

THE MYTH OF NUCLEAR DETERRENCE

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Nuclear deterrence is sometimes treated as a known quantity—a definite thing that keeps us safe and ensures our security. It has also often been used as a justification for possessing nuclear weapons. Nuclear deterrence, however, is based on an unexamined notion: the belief that the threat to destroy cities provides decisive leverage. An examination of history (including recent reinterpretations of the bombing of Hiroshima) shows that destroying cities rarely affects the outcome of wars. How is it possible that an action that is unlikely to be decisive can make an effective threat? Recent work on terrorism suggests that attacks against civilians are often not only ineffective but also counterproductive. And a review of the practical record of nuclear deterrence shows more obvious failures than obvious successes. Given this, the record of nuclear deterrence is far more problematic than most people assume. If no stronger rationale for keeping these dangerous weapons can be contrived, perhaps they should be banned.

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It is often asserted as fact that nuclear deterrence works, that it kept us safe for fifty years during the Cold War, and that because of the peculiar characteristics of mutual assured destruction, it provides unique stability in a crisis. Besides this general security and stability, the conventional wisdom also holds that nuclear deterrence provides three specific benefits: 1) protection against attacks with nuclear weapons, 2) protection against attacks with conventional forces, and 3) indefinable additional diplomatic clout. If the conventional wisdom is true, if nuclear deterrence is as well defined and successful as is sometimes assumed, it is both a powerful argument against nuclear disarmament and a considerable obstacle to those who wish to prevent proliferation. These issues matter because nuclear weapons remain dangerous and powerful and appear to be slowly but steadily spreading.

There are reasons, however, for doubting the conventional wisdom. First, closer inspection calls the fundamental soundness of nuclear deterrence theory into question. In addition, three practical arguments put the efficacy of nuclear deterrence into doubt: 1) the characteristic attack threatened in most nuclear deterrence scenarios—city attack—is not militarily effective or likely to be decisive; 2) the psychology of terror that is supposed to work in nuclear deterrence's favor actually creates the circumstances for unremitting resistance; and 3) even though the field is mostly conjectural, what little unambiguous evidence does exist contradicts the claim that nuclear deterrence works.

Nuclear deterrence has relied on what today might be called a "shock and awe" strategy: threatening to devastate enemy cities in order to coerce. At the heart of the theory is faith that the prospect of city destruction creates decisive leverage. No exchange

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is likely between adversaries with nuclear weapons (the argument goes) because a fight in which numerous cities are destroyed is unacceptable. In a conflict between a state with nuclear weapons and a state without nuclear weapons, even if only a few weapons are used against cities (the argument also asserts), the state without would immediately surrender. History, however, does not bear out this faith. As we shall see, the historical record shows that attacks against cities have little impact on the course of wars and that using these sorts of superfluous attacks as threats is at best problematic.

The trump argument in the debate about the efficacy of city bombing has always been the bombing of Hiroshima and Nagasaki. The Japanese surrender just days after these cities were attacked seems to provide conclusive proof that city attacks with nuclear weapons are militarily decisive. Over the last twenty years, however, historians have come to doubt the influence of Hiroshima and Nagasaki and increasingly ascribe the Japanese surrender to the Soviet declaration of war on August 9, 1945. The collapse of the Hiroshima case undermines one of the cornerstones of nuclear deterrence theory.

At the heart of the misapprehension about attacking cities is a failure to understand the characteristics of attacks against civilians. An analysis of the evidence from terrorism provides strong evidence that attacks aimed at civilians almost never work.

An examination of the practical record of nuclear deterrence shows doubtful successes and proven failures. Taken together, these examples undermine the apparent certainty and success that often seem to surround nuclear deterrence. If the conventional wisdom is wrong—if nuclear weapons might not deter nuclear attacks, do not deter conventional attacks, and do not reliably provide diplomatic leverage—then the case for disarmament, nonproliferation, and banning nuclear weapons is immeasurably strengthened.

City Bombing at the Heart of Nuclear Deterrence

Deterrence is defined most economically by Glenn Snyder as “the power to dissuade.”¹ Alexander George and Richard Smoke define it as, “simply the persuasion of one’s opponent that the costs and/or risks of a given course of action . . . outweigh its benefits.”² Thomas Schelling calls deterrence “a threat . . . intended to keep an adversary from doing something.”³

Nuclear deterrence is using the threat of nuclear attack to dissuade. It began its life (not too surprisingly after Hiroshima) as the threat to destroy cities. Bernard Brodie, in his seminal chapters on nuclear strategy in *The Absolute Weapon* in 1946, made the expectation of “huge devastation of . . . peoples and territories” one of the central tenets of deterrence.⁴ David Alan Rosenberg, in his award-winning essay exploring formerly classified plans for nuclear war, reported, “From 1947 through 1949, the separate target systems within the Soviet Union grew less important, while governmental control centers and ‘urban industrial concentration’ became primary objectives. In 1948, when SAC [Strategic Air Command] prepared its first operations plan, even this level of distinction was not maintained. SAC’s aim points were ‘selected with the primary objective of the annihilation of population, with industrial targets incidental.’”⁵ Schelling, one of the foremost nuclear strategists, asserted in 1966 that, “In the present era noncombatants

appear to be not only deliberate targets but primary targets.”⁶ Robert Jervis wrote as late as 1980 that, “Deterrence comes from having enough weapons to destroy the other’s cities.”⁷

These writers place city attacks squarely at the heart of nuclear deterrence. Despite this, it is sometimes asserted that city attacks are no longer central to nuclear deterrence. The assertion is based on a now-famous speech in July 1962, in which Secretary of Defense Robert S. McNamara declared that U.S. policy would henceforward be that “the principal military objectives, in the event of a nuclear war . . . , should be the destruction of the enemy’s forces, not of his civilian population.”⁸

There are four reasons, however, for doubting how much this doctrine might determine the shape of an actual war. First, a nation’s declaratory policy is likely to be different from its actual plans for nuclear war. Second, city attacks, even if they are absent from the early stages of nuclear war scenarios, usually loom large in any later stages. Descriptions of nuclear war always include the possibility of the war getting out of control. Getting out of control means using nuclear weapons against civilian populations. City attacks exist, therefore, as an inherent possibility in virtually every nuclear war scenario. Third, it seems doubtful that the choices made by the United States in its targeting doctrine necessarily control the choices other nuclear nations make in their targeting doctrine. Certainly when nuclear war is discussed between India and Pakistan, for example, there seems to be an emphasis on the possibility of attacks against cities.⁹ Fourth, “no cities” is a doctrine for states with many nuclear weapons. It seems likely that states with smaller nuclear arsenals (and the majority are believed to have fewer than 200) would not emphasize “no cities” targeting policies.

