

CHAPTER 2

HARD DETERMINISM: THE CASE FOR DETERMINISM AND ITS INCOMPATIBILITY WITH ANY IMPORTANT SENSE OF FREE WILL

2.1 The Case against Free Will

JAMES RACHELS

James Rachels (1941–2003) wrote many important works in moral philosophy.

A small part of the universe is contained within the skin of each of us. There is no reason why it should have any special physical status because it lies within this boundary.

—B. F. SKINNER, *About Behaviorism* (1974)

1. ARE PEOPLE RESPONSIBLE FOR WHAT THEY DO?

In 1924, two Chicago teenagers, Richard Loeb and Nathan Leopold, kidnapped and murdered a boy named Bobby Franks just to prove they could do it. The crime caused a sensation. Despite the brutality of what they had done, Leopold and Loeb did not appear to be especially wicked. They came from rich families and were both outstanding students. At 18 Leopold was the youngest graduate in the history of the University of Chicago, and at 19 Loeb was the youngest ever to have graduated from the University of Michigan. Leopold was about to enroll at the Harvard Law School. How could they have committed a senseless murder? Their trial would receive the same kind of attention as the O. J. Simpson trial 70 years later.

The parents hired Clarence Darrow, the most famous lawyer of the day, to defend them. Darrow was known as a champion of unpopular causes—he had defended labor organizers, communists, and a black man accused of killing a member of a racist mob. Three years later, in his most celebrated case, he would defend John Scopes of Tennessee from charges that he had taught evolution in a high school classroom. Darrow was also the country’s best-known opponent of the death penalty. In 1902, he had been invited by the warden to give a talk to the inmates of the Cook County Jail, and he told the prisoners:

I really do not in the least believe in crime. There is no such thing as a crime as the word is generally understood. I do not believe there is any sort of distinction between the real moral conditions of the people in and out of jail. One is just as good as the other. The people here can no more help being here than the people outside can avoid being outside. I do not believe that people are in jail because they deserve to be. They are in jail simply because they cannot avoid it on account of circumstances which are entirely beyond their control and for which they are in no way responsible.

James Rachels, *Problems from Philosophy* (McGraw-Hill, 2005), pp. 99–116. Reprinted with permission of McGraw-Hill Education.

These ideas would figure prominently in Darrow's defense of Leopold and Loeb.

The public wanted blood. As the trial began, the *Chicago Evening Standard* carried this headline:

**DARROW PLEADS FOR MERCY:
MOBS RIOT**

BAILIFF'S ARM BROKEN AND WOMAN FAINTS
AS FRENZIED MOB STORMS PAST GUARDS;
JUDGE CALLS FOR 20 POLICE;
FEARS SOME WILL BE KILLED

Leopold and Loeb had already admitted their guilt, and so Darrow's job was just to keep them from the gallows. There would be no jury. The judge would listen to the lawyers' arguments and then decide whether the defendants would hang.

Darrow spoke for more than 12 hours. He did not argue that the boys were insane; nevertheless, he said, they were not responsible for what they had done. Darrow appealed to a new idea that psychologists had proposed, namely, that human character is shaped by an individual's genes and environment. He told the judge, "Intelligent people now know that every human being is the product of the endless heredity back of him and the infinite environment around him."

I do not know what it was that made these boys do this mad act, but I do know there is a reason for it. I know they did not beget themselves. I know that any one of an infinite number of causes reaching back to the beginning might be working out in these boys' minds, whom you are asked to hang in malice and in hatred and injustice, because someone in the past sinned against them.

Psychiatrists had testified that the boys lacked normal feelings, because they showed no emotional reaction to what they had done. Darrow seized upon this:

Is Dickie Loeb to blame because out of the infinite forces that conspired to form him, the infinite forces that were at work producing him ages before he was born, that because out of these infinite combinations he was born without [the

right kind of emotions]? If he is, then there should be a new definition for justice. Is he to blame for what he did not have and never had?

Darrow portrays Loeb as having had a childhood bereft of the affection that boys need, spending his days studying and his evenings secretly reading crime stories, fantasizing about committing the perfect crime and fooling the cops. Leopold, meanwhile, was weak and without friends. He grew up to become obsessed with Nietzsche's philosophy of the "superman," disdaining other people and desperately wanting to prove his own superiority. Then the two boys found one another, and together they committed a crime that neither could have done alone. But they were just playing out the hand nature dealt them. "Nature is strong and she is pitiless," Darrow concluded. "She works in her own mysterious way, and we are her victims. We have not much to do with it ourselves."

