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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)

didn't directly hurt her when he abandoned the family; all he did was move out of the house. His action was morally wrong, but the pain came from her reactions to the event, and if she can change those reactions, she can leave behind twenty years of pain and perhaps even get to know her father. The art of pop psychology is to develop a method (beyond lecturing and hectoring) that guides people to that realization.

This art is old. Consider Anicius Boethius, born to one of the most distinguished Roman families in 480 CE, four years after Rome fell to the Goths. Boethius received the best education available in his day and successfully pursued careers in philosophy and public service. He wrote or translated dozens of works on math, science, logic, and theology, at the same time rising to become consul of Rome (the highest elected office) in 510. He was wealthy, he married well, and his sons went on to become consuls themselves. But in 523, at the peak of his power and fortune, Boethius was accused of treason toward the Ostrogoth King Theodoric for remaining loyal to Rome and its Senate. Condemned by the cowardly Senate he had tried to defend, Boethius was stripped of his wealth and honor, thrown into prison on a remote island, and executed in 524.

To take something "philosophically" means to accept a great misfortune without weeping or even suffering. We use this term in part because of the calmness, self-control, and courage that three ancient philosophers—Socrates, Seneca, and Boethius—showed while they awaited their executions. But in *The Consolation of Philosophy,* which Boethius wrote while in prison, he confessed that at first he was anything but philosophical. He wept and wrote poems about weeping. He cursed injustice, and old age, and the Goddess of Fortune, who had blessed him and then abandoned him.

Then one night, while Boethius is wallowing in his wretchedness, the majestic apparition of Lady Philosophy visits him and proceeds to chide him for his unphilosophical behavior. Lady Philosophy then guides Boethius through reinterpretations that foreshadow modern cognitive therapy (described below). She begins by asking Boethius to think about his relationship with the Goddess of Fortune. Philosophy reminds Boethius that Fortune is fickle, coming and going as she pleases. Boethius took Fortune

as his mistress, fully aware of her ways, and she stayed with him for a long time. What right has he now to demand that she be chained to his side? Lady Philosophy presents Fortune's defense:

> Why should I alone be deprived of my rights? The heavens are permitted to grant bright days, then blot them out with dark nights; the year may decorate the face of the earth with flowers and fruits, then make it barren again with clouds and frost; the sea is allowed to invite the sailor with fair weather, then terrify him with storms. Shall I, then, permit man's insatiable cupidity to tie me down to a sameness that is alien to my habits?[5]

Lady Philosophy reframes change as normal and as the right of Fortune. ("The whole universe is change," Aurelius had said.) Boethius was fortunate; now he is not. That is no cause for anger. Rather, he should be grateful that he enjoyed Fortune for so long, and he should be calm now that she has left him: "No man can ever be secure until he has been forsaken by Fortune."[6]

Lady Philosophy tries several other reframing tactics. She points out that his wife, sons, and father are each dearer to him than his own life, and all four still live. She helps him see that adverse fortune is more beneficial than good fortune; the latter only makes men greedy for more, but adversity makes them strong. And she draws Boethius's imagination far up into the heavens so that he can look down on the Earth and see it as a tiny speck on which even tinier people play out their comical and ultimately insignificant ambitions. She gets him to admit that riches and fame bring anxiety and avarice, not peace and happiness. After being shown these new perspectives and having his old assumptions challenged, Boethius is finally prepared to absorb the greatest lesson of all, the lesson Buddha and Aurelius had taught centuries earlier: "Nothing is miserable unless you think it so; and on the other hand, nothing brings happiness unless you are content with it."[7] When he takes this lesson to heart, Boethius frees himself from his mental prison. He regains his composure, writes a book that has comforted people for centuries, and faces his death with dignity.

I don't mean to imply that *The Consolation of Philosophy* is just Roman pop psychology, but it does tell a story of freedom through insight that I would like to question. In the previous chapter, I suggested that our divided self is like a rider on the back of an elephant, and I said that we give far too much importance to the rider—conscious thought. Lady Philosophy, like the pop psychology gurus of today, was working with the rider, guiding him to a moment of cognitive insight and reframing. Yet, if you have ever achieved such dramatic insights into your own life and resolved to change your ways or your outlook, you probably found that, three months later, you were right back where you started. Epiphanies can be life-altering,[8] but most fade in days or weeks. The rider can't just decide to change and then order the elephant to go along with the program. Lasting change can come only by retraining the elephant, and that's hard to do. When pop psychology programs are successful in helping people, which they sometimes are, they succeed not because of the initial moment of insight but because they find ways to alter people's behavior over the following months. They keep people involved with the program long enough to retrain the elephant. This chapter is about why the elephant tends toward worry and pessimism in so many people, and about three tools that the rider can use to retrain it.

