



Changing Your Mind

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

— MARCUS AURELIUS¹

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.

— BUDDHA²

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 re-

action 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 Pinker¹² 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 time¹⁸ (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 go 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 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 hyper-

sensitive 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 break 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.



The Uses of Adversity

When heaven is about to confer a great responsibility on any man, it will exercise his mind with suffering, subject his sinews and bones to hard work, expose his body to hunger, put him to poverty, place obstacles in the paths of his deeds, so as to stimulate his mind, harden his nature, and improve wherever he is incompetent.

—— MENG TZU,¹ CHINA, 3RD CENT. BCE

What doesn't kill me makes me stronger.

—— NIETZSCHE²

MANY TRADITIONS HAVE a notion of fate, predestination, or divine foreknowledge. Hindus have a folk belief that on the day of birth, God writes the destiny of each child upon his or her forehead. Suppose that on the day your child is born, you are given two gifts: a pair of glasses that allows you to read this forecast, and a pencil that allows you to edit it. (Suppose further that the gifts come from God, with full permission to use them as you please.) What would you do? You read the list: At age nine: best friend dies of cancer. At eighteen: graduates high school at top of class. At twenty: car accident while driving drunk leads to amputation of left leg. At twenty-four: becomes single parent. At twenty-nine: marries. At thirty-two: publishes successful novel. At

thirty-three: divorces; and so on. How painful you'd find it to see your child's future suffering written out before you! What parent could resist the urge to cross off the traumas, to correct the self-inflicted wounds?

But be careful with that pencil. Your good intentions could make things worse. If Nietzsche is right that what doesn't kill you makes you stronger, then the complete erasure of serious adversity from your child's future would leave him or her weak and underdeveloped. This chapter is about what we might call the "adversity hypothesis," which says that people need adversity, setbacks, and perhaps even trauma to reach the highest levels of strength, fulfillment, and personal development.

Nietzsche's dictum can't be literally true, at least, not all the time. People who face the real and present threat of their own deaths, or who witness the violent deaths of others, sometimes develop posttraumatic stress disorder (PTSD), a debilitating condition that leaves its victims anxious and over-reactive. People who suffer from PTSD are changed, sometimes permanently: They panic or crumble more easily when faced with later adversity. Even if we take Nietzsche figuratively (which he would have much preferred anyway), fifty years of research on stress shows that stressors are generally bad for people,³ contributing to depression, anxiety disorders, and heart disease. So let's be cautious about accepting the adversity hypothesis. Let's look to scientific research to figure out when adversity is beneficial, and when it is harmful. The answer is not just "adversity within limits." It's a much more interesting story, one that reveals how human beings grow and thrive, and how you (and your child) can best profit from the adversity that surely lies in your future.

POSTTRAUMATIC GROWTH

Greg's life fell apart on April 8, 1999. On that day, his wife and two children, ages four and seven, disappeared. It took Greg three days just to find out that they had not died in a car crash; Amy had taken the children and run off with a man she had met in a shopping mall a few weeks earlier. The four of them were now driving around the country and had been spotted in several Western states. The private detective Greg hired quickly discovered

that the man who had ruined Greg's life earned his living as a con artist and petty criminal. How could this have happened? Greg felt like Job, stripped in one day of all he loved most. And like Job, he had no explanation for what had befallen him.

Greg,⁴ an old friend of mine, called me to see whether I, as a psychologist, could offer insight into how his wife had fallen under the influence of such a fraud. The one insight I could offer was that the man sounded like a psychopath. Most psychopaths are not violent (although most serial murderers and serial rapists are psychopaths). They are people, mostly men, who have no moral emotions, no attachment systems, and no concerns for others.⁵ Because they feel no shame, embarrassment, or guilt, they find it easy to manipulate people into giving them money, sex, and trust. I told Greg that if this man was indeed a psychopath, he was incapable of love and would soon tire of Amy and the kids. Greg would probably see his children again soon.

Two months later, Amy returned. The police restored the children to Greg's custody. Greg's panic phase was over, but so was his marriage, and Greg began the long and painful process of rebuilding his life. He was now a single parent living on an assistant professor's salary, and he faced years of legal expenses fighting Amy over the custody of their children. He had little hope of finishing the book his academic career depended upon, and he worried about his children's mental health, and his own. What was he going to do?