The judge deliberated for a month and then sentenced Leopold and Loeb to life in prison. Twelve years later, Richard Loeb, who had been the instigator of the crime, was killed in a dispute with another prisoner. Nathan Leopold spent 34 years in prison, during which time he taught other prisoners, volunteered for malaria testing, ran the prison library, and worked in the prison hospital. After his release on parole, he moved to Puerto Rico, where he continued his lifelong effort to "become a human being again," largely through jobs that involved helping others. He died in 1971.

2. DETERMINISM

Clarence Darrow's defense of Leopold and Loeb was the first major criminal trial in which the modern idea that our personalities are the products of "heredity-plus-environment" was used to argue that the defendants were not responsible for their actions. But Darrow was not the first to doubt that we are in charge of our own destinies.

Aristotle worried that the laws of logic might imply that we have no control over what

we do. Every proposition, he reasoned, must be true or false. So at this moment it is either true that you will wear a blue shirt tomorrow or false that you will wear a blue shirt tomorrow. If it is true, there is nothing you can do to prevent it—after all, *it will happen*. If it is false, there is nothing you can do to make it happen, for *it will not happen*. Either way, the future is fixed and you have no power to change it. This became known as the problem of Fatalism. Theologians from St. Augustine onward realized that the assumption of God’s omniscience creates a similar difficulty. If God knows everything, he knows what you will do tomorrow. But if God already knows what you will do, then you cannot do otherwise.

As serious as the problem of Fatalism is, it is not the most worrisome challenge to human freedom. A greater threat is posed by Determinism, which was known in the ancient world but came into its own with the rise of modern science. To say that a system is deterministic means that everything that happens within it is the result of prior causes, and that once the causes occur the effects must inevitably follow, given the surrounding circumstances and the Laws of Nature. You probably regard the building you live in as a deterministic system. If the lights go out, you will think there must have been a cause; you will assume that, once the cause occurred, the effect was bound to follow. If the electrician told you “it just happened,” for no reason, that would violate your conception of how things work.

With the rise of modern science, it became common to think of the whole universe as one great deterministic system. Nature consists of particles that obey the laws of physics, and everything that happens is governed by the invariable laws of cause and effect.

The most vivid expression of this idea was provided by the French mathematician Pierre-Simon Laplace (1749–1827), who said in 1819 that if a supremely intelligent observer knew the exact location and velocity of every particle in the universe and all the laws of physics, he could predict with certainty every future state of the

universe. Nothing would surprise him; he would know everything before it happened. Of course, we cannot make such predictions, but that is only because we lack the necessary information and intelligence.

The universe includes us. We are part of nature, and what happens inside our skins is subject to the same physical laws as everything else. The movements of our arms, legs, and tongues are triggered by events in our brains, which in turn are caused by other physical occurrences. Thus, Laplace’s perfect observer could predict our actions in the same way that he predicts everything else. In fact, by tracing the causes far enough back, he could have predicted whether you will wear a blue shirt tomorrow even before you were born. It may seem to us that we make our choices freely and spontaneously. But Laplace argued that our “freedom” is only an illusion created by our ignorance. Because we aren’t aware of the underlying causes of our behavior, we assume it doesn’t have any.

What, exactly, are “the underlying causes of our behavior?” As Clarence Darrow observed, the “ultimate” causes may stretch far back into time. But the immediate causes are events in our brains. Neurological events cause both our mental states and the motions of our bodies.

The idea that our conscious states are caused by neurological events is not mere speculation. Brain surgery sometimes takes place under only a local anesthetic, so that the patient can tell the surgeon what he or she is experiencing as various parts of the brain are probed. This technique was pioneered more than a half-century ago by Dr. Wilder Penfield, who described it vividly in his book *The Excitable Cortex in Conscious Man* (1958). Neurosurgeons have been using Wilder’s technique ever since. They know that if you probe in one place, the patient will feel a tingle in her hand; probe in another place, and the patient will smell garlic; and if you probe in still another place, she may hear a song by Guns N’ Roses.

