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BEYOND REVENGE

THE EVOLUTION OF THE FORGIVENESS INSTINCT

Published by Jossey-Bass
A Wiley Imprint
989 Market Street, San Francisco, CA 94103-1741—www.josseybass.com

Library of Congress Cataloging-in-Publication Data

McCullough, Michael, date.
Beyond revenge : the evolution of the forgiveness instinct / Michael McCullough.—1st ed.
p. cm.
Includes bibliographical references and index.
ISBN-13: 978-0-7879-7756-6 (cloth)
1. Revenge. 2. Forgiveness. I. Title.
BF637.R48M43 2008
155.9'2—dc22 2007050225

Printed in the United States of America
FIRST EDITION
HB Printing 10 9 8 7 6 5 4 3 2 1

Contents

CHAPTER TWO

REVENGE IS A PROBLEM

Counting the Costs

Marvin John Heemeyer was a fifty-two-year-old mechanic who lived in Granby, Colorado. His friends described him as easy-going, happy-go-lucky, compassionate. He liked snowmobiling. The owner of the bar that he frequented with a group of other snowmobilers called him "pleasant" and "jovial." But Heemeyer had suffered some setbacks that had left him feeling victimized and bitter. He was still smarting from a dispute with town officials over a re-zoning ordinance that permitted a concrete plant to be built next to his muffler repair shop. He had spent vast sums of time, money, and energy to fight the re-zoning decision (which he believed would have an adverse impact on his own business), but his efforts had failed. He had also incurred $2,500 in fines that the town had forced him to pay late in 2003 for his own city code violations.

Heemeyer made no secret of his bitterness, but he successfully concealed an elaborate plan for revenge that took eighteen

months of hard work to execute. He compiled an extensive list of targets: the concrete plant that he blamed for his failing business, a utility company, a warehouse, a hardware store, a bank, a home owned by the city's former mayor, and a municipal building that also contained a library. All of the targets were linked in some way to people against whom he held grudges, including the members of the town council that had unanimously voted in favor of the re-zoning, and even people associated with the local newspaper that had published editorials in favor of the council's decisions.

Heemeyer, an expert welder, set about converting a fifty-three-ton, thirty-foot-long bulldozer with a 410-horsepower diesel engine into an assault vehicle. He built a bulletproof coat of armor for the dozer that consisted of two layers of thick steel with a layer of concrete between them. He installed seven cameras that relayed images to three television monitors inside the cab. He also mounted three rifles to the bulldozer. The bulldozer became a killdozer.

On Friday, June 4, 2004, Heemeyer got into his killdozer, used a homemade crane to lower the armored hull over himself, and made his way out into the streets of Granby. For nearly two hours, Heemeyer cut a swath of destruction through the little town. He slowly crashed through thirteen different buildings, starting with the concrete plant next to his shop. He also destroyed sidewalks, trees, lampposts, and some city-owned vehicles. All the while, police and other authorities tried to stop him, firing hundreds of rounds of ammunition at the armored vehicle with no apparent effect.

After the killdozer stopped working and the rampage came to an end, Marvin Heemeyer took his own life with a semiautomatic pistol. It took hours for the authorities to figure out a way to remove the armor from the vehicle so that his body could be retrieved. Amazingly, no one but Heemeyer himself was seriously injured.[1]

"Revenge," if I can be technical for a moment, is any attempt to harm someone or some group of people "in response to feeling that oneself has been harmed by that other person or group, whereby the act of harming that person or group is *not* designed

to repair the harm, to stop it from occurring or continuing in the immediate confrontation, or to produce material gain."[2] Marvin Heemeyer's campaign of vengeance fits this definition to a tee: he wanted to harm people who had harmed him, period. Heemeyer's actions suggest that the desire for vengeance can be a powerful motivator of human destructiveness. Still, most of us recoil from the idea that the desire for revenge is a typical human response—*our* typical response—to injustice. Thanks to the disease model of revenge into which we've been indoctrinated, we prefer to think of revenge as the prerogative of people who are evil or insane, but not us.

In two national surveys, researchers asked representative samples of American men and women to rank-order a list of eighteen personal qualities (for example, "courageous," "honest," "cheerful," and "self-controlled") to indicate how much they valued each of them. In both surveys, people ranked "forgiving" as their fourth most highly valued personal quality (beaten out only by "honest," "ambitious," and "responsible").[3] More recently, researchers asked 1,030 American adults to indicate how they behaved when "you feel that someone has deliberately done something wrong to you." Of these respondents, 42 percent indicated that they try to "overlook" the offense, and 45 percent indicated that they "try to forgive" the offender. In contrast, only 8 percent of Americans indicated that they "try to get even in some way."[4] Other studies show that people from other countries, such as France and Congo, also see themselves as forgiving rather than vengeful.[5]

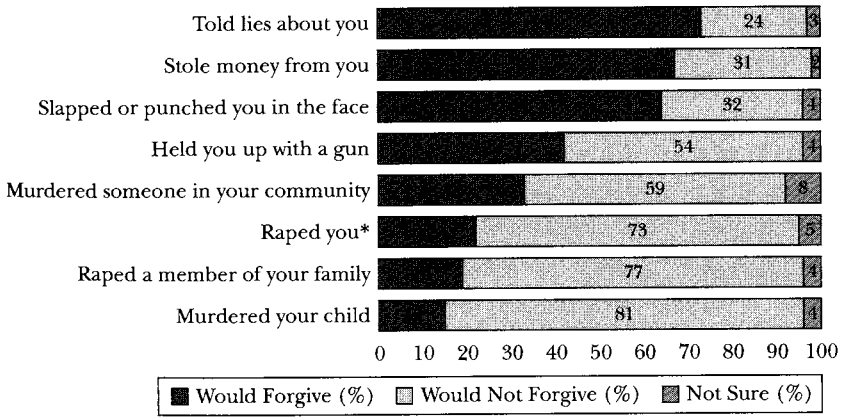
These survey results really don't come as any surprise, of course. People around the world learn the disease model of revenge from their parents, their kindergarten teachers, their religions, and the other keepers of the norms of decent society. People also learn that as good citizens, they too should try to forgive people who hurt them. This would lead you to think that maybe revenge is no big deal in the social problems that plague us as a species, but when you look the facts in the eye (as we'll do in this chapter), you can see that the desire for revenge is one reason (among others) why normal, well-adjusted people try to hurt each other, why murderers murder, why nations go to war, and even why terrorists terrorize.

SCRATCH FORGIVENESS AND SEE VENGEANCE BLEED

If you catch people when they're motivated to look at themselves realistically, they'll often admit just how difficult forgiveness can be and just how easily the desire for revenge can surface. In 1999, *Time* magazine asked 1,049 American adults to think about a variety of transgressions, and to indicate whether they would forgive someone who had committed those transgressions against them. As Figure 2.1 shows, most people say that they'd be willing to forgive low-stakes transgressions such as being lied about or having their money stolen, but it's only the saintliest—or the most self-deluded—who believe they could forgive their daughter's rapist or their son's murderer.[6] Most people's forgiving self-images evaporate under the searing heat of extreme violence and trauma.

So when we ask people to be specific about how they think they'd feel if they were seriously traumatized, they readily admit that forgiveness would be extremely difficult. In fact, most people do admit that they experience the desire for revenge from time

FIGURE 2.1. PERCENTAGE OF AMERICAN ADULTS WHO WOULD FORGIVE AND WOULD NOT FORGIVE A VARIETY OF HYPOTHETICAL TRANSGRESSIONS.



Note: *Asked only of women.

to time. Researchers asked a sample of American adults to recall a time in the past month when they became angry at someone. They were then asked to choose from a list of possible responses to the situation, selecting all that applied to them—for example, trying to think about the situation in a different way, having a drink or a pill, talking to the person they were angry at, talking to someone else about the situation, and so on. When asked whether they "thought about how to get revenge," 6 percent of the sample answered affirmatively.[7]

Six percent is pretty low, but you have to remember that we're talking here about six percent within a single month. What percentage of people feel the desire for revenge in the course of a single year? When researchers asked 513 Dutch students whether they could recall a specific instance in the past year when someone did something hurtful to them for which they felt a desire to get even, 64 percent said "yes."[8]

THE DESIRE FOR REVENGE IS ONE THING; ACTING ON IT IS ANOTHER

So maybe most of us really can relate to Marvin Heemeyer's desire for revenge after all. But still, we don't all *become* Marvin Heemeyer. Only about one-third of people report that they act on their desires for revenge in any way.[9] Still, when you're hurt profoundly, the temptation to seek revenge can become very strong indeed. Barbara Cardozo and colleagues interviewed Kosovar Albanians who had been displaced during the ethnic cleansing that took place in Kosovo between 1998 and 1999. By the end of the violence, many of these people had received some truly horrible treatment. Four out of five had been displaced from their homes. Two-thirds had been deprived of food or water. Three out of five reported having been close to death at some point. One-half reported having suffered torture or abuse of one kind or another. One-quarter experienced the murder of a friend or a loved one.[10]

Given this level of traumatic exposure, it's not surprising that about half of the men and two out of every five women reported that they experienced very strong feelings of revenge—that is, they reported experiencing the desire for revenge "all the time" or "a lot of the time"—toward the Serbs. Of those who reported such frequent feelings of revenge, 44 percent of the men and 33 percent of the women indicated that they would have acted on those feelings if they had had the chance. Only 17 percent of the men and 26 percent of the women indicated that they definitely would *not* have acted act on those feelings. One year later, when the researchers repeated the survey, people's feelings of revenge and their desires to act on those feelings had not declined substantially.[11]

These survey results start to undermine the idea that the desire for revenge is something exceptional or out of the ordinary. Fortunately, feeling vengeful is not an everyday thing for most of us: when we organize societies in a way that protects people's rights and welfare, human beings tend to be good natured, law-abiding, and, yes, forgiving. It's easy to have family values when your family's interests are being protected. But if you push these generally good-natured human beings—threaten their way of life, wrench away from them what they prize most highly, or harm their loved ones—the desire for revenge comes to the fore. If you get harmed in just the right way, and society doesn't provide you with any means of redress, it's not primarily your sanity that's going to prevent you from seeking your own Heemeyerian revenge but, rather, your lack of skill with a welding torch.