Destroying cities, whether in the early stages or the later, is central to nuclear war. Nuclear deterrence is based, in part, on the threat of nuclear war. Despite sixty years of theorizing about nuclear war, however, little thought seems to have been given to whether violence against civilians is likely to be militarily decisive. We assume that threats with nuclear weapons work because we assume that threats to harm civilians matter. We assume, in other words, that leaders are influenced in decisions about war and surrender by the deaths of noncombatants. The problem with this assumption is that there is very little evidence for this point of view. The error a great deal of nuclear deterrence theory makes is to presume without investigation that attacking civilians matters.

City Attack Prediction Mistakes

One of the most discouraging and uncomfortable facts for those who want to argue that city attacks will be militarily important in any nuclear war (and therefore would work as a threat) is the record of strategists trying to gauge the impact of city bombing. Twice in the past strategists have described vividly and confidently how city attacks will quickly bring any future war to an end. Twice they have been proved embarrassingly wrong.

Before World War I, despite the fact that airplanes were a new technology that had never been used in war, it seemed obvious to some observers that aerial attacks on civilians would have a catastrophic effect on a nation’s ability to make war. By 1912 (nine years after the Wright brothers’ first flight) experts were making dire predictions about the

changed nature of warfare. Lord Montague, for example, posited an aerial attack on London at the beginning of a war:

“What would the results be? Imagine the Stock Exchange, the chief banks, the great railway stations, and our means of communication destroyed.” Such a blow at the very heart of the Empire, . . . “Would be like paralysing the nerves of a strong man with a soporific before he had to fight for his life; the muscular force would remain but the brains would be powerless to direct.”¹⁰

Despite these and other warnings, aerial bombing did not play a decisive role in World War I. Planes were not yet large enough to carry significant loads of bombs, and very few bombing raids were attempted on either side.

Before World War II, however—even though predictions about World War I had been wrong and the technology for bombing cities was new and untested—developments in aircraft made strategists believe that it was obvious that bombing would have a significant impact on the course of the war. Chief among these was an Italian general, Giulio Douhet, whose basic thesis has been summed up in this way:

1) Aircraft are instruments of offence of incomparable potentialities, against which no effective defence can be foreseen. 2) Civilian morale will be shattered by bombardment of centres of population. 3) The primary objectives of aerial attack should not be the military installations, but industries and centres of population remote from the contact of the surface armies.¹¹

Douhet was certain of the crippling effects of civilian attacks on any nation. Of such attacks he vividly wrote:

And if on the second day another ten, twenty, or fifty cities were bombed, who could keep all those lost, panic-stricken people from fleeing to the open countryside to escape this terror from the air?

A complete breakdown of the social structure cannot but take place in a country subjected to this kind of merciless pounding from the air. The time would soon come when, to put an end to horror and suffering, the people themselves, driven by the instinct of self-preservation, would rise up and demand an end to the war—this before their army and navy had time to mobilise at all!¹²

U.S. Air Force General William Mitchell agreed, saying, “It is unnecessary that these cities be destroyed, in the sense that every house be leveled to the ground. It will be sufficient to have the civilian population driven out so that they cannot carry on their usual vocation. A few gas bombs will do that.”¹³

These predictions were wrong. England, the first country subjected to sustained city bombing in World War II, neither surrendered nor ever, that I am aware, seriously debated surrendering because of city bombing. No members of Parliament rose to urge surrender following the bombing of London or the destruction of Coventry. Eventually an estimated 60,000 people died in the United Kingdom as a result of city bombing. But besides vastly increasing the suffering associated with the war and seeming to stiffen the resolve of the

British, the bombing of cities appears to have had little impact on the United Kingdom's military effort in the war.

(In fact, far from being afraid that city attacks might drive England from the war, there is some evidence that Prime Minister Winston Churchill used British cities as a sponge to soak up German air attacks and to divert them away from precious military assets. In the first years of the war there had been a commitment not to bomb cities. Historians claim that Churchill seized on an accidental bombing of London on the night of August 24 to launch a counter raid on Berlin. The next day Hitler ordered the Luftwaffe to shift away from British airfield attacks, which were close to breaking the Royal Air Force, and concentrate on attacking London and other cities. Historians argue that Churchill's intent was to divert German attacks away from British military targets and toward cities. George Quester notes, "Churchill admits his desire, in late August, for an immediate shifting of the massive Luftwaffe offensive from the RAF airstrips to London, and he admits his personal responsibility for the bombings of Berlin begun on August 25; it seems quite likely that he was aware of the probable connection between the two.")¹⁴

In Germany the damage created by city bombing was far greater than the destruction in England. An estimated 570,000 people lost their lives and a large number of major cities were seriously damaged or destroyed. Throughout much of the time that German cities were being mercilessly pounded in this way, German civilian morale remained strong, and until August 1944 overall economic production actually rose.¹⁵

The Japanese experience was even more decisive in demonstrating the futility of city bombing. By the spring of 1945 it was clear that Japan had lost the war. Beginning in March of that year the U.S. Air Force embarked on one of the most ferocious city bombing campaigns in the history of warfare. Sixty-six cities were bombed with incendiary and conventional bombs. In the initial raid on Tokyo—still the worst single city bombing in history (including Hiroshima and Nagasaki)—14 square miles of the city were destroyed and an estimated 120,000 civilians killed. Bombers were then directed at the next largest cities, and then the next largest, and so on until population centers no larger than 30,000 were being attacked.¹⁶

By almost any standard the bombing of Japan's cities was nearly complete. Yet despite the damage and the fact that the war was clearly hopeless, Japan's leaders continued throughout the summer to act and talk as if the city bombing did not exist. It was only at the last moment, at the meeting on August 9–10 discussing surrender, that Prime Minister Suzuki Kantaro briefly mentioned city bombing. Historian Richard Frank points out that, "It is astonishing to note that these comments by Suzuki and one other isolated reference in May are the only documented references by a member of the Big Six to the strategic air campaign."¹⁷ It is difficult to argue, on the evidence, that city bombing mattered to Japan's leadership.