Actions can also be induced by electrical stimulation of the brain. Jose Delgado, who did his research at Yale University four decades ago,

discovered that by stimulating various regions of the brain he could cause all sorts of bodily motions, including frowning, the opening and closing of the eyes, and movements of the head, arms, legs, and fingers. When he first tried this using cats and monkeys, he noticed that the animals showed no surprise or fear when their bodies moved. Apparently the animals experienced the movements as if they were voluntary. In one instance, stimulating a monkey's brain caused the monkey to get up and walk around. The effect was repeated several times, and each time the animal strolled around, without surprise or discomfort, as if it had just decided to take a walk.

Some philosophers would say that Delgado's procedure did not cause actions, but only bodily movements. Actions involve reasons and decisions, not just motions. But there is more. When Delgado tried his experiment on humans, they were even more compliant than the animals—not only did they act out the movements without surprise or fear, but they also produced reasons for them. In one subject, electrical stimulation of the brain produced “head turning and slow displacement of the body to either side with a well-oriented and apparently normal sequence, as if the patient were looking for something.” This was repeated six times over two days, confirming that the stimulation was actually producing the behavior. But the subject, who did not know about the electrical stimulation, considered the activity spontaneous and offered reasons for it. When asked “What are you doing?” he would reply “I am looking for my slippers,” “I heard a noise,” “I am restless,” or “I was looking under the bed.”

Are our *decisions* also produced by neural firings? There are some experimental results about this, too, due to the German scientist H. H. Kornhuber. Suppose you sit quietly, and some time during the next minute you spontaneously move your finger. Subjectively, you may feel quite certain that the decision to move your finger was entirely within your control. But now suppose we attach some electrodes to your scalp and ask you to repeat the action. A technician watching an electroencephalograph would be

able to observe a characteristic pattern of brain activity when you move your finger. The brain activity begins up to one-and-a-half seconds before the movement, and *it begins before you make your decision*. So the technician, watching his monitor, knows that you are going to move your finger before you do. He is, in a small way, like Laplace's perfect observer. Kornhuber first performed this experiment in the 1970s.

3. PSYCHOLOGY

It may seem odd that the primary argument against free will appeals to the principles of physics. After all, psychology, not physics, studies human behavior. So we might wonder what psychology has to say. Do psychological theories about human behavior have room for the notion of free will, or do they support Determinism?

Before turning to psychology, however, let me mention some of the ways in which our commonsense understanding of human beings already contains elements favorable to Determinism. Each of us was born to particular parents at a particular time and place, and only a little thought is needed to realize that if those circumstances were changed, we might have turned out different. A young man “chooses” to become a stockbroker—is it a coincidence that his father was a stockbroker? What would he choose if his parents had been missionaries?

We also know that social conditions influence our decisions in ways that we are not aware of but that show up in statistics. Social conditions influence the rates at which people decide to become engineers, move to the West Coast, take up golf, and commit suicide. (In the early 1980s, for example, it was found that the suicide rate in the United States varied directly with the rate of unemployment. Also, a 1986 study showed that teenagers are more likely to commit suicide in the days following nationally televised stories of suicide.) In each case, the individual may seem to be making a free, independent choice. Nonetheless, if the social circumstances are altered, the rate at which people make such decisions changes.

Take a related example: In the United States there are 2 million people currently in prison, and 12 million more are likely to spend time behind bars at some point in their lives. (America has the highest rate of imprisonment in the world.) A disproportionate number of those incarcerated are young Black and Hispanic men. Perhaps some of these men would be in prison no matter what, but clearly some of them would not be there if their social circumstances had been different. Considered as individuals, it may seem that each man “freely decided” to break the law. Perhaps that is right. Still, it is sobering to realize that there are all sorts of people who have never been in jail and think themselves morally superior, but who are merely lucky that social conditions never arose in which they would have acted differently.

When we set aside statistics and try to understand in more detail why specific people behave as they do, we always seem to end up with explanations in which “free choice” plays little part. Darrow’s explanation of how Leopold and Loeb came to kill Bobby Franks is one example. For another, consider Eric Rudolph, accused by the FBI of a series of bombings, including an abortion-clinic bombing in Birmingham, Alabama, in January 1998 in which a policeman was killed and a nurse was terribly wounded. Rudolph disappeared into the woods of western North Carolina, where he eluded capture until 2003.

Why would he have done such a thing? Without knowing anything else about him, we might picture Rudolph as a man who hated abortion so much that he was willing to use any means to stop it. That may be correct as far as it goes, but a lot of people oppose abortion without planting bombs. Why would this particular man turn deadly?