I visited Greg a few months later. It was a beautiful August evening, and as we sat on his porch, Greg told me about how the crisis had affected him. He was still in pain, but he had learned that many people cared about him and were there to help him. Families from his church were bringing him meals and helping out with childcare. His parents were selling their house in Utah and moving to Charlottesville to help him raise the children. Also, Greg said that the experience had radically changed his perspective about what mattered in life. As long as he had his children back, career success was no longer so important to him. Greg said he now treated people differently, a change related to his change in values: He found himself reacting to others with much greater sympathy, love, and forgiveness. He just couldn't get mad at people for little things anymore. And then Greg

said something so powerful that I choked up. Referring to the often sad and moving solo that is at the heart of many operas, he said: "This is my moment to sing the aria. I don't want to, I don't want to have this chance, but it's here now, and what am I going to do about it? Am I going to rise to the occasion?"

To have framed things in such a way showed that he was already rising. With the help of family, friends, and deep religious faith, Greg rebuilt his life, finished his book, and two years later found a better job. When I spoke to him recently, he told me he still feels wounded by what happened. But he also said that many of the positive changes had endured, and that he now experiences more joy from each day with his children than he did before the crisis.

For decades, research in health psychology focused on stress and its damaging effects. A major concern in this research literature has always been resilience—the ways people cope with adversity, fend off damage, and "bounce back" to normal functioning. But it's only in the last fifteen years that researchers have gone beyond resilience and begun to focus on the *benefits* of severe stress. These benefits are sometimes referred to collectively as "posttraumatic growth,"⁶ in direct contrast to posttraumatic stress disorder. Researchers have now studied people facing many kinds of adversity, including cancer, heart disease, HIV, rape, assault, paralysis, infertility, house fires, plane crashes, and earthquakes. Researchers have studied how people cope with the loss of their strongest attachments: children, spouses or partners, and parents. This large body of research shows that although traumas, crises, and tragedies come in a thousand forms, people benefit from them in three primary ways—the same ones that Greg talked about.

The first benefit is that rising to a challenge reveals your hidden abilities, and seeing these abilities changes your self-concept. None of us knows what we are really capable of enduring. You might say to yourself, "I would die if I lost X," or "I could never survive what Y is going through," yet these are statements spun out of thin air by the rider. If you did lose X, or find yourself in the same position as Y, your heart would not stop beating. You would respond to the world as you found it, and most of those responses would be automatic. People sometimes say they are numb or on

autopilot after a terrible loss or trauma. Consciousness is severely altered, yet somehow the body keeps moving. Over the next few weeks some degree of normalcy returns as one struggles to make sense of the loss and of one's altered circumstances. What doesn't kill you makes you, by definition, a survivor, about whom people then say, "I could never survive what Y is going through." One of the most common lessons people draw from bereavement or trauma is that they are much stronger than they realized, and this new appreciation of their strength then gives them confidence to face future challenges. And they are not just confabulating a silver lining to wrap around a dark cloud; people who have suffered through battle, rape, concentration camps, or traumatic personal losses often seem to be inoculated⁷ against future stress: They recover more quickly, in part because they know they can cope. Religious leaders have often pointed to exactly this benefit of suffering. As Paul said in his Letter to the Romans (5:3–4): "Suffering produces endurance, and endurance produces character, and character produces hope." More recently, the Dalai Lama said: "The person who has had more experience of hardships can stand more firmly in the face of problems than the person who has never experienced suffering. From this angle, then, some suffering can be a good lesson for life."⁸

The second class of benefit concerns relationships. Adversity is a filter. When a person is diagnosed with cancer, or a couple loses a child, some friends and family members rise to the occasion and look for any way they can to express support or to be helpful. Others turn away, perhaps unsure of what to say or unable to overcome their own discomfort with the situation. But adversity doesn't just separate the fair-weather friends from the true; it strengthens relationships and it opens people's hearts to one another. We often develop love for those we care for, and we usually feel love and gratitude toward those who cared for us in a time of need. In a large study of bereavement, Susan Nolen-Hoeksema and her colleagues at Stanford University found that one of the most common effects of losing a loved one was that the bereaved had a greater appreciation of and tolerance for the other people in his or her life. A woman in the study, whose partner had died of cancer, explained: "[The loss] enhanced my relationship with other people because I realize that time is so important, and you can waste so much effort on small, insignificant events or feelings."⁹ Like Greg, this bereaved

woman found herself relating to others in a more loving and less petty way. Trauma seems to shut off the motivation to play Machiavellian tit for tat with its emphasis on self-promotion and competition.