THE LIKE-O-METER

The most important words in the elephant's language are "like" and "dislike," or "approach" and "withdraw." Even the simplest animal must make decisions at every moment: Left or right? Go or stop? Eat or don't eat? Animals with brains complex enough to have emotions make these decisions effortlessly and automatically by having what is sometimes called a "like-o-meter" running in their heads at all times. If a monkey tasting a new fruit feels a sweet sensation, its like-o-meter registers "I like it"; the monkey feels pleasure and bites right in. If the taste is bitter, a flash of displeasure discourages further eating. There's no need for a weighing of pros and cons, or for a reasoning system. Just flashes of pleasure and displeasure.

We humans have a like-o-meter too, and it's always running. Its influence is subtle, but careful experiments show that you have a like-dislike reaction to everything you are experiencing, even if you're not aware of the experience. For example, suppose you are a participant in an experiment on what is known as "affective priming." You sit in front of a computer screen and stare at a dot in the center. Every few seconds, a word is flashed over the dot. All you have to do is tap a key with your left hand if the word means something good or likable (such as garden, hope, fun), or tap a key with your right hand if the word means something bad or dislikable (death, tyranny, boredom). It seems easy, but for some reason you find yourself hesitating for a split second on some of the words. Unbeknownst to you, the computer is also flashing up another word, right on the dot, just for a few hundredths of a second before putting up the target word you're rating. Though these words are presented subliminally (below the level of your awareness), your intuitive system is so fast that it reads and reacts to them with a like-o-meter rating. If the subliminal word is *fear,* it would register negative on your like-o-meter, making you feel a tiny flash of displeasure; and then, a split second later, when you see the word *boredom,* you would more quickly say that boredom is bad. Your negative evaluation of boredom has been facilitated, or "primed," by your tiny flash of negativity toward fear. If, however, the word following *fear* is *garden,* you would take longer to say that garden is good, because of the time it takes for your like-o-meter to shift from bad to good.[9]

The discovery of affective priming in the 1980s opened up a world of indirect measurement in psychology. It became possible to bypass the rider and talk directly to the elephant, and what the elephant has to say is sometimes disturbing. For example, what if, instead of flashing subliminal words, we use photographs of black and white faces? Researchers have found that Americans of all ages, classes, and political affiliations react with a flash of negativity to black faces or to other images and words associated with African-American culture.[10] People who report being unprejudiced against blacks show, on average, a slightly smaller automatic prejudice, but apparently the rider and the elephant each have an opinion. (You can test your own elephant at: www.projectimplicit.com.) Even many African Americans show this implicit prejudice, although others show an implicit preference for black faces and names. On balance, African Americans come out with no implicit bias either way.

One of the most bizarre demonstrations of the like-o-meter in action comes from the work of Brett Pelham,[11] who has discovered that one's like-o-meter is triggered by one's own name. Whenever you see or hear a word that resembles your name, a little flash of pleasure biases you toward thinking the thing is good. So when a man named Dennis is considering a career, he ponders the possibilities: "Lawyer, doctor, banker, dentist . . . dentist . . . something about dentist just *feels* right." And, in fact, people named Dennis or Denise are slightly more likely than people with other names to become dentists. Men named Lawrence and women named Laurie are more likely to become lawyers. Louis and Louise are more likely to move to Louisiana or St. Louis, and George and Georgina are more likely to move to Georgia. The own-name preference even shows up in marriage records: People are slightly more likely to marry people whose names sound like their own, even if the similarity is just sharing a first initial. When Pelham presented his findings to my academic department, I was shocked to realize that most of the married people in the room illustrated his claim: Jerry and Judy, Brian and Bethany, and the winners were me, Jon, and my wife, Jayne.

The unsettling implication of Pelham's work is that the three biggest decisions most of us make—what to do with our lives, where to live, and whom to marry—can all be influenced (even if only slightly) by something as trivial as the sound of a name. Life is indeed what we deem it, but the deeming happens quickly and unconsciously. The elephant reacts instinctively and steers the rider toward a new destination.

NEGATIVITY BIAS

Clinical psychologists sometimes say that two kinds of people seek therapy: those who need tightening, and those who need loosening. But for every patient seeking help in becoming more organized, self-controlled, and responsible about her future, there is a waiting room full of people hoping to loosen up, lighten up, and worry less about the stupid things they said at yesterday's staff meeting or about the rejection they are sure will follow tomorrow's lunch date. For most people, the elephant sees too many things as bad and not enough as good.