According to *Newsweek*, “He is perhaps best understood as the product of a paranoid fringe of white supremacists, religious zealots and government haters. Rudolph’s mind and motives are hard to fathom, but extremism seems to run in the family.” When he was 13, Eric’s father died and his family moved from Miami to rural North

Carolina. They lived on a gravel road near a saw-mill owner named Tom Branham. Branham, a survivalist who had been arrested on federal weapons charges and who claimed that the government had no authority over him, took an interest in Eric and his brother Daniel and became a substitute father to the boys. His mother, meanwhile, moved to the Missouri Ozarks to join a community of White separatists. By the time he was in the ninth grade, Eric was writing in a class paper that the Holocaust never happened, using as his “research” pamphlets issued by hate groups. As much as we might detest what he became, it is hard to resist the conclusion that the little boy never had a chance.

Whenever we try to understand extraordinary behavior, some such explanation always seems to come to mind. Indeed, such explanations seem necessary. “He just decided to do it” is no explanation at all.

Classical Psychology Although it is not the purpose of psychology to advance any such thesis, Determinism is a hard-to-avoid by-product of the search for a scientific explanation of behavior. As B. F. Skinner put it:

If we are to use the methods of science in the field of human affairs, we must assume that behavior is lawful and determined. We must expect to discover that what a man does is the result of specifiable conditions and that once these conditions have been discovered, we can anticipate and to some extent determine his actions.

Thus, as the science of psychology has developed, one theory after another has competed for acceptance. But none of them has had much use for “free will.”

During the first two-thirds of the twentieth century, Behaviorism vied with Freudian ideas for dominance among psychologists. Freud sought to understand human conduct by identifying the unconscious motives of action. Conscious processes of thought and deliberation are, on his view, only rationalizations for deeper forces hidden within the psyche. Long-forgotten events of infancy and early childhood created in

each of us unconscious desires and impulses that control us even as adults. For example, a woman has a series of relationships with abusive men. Each time she rids herself of one, she swears never to make that mistake again; but she does, over and over. How can she keep making the same mistake? She appears to choose freely each time she begins a new relationship, but she does not. She has a masochistic personality, formed as a child when she was battered by an abusive father; now, as an adult, she helplessly reenacts her relationship with her father again and again. She will not be able to break the pattern until she confronts her repressed memories and feelings about her father, possibly after years of psychoanalysis.

The behaviorists would have none of this. On their view, unconscious thoughts play no part in explaining behavior. In fact, no thoughts of any kind enter the picture. Instead, a person's behavior is explained by reference to the process of conditioning that produced it. We tend to repeat behavior for which we are rewarded, and we tend not to repeat behavior when rewards are withheld or when we are punished. Suppose you get an electric shock every time you touch a fence; you will soon stop touching it. Or suppose a child is fed when he says "please" and not fed when he does not say "please." He will soon be saying "please" whenever he is hungry. These are simple examples. The real world is complex, but the principle is the same for all behavior.

B. F. Skinner, a leading behaviorist who taught at Harvard for many years, once explained how the process of conditioning can be demonstrated in the laboratory. First we place a pigeon in a cage for a few days, always feeding it from a small tray that is opened electrically. Then, after the pigeon has become accustomed to eating from the tray, "We select a relatively simple bit of behavior which may be freely and rapidly repeated, and which is easily observed and recorded.... [T]he behavior of raising the head above a given height is convenient." Whenever the pigeon raises its head above the given height, the food tray is opened. "If the experiment is conducted according to specifications,

the result is invariable: we observe an immediate change in the frequency with which the head crosses the line. ... In a minute or two, the bird's posture has changed so that the top of the head seldom falls below the line which we first chose." Of course the pigeon is not aware of why its posture has changed. The alteration in its behavior is just a mechanistic reaction to a stimulus.

The behaviorists argued that all our conduct is like this. In theory, everything we do can be explained as a response to prior conditioning, including our proudest and noblest actions as well as our most shameful ones. (If we cannot actually produce all the explanations, it is only because we do not know enough about the relevant causal chains.) In the same year that Clarence Darrow was defending Leopold and Loeb, John B. Watson, often called the father of Behaviorism, wrote:

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant, chief, and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors.