This change in ways of relating points to the third common benefit: Trauma changes priorities and philosophies toward the present ("Live each day to the fullest") and toward other people. We have all heard stories about rich and powerful people who had a moral conversion when faced with death. In 1993, I saw one of the grandest such stories written in the rocks outside the Indian city of Bhubaneswar, where I spent three months studying culture and morality. King Ashoka, after assuming control of the Maurya empire (in central India) around 272 BCE, set out to expand his territory by conquest. He was successful, subduing by slaughter many of the peoples and kingdoms around him. But after a particularly bloody victory over the Kalinga people, near what is now Bhubaneswar, he was seized with horror and remorse. He converted to Buddhism, renounced all further conquest by violence, and devoted his life to creating a kingdom based on justice and respect for dharma (the cosmic law of Hinduism and Buddhism). He wrote out his vision of a just society and his rules for virtuous behavior, and had these edicts carved into rock walls throughout his kingdom. He sent emissaries as far away as Greece to spread his vision of peace, virtue, and religious tolerance. Ashoka's conversion was caused by victory, not adversity, yet people are often traumatized—as modern research on soldiers¹⁰ indicates—by killing as well as by facing the threat of death. Like so many who experience posttraumatic growth, Ashoka underwent a profound transformation. In his edicts, he described himself as having become more forgiving, compassionate, and tolerant of those who differed with him.

Few people have the chance to go from mass murderer to patron of humanity, but a great many people facing death report changes in values and perspectives. A diagnosis of cancer is often described, in retrospect, as a wake-up call, a reality check, or a turning point. Many people consider changing careers or reducing the time they spend at work. The reality that people often wake up to is that life is a gift they have been taking for granted, and that people matter more than money. Charles Dickens's *A Christmas Carol* captures a deep truth about the effects of facing mortality: A few minutes with the ghost of "Christmas Yet to Come" converts Scrooge,

the ultimate miser, into a generous man who takes delight in his family, his employees, and the strangers he passes on the street.

I don't want to celebrate suffering, prescribe it for everyone, or minimize the moral imperative to reduce it where we can. I don't want to ignore the pain that ripples out from each diagnosis of cancer, spreading fear along lines of kinship and friendship. I want only to make the point that suffering is not always all bad for all people. There is usually some good mixed in with the bad, and those who find it have found something precious: a key to moral and spiritual development. As Shakespeare wrote:

*Sweet are the uses of adversity,
Which like the toad, ugly and venomous,
Wears yet a precious jewel in his head.*¹¹

MUST WE SUFFER?

The adversity hypothesis has a weak and a strong version. In the weak version, adversity *can* lead to growth, strength, joy, and self-improvement, by the three mechanisms of posttraumatic growth described above. The weak version is well-supported by research, but it has few clear implications for how we should live our lives. The strong version of the hypothesis is more unsettling: It states that people *must* endure adversity to grow, and that the highest levels of growth and development are *only* open to those who have faced and overcome great adversity. If the strong version of the hypothesis is valid, it has profound implications for how we should live our lives and structure our societies. It means that we should take more chances and suffer more defeats. It means that we might be dangerously overprotecting our children, offering them lives of bland safety and too much counseling while depriving them of the "critical incidents"¹² that would help them to grow strong and to develop the most intense friendships. It means that heroic societies, which fear dishonor more than death, or societies that struggle together through war, might produce better human beings than can a world of peace and prosperity in which people's expectations rise so high that they sue each other for "emotional damages."

