a single organism, each insect a cell in the larger body.[43] Like stem cells, ants can take different physical forms to perform specific functions needed by the colony: small bodies to care for larva, larger bodies with special appendages to forage for food or fight off attackers. Like cells in the immune system, ants will sacrifice themselves to protect the colony: In one species of Malaysian ant,[44] members of the soldier caste store a sticky substance just under their exoskeletons. In the midst of battle, they explode their bodies, turning themselves into suicide bombers to gum up their adversaries. For ants and bees, the queen is not the brain; she is the ovary, and the entire hive or colony can be seen as a body shaped by natural selection

to protect the ovary and help it create more hives or colonies. Because all members really are in the same boat, group selection is not just permissible as an explanation; it is mandatory.

Might this loophole apply to humans as well? Do humans compete, live, and die as a group? Tribes and ethnic groups do grow and spread or fade and die out, and sometimes this process has occurred by genocide. Furthermore, human societies often have an extraordinary division of labor, so the comparison to bees and ants is tempting. But as long as each human being has the opportunity to reproduce, the evolutionary payoffs for investing in one's own welfare and one's own offspring will almost always exceed the payoffs for contributing to the group; in the long run, selfish traits will therefore spread at the expense of altruistic traits. Even during war and genocide, when group interests are most compelling, it is the coward who runs and hides, rather than joining his comrades on the front lines, who is most likely to pass on his genes to the next generation. Evolutionary theorists have therefore stood united, since the early 1970s, in their belief that group selection simply did not play a role in shaping human nature.

But wait a second. This is not an all-or-nothing issue. Even if the competition of individuals *within* a group is the most important process in human evolution, group selection (competition *between* groups) could have played a role too. The evolutionary biologist David Sloan Wilson[45] has recently argued that the banishment of group selection theories on the basis of some oversimplified computer models from the 1960s was one of the biggest mistakes in the history of modern biology. If you make the models more realistic, more like real human beings, group selection jumps right out at you. Wilson points out that human beings evolve at two levels simultaneously: genetic and cultural. The simple models of the 1960s worked well for creatures without culture; for them, behavioral traits must all be encoded in the genes, which are passed on only along lines of kinship. But everything a person does is influenced not only by her genes but also by her culture, and cultures evolve, too. Because elements of culture show variation (people invent new things) and selection (other people do or don't adopt those variations), cultural traits can be analyzed in a Darwinian framework[46] just as well as physical traits (birds' beaks, giraffes' necks). Cultural elements, however, don't spread by the slow process of having children; they spread rapidly whenever people adopt a new behavior, technology, or belief. Cultural traits can even spread from tribe to tribe or nation to nation, as when the plough, the printing press, or reality television programs became popular in many places in quick succession.

Cultural and genetic evolution are intertwined. The human capacity for culture—a strong tendency to learn from each other, to teach each other, and to build upon what we have learned—is itself a genetic innovation that happened in stages over the last few million years.[47] But once our brains reached a critical threshold, perhaps 80,000 to 100,000 years ago,[48] cultural innovation began to accelerate; a strong evolutionary pressure then shaped brains to take further advantage of culture. Individuals who could best learn from others were more successful than their less "cultured" brethren, and as brains became more cultural, cultures became more elaborate, further increasing the advantage of having a more cultural brain. All human beings today are the products of the co-evolution of a set of genes (which is almost identical across cultures) and a set of cultural elements (which is diverse across cultures, but still constrained by the capacities and predispositions of the human mind).[49] For example, the genetic evolution of the emotion of disgust made it possible (but not inevitable) for cultures to develop caste systems based on occupation and supported by disgust toward those who perform "polluting" activities. A caste system then restricts marriage to within-caste pairings, which in turn alters the course of genetic evolution. After a thousand years of inbreeding within caste, castes will diverge slightly on a few genetic traits—for example, shades of skin color—which might in turn lead to a growing cultural association of caste with color rather than just with occupation. (It only takes twenty generations of selective breeding to create large differences of appearance and behavior in other mammals.)[50] In this way, genes and cultures co-evolve;[51] they mutually affect each other, and neither process can be studied in isolation for human beings.