World War II bombing, despite the predictions, gives little support to the claim that bombing civilians is decisive. As Bernard Brodie summed up the case, "The Allies learned after the war that the attack on enemy morale had been on the whole a waste of bombs. . . . In World War II the effects of bombing on civilian morale were certainly not trivial, but it seems clear that the lowered morale resulting from bombing did not importantly affect military operations or the outcome of the war."¹⁸

Although the assertion that killing millions of civilians would undoubtedly be decisive seems intuitively obvious, twice before strategists have made extravagant predictions about the likely effectiveness of bombing cities and killing civilians. Twice before they have been wrong. It would be incautious to continue to predict the decisive effect of city bombing without closer inquiry.

Hiroshima

The vital piece of evidence in the debate about the effectiveness of city bombing since 1945 is Hiroshima. Most people in the United States leap to the conclusion that the nuclear weapons used against Hiroshima and Nagasaki prove that city bombing—if conducted with ferocious enough weapons—is decisive. It had, after all, coerced the Japanese into surrendering.

Hiroshima is a difficult historical case to work with because most people are unable to resist confusing arguments about whether nuclear weapons were *effective* with arguments about whether their use was *morally justified*. Many people who argue about Hiroshima seem to be arguing about whether the United States is a good country, which is not the issue at hand. The issue is: when you destroy cities, do countries surrender? It is difficult to make a case that the answer is yes, because of the numerous German cities that were destroyed from 1943 to 1945 and the sixty-six Japanese cities that were destroyed with conventional and fire bombs between March and August 1945. If bombing cities is decisive, why didn't Germany and Japan surrender sooner? The assertion that nuclear attacks are peculiarly effective because nuclear destruction is peculiarly horrible is unpersuasive: means are rarely more important than ends.

There are four reasons to doubt the traditional interpretation of the nuclear bombing of Japan. First, the Soviet invasion (on the same day as the bombing of Nagasaki), unlike the nuclear bombings, radically altered the strategic situation. Second, the bombings of Hiroshima and Nagasaki merely extended what was already a ferocious campaign of city bombing and were generally within the parameters of destruction for these conventional attacks.¹⁹ Third, a close examination of diaries, letters, and official documents makes clear that the Soviet invasion touched off a crisis, while the bombings of Hiroshima and Nagasaki did not.²⁰ And fourth, although Japan's leaders regularly said that the atomic bomb prompted them to surrender, they had good reasons for misleading U.S. audiences (and their own people) about why they surrendered. Consider: would it be better to say, "We made mistakes, we weren't brave enough, we were foolish," or, "Our enemies made an unimaginable scientific breakthrough that no one could have predicted, and that's why we lost"? It was, literally, a heaven-sent, face-saving excuse to blame defeat on the bomb.

Demonstrating that a deeply held myth is not supported by the facts requires more space than is available here. Suffice to say that the case for one or two nuclear weapons being decisive has always been relatively weak and that as more historical evidence comes to light it reinforces a shift away from nuclear weapons being the motivating force.²¹ Increasingly, historians ascribe the surrender of Japan to the Soviet declaration of war and invasion rather than the city bombing of Hiroshima.²²

Hiroshima was central in shaping our American view of the power and effectiveness of nuclear weapons. As Lawrence Freedman wrote, “[The Bomb’s] association with the termination of the Pacific War surrounded it from the start with an aura of decisiveness.”²³ It now seems likely that U.S. strategists have for many years misinterpreted Hiroshima and Nagasaki, and as a result they have overstressed the decisiveness of destroying cities with nuclear weapons. It seems likely they have overvalued the *threat* to destroy cities with nuclear weapons as well.²⁴ If the traditional interpretation of Hiroshima is wrong, what does that mean for nuclear deterrence? Is it possible to show, without Hiroshima, that bombing cities is militarily decisive?

Attacking Cities: The Historical Record

If misinterpreting the results of bombing Hiroshima and Nagasaki was a critical mistake, a second mistake was the insistence that history has little to tell us. In 1965, Herman Kahn aptly summed up the conventional wisdom among nuclear strategists when he wrote:

Despite the fact that nuclear weapons have already been used twice, and the nuclear sword has been rattled many times, one can argue that for all practical purposes nuclear war is still (and hopefully will remain) so far from our experience that it is difficult to reason from, or illustrate arguments by, analogies from history. Thus, many of our concepts and doctrines must be based on abstract and analytical considerations.²⁵

It is true that there have been few quicker ways to undermine a career as a strategist over the last sixty years than to claim to adduce lessons for nuclear war from, say, Thermopylae, Trafalgar, or the Battle of the Bulge. However, Kahn’s dismissal of history is based on a fundamental error. Kahn has confused the importance of means and ends. In human activities, means are rarely as important as ends. We do not, for instance, call killing someone with a gun murder, but killing someone with a feather pillow just good-natured fun. Killing someone is murder no matter what means you use.

In the same way, city attacks are, for the most part, city attacks whether you use nuclear weapons, conventional bombs, artillery shells, or catapults hurling earthenware pots of Greek fire. Just as it makes no sense to try to forget everything we know about mining now that we have discovered pneumatic jackhammers, it makes no sense to ignore 2,000 years of history and experience with city attacks just because the means we use to carry out such attacks might now be different.

There is clear historical evidence, present throughout all ages, that city attacks do not coerce. Genghis Khan, for example, during his campaign in the Central Asian empire of Khwarazm in 1220, made a practice of destroying cities and slaughtering their inhabitants. Bokhara, Merv, Samarkand, and Urganch are among the cities he destroyed. Despite his ferocity, cities were still offering resistance three years after the start of the war. If the threat of city destruction delivers reliable leverage, all the cities of the Khwarazmian Empire would have surrendered after the first few cities were destroyed. During the Thirty Years War the city of Magdeburg was burned and most of its citizens slaughtered in 1631. If city destruction were an important military event, the war would have soon ended. In

fact it continued for seventeen more years. In 1943 the British and U.S. air forces utterly destroyed the city of Hamburg, but the Germans did not surrender for two more years.