COUNTING THE COSTS OF REVENGE

Revenge gets blamed for a lot of bad things—just read the newspapers: arson, gossip, school bullying, urinating in the coffee maker in the break room at work, taking a long time to leave a parking space after someone has honked at you, road rage, World War I, World War II, workplace shootings, the bombing of a Tel Aviv pizza parlor, stealing stuff from work, giving away national secrets, the Hatfield-McCoy feud, the Alexander Hamilton–Aaron Burr duel, sports-related violence, voting against a colleague's promotion, vandalism, having an affair, shooting an unfaithful husband or wife, gang warfare, intentionally infecting someone with HIV, shoplifting, procrastinating, assassinations, and invading foreign nations. Is revenge getting blamed for more than

its fair share of human mischief and misery? I don't think so. In the remainder of this chapter, we'll explore just how much of the human destructiveness we see around us and read about in the newspapers has the desire for revenge at its core.

REVENGE AND GARDEN-VARIETY AGGRESSION

Scientists define human aggression as behavior that's motivated by the desire to harm another human being (masochists excluded). Social psychologists prefer to study aggression by examining people's behavior in well-controlled laboratory settings. It would be unethical for scientists to cause, or even permit, a research subject to seriously harm another person, so laboratory scientists usually study relatively mild forms of aggression. For example, a social psychologist who wanted to study your aggressive behavior might examine whether you'll deliver an unpleasant blast of loud noise to someone who has just humiliated or insulted you.

Although such forms of aggression might seem to bear little resemblance to the types of aggression that we typically care about in the real world—assaults and murders, for instance—the same factors that make people aggressive in such laboratory situations also tend to make people aggressive out in the real world. Therefore, these laboratory measures of aggression turn out to be good models for studying why people harm each other intentionally in real life.[12]

Over the years, social psychologists have learned that it's not so easy to get people to voluntarily harm another human being whom they've never met. Unlike our chimpanzee relatives, who will attack a stranger for no apparent reason at all, human beings are inclined to treat strangers with respect, tolerance, and a spirit of cooperation, unless given a reason not to. In fact, when social psychologists *want* people to behave aggressively so that they can study aggression, they often have to provoke their research participants by insulting them, humiliating them, shocking them, providing them with unflattering feedback about their personalities, taking away money they've just earned, or otherwise making them feel betrayed, neglected, or hard done by.

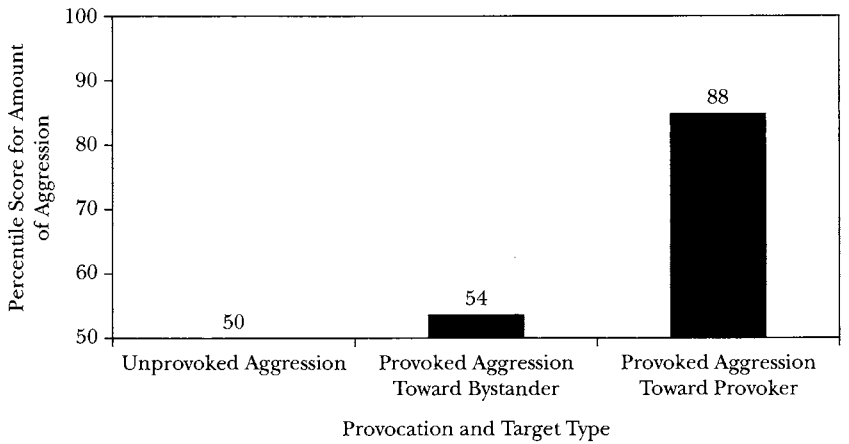
Thus most aggression in the laboratory is "provoked" aggression, or aggression after one has been harmed oneself.

Could it be that a lot of this aggression taking place in social psychologists' laboratories over the years has been, in fact, revenge-motivated? Maybe, but just because somebody behaves more aggressively after provocation doesn't demonstrate that he or she is trying to get revenge. People could become more aggressive after being provoked just because they want to make themselves feel better by blowing off a bit of steam. To determine whether aggression in response to harm is motivated by the desire for revenge or by simple frustration, we need to see whether the amount of aggression that people direct toward their provokers exceeds the aggression they direct toward innocent bystanders—third parties who didn't provoke them in any way.

Some people simply tend to be nastier than others, even when they're not provoked. Let's say we rank one hundred unprovoked people according to how much aggression (an unpleasant blast of loud noise, in this case) they direct toward someone who hasn't provoked them. We'll rank the person who gives the mildest noise blasts at the bottom of the class, and the person who gives the loudest noise blasts at the top. So we say that the least aggressive person is at the first *percentile* (one percent of people were as aggressive or less aggressive than this person) and the most aggressive person is at the ninety-ninth percentile (99 percent of people were as aggressive or less aggressive than this person).

To get a sense of how provocation affects aggression, let's compare the aggressive behavior of someone who has been provoked to the percentiles for our group of unprovoked people. As the left side of Figure 2.2 shows, the average person in our group of one hundred unprovoked people is, by definition, at the fiftieth percentile. He or she directs an "average" level of aggression toward the target. As the center bar of the figure shows, when someone has been provoked, his or her level of aggressiveness toward a person who wasn't the provoker—*an innocent bystander*—will climb only to the fifty-fourth percentile for the unprovoked people. That means that the subject's level of aggression is just barely above the average level of aggression

FIGURE 2.2. PERCENTILE SCORES FOR AMOUNT OF AGGRESSION DIRECTED TOWARD ANOTHER PERSON AS A FUNCTION OF PROVOCATION AND TARGET TYPE.



that's seen for the average unprovoked person. In other words, if you're provoked, you aren't going to suddenly go berserk and start trying to harm innocent bystanders.

Instead, you're going to try to go after your provoker. The right side of the figure shows that the average person who is provoked by someone will behave more aggressively (that is, *toward his or her provoker*) than will 88 percent of the unprovoked people who are given the opportunity to behave aggressively toward a target who didn't provoke them.[13] This is a *huge* increase in aggressive behavior. In fact, the effect of provocation on aggression toward the provoker is one of the most powerful effects in the entire field of social psychology.[14]

The bottom line of these findings is this: there's no better way to ensure that someone is going to harm you than to harm him or her first. Provocation rarely creates berserkers who are driven mad by an indiscriminate desire to harm others—that's the disease model of revenge talking. (Keep in mind that even Marvin Heemeyer was focused on hurting a relatively small group of people by whom he felt he had been personally injured.) Instead, provocation that is perceived as painful and unjust creates avengers who have specific targets in their sights.

DIAL "R" FOR MURDER

Anthropologists tell us that people have been killing each other for tens of thousands of years, if not longer.[15] There are good reasons to believe that avenging such killings by killing the offender is a cross-cultural universal—at least in societies with the most elementary forms of social organization, which lack institutional mechanisms for controlling homicide.[16] Bullies, despotic leaders, and sorcerers, in addition to people who killed someone intentionally or unintentionally, have also been common targets for lethal revenge in societies around the world throughout history.

Despite the cross-cultural prevalence of revenge-motivated homicides, more complex societies have a great stake in controlling them. When revenge runs rampant in society, governments have a hard time maintaining social stability. This undermines their credibility in the eyes of their citizens—who wants to support a government that can't keep the streets safe? For this reason, the kings of Western and Northern Europe began trying to stamp out revenge-motivated homicides more than a millennium ago. After the Norman Conquest of England in 1066, it was William the Conqueror who formally outlawed blood revenge as a response to homicide, but the powerful kings who sought to unite England under a feudal system had begun to enact laws to curtail the free expression of blood revenge as early as 602 A.D.[17] These laws, coupled with societal changes that gave people more freedom from the sacred obligation to defend the honor of their families and communities, were probably responsible in part for the extraordinary declines in European homicide rates during the past six or seven hundred years. During the Middle Ages, homicide rates in Europe ranged from twenty to forty people killed per one hundred thousand each year; by the middle of the twentieth century, these rates had fallen to less than one person per one hundred thousand per year.[18]

But the fact that homicide is twenty times rarer than it was seven hundred years ago doesn't mean that revenge as a motive for homicide is a thing of the past. In fact, the desire for revenge is still an important reason why people kill each other.