It makes sense. If you were designing the mind of a fish, would you have it respond as strongly to opportunities as to threats? No way. The cost of missing a cue that signals food is low; odds are that there are other fish in the sea, and one mistake won't lead to starvation. The cost of missing the sign of a nearby predator, however, can be catastrophic. Game over, end of the line for those genes. Of course, evolution has no designer, but minds created by natural selection end up looking (to us) as though they were designed because they generally produce behavior that is flexibly adaptive in their ecological niches. (See Steven Pinker[12] on how natural selection designs without a designer.) Some commonalities of animal life even create similarities across species that we might call design principles. One such principle is that *bad is stronger than good.* Responses to threats and unpleasantness are faster, stronger, and harder to inhibit than responses to opportunities and pleasures.

This principle, called "negativity bias,"[13] shows up all over psychology. In marital interactions, it takes at least five good or constructive actions to make up for the damage done by one critical or destructive act.[14] In financial transactions and gambles, the pleasure of gaining a certain amount of money is smaller than the pain of losing the same amount.[15] In evaluating a person's character, people estimate that it would take twenty-five acts of life-saving heroism to make up for one act of murder.[16] When preparing a meal, food is easily contaminated (by a single cockroach antenna), but difficult to purify. Over and over again, psychologists find that the human mind reacts to bad things more quickly, strongly, and persistently than to equivalent good things. We can't just will ourselves to see everything as good because our minds are wired to find and react to threats, violations, and setbacks. As Ben Franklin said: "We are not so sensible of the greatest Health as of the least Sickness."[17]

Here's another candidate for a design principle of animal life: Opposing systems push against each other to reach a balance point, but the balance point is adjustable. When you move your arm, one set of muscles extends it and another contracts it. Both are always slightly tensed, ready for action. Your heart rate and breathing are regulated by an autonomic nervous system composed of two subsystems that push your organs in opposite directions: The sympathetic system prepares your body for "fight or flight" and the parasympathetic system calms you down. Both are active all the time, in

different ratios. Your behavior is governed by opposing motivational systems: an approach system, which triggers positive emotions and makes you want to move toward certain things; and a withdrawal system, which triggers negative emotions and makes you want to pull back or avoid other things. Both systems are always active, monitoring the environment, and the two systems can produce opposing motives at the same time[18] (as when you feel ambivalence), but their relative balance determines which way you move. (The "like-o-meter" is a metaphor for this balancing process and its subtle moment-by-moment fluctuations.) The balance can shift in an instant: You are drawn by curiosity to an accident scene, but then recoil in horror when you see the blood that you could not have been surprised to see. You want to talk to a stranger, but you find yourself suddenly paralyzed when you approach that person. The withdrawal system can quickly shoot up to full power,[19] overtaking the slower (and generally weaker) approach system.

One reason the withdrawal system is so quick and compelling is that it gets first crack at all incoming information. All neural impulses from the eyes and ears go first to the thalamus, a kind of central switching station in the brain. From the thalamus, neural impulses are sent out to special sensory processing areas in the cortex; and from those areas, information is relayed to the frontal cortex, where it is integrated with other higher mental processes and your ongoing stream of consciousness. If at the end of this process you become aware of a hissing snake in front of you, you could decide to run away and then order your legs to start moving. But because neural impulses move only at about thirty meters per second, this fairly long path, including decision time, could easily take a second or two. It's easy to see why a neural shortcut would be advantageous, and the amygdala is that shortcut. The amygdala, sitting just under the thalamus, dips into the river of unprocessed information flowing through the thalamus, and it responds to patterns that in the past were associated with danger. The amygdala has a direct connection to the part of the brainstem that activates the fight-or-flight response, and if the amygdala finds a pattern that was part of a previous fear episode (such as the sound of a hiss), it orders the body to red alert.[20]

You have felt this happen. If you have ever thought you were alone in a room and then heard a voice behind you, or if you have ever seen a horror

movie in which a knife-wielding maniac jumps into the frame without a musical forewarning, you probably flinched, and your heart rate shot up. Your body reacted with fear (via the quick amygdala path) in the first tenth of a second before you could make sense of the event (via the slower cortical path) in the next nine-tenths of a second. Though the amygdala does process some positive information, the brain has no equivalent "green alert" system to notify you instantly of a delicious meal or a likely mate. Such appraisals can take a second or two. Once again, bad is stronger and faster than good. The elephant reacts before the rider even sees the snake on the path. Although you can tell yourself that you are not afraid of snakes, if your elephant fears them and rears up, you'll still be thrown.