There is a long history of destroying cities in war. There are almost no instances, however, despite thousands of years of war, in which a city's destruction led to its country's surrender. This is, of course, in keeping with the American experience of war. In the fall of 1864 the Union General William T. Sherman captured the city of Atlanta (then the twelfth largest city in the South). Sherman, who had said, "I would make this war as severe as possible, and show no symptoms of tiring till the South begs for mercy," burned Atlanta to the ground.²⁶

In April 1865, after years of fruitless effort, the Northern armies finally captured the rebel capital of Richmond, Virginia. Richmond had long been the holy grail of the North's war effort. Numerous commentators and even popular songs ("On to Richmond!") voiced the sentiment that if only the rebel capital could be captured, the rebellion itself would collapse. In the event, however, Southerners fought stubbornly on.

The South did not surrender when Atlanta was burned or Richmond was captured. Surrender was only deemed unavoidable when the armies of generals Robert Lee and Joseph Johnston were defeated. The destruction of Atlanta and the capture of Richmond were incidental to the war effort, not central.²⁷

Killing Civilians

Perhaps no historical episode better illustrates the position of civilians in war than the siege of Alesia in September 52 BCE. A number of Gaulic tribes under the leader Vercingetorix had revolted against Roman rule in the previous year. After a campaign of both successes and defeats, some 80,000 warriors gathered at a hill fort at the foot of the Jura mountains, along with a substantial number of women, children, and other noncombatants. Julius Caesar, at the head of a Roman army, surrounded the fort, examined the strength of its defenses, and decided that rather than making a frontal assault he would starve the Gauls out. In three weeks he had built a fortified wall around the entire hilltop, a masterful work of circumvallation.

Before long much of the food had been consumed inside the fort, and the Gaulic tribal leaders met to discuss their options. One leader suggested (our Roman sources claim) that all the noncombatants be slain so that there would be more food for the soldiers. Vercingetorix instead decreed that the women, children, old, and infirm be sent out toward the Roman lines. Perhaps the Romans would let them through and they could go on their way. Perhaps the Romans would make them slaves (not a kind fate, but at least they would not starve to death). Instead, when they applied at the encircling fortification, Caesar refused to let them through. Discomfited, they returned to the gates of the hill fort only to find these now had been barred against them as well.

Eventually most of the noncombatants starved to death in full view of the two competing armies. Military necessity is an unrelenting necessity that knows little charity. Civilians are rarely spared when they stand in the way of victory or defeat.

And this fixes the place of civilians in war pretty exactly: for the most part, they don't matter. Few military leaders hesitate to kill civilians if there is some justifiable military goal

in prospect. The unimportance of civilians is so well established that Just War doctrine takes account of the right of military forces to kill civilians who are in the way of justified military action.

It is true that as the number of civilians killed rises, so the moral objections to killing them also gain strength. But as we shall see, the numbers can rise extraordinarily high without the moral objections overwhelming necessity.

During World War II, for example, an estimated 50 to 70 million people died. Of these, an estimated 47 million were civilians. Some nations, Russia and China in particular, suffered huge civilian losses. Yet neither capitulated in order to staunch this civilian suffering. We sometimes imagine that the destruction in World War II was so great because of the technology being employed. Yet soldiers working with far less sophisticated tools have, in fact, achieved far more appalling results. During the Thirty Years War, something like 20 percent of the civilians in Germany lost their lives. Yet the war went on.

Sadly, the evidence supports the notion that there is a very high tolerance for civilian suffering in war. The Paraguayan War—a war fought between Paraguay, Brazil, and Uruguay from 1865 to 1870—provides even more staggering statistics. Some 58 percent of the civilians in Paraguay were killed in five years.²⁸

This means that at some point in the conflict half of Paraguay's civilians had been killed, but the war's leaders still felt that the pursuit of their military goals was more important than ending the conflict. They made this same calculation again when 55 percent had been killed. And so on. It is difficult to argue, from history, that military leaders, in wartime, put a high value on civilian lives.

Extermination Attacks

Because we seem inclined to think about nuclear weapons in apocalyptic terms, nuclear attacks that destroy an entire country have always been part of the vocabulary of nuclear war and nuclear threats. These extermination attacks are sometimes pointed to as the fundamental threat that makes nuclear deterrence effective.

One of the salient weaknesses of nuclear deterrence has always been its implicit reliance on threats of extermination attacks. Extermination attacks are not very credible. Not because such an attack is outside the scope of human nature, outside the capabilities of nuclear weapons, or because of the power of moral feeling to prevent horrible acts. They are not very credible based on the historical evidence. A moderately thorough review of the history of warfare across some 3,000 years reveals one instance of a war of extermination. This is a strikingly small number. Even comets streaking past Earth are more frequent. It is difficult to argue that a human action that has only occurred once in 3,000 years is likely to recur.

Wars of extermination are often confused with genocide. There have been a relatively large number of instances of genocide. Most genocide, however, involves internal rather than external killing. It is an act carried out by one group against another within their own country. The Holocaust, Cambodia's killing fields, Rwanda—these are all instances of internal slaughter.²⁹ To qualify as a war of extermination, the event we're

seeking must be a war and must aim at the total destruction and slaughter of the adversary. By these criteria, the sole war of extermination is the war waged by the Romans against their age-old enemy, the Carthaginians, the Third Punic War.³⁰

As the only instance of such a war, the Third Punic War is important evidence for understanding the conditions required for a war of extermination. The Romans and Carthaginians had fought a series of wars that stretched over more than a hundred years. It was a titanic struggle including forty-three years of fighting. Both sides inflicted grievous hurt, but the Romans were particularly devastated by the fourteen-year campaign of Carthaginian general Hannibal Barca during the Second Punic War (218–201 BCE). Hannibal invaded Italy, peeled off Roman allies, destroyed towns and crops, and in a series of battles slaughtered several Roman armies whole. Roman losses overall were great, and left an indelible impression. To understand the magnitude of the cost of the Second Punic War, compare the losses the French suffered in World War I. We consider World War I to have been one of the costliest in modern times. We talk about the French having been “bled white” and having lost “an entire generation.” France’s losses in World War I were roughly 1,380,000 soldiers, or 4.2 percent of its entire population. The Romans, by contrast, lost an estimated 5 percent of their population, which would have been about one out of every six men of fighting age.³¹

The Romans had a special animus toward the Carthaginians, shaped by years of war and a great deal of death and defeat. It is difficult to generalize from one case, but this example suggests that massive harm and long-standing conflict are necessary precursors to a war of extermination.