According to the FBI, 16,692 people were murdered (that is, willfully killed by another person) in the United States during

2005. Approximately 40 percent of those murders occurred during "arguments" or during the commission of other felonies (for example, robbery, crimes involving narcotics, and sex offenses). About 5 percent were attributed to juvenile gang killings, and a few hundred more were spread out over circumstance categories such as "romantic triangle," "child killed by babysitter," and "brawl due to the influence of alcohol or narcotics." For about one-half of the murders, circumstances were either unknown or designated only by the frustrating category "other—not specified."[19]

NOT FINDING REVENGE AS A MOTIVE FOR MURDER BY NOT LOOKING FOR IT

How many of these murders were motivated by revenge? FBI statistics can't help us there. "Gangland killing" doesn't tell us *why* someone was willfully killed any more than "Child killed by babysitter" does. *Why* did the gangster want to kill his victim? *Why* did the babysitter want the child dead? We need to ask questions about *motive* if we want to estimate the role of revenge in murder.

Martin Daly and Margo Wilson, biologists who have pioneered the Darwinian study of homicide, make the point that prosecutors don't really care about the specifics of killers' motives. Prosecutors only need to know whether the crime was committed in cold blood or in the heat of the moment.[20] If it's the former, they can go to trial seeking a conviction for first-degree murder. If it's the latter, the worst crime they can prosecute is second-degree murder. For this reason, crime investigators focus on establishing *premeditation* rather than the specifics of motive. As a result, the categories that they use can provide insight into the premeditation question generally, but they don't help address the motive question specifically.

Fortunately, some social scientists have looked more seriously at revenge as a cause of murders in contemporary society, and at first blush, the proportion of murders attributable to revenge seems to hover around 9 percent. An analysis of all homicides in Ireland from 1992 to 1996 put the rate of revenge-motivated homicides at 9 percent.[21] Between 1989 and 1996, approximately 9 percent of Australian murders committed by people age twenty-five or older were precipitated by revenge.[22] About 8 percent of all murders in Hong Kong between 1972 and 1992 with a known motive were revenge-motivated.[23] But upon closer inspection, this 9 percent estimate turns out to be too low by half, at least for murder in the United States.

BETTER ESTIMATES

When many people think of revenge—including, I suspect, officials and researchers who assign motives to murders—they probably have in mind a careful plan that unfolds over days, weeks, months, or even years. This type of revenge is "served cold" and executed with a steady hand. But recall that revenge is much broader than that: it encompasses all aggressive acts that are "*not* designed to repair the harm, to stop it from occurring or continuing in the immediate confrontation, or to produce material gain."[24] Thus revenge probably motivates a lot of murders beyond those that arise from cold-blooded plans that are designed expressly to settle a score. When we broaden our definition of revenge to include all cases of retaliation (including hot-blooded murders that occur during or as the ultimate conclusion to an argument or trivial quarrel), revenge-motivated murder starts to look even more common.

Using a classification system specifically designed to identify the substantive issues that motivate murder, Wilson and Daly reviewed all of the homicides that took place in Detroit, Michigan, in 1972. Among these 512 criminal homicides, Wilson and Daly discovered that 95 (19 percent) of them could be classified as acts of "retaliation for previous verbal or physical abuse."[25] Of the 212 homicides defined as taking place in the context of "social conflict" among nonrelatives, 95 (45 percent) of them were acts of retaliation. These cases no doubt included many instances of cold-blooded revenge—the sorts that other taxonomists of murder have captured in the past under the category "revenge"—but also all hot-blooded acts of lethal retaliatory violence.

In a more recent effort, criminologists Charis Kubrin and Ronald Weitzer tried to estimate the number of retaliatory homicides that occurred in St. Louis, Missouri, between 1985 and 1995. Of the 1,731 homicides for which Kubrin and

Weitzer could identify a motive, approximately 20 percent were "retaliatory," meaning that they involved "at least two time points: an initial disputatious interaction, in which an affront to one party remained unanswered or unresolved, which prompted a subsequent encounter during which the offended party exacted deadly retribution for the earlier offense."[26]

We should take the Detroit and St. Louis figures seriously because these two studies are the only thorough studies on cities in the United States in which researchers operationally defined retaliation and worked hard to look for it. With these results as a guide, we can estimate that about 20 percent of homicides nationally are revenge-motivated.[27] Were we to extrapolate to the United States overall, we might conclude that more than 3,300 of the 16,692 murders that occurred in the United States during 2005 were motivated by the desire for vengeance. To put this figure in perspective, revenge-motivated killing probably took more lives in 2005 than did the terrorist attacks on September 11, 2001. (Incidentally, the place on earth where revenge is the most frequent motive for murder probably isn't even in the United States: in Medellín, Colombia, 45 percent of the murders with known motives that were committed between 1990 and 2002 were motivated by revenge.[28])

The following three narratives, which Kubrin and Weitzer reconstructed from the St. Louis case reports, illustrate how revenge-related murders often unfold:

> The suspect liked to bully the neighborhood youths and order them around. On the day in question, the victim had apparently had enough. When the suspect told the victim to go to the store for him, the victim refused. The suspect then called the victim a "punk." The victim punched the suspect once in the mouth and the suspect hit the ground. The victim told the suspect to get his nine [gun], calling the suspect a punk because the suspect needed a weapon to be tough. Friends of the suspect later told police that the suspect was "in shock" that the victim would hit him; the suspect said that he thought the victim was afraid of him. The suspect said he would "take care of business" and his friends knew he would shoot the victim, because the suspect was no fighter and would only settle things with a gun. As the victim was sitting in a car with friends, the suspect shot into the car, then fled the area.

> The suspect drove at a high speed, hitting an officer who was writing a parking ticket. The victim was thrown into the air and landed on the hood of the suspect's car. The car carried the officer approximately fifty feet down the street and he rolled off the car. Suspect then walked to the victim, searched him, and kicked him repeatedly in the face. The suspect said, "He'll think twice before he gives me another ticket," and "That'll teach him to embarrass me in front of my grandchildren," and "You don't know how much hate I got in me." The suspect had gotten a parking ticket that day, but there was no evidence that this officer had written it. It appears that the suspect was so angry over the ticket, he simply went looking for a police officer. He told police he wasn't sorry and would do it again.

> The suspect accused the victim of blocking his entrance to a doorway, called the victim a name, and ordered the victim out of his way. The victim and suspect then got into a fistfight. Victim and suspect exchanged threats before leaving. Later, the suspect drove up in a car and said something to the victim, who responded, "Go ahead and shoot me," which the suspect did.[29]

As these narratives show, revenge-motivated murders are often precipitated by seemingly trivial offenses—name-calling, parking tickets, and insults to one's manly honor. By revealing the banality of the slights and minor altercations that often precipitate revenge-motivated murder, these cases also illustrate just how overwhelming the desire for revenge can become.

REVENGE AS A MOTIVE FOR SCHOOL-BASED KILLINGS

Revenge is a big contributor to one type of murder in particular: the type that takes place in schools. During the past decade, we've witnessed a spate of killings in middle schools, high schools, and universities all over the United States—schools in towns with names like Paducah, Kentucky, Littleton, Colorado, and Blacksburg, Virginia, where Seung-Hui Cho killed thirty-two people at Virginia Tech before taking his own life.

There's no single cause for school killings like these. True, school killers are more likely than their peers to be depressed, suicidal, and marginalized. They also tend to have experience

with firearms and access to them. In addition, they often attend schools that are tolerant of violence and bullying. But none of these risk factors goes very far in explaining why adolescents take guns or knives to their schools with the intention of killing their peers or teachers. Most school killers are *not* depressed or suicidal, and most people who are depressed and suicidal are not violent toward others, even if they know how to get hold of a gun. To understand why kids go to school to kill, we have to take the desire for revenge into account.

When Eric Harris and Dylan Klebold went on their killing spree at Columbine High School in Littleton, Colorado, killing more than a dozen people and injuring dozens more, a witness claimed that they shouted, "this is revenge."[30] But revenge for what? Most likely, bullying. Severe bullying is surprisingly common for many students. Forty-one percent of middle school and high school kids in the United States report that they were bullied at least once during their current school term. About 11 percent of boys report that they are bullied once per week or more. Of the boys who report being bullied, nearly 18 percent of them are "hit, slapped, or pushed" once per week or more.[31] (I focus on boys because males do 93 percent of the school killings.[32])

People who kill other people in schools tend to be the victims of bullying, not the perpetrators. The best study of school-based killings in the United States found that nearly 20 percent of students who killed other students in their schools had a prior history of being bullied, as compared with only 9 percent of their victims.[33] That's 20 percent of *all* school-based killings, including killings that take place during other criminal activity (which make up about 40 percent of the circumstances in which someone was killed at school and for which bullying was presumably not an issue). Ignore these crime-motivated killings and the proportion for which bullying was an issue climbs to one-third.