One final point about the amygdala: Not only does it reach down to the brainstem to trigger a response to danger but it reaches up to the frontal cortex to change your thinking. It shifts the entire brain over to a withdrawal orientation. There is a two-way street between emotions and conscious thoughts: Thoughts can cause emotions (as when you reflect on a foolish thing you said), but emotions can also cause thoughts, primarily by raising mental filters that bias subsequent information processing. A flash of fear makes you extra vigilant for additional threats; you look at the world through a filter that interprets ambiguous events as possible dangers. A flash of anger toward someone raises a filter through which you see everything the offending person says or does as a further insult or transgression. Feelings of sadness blind you to all pleasures and opportunities. As one famous depressive put it: "How weary, stale, flat, and unprofitable seem to me all the uses of this world!"[21] So when Shakespeare's Hamlet later offers his own paraphrase of Marcus Aurelius—"There is nothing either good or bad but thinking makes it so"[22]—he is right, but he might have added that his negative emotions are making his thinking make everything bad.

THE CORTICAL LOTTERY

Hamlet was unlucky. His uncle and his mother conspired to murder his father, the king. But his long and deep depressive reaction to this setback

suggests that he was unlucky in another way too: He was by nature a pessimist.

When it comes to explaining personality, it's always true that nature and nurture work together. But it's also true that nature plays a bigger role than most people realize. Consider the identical twin sisters Daphne and Barbara. Raised outside London, they both left school at the age of fourteen, went to work in local government, met their future husbands at the age of sixteen at local town hall dances, suffered miscarriages at the same time, and then each gave birth to two boys and a girl. They feared many of the same things (blood and heights) and exhibited unusual habits (each drank her coffee cold; each developed the habit of pushing up her nose with the palm of the hand, a gesture they both called "squidging"). None of this may surprise you until you learn that separate families had adopted Daphne and Barbara as infants; neither even knew of the other's existence until they were reunited at the age of forty. When they finally did meet, they were wearing almost identical clothing.[23]

Such strings of coincidences are common among identical twins who were separated at birth, but they do not happen among fraternal twins who were similarly separated.[24] On just about every trait that has been studied, identical twins (who share all their genes and spend the same nine months in the same womb) are more similar than same-sex fraternal twins (who share only half their genes and spend the same nine months in the same womb). This finding means that genes make at least some contribution to nearly every trait. Whether the trait is intelligence, extroversion, fearfulness, religiosity, political leaning, liking for jazz, or dislike of spicy foods, identical twins are more similar than fraternal twins, and they are usually almost as similar if they were separated at birth.[25] Genes are not blueprints specifying the structure of a person; they are better thought of as *recipes* for producing a person over many years.[26] Because identical twins are created from the same recipe, their brains end up being fairly similar (though not identical), and these similar brains produce many of the same idiosyncratic behaviors. Fraternal twins, on the other hand, are made from two different recipes that happen to share half their instructions. Fraternal twins don't end up being 50 percent similar to each other; they end up with radically different brains,

and therefore radically different personalities—almost as different as people from unrelated families.[27]

Daphne and Barbara came to be known as the "giggle twins." Both have sunny personalities and a habit of bursting into laughter in mid-sentence. They won the cortical lottery—their brains were preconfigured to see good in the world. Other pairs of twins, however, were born to look on the dark side. In fact, happiness is one of the most highly heritable aspects of personality. Twin studies generally show that from 50 percent to 80 percent of all the variance among people in their *average* levels of happiness can be explained by differences in their genes rather than in their life experiences.[28] (Particular episodes of joy or depression, however, must usually be understood by looking at how life events interact with a person's emotional predisposition.)

A person's average or typical level of happiness is that person's "affective style." ("Affect" refers to the felt or experienced part of emotion.) Your affective style reflects the everyday balance of power between your approach system and your withdrawal system, and this balance can be read right from your forehead. It has long been known from studies of brainwaves that most people show an asymmetry: more activity either in the right frontal cortex or in the left frontal cortex. In the late 1980s, Richard Davidson at the University of Wisconsin discovered that these asymmetries correlated with a person's general tendencies to experience positive and negative emotions. People showing more of a certain kind of brainwave coming through the left side of the forehead reported feeling more happiness in their daily lives and less fear, anxiety, and shame than people exhibiting higher activity on the right side. Later research showed that these cortical "lefties" are less subject to depression and recover more quickly from negative experiences.[29] The difference between cortical righties and lefties can be seen even in infants: Ten-month-old babies showing more activity on the right side are more likely to cry when separated briefly from their mothers.[30] And this difference in infancy appears to reflect an aspect of personality that is stable, for most people, all the way through adulthood.[31] Babies who show a lot more activity on the right side of the forehead become toddlers who are more anxious about novel situations; as

teenagers, they are more likely to be fearful about dating and social activities; and, finally, as adults, they are more likely to need psychotherapy to loosen up. Having lost out in the cortical lottery, they will struggle all their lives to weaken the grip of an overactive withdrawal system. Once when a friend of mine with a negative affective style was bemoaning her life situation, someone suggested that a move to a different city would suit her well. "No," she said, "I can be unhappy anywhere." She might as well have quoted John Milton's paraphrase of Aurelius: "The mind is its own place, and in itself can make a heaven of hell, a hell of heaven."[32]

SCAN YOUR BRAIN

Which set of statements is more true of you?