Wilson examines religion from this co-evolutionary perspective. The word *religion* literally means, in Latin, to link or bind together; and despite the vast variation in the world's religions, Wilson shows that religions always serve to coordinate and orient people's behavior toward each other

and toward the group as a whole, sometimes for the purpose of competing with other groups. The sociologist Emile Durkheim first developed this view of religion in 1912:

> A religion is a unified system of beliefs and practices relative to sacred things, that is to say, things set apart and forbidden—beliefs and practices which unite into one single moral community called a church, all those who adhere to them.[52]

Wilson shows how religious practices help members solve coordination problems. For example, trust and therefore trade are greatly enhanced when all parties are part of the same religious community, and when religious beliefs say that God knows and cares about the honesty of the parties. (The anthropologist Pascal Boyer[53] points out that gods and ancestor spirits are often thought to be omniscient, yet what they most care about in this vast universe is the moral intentions hidden in the hearts of the living.) Respect for rules is enhanced when rules have an element of sacredness, and when they are backed up by supernatural sanction and the gossip or ostracism of one's peers. Wilson's claim is that religious ideas, and brains that responded to those ideas, co-evolved. Even if the belief in supernatural entities emerged originally for some other reason, or as an accidental byproduct in the evolution of cognition (as some scholars have claimed),[54] groups that parlayed those beliefs into social coordination devices (for example, by linking them to emotions such as shame, fear, guilt, and love) found a cultural solution to the free-rider problem and then reaped the enormous benefits of trust and cooperation. If stronger belief led to greater individual benefits, or if a group developed a way to punish or exclude those who did not share in its beliefs and practices, conditions were perfect for the co-evolution of religion and religious brains. (Consistent with Wilson's proposal, the geneticist Dean Hamer recently reported evidence from twin studies that suggests a particular gene may be associated with a stronger tendency to have religious and self-transcendent experiences.)[55]

Religion, therefore, could have pulled human beings into the group-selection loophole. By making people long ago feel and act as though they were part of one body, religion reduced the influence of individual selection (which shapes individuals to be selfish) and brought into play the force of group selection (which shapes individuals to work for the good of their group). But we didn't make it all the way through the loophole: Human nature is a complex mix of preparations for extreme selfishness and extreme altruism. Which side of our nature we express depends on culture and context. When opponents of evolution object that human beings are not mere apes, they are correct. We are also part bee.

HARMONY AND PURPOSE

Reading Wilson's *Darwin's Cathedral* is like taking a journey to Spaceland. You can look down on the vast tapestry of human cultures and see why things are woven in the way that they are. Wilson says his own private hell would be to be locked forever into a room full of people discussing the hypocrisies of religion, for example, that many religions preach love, compassion, and virtue yet sometimes cause war, hatred, and terrorism. From Wilson's higher perspective, there is no contradiction. Group selection creates interlocking genetic and cultural adaptations that enhance peace, harmony, and cooperation *within* the group for the express purpose of increasing the group's ability to compete with *other* groups. Group selection does not end conflict; it just pushes it up to the next level of social organization. Atrocities committed in the name of religion are almost always committed against out-group members, or against the most dangerous people of all: apostates (who try to leave the group) and traitors (who undermine the group).

A second puzzle that Wilson can solve is why mysticism, everywhere and always, is about transcending the self and merging with something larger than the self. When William James analyzed mysticism, he focused on the psychological state of "cosmic consciousness"[56] and on the techniques developed in all the major religions to attain it. Hindus and Buddhists use meditation and yoga to attain the state of *samadhi,* in which "the subject-object distinction and one's sense of an individual self disappear in a state

usually described as one of supreme peace, bliss, and illumination."[57] James found much the same goal in Christian and Muslim mysticism, often attained through repetitive prayer. He quoted the eleventh-century Muslim philosopher Al Ghazzali, who spent several years worshipping with the Sufis of Syria. Al Ghazzali attained experiences of "transport" and revelation that he said cannot be described in words, although he did try to explain to his Muslim readers the essence of Sufism:

> The first condition for a Sufi is to purge his heart entirely of all that is not God. The next key of the contemplative life consists in the humble prayers which escape from the fervent soul, and in the meditations on God in which the heart is swallowed up entirely. But in reality this is only the beginning of the Sufi life, the end of Sufism being total absorption in God.[58]

From Wilson's perspective, mystical experience is an "off" button for the self. When the self is turned off, people become just a cell in the larger body, a bee in the larger hive. It is no wonder that the after effects of mystical experience are predictable; people usually feel a stronger commitment to God or to helping others, often by bringing them to God.

The neuroscientist Andrew Newberg[59] has studied the brains of people undergoing mystical experiences, mostly during meditation, and has found where that off-switch might be. In the rear portion of the brain's parietal lobes (under the rear portion of the top of the skull) are two patches of cortex Newberg calls the "orientation association areas." The patch in the left hemisphere appears to contribute to the mental sensation of having a limited and physically defined body, and thus keeps track of your edges. The corresponding area in the right hemisphere maintains a map of the space around you. These two areas receive input from your senses to help them maintain an ongoing representation of your self and its location in space. At the very moment when people report achieving states of mystical union, these two areas appear to be cut off. Input from other parts of the brain is reduced, and overall activity in these orientation areas is reduced, too. But Newberg believes they are still trying to do their jobs: The area on the left tries to establish the body's boundaries and doesn't find them; the area on the right tries to establish the self's location in space and doesn't find it. The person experiences a loss of self combined with a paradoxical expansion of the self out into space, yet with no fixed location in the normal world of three dimensions. The person feels merged with something vast, something larger than the self.

Newberg believes that rituals that involve repetitive movement and chanting, particularly when they are performed by many people at the same time, help to set up "resonance patterns" in the brains of the participants that make this mystical state more likely to happen. The historian William McNeill, drawing on very different data, came to the same conclusion. When McNeill was drafted into the U.S. Army in 1941, basic training required that he march for hundreds of hours on the drill field in close formation with a few dozen other men. At first, McNeill thought the marching was just a way to pass the time because his base had no weapons with which to train. But after a few weeks of training, the marching began to induce in him an altered state of consciousness:

> Words are inadequate to describe the emotion aroused by the prolonged movement in unison that drilling involved. A sense of pervasive well-being is what I recall; more specifically, a strange sense of personal enlargement; a sort of swelling out, becoming bigger than life, thanks to participation in collective ritual.[60]

Decades later, McNeill studied the role that synchronized movement—in dance, religious ritual, and military training—has played in history. In *Keeping Together in Time,*[61] he concludes that human societies since the beginning of recorded history have used synchronized movement to create harmony and cohesion within groups, sometimes in the service of preparing for hostilities with other groups. McNeill's conclusion suggests that synchronized movement and chanting might be evolved mechanisms for activating the altruistic motivations created in the process of group selection. The extreme self-sacrifice characteristic of group-selected species such as ants and bees can often be found among soldiers. McNeill quotes an extraordinary

passage from the book *The Warriors: Reflections of Men in Battle* that describes the thrilling communal state that soldiers sometimes enter:

> "I" passes insensibly into a "we," "my" becomes "our," and individual fate loses its central importance. . . . I believe that it is nothing less than the assurance of immortality that makes self-sacrifice at these moments so relatively easy. . . . I may fall, but I do not die, for that which is real in me goes forward and lives on in the comrades for whom I gave up my life.[62]

There is indeed something larger than the self, able to provide people with a sense of purpose they think worth dying for: the group. (Of course, one group's noble purpose is sometimes another group's pure evil.)