There have been many hate-filled, ideological, and religious wars in the history of mankind: France and Britain during the Hundred Years War, or the wars between Muslim nations and Europeans that included the Crusades, for example. Many times the passions of mankind have led to long and brutal conflicts. But of wars of extermination there is only one. Given the rarity of the event and the severity of the circumstances that seem to have led to the decision, it is hard to make a case that wars of extermination are common or that threats to launch a war of extermination are very credible.³²

Nuclear Deterrence as Terrorism

One of the striking things about the theory that underlies nuclear deterrence is the extent to which it parallels the presumptive mechanism of terrorism. Terrorism is supposed to work by killing civilians in order to shock and horrify governments into complying with a terrorist’s demands. Nuclear attack also threatens civilians (because nuclear weapons are so clumsy, even nuclear attacks aimed at military targets would likely kill large numbers of civilians). There is, as well, a certain amount of historical precedent for comparing terrorism and nuclear attacks. The authors of the bombing campaigns against both Germany and Japan self-described those conventional city attacks as “terror bombing,” and the phrase was widely used in U.S. and British military and government circles throughout the war. As one measure of the potential effectiveness of using nuclear weapons to overawe opponents, it makes sense to examine the success of ordinary terrorism.

There was, until recently, a rough consensus that terrorism was a moderately effective means of achieving policy goals. Recent empirical studies, however, have demonstrated that terrorism rarely works, that it is hardly more effective than the least effective forms of coercion, and that it is particularly ineffective when directed toward civilian targets.

In particular, a study by Max Abrahms published in *International Security* in 2006 sheds a fascinating light on this question. The study included all of the twenty-eight organizations designated by the State Department as terrorist groups since 2001. By comparing their self-stated policy goals against actual changes in policy, Abrahms found that terrorist groups were successful only 7 percent of the time. "Within the coercion literature, this rate of success is considered extremely low. It is substantially lower, for example, than even the success rate of economic sanctions, which are widely regarded as only minimally effective. The most authoritative study on economic sanctions has found a success rate of 34 percent."³³

In addition, Abrahms found that "the key variable for terrorist success was a tactical one: target selection."³⁴ Abrahms divides terrorist groups into two types: guerrilla groups and civilian-centric terrorist groups. "Guerrilla groups, by definition, mostly attack military and diplomatic targets, such as military assets, diplomatic personnel, and police forces. [Civilian-centric terrorist groups], on the other hand, primarily attack innocent bystanders and businesses."³⁵ The choice of target, it turns out, is absolutely predictive of success or failure. Guerrilla groups "accounted for all of the successful cases of political coercion. Conversely, [civilian-centric terrorist groups] never accomplished their policy goals."³⁶

Abrahms found that the reason attacks against civilians seemed not to work is that no matter what the actual goal of the terrorist organization, "target countries infer from attacks on their civilians that the group wants to destroy these countries' values, society, or both."³⁷ If you attack civilians, in other words, no matter what sort of message you intend to communicate, you are likely to simply convince your opponent that you intend to exterminate him. Terrorism is an act of extremism. It should not surprise us if it teaches extremism: the tendency to draw extreme conclusions about one's enemy and his intentions.

What is striking here is the extent to which we can imagine this occurring in the case of a nuclear attack. A nuclear attack against a city—even if it were only a single weapon used against a single city, and even if it were accompanied by a strongly worded diplomatic message—seems likely to be read as a sign that the enemy intends to attempt to destroy your country completely: that he is engaged in an extermination attack. It seems likely that most leaders would interpret nuclear attacks against cities not as sophisticated signaling or as demonstrations of resolve, but as the first in a series of attacks intended to annihilate the entire country. If the misreading of intention that explains the failure of terrorist attacks against civilians also applies to nuclear war, it would seriously undercut much of the thinking about nuclear war and nuclear war-fighting strategy.

The reason that the possibility of your opponent misreading any attack as an extermination attack is so important is that having extermination as a goal ensures that your opponent will fight to the death. After all, if your enemy intends to exterminate you

under any circumstances, then there is no incentive to surrender. It may well be that—far from motivating nations to concede—nuclear attacks drive nations to fight to the death.

This is illustrated by the Third Punic War. When the Carthaginians realized that the Romans' intention was to destroy their city, they elected to fight, even though they had just surrendered the bulk of their weapons and armor and they were outnumbered and surrounded. By any reasonable standard, they should have surrendered, but they chose to fight. And they fought to the death. Of an estimated city population of close to a million, only 55,000, 5.5 percent, survived to be sold into slavery.³⁸

There are problems with trying to evaluate nuclear deterrence using an analogy to terrorism. Nuclear attacks would kill innocents on a scale so vast that it seems difficult to count ordinary terrorism as the same phenomenon. But if terrorist attacks are the closest and best analogy to nuclear attacks against cities, and if terrorist attacks rarely succeed, what basis is there for confidence that nuclear deterrence will succeed?

It is sometimes argued that nuclear deterrence will work because it is an activity that would probably take place during a time of peace rather than war. Large numbers of civilian deaths might be acceptable in time of war, it is argued, but in peacetime no one would consider paying this kind of price. The evidence of terrorism campaigns argues exactly the opposite point. Terrorist campaigns take place almost exclusively during peacetime. They threaten civilian lives. Yet they rarely succeed.

In addition, this argument assumes that peacetime is unitary: a time and frame of mind that is always the same. But there is considerable variation. Consider the difference between the bucolic peace of the United States in the 1870s, for example, and the war fever that raced through Europe in early August 1914. Or recall September 2001. Anyone who was in the United States during the first few days after the terrorist attacks of 9/11 can remember the kind of white-hot fury that suffused that time. Peacetime can sometimes generate feelings not unlike wartime.