But is the strong version valid? People often say that they have been profoundly changed by adversity, yet researchers have so far collected little evidence of adversity-induced personality change beyond such reports. People's scores on personality tests are fairly stable over the course of a few years, even for people who report that they have changed a great deal in the interim.¹³ In one of the few studies that tried to verify reports of growth by asking the subjects' friends about them, the friends noticed much less change than the subjects had reported.¹⁴

These studies might, however, have been looking for change in the wrong place. Psychologists often approach personality by measuring basic traits such as the "big five": neuroticism, extroversion, openness to new experiences, agreeableness (warmth/niceness), and conscientiousness.¹⁵ These traits are facts about the elephant, about a person's automatic reactions to various situations. They are fairly similar between identical twins reared apart, indicating that they are influenced in part by genes, although they are also influenced by changes in the conditions of one's life or the roles one plays, such as becoming a parent.¹⁶ But psychologist Dan McAdams has suggested that personality really has three levels,¹⁷ and too much attention has been paid to the lowest level, the basic traits. A second level of personality, "characteristic adaptations," includes personal goals, defense and coping mechanisms, values, beliefs, and life-stage concerns (such as those of parenthood or retirement) that people develop to succeed in their particular roles and niches. These adaptations are influenced by basic traits: A person high on neuroticism will have many more defense mechanisms; an extrovert will rely more heavily on social relationships. But in this middle level, the person's basic traits are made to mesh with facts about the person's environment and stage of life. When those facts change—as after losing a spouse—the person's characteristic adaptations change. The elephant might be slow to change, but the elephant and rider, working together, find new ways of getting through the day.

The third level of personality is that of the "life story." Human beings in every culture are fascinated by stories; we create them wherever we can. (See those seven stars up there? They are seven sisters who once . . .) It's no different with our own lives. We can't stop ourselves from creating what

McAdams describes as an "evolving story that integrates a reconstructed past, perceived present, and anticipated future into a coherent and vitalizing life myth."¹⁸ Although the lowest level of personality is mostly about the elephant, the life story is written primarily by the rider. You create your story in consciousness as you interpret your own behavior, and as you listen to other people's thoughts about you. The life story is not the work of a historian—remember that the rider has no access to the *real* causes of your behavior; it is more like a work of historical fiction that makes plenty of references to real events and connects them by dramatizations and interpretations that might or might not be true to the spirit of what happened.

From this three-level perspective, it becomes clear why adversity might be necessary for optimal human development. Most of the life goals that people pursue at the level of "characteristic adaptations" can be sorted—as the psychologist Robert Emmons¹⁹ has found—into four categories: work and achievement, relationships and intimacy, religion and spirituality, and generativity (leaving a legacy and contributing something to society). Although it is generally good for you to pursue goals, not all goals are equal. People who strive primarily for achievement and wealth are, Emmons finds, less happy, on average, than those whose strivings focus on the other three categories.²⁰ The reason takes us back to happiness traps and conspicuous consumption (see chapter 5): Because human beings were shaped by evolutionary processes to pursue success, not happiness, people enthusiastically pursue goals that will help them win prestige in zero-sum competitions. Success in these competitions feels good but gives no lasting pleasure, and it raises the bar for future success.

When tragedy strikes, however, it knocks you off the treadmill and forces a decision: Hop back on and return to business as usual, or try something else? There is a window of time—just a few weeks or months after the tragedy—during which you are more open to something else. During this time, achievement goals often lose their allure, sometimes coming to seem pointless. If you shift toward other goals—family, religion, or helping others—you shift to inconspicuous consumption, and the pleasures derived along the way are not fully subject to adaptation (treadmill) effects. The pursuit of these goals therefore leads to more happiness but less wealth (on average). Many people

change their goals in the wake of adversity; they resolve to work less, to love and play more. If in those first few months you take action—you do something that changes your daily life—then the changes might stick. But if you do nothing more than make a resolution (“I must never forget my new outlook on life”), then you will soon slip back into old habits and pursue old goals. The rider can exert some influence at forks in the road; but the elephant handles daily life, responding automatically to the environment. Adversity may be necessary for growth because it forces you to stop speeding along the road of life, allowing you to notice the paths that were branching off all along, and to think about where you really want to end up.

At the third level of personality, the need for adversity is even more obvious: You need interesting material to write a good story. McAdams says that stories are “fundamentally about the vicissitudes of human intention organized in time.”²¹ You can’t have a good life story without vicissitudes, and if the best you can come up with is that your parents refused to buy you a sports car for your sixteenth birthday, nobody will want to read your memoirs. In the thousands of life stories McAdams has gathered, several genres are associated with well-being. For example, in the “commitment story,” the protagonist has a supportive family background, is sensitized early in life to the sufferings of others, is guided by a clear and compelling personal ideology, and, at some point, transforms or redeems failures, mistakes, or crises into a positive outcome, a process that often involves setting new goals that commit the self to helping others. The life of the Buddha is a classic example.