Set A:

- I'm always willing to try something new if I think it will be fun.
- If I see a chance to get something I want I move on it right away.
- When good things happen to me, it affects me strongly.
- I often act on the spur of the moment.

Set B:

- I worry about making mistakes.
- Criticism or scolding hurts me quite a bit.
- I feel worried when I think I have done poorly at something important.
- I have many fears compared to my friends.

People who endorse Set A over Set B have a more approach-oriented style and, on average, show greater cortical activity on the left side of the forehead. People who endorse Set B have a more withdrawal-oriented style and, on average, show greater cortical activity on the right side. (Scale adapted from Carver & White, 1994. Copyright © 1994 by the American Psychological Association. Adapted with permission.)

HOW TO CHANGE YOUR MIND

If I had an identical twin brother, he would probably dress badly. I have always hated shopping, and I can recognize only six colors by name. Several times I have resolved to improve my style, and have even acceded to women's requests to take me shopping, but it was no use. Each time I quickly returned to my familiar ways, which were stuck in the early 1980s. I couldn't just decide to change, to become something I'm not, by sheer force of will. Instead, I found a more roundabout way to change: I got married. Now I have a closet full of nice clothes, a few pairings that I have memorized as appropriate choices, and a style consultant who recommends variations.

You can change your affective style too—but again, you can't do it by sheer force of will. You have to do something that will change your repertoire of available thoughts. Here are three of the best methods for doing so: meditation, cognitive therapy, and Prozac. All three are effective because they work on the elephant.

Meditation

Suppose you read about a pill that you could take once a day to reduce anxiety and increase your contentment. Would you take it? Suppose further that the pill has a great variety of side effects, all of them good: increased self-esteem, empathy, and trust; it even improves memory. Suppose, finally, that the pill is all natural and costs nothing. Now would you take it?

The pill exists. It is meditation.[33] It has been discovered by many religious traditions and was in use in India long before Buddha, but Buddhism brought it into mainstream Western culture. There are many kinds of meditation, but they all have in common a conscious attempt to focus attention in a nonanalytical way.[34] It sounds easy: Sit still (in most forms) and focus awareness only on your breathing, or on a word, or on an image, and let no other words, ideas, or images arise in consciousness. Meditation is, however, extraordinarily difficult at first, and confronting your repeated failures in the first weeks teaches the rider lessons in humility and patience. The goal of meditation is to change automatic thought processes, thereby taming the elephant. And the proof of taming is the breaking of attachments.

My dog Andy has two main attachments, through which he interprets everything that happens in my house: eating meat and not being left alone. If my wife and I stand near the front door, he becomes anxious. If we pick up our keys, open the door, and say, "Be a good boy," his tail, head, and somehow even his hips droop pathetically toward the floor. But if we then say, "Andy, come," he's electrified with joy and shoots past us through the doorway. Andy's fear of being left alone gives him many moments of anxiety throughout the day, a few hours of despair (when he is left alone), and a few minutes of joy (each time his solitude is relieved). Andy's pleasures and pains are determined by the choices my wife and I make. If bad is stronger than good, then Andy suffers more from separation than he benefits from reunion.

Most people have many more attachments than Andy; but, according to Buddhism, human psychology is similar to Andy's in many ways. Because Rachel wants to be respected, she lives in constant vigilance for signs of disrespect, and she aches for days after a possible violation. She may enjoy being treated with respect, but disrespect hurts more on average than respect feels good. Charles wants money and lives in a constant state of vigilance for chances to make it: He loses sleep over fines, losses, or transactions that he thinks did not get him the best possible deal. Once again, losses loom larger than gains, so even if Charles grows steadily wealthier, thoughts about money may on average give him more unhappiness than happiness.

For Buddha, attachments are like a game of roulette in which someone else spins the wheel and the game is rigged: The more you play, the more you lose. The only way to win is to step away from the table. And the only way to step away, to make yourself not react to the ups and downs of life, is to meditate and tame the mind. Although you give up the pleasures of winning, you also give up the larger pains of losing.