But the role of revenge in school-based shootings is probably even greater than these figures let on. To get a better feel for the role that revenge plays in promoting school killings, we should look just at "targeted school violence" (that is, crimes in which the perpetrator attacks the victim with lethal means, having chosen the school as the setting for the violence). In the most comprehensive study on this topic, researchers affiliated

with the United States Secret Service (an organization with lots of experience in assessing threats of violence) analyzed every incident of targeted school violence in the United States between 1974 and June 2000.[34] Of the forty-one attackers responsible for these thirty-seven incidents, twenty-nine (71 percent) had a history of being "persecuted, bullied, threatened, attacked, or injured by others prior to the incident" (p. 21). What's more, revenge was judged to be a motive for twenty-five, or 61 percent, of the forty-one perpetrators. Bullying, followed by a desire for revenge, may therefore be a key dynamic behind many targeted school killings.

Even so, we need to bear in mind that bullying is very common and that the desire for revenge is a common response. Remember that 41 percent of American high school students have been bullied at least once during their current school term. Also, one study of schoolchildren aged nine to fourteen found that 43 percent of boys who had been bullied felt a desire for vengeance in response. So even though the desire to seek revenge against bullies might be an ingredient in many school killings, it's not sufficient. It takes more than being bullied, along with a desire for revenge, to make students kill their teachers and classmates. Being bullied is common, and feeling vengeful in response is common. It's killing your classmates that's abnormal. Those students that react to bullying with vengeful action, and not just vengeful feelings, tend to have other risk factors such as school problems; psychological or behavioral problems; gang involvement; troubled home lives; or histories of preoccupation with guns, violence, or violent media. But without the desire for revenge, it's hard to imagine that these troubled, gang-involved, gun-obsessed teens would respond to bullying with lethal violence. Ignore the desire for revenge and you miss a big part of the puzzle. In many cases, the biggest part.

DOES THE DESIRE FOR REVENGE CAUSE WAR?

Violent intergroup conflict is a fact of life in most traditional societies. The large majority of societies that anthropologists have examined show some evidence of war in their histories.[35] There

have been exceptions,[36] but these exceptions largely prove the rule: under enough ecological pressure (for example, the threat of starvation) or social pressure (such as other groups of people who want to steal from you or kill you), most societies have been willing (albeit reluctantly) to go to war to settle things.

One widely accepted theory of the origins of war posits that societies' motives for war become more complex as the societies themselves become more complex.[37] In the simplest foraging societies, which organize in bands (small kin-based groups of sovereign households), people don't own any possessions worth fighting over, so when these band-level societies go to war, it's usually for defensive purposes such as retaliating for a homicide against a member of the band or defending the band against retaliatory raids. In societies that organize in tribes, people also go to war to steal resources from other groups, as well as for the retaliatory purposes that motivate war in band-level societies.

In even more complex societies with more centralized forms of government—chiefdoms, for instance—people go to war for prestige or social status, as well as for resources and retaliation. And when societies are organized at the level of states, the theory goes, people also go to war to gain control over their neighbors, as well as to gain prestige, to garner resources, and to retaliate. So in this cultural-evolutionary model of war, new motivations for going to war get stacked onto the old ones as societies become more complex. As a result, revenge becomes less prominent with increasing societal complexity. But even in very complex societies, the role of the desire for revenge in motivating war doesn't go away. It just recedes into the background.

Does the desire for revenge cause war in our present age of mega-states? Scholars of modern war don't give it much attention.[38] But perhaps they should.

The sociologist Thomas Scheff gives a gripping account of the small but indispensable role that the desire for revenge played in spawning two world wars. Prior to World War I, the French were bitter about the outcome of the Franco-Prussian War, during which France lost the provinces of Alsace and Lorraine. This bitterness led to a postwar public sentiment known as *revanche,* a preoccupation with regaining the lost provinces and wreaking vengeance against Germany. *Revanchism,* Scheff argues, enticed

France into joining with Russia to defend the Serbians against the Central Powers following the crisis created by the assassination of Archduke Franz Ferdinand. This Franco-Russian alliance emboldened the Russians to move forward with their war preparations. The tinderbox eventually ignited, and most of Europe was drawn into the conflagration.

World War I ended with a defeat for the Central Powers. Through the treaty of Versailles, Germany was forced to accept full responsibility for the war. Germany was disarmed, stripped of much of her territory and her colonies, excluded from membership in the League of Nations, and blockaded for ten months. Germany's humiliated rage over the suffering and shame it was forced to endure after Versailles led to a German desire for vindication and retaliation on the world stage. This public sentiment helped pave the way for a strong nationalist leader like Adolf Hitler to rise to power and, eventually, plunge Germany into a second world war.[39]

Revenge's ability to motivate war isn't just a European problem. One sociologist recently examined every major American war from the Spanish-American War in 1898 to the war in Afghanistan following the September 11, 2001, terrorist attacks.[40] In the run-up to each of these wars, he discovered, American presidents had swayed public opinion toward support for war by creating the public perception that the nation had been victimized by unprovoked sneak attacks, and that swift retaliatory action with overwhelmingly destructive force was the only rational and self-interested course the country could take.

When you stop to consider it, the "revenge script" has indeed been weirdly ubiquitous. Could there have been a Spanish-American War without the sinking of the *Maine*? Could there have been a World War I without the sinking of the *Lusitania* and the supply ships the United States was using to send weapons to Great Britain, France, and Russia? Would the United States have had the will to enter World War II without Pearl Harbor? Would the United States have allowed itself to become mired in Vietnam without the Gulf of Tonkin attack? Probably not: public opposition to war entry in most of these cases was overwhelming. But by emphasizing the need for retaliation, our leaders succeed in obtaining broad public support for wars that are virtually

guaranteed to be long, expensive, and bloody. The language of retaliation helps give the governed the stomach to bear those costs.

REVENGE AND TERRORISM

Revenge isn't "the reason" for war among modern nation-states, but it still seems to be an indispensable way to create public support for war. Likewise, terrorism isn't mainly about getting revenge. At a strategic level, terrorism seems to be largely about trying to break the will of an oppressor or a foreign occupier.[41] However, you can clearly hear the revenge motif if you listen carefully to what the major actors in international terrorism tell us about why they do what they do.[42] One need look no further than bin Laden's "Letter to America," which he published in November 2002:

> Some American writers have published articles under the title "On what basis are we fighting?" These articles have generated a number of responses, some of which adhered to the truth and were based on Islamic Law, and others which have not. Here we wanted to outline the truth—as an explanation and warning—hoping for Allah's reward, seeking success and support from Him. While seeking Allah's help, we form our reply based on two questions directed at the Americans: (Q1) Why are we fighting and opposing you? (Q2) What are we calling you to, and what do we want from you? As for the first question: Why are we fighting and opposing you? The answer is very simple: (1) Because you attacked us and continue to attack us. . . . The blood pouring out of Palestine must be equally revenged. You must know that the Palestinians do not cry alone; their women are not widowed alone; their sons are not orphaned alone.[43]

One social scientist recently reported the results of her interviews with 653 people who had been traumatized in some fashion by the war in Chechnya. She discovered a disturbing trend: people who had suffered the highest levels of trauma no longer adhered to the cultural rules that govern the expression of revenge in traditional Chechnyan society. Most important, these war victims

no longer believed, in accordance with Chechnyan custom, that revenge could only be exacted upon the perpetrator of a crime; instead, they came to believe that any member of the ethnic group whose members were responsible for an act of aggression against one's own family member could be attacked in revenge.[44] Most likely, this broadened conception of revenge made them ripe for recruitment into terrorist organizations.

Never has Al Qaeda or any other modern terrorist group cited "revenge" as their raison d'être. Their primary goals are always political. However, terrorists are made, not born. Would-be terrorists find terrorism appealing in part because of the perception that getting involved would give them an outlet for their desires to harm the nations, factions, or ethnic groups that have harmed them, their families, and their communities. It follows that if we could find ways to reduce the desire for revenge, the stock of would-be terrorists would shrink as well.[45]

THE DESIRE FOR REVENGE IS A CONDUIT FOR PAIN

Most people *want* to see themselves as tolerant and forgiving, but the desire for revenge easily comes to the surface when they feel that they've been victimized, ostracized, criticized, or antagonized. Marvin John Heemeyer died on June 4, 2004, but a little part of him lives on because the desire for revenge when mistreated is a sentiment we all share. You can see that part of Marvin Heemeyer in the social psychology laboratory, in crime statistics, and on the front page of every major newspaper. You can hear the voice of Marvin Heemeyer in the back of your mind when our leaders begin trying to drum up political support for their decisions to go to war. The desire for revenge probably motivates a dozen other forms of human destructiveness too, but we just don't know it yet because scientists haven't yet bothered to find out.[46]

The fact that the desire for revenge is an important cause of human violence and destructiveness shouldn't blind us to another important fact about revenge: it's also a solution. Of course revenge creates pain and misery, and that's why we need to understand

it better. The irony is that the better you understand how revenge works, the better you can appreciate all of the important problems that revenge has actually managed to solve for the human species. Evolutionary thinking gives us the vantage point from which we can appreciate exactly what those problems are and how revenge might have arisen as a tool for solving them.