In contrast, some people’s life stories show a “contamination” sequence in which emotionally positive events go bad and everything is spoiled. People who tell such stories are, not surprisingly, more likely to be depressed.²² Indeed, part of the pathology of depression is that, while ruminating, the depressed person reworks her life narrative by using the tools of Beck’s negative triad: I’m bad, the world is bad, and my future is dark. Although adversity that is not overcome can create a story of depressing bleakness, substantial adversity might be necessary for a meaningful story.

McAdams’s ideas are profoundly important for understanding posttraumatic growth. His three levels of personality allow us to think about *coher-*

ence among the levels. What happens when the three levels of personality don’t match up? Imagine a woman whose basic traits are warm and gregarious but who strives for success in a career that offers few chances for close contacts with people, and whose life story is about an artist forced by her parents to pursue a practical career. She is a mess of mismatched motives and stories, and it may be that only through adversity will she be able to make the radical changes she would need to achieve coherence among levels. The psychologists Ken Sheldon and Tim Kasser have found that people who are mentally healthy and happy have a higher degree of “vertical coherence” among their goals—that is, higher-level (long term) goals and lower-level (immediate) goals all fit together well so that pursuing one’s short-term goals advances the pursuit of long-term goals.²³

Trauma often shatters belief systems and robs people of their sense of meaning. In so doing, it forces people to put the pieces back together, and often they do so by using God or some other higher purpose as a unifying principle.²⁴ London and Chicago seized the opportunities provided by their great fires to remake themselves into grander and more coherent cities. People sometimes seize such opportunities, too, rebuilding beautifully those parts of their lives and life stories that they could never have torn down voluntarily. When people report having grown after coping with adversity, they could be trying to describe a new sense of inner coherence. This coherence might not be visible to one’s friends, but it feels like growth, strength, maturity, and wisdom from the inside.²⁵

BLESSED ARE THE SENSE MAKERS

When bad things happen to good people, we have a problem. We know consciously that life is unfair, but unconsciously we see the world through the lens of reciprocity. The downfall of an evil man (in our biased and moralistic assessment) is no puzzle: He had it coming to him. But when the victim was virtuous, we struggle to make sense of his tragedy. At an intuitive level, we all believe in karma, the Hindu notion that people reap what they sow. The psychologist Mel Lerner has demonstrated that we are so motivated to

believe that people get what they deserve and deserve what they get that we often blame the victim of a tragedy, particularly when we can't achieve justice by punishing a perpetrator or compensating the victim.²⁶

In Lerner's experiments, the desperate need to make sense of events can lead people to inaccurate conclusions (for example, a woman "led on" a rapist); but, in general, the ability to make sense of tragedy and then find benefit in it is the key that unlocks posttraumatic growth.²⁷ When trauma strikes, some people find the key dangling around their necks with instructions printed on it. Others are left to fend for themselves, and they do not fend as well. Psychologists have devoted a great deal of effort to figuring out who benefits from trauma and who is crushed. The answer compounds the already great unfairness of life: Optimists are more likely to benefit than pessimists.²⁸ Optimists are, for the most part, people who won the cortical lottery: They have a high happiness setpoint, they habitually look on the bright side, and they easily find silver linings. Life has a way of making the rich get richer and the happy get happier.

When a crisis strikes, people cope in three primary ways:²⁹ active coping (taking direct action to fix the problem), reappraisal (doing the work within—getting one's own thoughts right and looking for silver linings), and avoidance coping (working to blunt one's emotional reactions by denying or avoiding the events, or by drinking, drugs, and other distractions). People who have a basic-level trait of optimism (McAdams's level 1) tend to develop a coping style (McAdams's level 2) that alternates between active coping and reappraisal. Because optimists expect their efforts to pay off, they go right to work fixing the problem. But if they fail, they expect that things usually work out for the best, and so they can't help but look for possible benefits. When they find them, they write a new chapter in their life story (McAdams's level 3), a story of continual overcoming and growth. In contrast, people who have a relatively negative affective style (complete with more activity in the front right cortex than the front left) live in a world filled with many more threats and have less confidence that they can deal with them. They develop a coping style that relies more heavily on avoidance and other defense mechanisms. They work harder to manage their pain than to fix their problems, so their problems often get worse. Drawing the lesson that the world is unjust and uncontrollable, and that

things often work out for the worst, they weave this lesson into their life story where it contaminates the narrative.