In chapter 5 I'll question whether this is really a good tradeoff for most people. For now the important point is that Buddha made a psychological discovery that he and his followers embedded in a philosophy and a religion. They have been generous with it, teaching it to people of all faiths and of no faith. The discovery is that meditation tames and calms the elephant. Meditation done every day for several months can help you reduce substantially the frequency of fearful, negative, and grasping thoughts,

thereby improving your affective style. As Buddha said: "When a man knows the solitude of silence, and feels the joy of quietness, he is then free from fear and sin."[35]

Cognitive Therapy

Meditation is a characteristically Eastern solution to the problems of life. Even before Buddha, the Chinese philosopher Lao Tzu had said that the road to wisdom runs through calm inaction, desireless waiting. Western approaches to problems more typically involve pulling out a tool box and trying to fix what's broken. That was Lady Philosophy's approach with her many arguments and reframing techniques. The toolbox was thoroughly modernized in the 1960s by Aaron Beck.

Beck, a psychiatrist at the University of Pennsylvania, had been trained in the Freudian approach in which "the child is father to the man." Whatever ails you is caused by events in your childhood, and the only way to change yourself now is to dig through repressed memories, come up with a diagnosis, and work through your unresolved conflicts. For depressed patients, however, Beck found little evidence in the scientific literature or in his own clinical practice that this approach was working. The more space he gave them to run through their self-critical thoughts and memories of injustice, the worse they felt. But in the late 1960s, when Beck broke with standard practice and, like Lady Philosophy, questioned the legitimacy of his patients' irrational and self-critical thoughts, the patients often seemed to feel better.

Beck took a chance. He mapped out the distorted thought processes characteristic of depressed people and trained his patients to catch and challenge these thoughts. Beck was scorned by his Freudian colleagues, who thought he was treating the symptoms of depression with Band-Aids while letting the disease rage underneath, but his courage and persistence paid off. He created cognitive therapy,[36] one of the most effective treatments available for depression, anxiety, and many other problems.

As I suggested in the last chapter, we often use reasoning not to find the truth but to invent arguments to support our deep and intuitive beliefs (residing in the elephant). Depressed people are convinced in their hearts of three related beliefs, known as Beck's "cognitive triad" of depression. These

are: "I'm no good," "My world is bleak," and "My future is hopeless." A depressed person's mind is filled with automatic thoughts supporting these dysfunctional beliefs, particularly when things goes wrong. The thought distortions were so similar across patients that Beck gave them names. Consider the depressed father whose daughter falls down and bangs her head while he is watching her. He instantly flagellates himself with these thoughts: "I'm a terrible father" (this is called "personalization," or seeing the event as a referendum on the self rather than as a minor medical issue); "Why do I always do such terrible things to my children?" ("overgeneralization" combined with dichotomous "always/never" thinking); "Now she's going to have brain damage" ("magnification"); "Everyone will hate me" ("arbitrary inference," or jumping to a conclusion without evidence).

Depressed people are caught in a feedback loop in which distorted thoughts cause negative feelings, which then distort thinking further. Beck's discovery is that you can break the cycle by changing the thoughts. A big part of cognitive therapy is training clients to catch their thoughts, write them down, name the distortions, and then find alternative and more accurate ways of thinking. Over many weeks, the client's thoughts become more realistic, the feedback loop is broken, and the client's anxiety or depression abates. Cognitive therapy works because it teaches the rider how to train the elephant rather than how to defeat it directly in an argument. On the first day of therapy, the rider doesn't realize that the elephant is controlling him, that the elephant's fears are driving his conscious thoughts. Over time, the client learns to use a set of tools; these include challenging automatic thoughts and engaging in simple tasks, such as going out to buy a newspaper rather than staying in bed all day ruminating. These tasks are often assigned as homework, to be done daily. (The elephant learns best from daily practice; a weekly meeting with a therapist is not enough.) With each reframing, and with each simple task accomplished, the client receives a little reward, a little flash of relief or pleasure. And each flash of pleasure is like a peanut given to an elephant as reinforcement for a new behavior. You can't win a tug of war with an angry or fearful elephant, but you can— by gradual shaping of the sort the behaviorists talked about—change your automatic thoughts and, in the process, your affective style. In fact, many therapists combine cognitive therapy

with techniques borrowed directly from behaviorism to create what is now called "cognitive behavioral therapy."

Unlike Freud, Beck tested his theories in controlled experiments. People who underwent cognitive therapy for depression got measurably better; they got better faster than people who were put on a waiting list for therapy; and, at least in some studies, they got better faster than those who received other therapies.[37] When cognitive therapy is done very well it is as effective as drugs such as Prozac for the treatment of depression,[38] and its enormous advantage over Prozac is that when cognitive therapy stops, the benefits usually continue because the elephant has been retrained. Prozac, in contrast, works only for as long as you take it.