CHAPTER THREE

REVENGE IS A SOLUTION

Three Evolutionary Hypotheses

On July 1, 2002, Bashkirian Airlines Flight 2937 took off from Russia for Barcelona. There were seventy-one people aboard, including fifty-two children. Swiss air traffic controllers working for a company called Skyguide were in charge of air traffic control as the aircraft passed through German airspace. A single controller named Peter Nielsen was left in charge while the only other controller on duty that night was taking a break. Suddenly, and with less than a minute to spare, Nielsen realized that the Russian airliner was coming perilously close to a DHL cargo jet. In a colossal error of judgment, Nielsen ordered the Russian plane to descend, even though the on-board collision-avoidance system was instructing the pilots to climb. Following Nielsen's instructions, the pilots of the airliner flew headlong into the cargo plane. All seventy-one people aboard the Russian plane were killed. The wreckage from the crash was scattered for twenty miles.

At the moment of the crash, Vitaly Kaloyev, a Russian from the town of Vladikavkaz in the north Caucasus, had been waiting

for the Bashkirian flight to arrive at the Barcelona Airport. His wife and two children were coming to join him for a vacation. Kaloyev, an architect who was working in Spain at the time, received the news of the crash and immediately left the airport for the crash site. When he got there, he convinced the police officers in charge of the site to let him search for his family's remains. "I spent 10 days searching for the remains of my dear wife and children. My life stopped on that tragic date, July 1, 2002," he later wrote for a Russian Website commemorating the crash and its victims. "I am left to live with only memories. The only consolation I have is my daily visit to their grave in the cemetery at Vladikavkaz."

In July 2003 Kaloyev flew back to Switzerland to attend a memorial service on the one-year anniversary of the disaster. The next day, he attended a meeting with officials in which he expected to be debriefed on the final moments of the flight. Kaloyev asked over and over to be told who was responsible for the crash. "The air traffic controller is a villain and in the Caucasus we talk to villains in our own way," he reportedly said before ending the meeting.

In February 2004, Kaloyev flew back to Zurich again in search of an official apology from the director of Skyguide. Kaloyev's hopes for an apology were in vain.

On the 24th, Kaloyev went to the town of Kloten in the Zurich suburbs where Peter Nielsen lived. Kaloyev found Nielsen at home and the two men talked privately. Still seeking an apology, Kaloyev showed Nielsen some pictures of his children and asked Nielsen, "What would you feel if you saw your children in coffins?" Whatever Nielsen's response was, it wasn't enough for Kaloyev. Kaloyev snapped: "I only remember that I had a very disturbing feeling, as if the bodies of my children were turning over in their graves," he said later at trial. Kaloyev doesn't remember what happened next (though a Swiss radio station reported that someone overheard him saying, "You killed my family—and I am going to kill you"). Kaloyev proceeded to kill Nielsen with repeated knife stabs to the chest, abdomen, and throat.

Kaloyev was apprehended the next day. On October 27, 2005, Kaloyev was found guilty of premeditated murder and was sentenced to eight years in prison.[1]

Was Kaloyev's desire for revenge something unique to his own psyche—something borne of mental illness, terrible parenting, bad karma, or backwards Caucasus cultural practices? Something unique to Kaloyev that would allow us to rest easy in the belief that we could never do something like that? Or was his revenge borne of the same propensity for revenge that all human beings carry around?

In this chapter, we'll begin to explore the possibility that the same desire for revenge that motivated Vitaly Kaloyev resides in all of us, courtesy of natural selection. The scientific evidence I discussed in the previous chapter shows that the desire for revenge is in fact quite common, and that it's a very important motivator of much of the pain and violence that human beings experience (and inflict). But in this chapter and the next, I'll argue that a readiness to seek revenge when wronged is a general characteristic of human nature—a trait possessed by every neurologically normal human being.

WHAT WE ARE AND HOW WE GOT THAT WAY

How did we get the universal traits that characterize us as a species? Why do we have two arms, two legs, two eyes, and two sexes, instead of one or three? For that matter, why arms and legs at all? Why not tentacles or wings instead? The only scientific account of human nature that can provide a satisfying explanation for how the human species got to be in its current form is an evolutionary account. As one evolutionary biologist famously put it, "Nothing in biology makes sense except in the light of evolution."[2]

In this chapter, I'm going to challenge you to engage in what the evolutionary biologists Martin Daly and Margo Wilson have called "selection thinking." We'll try to envision the functions that revenge might have served in the ancestral environment to which human beings are adapted.[3] The "ancestral environment to which human beings are adapted" is clearly not our modern world, with its rapid communication, highly differentiated division of labor, small families, and well-developed cultural institutions. Instead, it's a world that existed a hundred thousand or

more years ago. It's a world with few cultural institutions and very little social organization beyond the extended kinship network. It's a slow world without private property, police, courts, jails, or formal codes of law. It's a world in which your wits, your relatives, and maybe a few good friends were your best (and perhaps only) sources of help when you got into serious trouble. When we engage in selection thinking, we try to envision the functions that revenge might have served in an environment like *that,* rather than in an environment like our own (even though revenge may still at times serve similar functions for us today).

Those "functions" of revenge that we as selection thinkers want to understand are its social effects that influenced our ancestors' abilities to survive, reproduce, and see their offspring to reproductive maturity. In other words, the ultimate causes for humanity's vengeful predisposition today, according to selection thinking, are the ways in which it helped our ancestors to have a lot of grandkids. But selection thinking needs to be consistent with empirical evidence if it's going to survive the scientific gantlet. As we proceed through this chapter and those that follow, we're going to consider that evidence in detail.

To do selection thinking, we need to start with three concepts: variation, inheritance, and selection.[4]

Variation provides the raw materials upon which natural selection operates. If you think about the people you know, you'll no doubt be struck by the variation in physical traits, behavioral dispositions, and personality. Much of this variation is created by differences in the individuals' genetic constitutions. These genetic constitutions are heritable, meaning they are passed from one individual to his or her offspring through reproduction.

This genetic variation between individuals is the stuff that natural selection selects. Put simply, natural selection is a process by which the genes that give rise to traits that make organisms better at creating copies of themselves (through reproduction) are precisely the genes that are more likely to show up in the organisms' next generation of offspring. As a result, the traits that provided a reproductive advantage to one's forebears (and the genes that give rise to those traits) become more prevalent in successive generations.

If, for example, normal genetic variation causes an individual animal from a given species to develop strong, sharp claws that enable it to feed itself and its offspring better than individuals that lack the genes for those strong, sharp claws, the bearer of the "strong, sharp claws" genes is likely to have more offspring (that is, to make more genetic copies of itself) than will the individuals with the more typical claw genes. In the next generation, therefore, the species will have a slightly larger proportion of individuals with strong, sharp claws than it did in the previous generation, and those individuals with strong, sharp claws will go on to out-reproduce the individuals with the more typical claws. And so it goes: compete, replicate, repeat. As this selection process unfolds over many generations of reproduction, a trait that confers a selective advantage can become species-typical.

Does natural selection operate upon psychological or behavioral traits in the same way that it operates upon physical traits? Well, why wouldn't it? We now know, for example, of a gene that's partially responsible for the evolution of the capacity for speech, and experts believe that this gene was specifically selected for its role in creating this uniquely human adaptation.[5] We also know that many behavioral and psychological traits—even rather complex ones such as dimensions of personality and intelligence—that differ among contemporary humans are caused to varying degrees by genetic differences among individuals.[6] So given that some genes that are responsible for universal adaptations such as speech are more or less species-typical, and given that variation in other genes is responsible for psychological traits on which people currently vary, it seems close to inconceivable that the genes that lead to personality and behavioral traits (including the propensity for revenge) might somehow have been impervious to natural selection during human evolution.

WHAT IS AN ADAPTATION?