If you are a pessimist, you are probably feeling gloomy right now. But despair not! The key to growth is not optimism per se; it is the sense making that optimists find easy. If you can find a way to make sense of adversity and draw constructive lessons from it, you can benefit, too. And you can learn to become a sense maker by reading Jamie Pennebaker's *Opening Up*.³⁰ Pennebaker began his research by studying the relationship between trauma, such as childhood sexual abuse, and later health problems. Trauma and stress are usually bad for people, and Pennebaker thought that self-disclosure—talking with friends or therapists—might help the body at the same time that it helps the mind. One of his early hypotheses was that traumas that carry more shame, such as being raped (as opposed to a non-sexual assault) or losing a spouse to suicide (rather than to a car accident), would produce more illness because people are less likely to talk about such events with others. But the nature of the trauma turned out to be almost irrelevant. What mattered was what people did afterward: Those who talked with their friends or with a support group were largely spared the health-damaging effects of trauma.

Once Pennebaker had found a correlation between disclosure and health, he took the next step in the scientific process and tried to *create* health benefits by getting people to disclose their secrets. Pennebaker asked people to write about "the most upsetting or traumatic experience of your entire life," preferably one they had not talked about with others in great detail. He gave them plenty of blank paper and asked them to keep writing for fifteen minutes, on four consecutive days. Subjects in a control group were asked to write about some other topic (for example, their houses, a typical work day) for the same amount of time. In each of his studies, Pennebaker got his subjects' permission to obtain their medical records at some point in the future. Then he waited a year and observed how often people in the two groups got sick. The people who wrote about traumas went to the doctor or the hospital fewer times in the following year. I did not believe this result when I first heard it. How on earth could one hour of writing stave off the flu six months later? Pennebaker's results seemed to support an old-fashioned Freudian notion of catharsis: People who express their emotions, "get it off their chests"

or “let off steam,” are healthier. Having once reviewed the literature on the catharsis hypothesis, I knew that there was no evidence for it.³¹ Letting off steam makes people angrier, not calmer.

Pennebaker discovered that it's not about steam; it's about sense making. The people in his studies who used their writing time to vent got no benefit. The people who showed deep insight into the causes and consequences of the event on their first day of writing got no benefit, either: They had already made sense of things. It was the people who made *progress* across the four days, who showed increasing insight; they were the ones whose health improved over the next year. In later studies, Pennebaker asked people to dance or sing to express their emotions, but these emotionally expressive activities gave no health benefit.³² You have to use words, and the words have to help you create a meaningful story. If you can write such a story you can reap the benefits of reappraisal (one of the two healthy coping styles) even years after an event. You can close a chapter of your life that was still open, still affecting your thoughts and preventing you from moving on with the larger narrative.

Anyone, therefore, can benefit from adversity, although a pessimist will have to take some extra steps, some conscious, rider-initiated steps, to guide the elephant gently in the right direction. The first step is to do what you can, before adversity strikes, to change your cognitive style. If you are a pessimist, consider meditation, cognitive therapy, or even Prozac. All three will make you less subject to negative rumination, more able to guide your thoughts in a positive direction, and therefore more able to withstand future adversity, find meaning in it, and grow from it. The second step is to cherish and build your social support network. Having one or two good attachment relationships helps adults as well as children (and rhesus monkeys) to face threats. Trusted friends who are good listeners can be a great aid to making sense and finding meaning. Third, religious faith and practice can aid growth, both by directly fostering sense making (religions provide stories and interpretive schemes for losses and crises) and by increasing social support (religious people have relationships through their religious communities, and many have a relationship with God). A portion of the benefits of religiosity³³ could also be a result of the confession and

disclosure of inner turmoil, either to God or to a religious authority that many religions encourage.