Many readers complained that such ideas violate our sense of freedom and dignity. In response, Skinner titled one of his books *Beyond Freedom and Dignity*.

Is "Character" a Matter of Luck? When we reflect on other people's foibles, we sometimes think "There but for the grace of God go I." It is worth pausing over the idea that the moral differences between human beings may be mainly a matter of luck. Some of the most famous experiments in social psychology suggest that any of us might behave badly if we were unlucky enough to be in the wrong circumstances at the wrong time.

In one experiment, Philip Zimbardo and his colleagues set up a simulated prison in the basement of a Stanford University building. Twenty-four volunteers were arbitrarily assigned to be

guards or prisoners. The experiment was supposed to last two weeks, but it had to be called off after five days because the “guards,” who were given great latitude in how to deal with the “prisoners,” behaved so brutally.

In another study, Stanley Milgram asked volunteers to operate a device that administered increasingly severe electric shocks to someone in an adjoining room. The person in the other room was supposed to be “learning” by being punished for giving wrong answers to questions. (He was, in reality, an actor who was only pretending to be shocked.) Milgram was surprised to discover that every single volunteer was willing to continue shocking the other person even when the levels were labeled as extremely dangerous and the other person could be heard crying and begging the volunteer to stop.

When people hear about these experiments, they invariably feel that *they* would not have acted so badly. This feeling is hard to avoid, yet the participants in the experiments were ordinary people like you and me. Zimbardo comments that, after the guards-and-prisoners experiment was over, the “prisoners” insisted that they would not have been so abusive if they had been guards. But, Zimbardo emphasizes, there was no difference between those who were made guards and those who were made prisoners—the assignment was random. The natural conclusion is that the only difference between them was in their circumstances. Apparently, all of us—or at least the great majority of us—have the inner capacity to behave badly if we are in the relevant position.

I will mention one other study that makes a similar point: the “Good Samaritan” experiment of J. M. Darley and C. D. Batson. In Luke’s gospel, the Good Samaritan is presented as a model of decent behavior:

“And who is my neighbor?”

Jesus replied, “A man was going down from Jerusalem to Jericho, and he fell among robbers, who stripped him and beat him, and departed, leaving him half dead. Now by chance a priest was going down the road; and when he saw

him he passed by on the other side. So likewise a Levite, when he came to the place and saw him, passed by on the other side.

“But a Samaritan, as he journeyed, came to where he was; and when he saw him, he had compassion and went to him and bound his wounds, pouring on oil and wine; then he set him on his own beast and brought him to an inn, and took care of him. And the next day he took out two denarii and gave them to the innkeeper, saying, ‘Take care of him; and whatever more you spend, I will repay you when I come back.’ Which of these three, do you think, proved neighbor to him who fell among the robbers?”

He said, “The one who showed mercy on him.”

And Jesus said to him, “Go and do likewise.”

The traditional interpretation of this story is that the Samaritan was a man of better moral character—he “had compassion,” while the priest and the Levite did not. (Samaritans, incidentally, were people of low standing, while priests and Levites played important roles in the Temple.) Is this right? Darley and Batson decided to investigate the circumstances in which we would be Good Samaritans, using Princeton theology students as their subjects.

In the study, the theology students first filled out forms giving pertinent information about themselves, including their ethical and religious beliefs. Then they were told, one at a time, that they must prepare a short talk on either ethics or job opportunities and deliver it in another building. Some students were told they needed to hurry, while others were told they had plenty of time. It had been arranged that on their way to the other building they would pass by someone slumped in a doorway, obviously in distress. Would they stop to help?

Some stopped and some did not. But it turned out that their ethical and religious views had nothing to do with it, nor did it matter whether they had ethics or job opportunities on their minds. All that mattered was whether they thought they had time to stop. This small change in circumstances made all the difference between exemplary moral conduct and heartlessness.

4. GENES AND BEHAVIOR

Neither Freudianism nor Behaviorism has much influence among psychologists today; both doctrines are now part of the history of psychology. Behaviorism went out of fashion partly because it greatly overrated the part played by the environment in shaping behavior—as it turns out, the human personality is not so malleable as Watson and Skinner thought. Researchers now believe that our genes are equally important in shaping our personalities, and our genes cannot be changed by conditioning—no matter how vigorous.