THE MEANING OF LIFE

What can you do to have a good, happy, fulfilling, and meaningful life? What is the answer to the question of purpose *within* life? I believe the answer can be found only by understanding the kind of creature that we are, divided in the many ways we are divided. We were shaped by individual selection to be selfish creatures who struggle for resources, pleasure, and prestige, and we were shaped by group selection to be hive creatures who long to lose ourselves in something larger. We are social creatures who need love and attachments, and we are industrious creatures with needs for effectance, able to enter a state of vital engagement with our work. We are the rider and we are the elephant, and our mental health depends on the two working together, each drawing on the others' strengths. I don't believe there is an inspiring answer to the question, "What is the purpose *of* life?" Yet by drawing on ancient wisdom and modern science, we can find compelling answers to the question of purpose *within* life. The final version of the happiness hypothesis is that happiness comes from between. Happiness is not something that you can find, acquire, or achieve directly. You have to get the conditions right and then wait. Some of those conditions are within you, such as coherence among the parts and levels of your personality.

Other conditions require relationships to things beyond you: Just as plants need sun, water, and good soil to thrive, people need love, work, and a connection to something larger. It is worth striving to get the right relationships between yourself and others, between yourself and your work, and between yourself and something larger than yourself. If you get these relationships right, a sense of purpose and meaning will emerge.

11

Conclusion: On Balance

All things come into being by conflict of opposites.

—Heraclitus,[1] c. 500 bce

Without Contraries is no progression. Attraction and Repulsion, Reason and Energy, Love and Hate, are necessary to Human existence.

—William Blake,[2] c. 1790

The ancient Chinese symbol of yin and yang represents the value of the eternally shifting balance between seemingly opposed principles. As the epigrams above from Heraclitus and Blake show, this is not just an Eastern idea; it is Great Idea, a timeless insight that in a way summarizes the rest of this book. Religion and science, for example, are often thought to be opponents, but as I have shown, the insights of ancient religions and of modern science are both needed to reach a full understanding of human nature and the conditions of human satisfaction. The ancients may have known little about biology, chemistry, and physics, but many were good psychologists. Psychology and religion can benefit by taking each other seriously, or at least by agreeing to learn from each other while overlooking the areas of irreconcilable difference.

The Eastern and Western approaches to life are also said to be opposed: The East stresses acceptance and collectivism; the West encourages striving and individualism. But as we've seen, both perspectives are valuable. Happiness requires changing yourself and changing your world. It requires pursuing your own goals and fitting in with others. Different people at different times in their lives will benefit from drawing more heavily on one approach or the other.

And, finally, liberals and conservatives are opponents in the most literal sense, each using the myth of pure evil to demonize the other side and unite their own. But the most important lesson I have learned in my twenty years of research on morality is that nearly all people are morally motivated. Selfishness is a powerful force, particularly in the decisions of individuals, but whenever *groups* of people come together to make a sustained effort to change the world, you can bet that they are pursuing a vision of virtue, justice, or sacredness. Material self-interest does little to explain the passions of partisans on issues such as abortion, the environment, or the role of religion in public life. (Self-interest certainly cannot explain terrorism, but the selflessness made possible by group selection can.)

An important dictum of cultural psychology is that each culture develops expertise in some aspects of human existence, but no culture can be expert in all aspects. The same goes for the two ends of the political spectrum. My research[3] confirms the common perception that liberals are experts in thinking about issues of victimization, equality, autonomy, and the rights of individuals, particularly those of minorities and nonconformists. Conservatives, on the other hand, are experts in thinking about loyalty to the group, respect for authority and tradition, and sacredness.[4] When one side overwhelms the other, the results are likely to be ugly. A society without liberals would be harsh and oppressive to many individuals. A society without conservatives would lose many of the social structures and constraints that Durkheim showed are so valuable. Anomie would increase along with freedom. A good place to look for wisdom, therefore, is where you least expect to find it: in the minds of your opponents. You already know the ideas common on your own side. If you can take off the blinders of the myth of pure evil, you might see some good ideas for the first time.

By drawing on wisdom that is balanced—ancient and new, Eastern and Western, even liberal and conservative—we can choose directions in life that will lead to satisfaction, happiness, and a sense of meaning. We can't simply select a destination and then walk there directly—the rider does not have that much authority. But by drawing on humanity's greatest ideas and best science, we can train the elephant, know our possibilities as well as our limits, and live wisely.