The Uncertain Track Record of Nuclear Deterrence

Some people try to make the case for nuclear deterrence not by explaining its theoretical basis but by simply pointing to its track record. They assert that nuclear deterrence prevented nuclear attacks for the thirty years from 1950 to 1980 and claim that that is proof enough of its efficacy. There are problems with this, however. In order to answer the question, "did deterrence work?" you must first be able to know whether your opponent had a fully formed intention to attack and then refrained from doing so because of your threat. Questions of intention, particularly the intention of world leaders—who are typically reluctant to admit being thwarted in almost any circumstances—are rarely documented, and when documentary evidence is present, difficult to judge. As George and Smoke note, "It is difficult . . . to identify cases of deterrence success reliably in the absence of better data on the policy calculations of potential initiators who were presumably deterred. Instances of apparently successful deterrence . . . may be spurious."³⁹

There are also a number of other plausible explanations for the absence of war during this period. Most major wars are followed by periods, sometimes quite long

periods, of relative peace. The hundred years following the Napoleonic wars were for the most part ones of peace in Europe. The period following the Thirty Years War also was strikingly pacific. Why does it make sense to attribute the peace following the Thirty Years War and the Napoleonic Wars to “war weariness,” “economic exhaustion,” or “domestic political distraction,” but the peace after World War II to nuclear deterrence?

Consider, for example, the case of chemical weapons following World War I. The conditions necessary for deterrence with these weapons of mass destruction were present. In the early 1920s, Germany, England, France, Italy, Russia, the United States, and others possessed the means necessary (industrial capacity to mass produce the chemical agents, bombers with sufficient range and carrying capacity, naval ships capable of firing large shells over long ranges) to use chemical weapons against the densely populated coastal and interior urban centers of their enemies.⁴⁰ Such attacks, properly planned and executed, could have killed hundreds of thousands. They would certainly have ranked on a par with the most deadly city attacks in World War II.

Yet no standard histories of the post-World War I era ascribe the peace that was maintained during those years to a “delicate balance” of deadly weapons of mass destruction. We do not rush to give deterrence the credit for the peace of those years. If nuclear weapons are seen as preventing war from 1950 to 1980, why is it that chemical weapons are not seen as having prevented war for the seven years from 1918 to 1925?⁴¹

Locating the reason why an action or phenomenon did not occur, finding the cause of an absence, is always problematic. For example, I believe firmly that the garlic I wear around my neck has prevented vampire attacks. The proof, I say, is that no vampires have, as yet, attacked me. Yet objective observers might still be skeptical.

The problem with the claim about deterrence is that although there were contingency plans on both sides, there is little evidence that either the United States or the Soviet Union was ever on the brink of launching an aggressive war against the other. There is certainly no evidence of such an action that was planned, agreed to, and then thwarted by the threat of nuclear counterattack.⁴² How is it possible to assert that deterrence prevented war without clear evidence that war was ever imminent?

It might be argued that while there is no particular war that was abandoned because of deterrence, deterrence did engender a general mutual restraint both in normal diplomatic relations and during the numerous crises of the Cold War. It is true that the large nuclear arsenals in the United States and the Soviet Union induced caution during this period. Numerous memoirs of leaders on both sides attest to this fact. But this is not evidence that deterrence worked.

The mutual caution of the Cold War is evidence that nuclear weapons are *dangerous*, not that they are effective weapons of war or useful for threatening. To understand this, imagine a counterfactual involving biological weapons. No one argues that biological weapons are ideal weapons. They are blunt instruments, clumsy and difficult to employ effectively. Targeting with precision is a particular problem, as the wind has an unfortunate tendency to blow in unexpected directions, and the biological agents can, under certain circumstances, blow back on your own troops or population. No one argues that biological weapons are decisive weapons of war, crucial for security. They argue instead that biological weapons are dangerous, clumsy weapons that are best banned.

Imagine, however, that following World War II the United States and Soviet Union had been armed with large arsenals of biological weapons mounted on missiles kept on hair-trigger alert. Is it difficult to believe that such arsenals would have induced caution on both sides? Yet we would not take this caution as proof that biological weapons were any less clumsy, difficult to aim, or difficult to control. We would not take this caution as proof that biological weapons are actually more militarily effective than we had previously thought. In the same way, nuclear weapons are dangerous (and induce caution) without being particularly effective. The caution on both sides during the Cold War is not proof of the deterrent value of nuclear weapons.

Although the successes of nuclear deterrence over the thirty years from 1950 to 1980 are speculative, its failures are not. Despite expectations to the contrary, the U.S. nuclear monopoly in the four years after World War II did not yield significantly greater diplomatic influence.⁴³ Far from being cowed, the Soviets were very tough in post-war negotiations, culminating in the 1948 showdown over access to Berlin. Nuclear weapons also failed to give their possessors a decisive military advantage in war. The United States was fought to a draw in Korea and subsequently lost a war fought in Vietnam, despite possessing the “ultimate weapon.” The Soviet Union found that its nuclear arsenal could not prevent failure in its own guerrilla war in Afghanistan. Since Vietnam, the United States has fought in the Persian Gulf, Kosovo, Afghanistan, and Iraq.⁴⁴ In none of these wars were its opponents intimidated into surrendering, nor could a practical use for nuclear weapons be devised.

Against these failures are often offered a range of explanations. The enemy had an ally who possessed nuclear weapons, the war was not sufficiently central to the interests of the nuclear power to justify using weapons of last resort, and so on. These explanations, however, cannot account for the striking failure of deterrence in both the Yom Kippur War and the Falkland Islands War. Twice, during the Cold War, countries that had nuclear weapons were attacked—were made war on—by nations that did not have nuclear weapons. In both cases the threat of a nuclear retaliation failed to deter. How can these failures be accounted for? One of the benefits of deterrence is that it is supposed to protect against conventional assault. Yet in both these cases nuclear weapons failed to provide this protection.