And finally, no matter how well or poorly prepared you are when trouble strikes, at some point in the months afterwards, pull out a piece of paper and start writing. Pennebaker suggests³⁴ that you write continuously for fifteen minutes a day, for several days. Don't edit or censor yourself; don't worry about grammar or sentence structure; just keep writing. Write about what happened, how you feel about it, and *why* you feel that way. If you hate to write, you can talk into a tape recorder. The crucial thing is to get your thoughts and feelings out without imposing any order on them—but in such a way that, after a few days, some order is likely to emerge on its own. Before you conclude your last session, be sure you have done your best to answer these two questions: Why did this happen? What good might I derive from it?

FOR EVERYTHING THERE IS A SEASON

If the adversity hypothesis is true, and if the mechanism of benefit has to do with sense making and getting those three levels of personality to cohere, then there should be times in life when adversity will be more or less beneficial. Perhaps the strong version of the hypothesis is true during only a part of the life course?

There are many reasons for thinking that children are particularly vulnerable to adversity. Genes guide brain development throughout childhood, but that development is also affected by environmental context, and one of the most important contextual factors is the overall level of safety versus threat. Good parenting can help tune up the attachment system to make a child more adventurous; yet, even beyond such effects, if a child's environment feels safe and controllable, the child will (on average) develop a more positive affective style, and will be less anxious as an adult.³⁵ But if the environment offers daily uncontrollable threats (from predators, bullies, or random violence), the child's brain will be altered, set to be less trusting and more vigilant.³⁶ Given that most people in modern Western

nations live in safe worlds where optimism and approach motivations generally pay off, and given that most people in psychotherapy need loosening up, not tightening up, it is probably best for children to develop the most positive affective style, or the highest set range (S from chapter 5), that their genes will allow. Major adversity is unlikely to have many—or perhaps any—beneficial effects for children. (On the other hand, children are amazingly resilient and are not as easily damaged by one-time events, even by sexual abuse, as most people think.³⁷ Chronic conditions are much more important.) Of course, children need limits to learn self-control, and they need plenty of failure to learn that success takes hard work and persistence. Children should be protected, but not spoiled.

Things might be different for teenagers. Younger children know some stories about themselves, but the active and chronic striving to integrate one's past, present, and future into a coherent narrative begins only in the mid to late teens.³⁸ This claim is supported by a curious fact about autobiographical memory called the "memory bump." When people older than thirty are asked to remember the most important or vivid events of their lives, they are disproportionately likely to recall events that occurred between the ages of fifteen and twenty-five.³⁹ This is the age when a person's life blooms—first love, college and intellectual growth, living and perhaps traveling independently—and it is the time when young people (at least in Western countries) make many of the choices that will define their lives. If there is a special period for identity formation, a time when life events are going to have the biggest influence on the rest of the life-story, this is it. So adversity, especially if overcome fully, is probably most beneficial in the late teens and early twenties.

We can't ethically conduct experiments that induce trauma at different ages, but in a way life has performed these experiments for us. The major events of the twentieth century—the Great Depression, World War II—hit people at different ages, and the sociologist Glen Elder⁴⁰ has produced elegant analyses of longitudinal data (collected from the same people over many decades) to find out why some thrived and others crumbled after these adversities hit. Elder once summarized his findings this way: "There is a storyline across all the work I've done. Events do not have meaning in

themselves. Those meanings are derived from the interactions between people, groups, and the experience itself. Kids who went through very difficult circumstances usually came out rather well."⁴¹ Elder found that a lot hinged on the family and the person's degree of social integration: Children as well as adults who weathered crises while embedded within strong social groups and networks fared much better; they were more likely to come out stronger and mentally healthier than were those who faced adversity without such social support. Social networks didn't just reduce suffering, they offered avenues for finding meaning and purpose (as Durkheim concluded from his studies of suicide).⁴² For example, the widely shared adversity of the Great Depression offered many young people the chance to make a real contribution to their families by finding a job that brought in a few dollars a week. The need for people to pull together within their nations to fight World War II appears to have made those who lived through it more responsible and civic minded, at least in the United States, even if they played no direct role in the war effort.⁴³

There is, however, a time limit on first adversity. Elder says that life starts to "crystallize" by the late twenties. Even young men who had not been doing well before serving in World War II often turned their lives around afterward, but people who faced their first real life test after the age of thirty (for example, combat in that war, or financial ruin in the Great Depression) were less resilient and less likely to grow from their experiences. So adversity may be most beneficial for people in their late teens and into their twenties.