"Adaptation" is one of the most basic and important concepts in evolutionary biology. It is also one of the most frequently misunderstood concepts in evolutionary biology. The evolutionary psychologist David Buss defined an adaptation as "an inherited

and reliably developing characteristic that came into existence through natural selection because it helped to solve a problem of reproduction during the period of its evolution."[7] The writer Robert Wright defined adaptations as "mechanisms that are here because they have in the past contributed to your ancestors' fitness. And all are species-typical."[8]

Humans, like all species, possess lots of interesting adaptations. Language is an adaptation for communication when living groups get very large and, consequently, there is a lot more that needs to be communicated.[9] Pregnancy sickness is an adaptation for avoiding teratogens (toxins that affect fetal development) during gestation.[10] Concealed ovulation is an adaptation for managing the reproductive trade-offs that occur when individuals receive reproductive advantages both from procuring lots of mating opportunities and from providing paternal care for their offspring.[11]

But let me be clear: not everything that exists in human nature is an adaptation.[12] The evolutionary biologist George Williams noted that "adaptation is a special and onerous concept that should be used only when it is really necessary."[13] Every human being on the planet has a belly button, but the belly button itself is not an adaptation. Instead, the belly-button is the by-product of an adaptation—it's the interface that connects the umbilical cord to the fetus. Our search for the adaptive value of the belly-button will certainly be fruitless, because it didn't arise because of its adaptive value. It's an inevitable but purposeless consequence of a true adaptation—intrauterine fetal development.[14] In recent years, social scientists have claimed that art and music may be similar cross-cultural universals that arose even though they serve no known adaptive purpose.[15]

Other adaptation-irrelevant traits might become species-typical through a process known as genetic drift (or neutral selection). In genetic drift, a trait produced by a genetic variant can spread and become species-typical through sheer luck rather than because of any fitness benefits that the trait confers. So we have to keep something in mind: hypothesizing that the ubiquity of the desire for revenge is due to its co-occurrence with a *bona fide* adaptation (à la the belly button–umbilical cord relationship), or hypothesizing that it is due to genetic drift, are reasonable things

to do. However, we aren't going to give these non-adaptationist hypotheses very much attention henceforth because the scientific evidence that we'll get into in the next few chapters will vindicate the adaptationist point of view resoundingly.

How Could the Desire for Revenge Possibly Be an Adaptation When It's So Maladaptive?

How could revenge possibly be an adaptation (in the evolutionary sense) when it's so destructive and seemingly pointless—when it seems so *maladaptive*—in the world in which we live? What could possibly be the evolutionary advantage of killing Vietnamese women and children because of casualties your platoon suffered the day before? What gain comes from killing the man who killed your son for spreading rumors about his daughter's chastity? Who benefits when a man whose family was killed in an airplane crash murders the air traffic controller whom he blames for the crash? If revenge is an adaptation, we have to explain the evolutionary gains that our ancestors might have acquired by possessing a willingness to take revenge, even if revenge doesn't serve those functions in the modern world (or, for that matter, even if it does). To think about revenge as an evolutionary adaptation, we won't concern ourselves so much with whether it's "adaptive" today—what will concern us is whether it was adaptive before humans existed in their contemporary form.

It might seem, then, that evolutionary scientists who deal with human behavior have a tough row to hoe, and they do. Because they want to explain not only *how* things work but also *why they work* the way they do and *how they came to work the way they do,* they often have to seek out sources of data that more conventional social scientists do not.[16] In this, their endeavor is a bit like astronomers' efforts to understand how the universe began by studying things that they can observe today. Evolutionary researchers excavate ancient burial sites and scrutinize dried-out skeletons. They isolate specific genes and figure out what they do. They watch the behavior of infants. They study the behavior of college freshmen in the social psychology laboratory. They watch nonhuman

primates in the wild and in captivity. They interview people from hunter-gatherer societies who haven't yet had much contact with modern civilization.[17] None of the bits of data they gather from any single one of these sources proves definitively that a given behavior is an adaptation, but all of the data put together should tell a consistent story one way or the other. First and foremost, if a behavioral or psychological trait really is an adaptation, the data should give us a consistent story about the adaptive problem (or problems) that the trait helps to solve.

WHAT ADAPTIVE PROBLEMS DOES REVENGE SOLVE?

Some emotional states serve obvious functions that give evolutionary theorists confidence that those emotions are part of the solution to an adaptive problem. For example, fear prompts us to escape potential threats in the environment. It also makes us more cautious and avoidant of risk in general.[18] But some fears are easier to develop than others. For instance, primates learn to fear snakes the first time they see an individual looking fearful in a toy snake's presence; the same sort of automatic learning doesn't occur when primates see an individual looking fearful in the presence of toy rabbits or flowers. In the laboratory, humans can be conditioned to fear snakes even when they aren't consciously aware that they've even seen a snake (this is also an effect that doesn't occur when researchers try to "teach" people to fear innocuous objects such as mushrooms and flowers). Moreover, fears of snakes are extremely difficult to unlearn. All of this evidence, when put together with an understanding of the general psychological and behavioral effects of fear and the survival threat that snakes and reptiles played during human evolution, suggests that fear of snakes is a *bona fide* psychological adaptation.[19]

Some social scientists have tried to discover the functionality of revenge by studying the justifications that people provide for their own vengeful behavior. On this basis, some have proposed that people seek revenge because they want to balance a moral ledger that has become lopsided, or because they're interested in

teaching a transgressor a moral lesson, or because revenge feels good and raises the avenger's self-esteem.[20] All of these statements could well be true, and from certain perspectives it might be correct to view them as "causes" of revenge, but such explanations can't help us understand *why* we have a capacity for revenge or *where that capacity came from in the first place.* The social scientists who generated these hypotheses about revenge weren't using selection thinking.

To conceptualize revenge as an adaptation, we have to know what social problems it helped our ancestors to adapt *to.* There are three very good possibilities. First, the propensity for revenge may have been selected because it helped to deter individuals who aggressed against ancestral humans from harming them a second time. Second, revenge may have deterred would-be aggressors from committing acts of aggression against our ancestors in the first place. Third, revenge may have been useful for punishing (and reforming) members of the social groups to which our ancestors belonged when those members failed to "pitch in" and make appropriate contributions to the common good. Let's look at these three possibilities and some of the evidence behind them.

THE FIRST ADAPTIVE FUNCTION: REVENGE DETERS AGGRESSORS FROM AGGRESSING A SECOND TIME

The first possible adaptive function of revenge is its ability to deter an aggressor from harming you a second time. When somebody harms you, you're obviously motivated to prevent it from happening again, so one thing you can do is simply stay out of the aggressor's way in the future. In highly mobile modern societies such as ours, often we can simply end relationships in which we've been betrayed and form new relationships in their place. But in the close societies in which our earliest hominid ancestors lived, moving away wasn't always a good option. Indeed, ostracism from the group was often a severe punishment that carried the risk of death. Therefore, our ancestors often had to find more direct ways to cope with the despots and bullies in their midst.

One way to cope with someone who wants to take advantage of you is to make it less profitable for that person to do so. If a bully determines that, by taking advantage of you, he can gain access to resources (for example, food, shelter, a good tool, a good mate, or a bump up the social ladder) that will improve his own well-being by *x*, but he knows that he'll incur a transaction cost (for example, in the form of wounds, or in the loss of status if he actually loses the fight) that equals, say, 50 percent of *x*, then taking advantage of you will produce, on average, a net benefit of only .5*x*. Would the bully try to steal your mate for a benefit of *x*? Perhaps. For .5*x*? Perhaps not. Revenge turns *x* into .5*x*.

Revenge of this nature, which evolutionary biologists define as the "retaliatory infliction of a fitness reduction," is actually quite prevalent in animal societies. For example, if a rhesus macaque finds a source of a highly valued food, but fails to issue one of the "food calls" that are used to alert others to the big discovery, the animal is likely to be attacked when others realize what he's done. In a scenario like this, you can almost see the evolutionary logic at work: if you don't want to share your food with us, then we're going to make it less fitness-enhancing for you to try and be sneaky about it. Theoretical biologists have gone on to show that the social impulses that motivate individuals to harm others who take advantage of them can become "evolutionarily stable." In other words, the math works out right for revenge to evolve precisely because of its ability to teach our aggressors that crime doesn't pay.[21]

When we look at modern-day data on revenge and its effects, we can see that revenge seems to perform a similar deterrent function in human relations. A social psychologist examined this deterrent function over twenty-five years ago in a simple experiment.[22] Male undergraduate students were asked to write an essay, which was then evaluated by another person (who was actually working for the researcher). All participants received insulting evaluations of their essays, regardless of their actual quality.

The participants were brought back to the psychologist's lab twenty-four hours later and given the opportunity to give ten shocks of varying intensities to the very person who wrote the insulting reviews of their essays the day before. (In reality, no shocks were delivered, but participants were led to believe that they would be.) Recall from the previous chapter that this is the very sort of setup that typically leads people to behave vengefully: insult me and I'll more readily shock you in the lab. The intensity of the supposed shocks was controlled by a panel of seven buttons.

One-half of the participants were also led to believe that after they administered shocks to their evaluator from the previous day, they would then switch roles with their evaluator and receive the shocks themselves. The other half of the participants weren't told anything about receiving shocks later. People who believed that they could harm their insulting evaluators without the threat of retaliation gave stronger shocks to the evaluators than did people who thought that the evaluators would have an opportunity to retaliate. Thus the fear of retaliation deterred aggression. In another study, people refrained from harming the interests of their opponent in an economic bargaining game when they knew that the opponent had a strong ability to retaliate—especially when the opponent had shown an aversion to starting trouble in the first place.[23] What these two studies show is that believing that the target of your aggression will have the opportunity to retaliate against you severely reduces how much harm you're willing to do to him or her in the first place.

THE SECOND ADAPTIVE FUNCTION: REVENGE WARNS WOULD-BE HARMDOERS TO BACK OFF

A second candidate for an adaptive function of revenge—and perhaps even a more important one—is its ability to deter people who mean to harm us from doing so in the first place. Ancestral humans were group-living creatures that lived, worked, and ate in the presence of others. Thus the outcomes of their aggressive encounters with other individuals quickly became public knowledge.