The case of Israel is particularly striking. Given the deep animus between Israel, on the one hand, and Egypt and Syria, on the other, the repeated statements by various Arab spokesmen that Israel had no right to exist, and the resulting probability that Israel would interpret any attack as a threat to its very existence, the danger of a nuclear attack by Israel would seem to be far greater than in any instance of Cold War confrontation. Yet nuclear weapons failed Israel. They did not deter. In fact, they failed twice: neither Anwar Sadat, the leader of Egypt, nor Hafez al-Assad, the leader of Syria, was deterred.⁴⁵

There is positive evidence that nuclear threats do not prevent conventional attacks, even in circumstances where nuclear deterrence ought to work robustly (extermination a possibility, implacable foes). Similarly the evidence provides little support for the notion that nuclear weapons provide diplomatic leverage. The only use for nuclear deterrence with no clear-cut failures (thankfully) is the claim that nuclear deterrence wards off nuclear

attacks. Although the practical record does not indict this form of deterrence, the general theoretical objections to it still apply.

Pure Speculation

Nuclear deterrence is based on a threat—the threat to attack cities—that promises an action that is not militarily decisive. It is difficult to argue that a threat of a non-decisive action is likely to coerce. Nuclear deterrence viewed as terrorism is even less appealing: terrorism hardly ever works. Worse, terrorism seems to persuade your enemy that your intention is to exterminate him, and therefore almost ensures that he will never surrender.

It might be argued that although small-scale terrorism doesn't work, terrorism on the scale contemplated by nuclear war would work. It might be argued that although high civilian casualties might be acceptable in war, peacetime is different. It might be that the historical examples cited here do not apply for one reason or another. It might be that the sudden use of vastly destructive weapons would result in behavior that humans have heretofore not exhibited.

All of these arguments are possible. The problem is that we have so little factual basis for knowing which ones to believe. Or not believe. It is possible that nuclear deterrence works. It is also possible that the garlic around my neck really does ward off vampires. The problem in all these cases is that proof—the essential ingredient of prudent judgment—is entirely missing. Nuclear deterrence postulates novel behavior that might happen in unexplored circumstances that could arise sometime in the unforeseeable future. It is (almost) pure speculation.

If there were a concrete foundation of fact on which to base our assessment of the usefulness of nuclear deterrence, it might justify our reliance on these threats. As it is, almost all of the conventional wisdom about nuclear deterrence is so speculative and so much of it runs counter to cases from history that any conclusions are doubtful at best. As Bernard Brodie pointed out when talking about choosing between conflicting predictions about nuclear war, "In these matters, to be sure, we are fundamentally dealing with conflicting intuitions."⁴⁶

Nuclear deterrence is too uncertain a theory to serve as the sole justification for keeping nuclear weapons. Some other, more concrete rationale must be developed. Or else, lacking a rationale, the weapons should be banned.

Conclusion

The ideas advanced in this article mark the beginning of a process of intellectual exploration, not firm and final conclusions. If, however, the ideas expressed here are eventually agreed to be substantially true, the following policy recommendations, it seems to me, would flow from them. First, it probably makes sense to abandon extended deterrence. Deterrence intended to protect nuclear weapon states has failed a number of times and seems theoretically problematic. Deterrence that is extended over another state seems likely to be even less reliable. It makes little sense to issue dangerous threats that are unreliable. Second, states should develop security policies that emphasize

conventional military forces. The military usefulness of nuclear weapons is doubtful enough that it makes little sense to rely on these weapons for safety and security. Third, rapid steps should be taken to reduce the large arsenals of the United States and Russia. If nuclear weapons have any utility, it is the rather limited task of preventing nuclear attack. Small, survivable forces are sufficient for this task. Finally, because nuclear weapons appear to share many of the same characteristics as chemical and biological weapons, and these two types of weapons have already been banned, it makes sense to begin serious work exploring the possibility of banning nuclear weapons.

NOTES

1. Glenn H. Snyder, "Deterrence and Defense," reprinted in Robert J. Art and Kenneth N. Waltz, eds., *The Use of Force: International Politics and Foreign Policy* (New York: University Press of America, 1983), p. 129.
2. Alexander George and Richard Smoke, *Deterrence in American Foreign Policy: Theory and Practice* (New York: Columbia University Press, 1974), p. 11.
3. Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966), p. 69.
4. Bernard Brodie, "The Development of Nuclear Strategy," in Steven E. Miller, *Strategy and Nuclear Deterrence: An International Security Reader* (Princeton, NJ: Princeton University Press, 1984), p. 4. Brodie, in this review essay, is citing his own earlier work.
5. David Alan Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945–1960," in Miller, *Strategy and Nuclear Deterrence*, p. 123.
6. Schelling, *Arms and Influence*, p. 27.
7. Robert Jervis, "Why Nuclear Superiority Doesn't Matter," in Art and Waltz, *The Use of Force*, p. 499.
8. Robert S. McNamara, "The No-Cities Doctrine," in Art and Waltz, *The Use of Force*, p. 149.
9. See, for example, Matthew McKinzie, Zia Mian, A.H. Nayyar and M.V. Ramana, "The Risks and Consequences of Nuclear War in South Asia," in Smitu Kothari and Zia Mian, eds., *Out of the Nuclear Shadow* (New Delhi: Lokayan and Rainbow Publishers, 2001), pp. 185–196; Thom Shanker, "12 Million Could Die at Once in an India-Pakistan Nuclear War," *New York Times*, May 27, 2002, p. A5.
10. C. Graham White and H. Harper, *The Aeroplane in War* (London, 1912), cited in Edward Mead Earle, ed., *Makers of Modern Strategy: Military thought from Machiavelli to Hitler* (Princeton, NJ: Princeton University Press, 1971), p. 487. The idea for this section of the paper comes almost directly from P.M.S. Blackett's excellent book *Studies of War: Nuclear and Conventional* (New York: Hill and Wang, 1962), pp. 4–8. Blackett is extraordinarily sound and remains relevant today. Needless to say, experts in England were not the only ones impressed by the likely power of aerial attack.
11. Giulio Douhet (translated by Dino Ferrari), *The Command of the Air* (New York: Coward-McCann, Inc., 1942), pp. 57–58.
12. *Ibid.*
13. William Mitchell, *Winged Defense*, cited in Blackett, *Studies of War*, p. 6.
14. George H. Quester, "Strategic Bombing in the 1930s and 1940s," in Art and Waltz, *The Use of Force*, pp. 249–250.
15. German production rose in 1943 and 1944 but fell in 1945.
16. In most developed countries, urban centers of 30,000 would be called large towns. To give an idea of how small these "cities" were, consider this: if every person from one of these "cities" went and sat in the Rose Bowl in Pasadena, California, it would only be one-third full.
17. The "Big Six" is another name for the six members of the Cabinet called the Supreme Council, an inner group who effectively ruled Japan at that time. Richard B. Frank, *Downfall: The End of the Imperial Japanese Empire* (New York: Random House, 1999), p. 294 n. It may be that there were other discussions about city bombing that we are unaware of because a great many records were destroyed by the Japanese after the decision to surrender but before the beginning of the Allied occupation. Even with this caveat, however, the omission is striking. In addition, in extensive post-war debriefings