To what extent do our genes determine the kind of people we are? There is no uncontroversial way of measuring this, nor is there any uncontroversial way of understanding how genes exert their influence. Educated people commonly assume that organisms are products of genes-plus-environment, but that is too simple. One complication is that the picture must also accommodate what Richard Lewontin calls “*developmental noise*,” a consequence of random events within cells at the level of molecular interactions.” For example, there is considerable variation from cell to cell in the rate and number of molecules synthesized, and this changes the times at which cells divide or migrate. This can affect the development of the organism in unexpected ways. (From the point of view of “free will,” of course, it makes little difference whether an aspect of one’s personality is influenced by genes or by “developmental noise,” since neither is controlled by the individual.) There may be still other factors at work. How do all these elements interact to produce the organism? We have some preliminary ideas but no definite knowledge. This area of science is in its infancy.

Twin Studies Nonetheless, some researchers have tried to devise ways to estimate the influence of genetic factors on human personality. One strategy is to study identical twins, especially those raised in different environments. The idea is that to the extent that such twins are alike their genes are responsible, and to the extent that they are different other factors, such

as the environment, are responsible. Such studies may provide at least a rough idea of the extent to which various characteristics are genetically influenced.

At the University of Minnesota there is an ongoing research project, started in 1979, called the Minnesota Study of Twins Reared Apart. When such twins are located, they are invited to the university for a week of tests. The researchers have found that identical twins reared apart nevertheless resemble each other very closely. In some cases, the resemblances are so specific that they look like something out of science fiction.

Among those tested were the “Giggle Sisters,” both of whom laughed all the time. Both had the habit of pushing at their noses, which they both called “squidging”; both claimed to have weak ankles as a result of falling when they were 15; both had met their husbands at dances when they were 16; and, although both shunned controversy, both had worked as polling clerks.

There were also brothers named Jim, who drove the same model car and smoked the same brand of cigarettes. Both had elaborate workshops at home where they made miniature furniture as a hobby. Both liked to leave little love notes for their wives lying around the house. They had named their sons James Alan and James Allan.

But perhaps the most remarkable were Jack Yufe and Oskar Stöhr, whose home environments had been as different as could be imagined. One twin was raised in Trinidad by his Jewish father, the other in Germany by his Nazi grandmother. Oskar was in the Hitler youth; Jack served in the Israeli navy. When reunited, both were wearing rectangular wire-frame glasses and blue two-pocket shirts with epaulets. Both had small mustaches. Both liked to read magazines from back to front, and both flushed toilets before using them. And both liked the same odd practical joke, startling people by sneezing in elevators.

These are arresting anecdotes, but they are only anecdotes, and we can draw no firm conclusions from them. In the first place, an enormous

amount of data would have to be gathered and analyzed before we could know what, if anything, to conclude. Take the blue-shirt-with-epaulets story, for example. How many such shirts were owned by men in the areas where Jack and Oskar lived? What are the chances of two men wearing that shirt on the same day? Or, more generally, in any group of males drawn from the same population, what are the chances that any two selected at random will be dressed similarly? Most important of all, what are the chances that there will be *some* striking similarity between two such men, even if it is not how they are dressed? (Try it: Pick two people at random, and see if you can't come up with some similarities between them.) In any case, critics also object that the anecdotes themselves should be taken with a grain of salt because the stories are likely exaggerated. Also, some of the twins, it turns out, had met one another before they were studied by the Minnesota researchers.

The researchers do not, however, base their conclusions on such anecdotes. Instead, the reared-apart twins are given standard psychological tests for such traits as flexibility, tolerance, conformity, self-control, conscientiousness, openness, toughmindedness, social dominance, alienation, authoritarianism, and aggressiveness. They are found to be remarkably alike in all these ways. They have similar senses of humor and levels of optimism or fearfulness. They share (or lack) similar talents, and they have similar mental illnesses and disabilities. On the basis of such studies, researchers have concluded that the major components of our personalities are about 50 percent due to our genes.

Are Some People Born Bad? The idea that traits like aggressiveness are linked to our genes will come as no surprise to neurologists and clinical psychologists, who have long known about the connection between biology and violence. Experiments with cats have shown that if a small section of the hypothalamus is removed, the animals will turn savage. Humans with head injuries sometimes experience fits of uncontrollable rage. Meanwhile, for people who are

“naturally” prone to violent behavior, effective treatments include lithium and beta-blockers. The genes-neurology-violence connection was further confirmed in 1995 when geneticists discovered that turning off the gene responsible for producing nitric oxide causes normally sociable mice to become vicious. (Nitric oxide is a neurotransmitter in both mice and humans.) So the fact that there is *some* sort of connection between genes, neurology, and violence is well established.