Many social primates, including humans, are savvy political actors who observe each others' behavior and then use that information to make calculated, strategic decisions about how to interact with each other. Any information I might gain about your inner disposition—how fearful you are, how easy-going you are, how generous you are, how vengeful you are—could be

useful as I try to negotiate my own social world. Any insights I can gather about what you are made of could turn out to be useful as I try to determine whether I ought to befriend you, cooperate with you, take advantage of you, kowtow to you, or simply stay out of your way. For this reason, I'm very interested in what you do after someone else tries to take advantage of you. If you let somebody harm you without seeking your revenge, then I'll know that you're an easy mark and I might consider trying to take advantage of you myself.

Don't kid yourself by thinking that the ancestral human beings I'm describing were too stupid to engage in such sophisticated political thinking. We modern humans can do it, of course, and our modern-day primate relatives, most notably the chimpanzees, are endowed with cognitive abilities that enable them to engage in such score-keeping and perhaps even to make inferences *about other individuals' inferences.*[24] So it's reasonable to assume that our hominid forebears were outfitted with similar cognitive abilities.

Social psychologists have shown in the laboratory that a victim will retaliate more strongly against his or her provoker when an audience has witnessed the provocation—especially if the audience lets the victim know that he or she looks weak because of the abuse he or she suffered or if the victim knows that the audience is aware that he or she has suffered particularly unjust treatment. In fact, when people find out that bystanders think less of them because of the harm they've endured, they'll actually go out of their way—even at substantial cost to themselves—to retaliate against their provokers.[25] Moreover, when two men have an argument on the street, the mere presence of a third person doubles the likelihood that the encounter will escalate from the exchange of words to the exchange of blows.[26]

The effect of third parties on revenge can also help to explain a couple of puzzles about cultural differences in violence. First off, why do white men in the modern American South have higher levels of gun violence than do white men in the Northeast? Social psychologists Richard Nisbett and Dov Cohen say it's because the Europeans who originally settled in the Old South were sedentary herders rather than farmers.[27] (Stay with me; this story gets pretty good.)

Sedentary herders are highly vulnerable to theft and exploitation. The lands they occupy are usually not very good for more intensive agriculture. Grazing land is often in short supply, which creates a chronically high level of social tension. Moreover, herders gamble their entire livelihood on a commodity that is both very expensive and highly portable (cattle, sheep, and goats, after all, have hooves). Therefore, as a herder you have to be on guard to make sure no one steals your herd while you sleep. By comparison, it's awfully hard to steal someone's barley crop overnight, and it's the land rather than the harvest that holds long-term value for the farmer anyway.

For this reason, according to Nisbett and Cohen, it makes good sense for herders to cultivate honor—reputations as the type of people whom you can't slight without facing certain, violent retaliation. Indeed, in his book *Cohesive Force,* the anthropologist Jacob Black-Michaud documented extensively the self-protective functions that honor (backed up by feuding and vengeance) served among the traditional herding societies of the Mediterranean and Middle East.[28] Honor is of such value to people from a herding culture that they'll kill or be killed to defend it: once your honor is lost, it's just a matter of time before your neighbors begin to take advantage of you.

So, where did the Europeans who originally settled the American South come from? You guessed it: they came from Ireland, Scotland, and Wales, where livestock herding was the traditional agricultural activity. Once in the United States, they went on after several decades to farm tobacco, rice, indigo, and cotton,[29] but even then they were reluctant to give up the herder's honor mentality. Old mental habits, enshrined in a thousand different cultural edifices and passed from father (and mother) to son, die hard. The need for honor—backed up by a proneness for revenge—might have been particularly acute in the frontier South of the seventeenth and eighteenth centuries, where institutions for law enforcement were often meager or nonexistent. People had to take care of their own affairs. In contrast, the Europeans who settled the American Northeast came predominantly from places such as England, Germany, and Holland, where intensive farming was the traditional way of life—a way of life that didn't require people to be so obsessed with honor.[30]

Studies show that Nisbett and Cohen are on to something. They had Northern and Southern undergraduate men at the University of Michigan participate in several experiments in which they were bumped and then cursed at by someone who was surreptitiously working for the experimenter. In this situation, the Southern males became angrier, more hostile, and more prepared for aggressive action than did their Northern counterparts. They also had higher increases in cortisol (a stress hormone) and testosterone (a hormone that's associated with dominance and aggression) than did the Northern males.

In addition, when the Southern males were unwittingly put into a "chicken game" (they were asked to head down the hall for an appointment, but as soon as they set out, they encountered a six-foot-three, 250-pound young man who was coming down the hall from the opposite direction), those who had previously been jostled and cursed at waited longer before giving way to the big guy. This didn't happen with the Northern males. The jostled and insulted Southern males also gave firmer handshakes, and they were rated by evaluators as seeming more "dominant" than were the Northern males who had been jostled and insulted. Finally, when the Southern males were bumped and insulted in front of a witness, they believed that the witness thought less of their manliness, courage, and toughness. The Northerners didn't think the witness thought any less of them in this situation. In other words, being insulted and sworn at seemed like a violation of manly honor to those young Southern gentlemen, but no similar thoughts seemed to cross the minds of the Northern men. These results reinforce the assertion that white Southern men are more prone to retaliatory aggression than are Northerners—precisely because of their preoccupation with manly honor.[31]

The deterrent value of revenge also helps make sense of the high rates of retaliatory violence in the disadvantaged neighborhoods of America's inner cities. In his marvelous book *Code of the Street*, the sociologist Elijah Anderson contrasts two codes for regulating social interaction in contemporary urban communities.[32] The first is a code of decency that's characterized by relaxed, friendly, tolerant social interaction: this is a code for well-maintained, well-lit, multiethnic neighborhoods where there are job opportunities and safe public spaces. The second

is a "code of the street" that's characterized by a preoccupation with acquiring and protecting one's honor (or "respect," or "props") and projecting an image of self-confidence, nerve, skill, and an ability to look out for oneself. In the burned-out inner-city neighborhoods in which poverty and crime are high, police protection is unreliable, and opportunities for an honest living are scarce, young black men learn from an early age to regulate their behavior according to the code of the street. These sorts of neighborhoods are magnets for retaliatory homicide.[33]

Anderson argues that inner-city black men's reliance on the code of the street results in large measure from their lack of trust that the criminal justice system will be there to defend their interests for them. Developing "respect," therefore, becomes such a preoccupation in these neighborhoods because it works as an insurance policy against victimization—just as it did (and maybe still does) among Mediterranean herders, the Scots-Irish settlers of the Old South, and their descendants. As Anderson describes, the readiness and willingness to retaliate for real or imagined slights is a key part of the code of the street—primarily because of how it helps people to obtain respect and to defend it: "For young people this means being prepared to meet challenges with counteractions. When they are hit or otherwise violated, they may hit back. Or they may even 'pay back' later on by avenging transgressions. An important part of the code is not to allow others to chump you, to let them know that you are 'about serious business' and not to be trifled with. The message that you are not a pushover must be sent loudly and clearly."[34]

A substantial body of research evidence supports the idea that adherence to the street code predisposes young people to lives of retaliatory violence. For example, a nationally representative, three-year longitudinal study of more than nine hundred adolescent males found that boys who endorsed street-code beliefs (for example, that it's okay to get into a fight to uphold your honor or to retaliate against someone who's called you a name) went on one year later to engage in more violence, including greater participation in gang fights and attacks in which their goal was to seriously injure or kill someone.[35]

One African-American man nicknamed "Stub," who sells heroin on the streets of St. Louis, explained to some researchers

the logic of deterrence that was behind his decision to kill a man who once shot him and then robbed him:

> See, you have to realize if I didn't get back at him, you and him could say [Stub]'s a punk. Everybody can go take [Stub's] shit. So if he [gets] hurt, everybody knew who hurt him. . . . So if you handle your business you ain't got to even worry about it cause they gonna say that time [so-and-so] robbed [Stub], and shit he came up missing. So that gonna give them the fear right there not to fuck with you. . . . That's very important if you gonna live that lifestyle. You need to let it be known you not gonna take no shit, you know what I'm saying? Fuck no, you would be out of business . . . or dead you know what I'm saying, cause you would have people, little kids, coming up trying to rob you [thinking] he ain't gonna do nothing, he's a punk. . . . People just know . . . don't fuck with me [because of my] reputation.[36]

THE THIRD ADAPTIVE FUNCTION: REVENGE COERCES FREE RIDERS TO COOPERATE

A third function of revenge that was probably adaptive for ancestral humans is its value in coercing people to cooperate who would otherwise take advantage of other people's hard work without pitching in themselves. Cooperation is widespread in the animal kingdom. Predatory animals cooperate in tracking and bringing down prey; chimpanzees form alliances to steal power away from more powerful, but socially isolated, alpha males; male dolphins cooperate to isolate females so they can mate with them; pairs of fish from several species cooperate in checking out predator fish to determine whether they're hungry; and wasps, ants, and bees divide labor in exquisitely elaborate ways.[37] But cooperation among humans has a distinctive feature: we readily cooperate with nonrelatives and even perfect strangers without promise of special consideration in the future. Indeed, human societies are built upon this sort of cooperation. Without cooperation, agriculture, conservation of natural resources, and warfare (not to mention writing, the Internet, and international trade) would have been impossible.[38] Thus civilization as we know it would have been impossible.