Elder's work is full of reminders that the action is in the interactions—that is, the ways that one's unique personality interacts with details about an event and its social context to produce a particular and often unpredictable outcome. In the area of research known as "life-span development,"⁴⁴ there are few simple rules in the form of "X causes Y." Nobody, therefore, can propose an ideal life course with carefully scheduled adversity that would be beneficial for everyone. We can say, however, that for many people, particularly those who overcame adversity in their twenties, adversity made them stronger, better, and even happier than they would have been without it.

ERROR AND WISDOM

I expect that when I have children, I'll be no different from other parents in wanting to edit their forehead writing and remove all adversity. Even if I could be convinced that a trauma experienced at the age of twenty-four was going to teach my daughter important lessons and make her a better person, I'd think: Well, why can't I just teach her those lessons directly? Isn't there some way she can reap the benefits without the costs? But a common piece of worldly wisdom is that life's most important lessons cannot be taught directly. Marcel Proust said:

We do not receive wisdom, we must discover it for ourselves, after a journey through the wilderness which no one else can make for us, which no one can spare us, for our wisdom is the point of view from which we come at last to regard the world.⁴⁵

Recent research on wisdom proves Proust correct. Knowledge comes in two major forms: explicit and tacit. Explicit knowledge is all the facts you know and can consciously report, independent of context. Wherever I am, I know that the capital of Bulgaria is Sofia. Explicit knowledge is taught directly in schools. The rider gathers it up and files it away, ready for use in later reasoning. But wisdom is based—according to Robert Sternberg,⁴⁶ a leading wisdom researcher—on “tacit knowledge.” Tacit knowledge is procedural (it's “knowing how” rather than “knowing that”), it is acquired without direct help from others, and it is related to goals that a person values. Tacit knowledge resides in the elephant. It's the skills that the elephant acquires, gradually, from life experience. It depends on context: There is no universal set of best practices for ending a romantic relationship, consoling a friend, or resolving a moral disagreement.

Wisdom, says Sternberg, is the tacit knowledge that lets a person balance two sets of things. First, wise people are able to balance their own needs, the needs of others, and the needs of people or things beyond the immediate interaction (e.g., institutions, the environment, or people who may be adversely affected later on). Ignorant people see everything in black and white—they rely heavily on the myth of pure evil—and they are strongly

influenced by their own self-interest. The wise are able to see things from others' points of view, appreciate shades of gray, and then choose or advise a course of action that works out best for everyone in the long run. Second, wise people are able to balance three responses to situations: adaptation (changing the self to fit the environment), shaping (changing the environment), and selection (choosing to move to a new environment). This second balance corresponds roughly to the famous “serenity prayer”: “God, grant me the serenity to accept the things I cannot change, courage to change the things I can, and wisdom to know the difference.”⁴⁷ If you already know this prayer, your rider knows it (explicitly). If you live this prayer, your elephant knows it, too (tacitly), and you are wise.

Sternberg's ideas show why parents can't teach their children wisdom directly. The best they can do is provide a range of life experiences that will help their children acquire tacit knowledge in a variety of life domains. Parents can also model wisdom in their own lives and gently encourage children to think about situations, look at other viewpoints, and achieve balance in challenging times. Shelter your children when young, but if the sheltering goes on through the child's teens and twenties, it may keep out wisdom and growth as well as pain. Suffering often makes people more compassionate, helping them find balance between self and others. Suffering often leads to active coping (Sternberg's shaping), reappraisal coping (Sternberg's adaptation), or changes in plans and directions (Sternberg's selection). Posttraumatic growth usually involves, therefore, the growth of wisdom.

The strong version of the adversity hypothesis might be true, but only if we add caveats: For adversity to be maximally beneficial, it should happen at the right time (young adulthood), to the right people (those with the social and psychological resources to rise to challenges and find benefits), and to the right degree (not so severe as to cause PTSD). Each life course is so unpredictable that we can never know whether a particular setback will be beneficial to a particular person in the long run. But perhaps we do know enough to allow some editing of a child's forehead writing: Go ahead and erase some of those early traumas, but think twice, or await future research, before erasing the rest.