I don't mean to suggest that cognitive behavioral therapy is the only psychotherapy that works. Most forms of psychotherapy work to some degree, and in some studies they all seem to work equally well.[39] It comes down to a question of fit: Some people respond better to one therapy than another, and some psychological disorders are more effectively treated by one therapy than another. If you have frequent automatic negative thoughts about yourself, your world, or your future, and if these thoughts contribute to chronic feelings of anxiety or despair, then you might find a good fit with cognitive behavioral therapy.[40]

Prozac

Marcel Proust wrote that "the only true voyage . . . would be not to visit strange lands but to possess other eyes."[41] In the summer of 1996, I tried on a pair of new eyes when I took Paxil, a cousin of Prozac, for eight weeks. For the first few weeks I had only side effects: some nausea, difficulty sleeping through the night, and a variety of physical sensations that I did not know my body could produce, including a feeling I can describe only by saying that my brain felt dry. But then one day in week five, the world changed color. I woke up one morning and no longer felt anxious about the heavy work load and uncertain prospects of an untenured professor. It was like magic. A set of changes I had wanted to make in myself for years—loosening up, lightening up, accepting my mistakes without dwelling on them—happened overnight. However, Paxil had one devastating side effect for me: It made it hard for me to recall facts and names, even those I knew

well. I would greet my students and colleagues, reach for a name to put after "Hi," and be left with "Hi . . . there." I decided that as a professor I needed my memory more than I needed peace of mind, so I stopped taking Paxil. Five weeks later, my memory came back, along with my worries. What remained was a firsthand experience of wearing rose-colored glasses, of seeing the world with new eyes.

Prozac was the first member of a class of drugs known as selective serotonin reuptake inhibitors, or SSRIs. In what follows, I use Prozac to stand for the whole group, the psychological effects of which are nearly identical, and which includes Paxil, Zoloft, Celexa, Lexapro, and others. Many things are not known about Prozac and its cousins—above all, how they work. The name of the drug class tells part of the story: Prozac gets into the synapses (the gaps between neurons), but it is *selective* in affecting only synapses that use *serotonin* as their neurotransmitter. Once in the synapses, Prozac *inhibits* the *reuptake* process—the normal process in which a neuron that has just released serotonin into the synapse then sucks it back up into itself, to be released again at the next neural pulse. The net result is that a brain on Prozac has more serotonin in certain synapses, so those neurons fire more often.

So far Prozac sounds like cocaine, heroin, or any other drug that you might have learned is associated with a specific neurotransmitter. But the increase in serotonin happens within a day of taking Prozac, while the benefits don't appear for four to six weeks. Somehow, the neuron on the other side of the synapse is adapting to the new level of serotonin, and it is from that adaptation process that the benefits probably emerge. Or maybe neural adaptation has nothing to do with it. The other leading theory about Prozac is that it raises the level of a neural growth hormone in the hippocampus, a part of the brain crucial for learning and memory. People who have a negative affective style generally have higher levels of stress hormones in their blood; these hormones, in turn, tend to kill off or prune back some critical cells in the hippocampus, whose job, in part, is to shut off the very stress response that is killing them. So people who have a negative affective style may often suffer minor neural damage to the hippocampus, but this can be repaired in four or five weeks after Prozac triggers the release of the neural growth hormone.[42] Although we don't

know *how* Prozac works, we do know that it works: It produces benefits above placebo or no-treatment control groups on an astonishing variety of mental maladies, including depression, generalized anxiety disorder, panic attacks, social phobia, premenstrual dysphoric disorder, some eating disorders, and obsessive compulsive disorder.[43]

Prozac is controversial for at least two reasons. First, it is a shortcut. In most studies, Prozac turns out to be just about as effective as cognitive therapy—sometimes a little more, sometimes a little less—but it's so much *easier* than therapy. No daily homework or difficult new skills; no weekly therapy appointment. If you believe in the Protestant work ethic and the maxim "No pain, no gain," then you might be disturbed by Prozac. Second, Prozac does more than just relieve symptoms; it sometimes changes personality. In *Listening to Prozac*,[44] Peter Kramer presents case studies of his patients whose long-standing depression or anxiety was cured by Prozac, and whose personalities then bloomed—greater self-confidence, greater resilience in the face of setbacks, and more joy, all of which sometimes led to big changes in careers and relationships. These cases conform to an idealized medical narrative: person suffers from lifelong disease; medical breakthrough cures disease; person released from shackles, celebrates new freedom; closing shot of person playing joyously with children; fade to black. But Kramer also tells fascinating stories about people who were not ill, who met no diagnostic category for a mental disorder, and who just had the sorts of neuroses and personality quirks that most people have to some degree—fear of criticism, inability to be happy when not in a relationship, tendency to be too critical and overcontrolling of spouse and children. Like all personality traits, these are hard to change, but they are what talk therapy is designed to address. Therapy can't usually change personality, but it can teach you ways of working around your problematic traits. Yet when Kramer prescribed Prozac, the offending traits went away. Lifelong habits, gone overnight (five weeks after starting Prozac), whereas years of psychotherapy often had done nothing. This is why Kramer coined the term "cosmetic psychopharmacology," for Prozac seemed to promise that psychiatrists could shape and perfect minds just as plastic surgeons shape and perfect bodies.