The evolution of large-scale human cooperation has puzzled scientists for quite some time. Jean-Jacques Rousseau understood the nub of the problem: suppose twenty of us pledge that we're going to make sacrifices so that we can achieve some grand goal that none of us could accomplish alone. We're all going to sacrifice a bit of our individual time and energy (in the evolutionary sense, our "fitness") in the short run to create something that will yield gains for all of us in the long run. Perhaps this group endeavor is large-game hunting. If we're all willing to take time out of our schedules to hunt deer, we'll be much more successful in the endeavor of deer hunting than we would have been otherwise, and therefore there will be more meat for us and our families than if we'd all stayed close to home and fended for ourselves.

But deer hunting is not a risk-free enterprise. It takes time, its outcome is uncertain, and there's a real possibility that you'll run into a dangerous animal in the woods. Given the potential costs of deer hunting, large-scale cooperative endeavors such as group hunts are vulnerable to cheaters or "free riders." What's to stop someone in the hunting party from loafing so as to avoid injury or inconvenience? Meat is often shared among the group rather than owned by any specific hunter, so hypothetically a free rider could benefit from the hunt without making any personal sacrifice.

Or, what's to stop one of our hunters from breaking faith with his comrades if the opportunity to kill a hare presents itself? Rabbit hunting is relatively easy and safe, and it carries a higher probability of personal payoff to the hunter. So wouldn't everybody go after the rabbit if given the opportunity?[39] As Rousseau rightly perceived, it's hard to see why someone would remain faithful to a social contract that required him or her to give up short-term personal gain in service of the common good. It's easier to be a free rider on the bus and let everyone else pay to keep it maintained. So how does large-scale cooperation emerge at all? Not surprisingly, philosophers and social scientists call this problem the "free-rider problem."

When we think of the free-rider problem not as a problem about individual organisms but rather as a problem about gene frequencies within a population of replicating organisms, it gets

even knottier. Let's say that there are genes that favor group cooperation and genes that favor free riding. The individuals with the genes that favor group cooperation are the people who will be inclined to do the work of cooperating, and this reduces their fitness slightly relative to the fitness of individuals with the free-rider genes who gain the benefits of group cooperation without the costs associated with all the extra work. As a result of the fitness advantage that free-riding genes seem to enjoy generation after generation, it's hard to see how the proportion of cooperative genes in the gene pool could do anything but decline with each successive generation, just as it's hard to see how the free-rider genes could do anything except increase. Thus the free-rider problem makes large-scale cooperation look like an evolutionary nonstarter.

One possible solution to the mystery of large-scale cooperation in light of the free-rider problem is punishment, more specifically, a form of punishment that goes by the name "altruistic punishment" or "moralistic enforcement."[40] Altruistic punishments might include humiliating the free rider, physically injuring him, fining him, socially ostracizing him, or taking away some other resource that steeply reduces his fitness. We call this sort of punishment "altruistic" because it comes with a cost to the punisher—if you decide to punish a free rider, you do so at some metabolic cost to yourself. Still, research with modern-day humans has shown that people willingly incur considerable costs to themselves in order to punish free riders,[41] and that they do so in order to prevent free riders from parasitically benefiting from the cooperative effort of other group members.[42] Altruistic punishment occurs even when the punisher gets no personal benefit from punishing the noncooperator and even when the punisher doesn't have the opportunity to engage in any more interactions with the uncooperative partner: people punish free riders, it seems, just because they feel like it. And actually, the psychological mechanism that promotes altruistic punishment is even more specific than that: people freely and gladly punish free riders because free riders make people angry, and because harming them in kind makes people feel good.[43]

Research on modern human behavior shows that regularly punishing free riders can indeed establish and maintain

large-scale group cooperation. In one study, the individuals within four-person groups were each given an endowment of twenty monetary units (for simplicity's sake, I'll call them dollars) by the investigators. Then the groups played repeated rounds of an investment game in which the four individuals could contribute whatever amount they desired from their personal accounts into a joint account that was shared by all four members. When you put a dollar into the common account, that dollar is subtracted from your personal account, and $1.60 (or 40 cents per group member) is placed in the joint account. At the end of each round, the earnings in the joint account are distributed evenly among the four group members. In the short run, making contributions to the joint account is a bad deal for you as an individual group member (you lose 60 cents for every dollar you contribute), but if all four of your group's members make a one-dollar contribution on each round, you'll all get $4 \times .40 = \$1.60$ per round, for a 60-cent gain per round.

This is the classic dilemma of cooperation, monetized: if you're cooperative but no one else is, you get screwed. If everybody cooperates, everybody benefits. If everyone except you cooperates, you get to be a free rider, benefiting from everyone else's cooperative spirit without taking on any personal risk.

To test whether retaliation deterred free riders and encouraged better group outcomes, the researchers gave half of the four-person groups the ability to punish group members who didn't make solid financial contributions to the joint account on each round. If you wanted to punish a member of your group whom you viewed as a free rider, you could make a "punishment" decision that would cost that person three dollars, but to enact your decision to punish the free rider, you had to pay a dollar from your personal account (hence the "altruism" in "altruistic punishment"). For the other half of the four-person groups, punishing other group members simply wasn't an option.

The effect of the ability to punish free riders on contributions to the joint account was staggering. Individuals within groups that could punish free riders readily deposited huge proportions of their individual endowments into the joint account, and the sizes of their contributions increased with each new round. By the end, about 40 percent of players in the groups that

could punish were contributing *all* of their personal endowments into the joint account during each round. By contrast, in the groups that couldn't punish free riders, contributions *declined* with every successive round.[44]

In another study, researchers had participants play a similar type of investment game, but the researchers gave the participants the freedom to choose what kind of group they wanted to join—a group that could punish free riders or a group that couldn't. If people didn't like their outcomes in one kind of group, they could switch to the other kind of group whenever they wanted. Initially, only about one-third of the participants chose to belong to a punishing group, but because the free riders hobbled the effectiveness of these nonpunishing groups so dramatically, most people in the nonpunishing groups eventually realized that joining the punishing groups was worth the trouble. In fact, after thirty rounds of play, about 93 percent of people had moved into a group that could punish free riders. By that time, cooperative behavior in the punishment-free groups had collapsed completely: large-scale group cooperation simply can't be sustained without the ability to punish free riders.

Experience is a hard teacher. In this study, she taught participants that they'd have better individual outcomes in the long run if they belonged to a group that could reward cooperation and punish cheating—even though their intuition told them that they'd do better by free riding or by belonging to a nonpunishing group. The fact is that when enough cooperators who are willing to retaliate against free riders get together in a group, the fitness disadvantage associated with bearing the costs of punishment is spread out among so many potential punishers that its actual effects on fitness are quite trivial. By the end of thirty rounds of play, the high contributors who were willing to punish defectors were getting 98 percent of the payoffs that the high contributors who were unwilling to punish were receiving. With more rounds of play, the differences in their payoffs would likely have disappeared completely. This is because nearly everyone eventually comes to play by the rules nearly all the time within the punishing groups, so no one has to punish anyone else very often.[45]

The conclusion looks clear: without the ability to punish, large-scale group cooperation is probably an evolutionary nonstarter. With the ability to retaliate against free riders, however, it begins to look like an evolutionary no-brainer.

REVENGE: THE PROBLEM THAT IS A SOLUTION

To the outside observer, revenge looks pointlessly destructive. And when we count the costs of revenge from a nonselectionist vantage point, it is. As we saw in the previous chapter, the desire for revenge motivates aggression, murder, and perhaps even international conflict. Marvin Heemeyer built his killdozer and then used it to destroy a lot of property and upset a lot of people, but he accomplished very little else. In the end, his rampage on Granby, Colorado, seemed like nothing so much as a very destructive temper tantrum. Vitaly Kaloyev got his revenge against the air traffic controller Peter Nielsen, but the only thing he really managed to do was to make more widows and orphans.

But when we use selection thinking, we can appreciate the evolutionary logic that might lie behind the human propensity for revenge. Selection thinking leads one to suspect that humans' propensity for revenge exists because of how it protected our ancestors from aggressors and because of how it protected their efforts to benefit from large-scale cooperative behavior. With these potential adaptive functions in mind, it gets easier to accept the idea that revenge is a built-in feature of human nature, despite its awful effects in the world today. We might rightly view revenge as a modern-day problem, but from an evolutionary point of view, it's also an age-old solution.

In this chapter we've explored some of the functions that revenge might have served in our evolutionary past, but so far we've only come part way in this endeavor to understand why revenge evolved and what it's really all about. We need to take a closer look at how revenge is actually practiced in real human lives and real human societies—and some nonhuman ones as well.