Some researchers believe this tells us something important about crime, although this thought is extremely controversial. The general notion of “crime” is too socially variable to be of much use—fornication, gambling, and heresy, for example, are sometimes counted as “crimes” and sometimes not. But suppose we focus on violence as an element in particular types of criminal behavior, for example, murder, assault, and rape. Is it “in the genes” for some people, but not others, to do violence? The evidence for this is, if not compelling, at least highly suggestive.

Various dispositions, including a propensity to violence, contribute to socially unacceptable behavior. Darrow believed that Leopold and Loeb were “born bad” because they were born without such feelings as pity and sympathy. There is no way for us to know the precise truth about Leopold and Loeb as individuals, but on the more general issue Darrow may have been right. Psychologist Judith Rich Harris puts it like this:

Though we no longer say that some children are born bad, the facts are such, unfortunately, that a euphemism is needed. Now psychologists say that some children are born with “difficult” temperaments—difficult for their parents to rear, difficult to socialize. I can list for you some of the things that make a child difficult to rear and difficult to socialize: a tendency to be active, impulsive, aggressive, and quick to anger; a tendency to get bored with routine activities and to seek excitement; a tendency to be unafraid of getting hurt; an insensitivity to the feelings of others; and, more often than not, a

muscular build and an IQ a little lower than average. All of these characteristics have a significant genetic component.

It is easy to understand why such thoughts arouse controversy. It sounds like we are being told that some children are beyond help—they are born bad, and bad they'll stay. Moreover, in the context of discussions about crime, such remarks disregard completely the part played by environmental factors such as poverty and racism. Behaviorism, with its upbeat message “Improve the environment, and improve the child,” seems more in line with a progressive social outlook.

But the idea that such traits as aggressiveness and insensitivity “have a significant genetic component” does not imply that some children are hopeless or that education and social conditions don't matter. No social scientist believes that genes determine everything. Your genes might incline you, in certain environments, to act in certain ways, but whether you actually behave in those ways will depend on other things. Thus education and the elimination of poverty and racism are still important. The research about genes only helps explain why virtue comes easier to some people than to others.

To avoid such misunderstandings, social scientists often take pains to point out that they are not endorsing Determinism. Anthropologist John Townsend writes:

Many misinterpret biosocial explanations. They assume that such explanations are deterministic: that we are saying human beings are like animals, that we are “wired” for certain behaviors, and that these instinctive behaviors will emerge whether we want them to or not.... All of these assumptions are false. As human beings we have inherited certain predispositions from our evolutionary past, but that does not mean we have to act on them.

Despite such reassurances, however, there remain at least two reasons to worry about what this means for our freedom.

First, even if we are not “wired for certain behaviors,” we are being told something deeply disturbing. It is being said that we come equipped by nature with deep-seated desires that we can resist only with difficulty. If, in some people, these desires prove irresistible, it is hard to see this as their fault. Moreover, these desires will be with us forever, or as close to forever as to make no difference, and they play a significant role in explaining our behavior. This may not be Determinism in the strict sense, but it looks like something suspiciously close to it.

Second, we need an explanation for why some people, but not others, are able to resist the impulses that nature has given them. Why do some people end up murderers, while others do not? Is it a matter of choice? Or is there some further aspect of their situations that makes the difference? Perhaps where biology leaves off, the environment takes over. One man, who was brought up in a certain way, is violent; another man, who was brought up differently, is not. Thus, even though genetic explanations are not deterministic by themselves, when we combine them with other plausible ideas, we end up with an overall picture in which “free will” plays a vanishingly small part. To say that biology does not determine us, because the environment also plays a part, is little consolation.

Conclusion In sum, our situation seems to be this. Psychologists and other investigators have developed a number of ideas that help explain human behavior. Each is supported by impressive evidence, and each seems to be at least part of the truth. We don't yet know how to combine these ideas into a comprehensive account. Nonetheless, as far as free will is concerned, the overall trend is not encouraging. Each new discovery chips away a bit more of our confidence. The more we learn about the sources of human conduct, the less room there seems to be for the idea of free choice.