Does that sound like progress, or like Pandora's box? Before you answer that, answer this: Which of these two phrases rings truest to you: "Be all that you can be" or "This above all, to thine own self be true." Our culture endorses both—relentless self-improvement as well as authenticity—but we often escape the contradiction by framing self-improvement as authenticity. Just as gaining an education means struggling for twelve to twenty years to develop one's intellectual potential, character development ought to involve a lifelong struggle to develop one's moral potential. A nine-year-old child does not stay true to herself by keeping the mind and character of a nine-year-old; she works hard to reach her ideal self, pushed and chauffeured by her parents to endless after-school and weekend classes in piano, religion, art, and athletics. As long as change is gradual and a result of the child's hard work, the child is given the moral credit for the change, and that change is in the service of authenticity. But what if there were a pill that enhanced tennis skills? Or a minor surgical technique for implanting piano virtuosity directly and permanently into the brain? Such a separation of self-improvement from authenticity would make many people recoil in horror.

Horror fascinates me, particularly when there is no victim. I study moral reactions to harmless taboo violations such as consensual incest and private flag desecration. These things just *feel* wrong to most people, even when they can't explain why. (I'll explain why in chapter 9.) My research indicates that a small set of innate moral intuitions guide and constrain the world's many moralities, and one of these intuitions is that the body is a temple housing a soul within.[45] Even people who do not consciously believe in God or the soul are offended by or feel uncomfortable about someone who treats her body like a playground, its sole purpose to provide pleasure. A shy woman who gets a nose job, breast augmentation, twelve body piercings, and a prescription for elective Prozac would be as shocking to many people as a minister who remodels his church to look like an Ottoman harem.

The transformation of the church might hurt others by causing several parishioners to die from apoplexy. It is hard, however, to find harm in the self-transformer beyond some vague notion that she is "not being true to herself." But if this woman had previously been unhappy with her hypersensitive and overly inhibited personality, and if she had made little progress with psychotherapy, why exactly should she be true to a self she doesn't want? Why not change herself for the better? When I took Paxil, it changed my affective style for the better. It made me into something I was not, but had long wanted to be: a person who worries less, and who sees the world as being full of possibilities, not threats. Paxil improved the balance between my approach and withdrawal systems, and had there been no side effects, I would still be taking it today.

I therefore question the widespread view that Prozac and other drugs in its class are overprescribed. It's easy for those who did well in the cortical lottery to preach about the importance of hard work and the unnaturalness of chemical shortcuts. But for those who, through no fault of their own, ended up on the negative half of the affective style spectrum, Prozac is a way to compensate for the unfairness of the cortical lottery. Furthermore, it's easy for those who believe that the body is a temple to say that cosmetic psychopharmacology is a kind of sacrilege. Something is indeed lost when psychiatrists no longer listen to their patients as people, but rather as a car mechanic would listen to an engine, looking only for clues about which knob to adjust next. But if the hippocampal theory of Prozac is correct, many people really do need a mechanical adjustment. It's as though they had been driving for years with the emergency brake halfway engaged, and it might be worth a five-week experiment to see what happens to their lives when the brake is released. Framed in this way, Prozac for the "worried well" is no longer just cosmetic. It is more like giving contact lenses to a person with poor but functional eyesight who has learned ways of coping with her limitations. Far from being a betrayal of that person's "true self," contact lenses can be a reasonable shortcut to proper functioning.

The epigraphs that opened this chapter are true. Life is what we deem it, and our lives are the creations of our minds. But these claims are not helpful until augmented by a theory of the divided self (such as the rider and the elephant) and an understanding of negativity bias and affective style. Once you know why change is so hard, you can drop the brute force method and take a more psychologically sophisticated approach to self-improvement. Buddha got it exactly right: You need a method for taming

the elephant, for changing your mind gradually. Meditation, cognitive therapy, and Prozac are three effective means of doing so. Because each will be effective for some people and not for others, I believe that all three should be readily available and widely publicized. Life itself is but what you deem it, and you can—through meditation, cognitive therapy, and Prozac—redeem yourself.