participants did not mention any lengthy discussions of city bombing or raise it as an important consideration in their decisions about continuing the war.

18. Bernard Brodie, *Strategy in the Missile Age* (Princeton, NJ: Princeton University Press, 1959), p. 103. Schelling asserts (left-handedly) that it was the fact that technology was not sufficiently developed that made terror bombing fail in World War I and World War II. "Some of the expectations in the 1920s and 1930s that another major war would be one of pure civilian violence, of shock and terror from the skies, were not borne out by the available technology." Schelling, *Arms and Influence*, p. 19.
19. Hiroshima, the more destructive of the two attacks, ranked second in terms of people killed, fourth in terms of square miles destroyed, and seventeenth in terms of percentage of the city destroyed. See the *United States Strategic Survey, Pacific Report No. 66*, "The Strategic Air Operations of Very Heavy Bombardment in the War against Japan (20th Air Force)," pp. 42–43.
20. Japanese leaders did not meet to discuss surrender for three days after Hiroshima. Foreign Minister Togo Shigenori requested a meeting of the Supreme Council but was turned down. Military leaders knew it was a nuclear weapon, and one of them, War Minister Anami, the most important military figure in the Cabinet, had met with the head of the Japanese nuclear bomb program to better understand the capabilities of nuclear weapons. They knew they had been bombed with a nuclear weapons, they understood what that meant, but they apparently just didn't care. When they did finally meet, the Soviet invasion seems to have been the event that motivated them, not the bombing of Hiroshima. See Ward Wilson, "The Winning Weapon? Rethinking Nuclear Weapons Based on Hiroshima," *International Security* 31 (Spring 2007), pp. 162–179.
21. For the first suggestion that the Soviet intervention caused the Japanese surrender, see Ernest R. May, "The United States, the Soviet Union, and the Far Eastern War, 1941–1945," *Pacific Historical Review* 24 (May 1955), pp. 153–174. Notably, the official British history of the war in the Pacific published in 1969 states, "The Russian declaration of war was the decisive factor in bringing Japan to accept the Potsdam declaration." S. Woodburn Kirby, *The War against Japan, Vol. 5: The Surrender of Japan* (London: Her Majesty's Stationery Office, 1969), pp. 433–434. In addition, it seems likely that the belief that Hiroshima and Nagasaki "won the war" is not uniformly held in all nations. A Russian friend of mine recently told me, "Of course they taught us that the Russian declaration of war forced the Japanese to surrender. All Russian school children know that."
22. See especially Tsuyoshi Hasegawa, *Racing the Enemy: Stalin, Truman, and the Surrender of Japan* (Cambridge, MA: Harvard University Press, 2005); Sumio Hatano, "The Atomic Bomb and Soviet Entry into the War: Of Equal Importance," in Tsuyoshi Hasagawa, ed., *The End of the Pacific War: Reappraisals* (Stanford, CA: Stanford University Press, 2007); and Wilson, "The Winning Weapon? Rethinking Nuclear Weapons Based on Hiroshima." Additionally, for recent scholarship with a variety of viewpoints, see John W. Dower, *Japan in War and Peace: Selected Essays* (New York: W.W. Norton, 1993); Robert A. Pape "Why Japan Surrendered," *International Security* 18 (Fall 1993), pp. 154–201; Edward J. Drea, *In the Service of the Emperor: Essays on the Imperial Japanese Army* (Lincoln: University of Nebraska Press, 1998); Sadao Asada, "The Shock of the Atomic Bomb and Japan's Decision to Surrender: A Reconsideration," *Pacific Historical Review* 67 (November 1998), pp. 477–512; Frank, *Downfall: The End of the Imperial Japanese Empire*; Herbert P. Bix, *Hirohito and the Making of Modern Japan* (New York: HarperCollins, 2000); Forrest E. Morgan, *Compellence and the Strategic Culture of Imperial Japan: Implications for Coercive Diplomacy in the Twenty-First Century* (Westport, CT: Praeger, 2003). A particularly detailed and useful summary of recent scholarship that also contains reproductions of many primary source documents is in William Burr, ed., "The Atomic Bomb and the End of World War II: A Collection of Primary Sources," National Security Archive Electronic Briefing Book No. 162, National Security Archive, August 5, 2005, <www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB162/index.htm>. Most striking of all is Hatano's assertion in the Bibliographical Note at the end of *Reappraisals* that "The prevailing view among Japanese scholars is that the shock of the Soviet entry was a more potent factor," p. 303.
23. Lawrence Freedman, "Strategic Bombing and World War II," in Philip Bobbitt, Lawrence Freedman, and Gregory F. Treverton, *US Nuclear Strategy: A Reader* (New York: New York University Press, 1989), p. 5.
24. It is perhaps further confirmation of the centrality of the Hiroshima case in shaping perceptions that the Russian view of nuclear war has always been quite different than the U.S. view (as their view of the importance of Hiroshima in coercing surrender is different). The Russians have long doubted the decisiveness of city attacks. See, for instance, William E. Odom, "The Soviet Approach to Nuclear

- Weapons: A Historical Review," *Annals of the American Academy of Political and Social Science* 469 (September 1983), pp. 117–135; or Walter Slocombe, "The Countervailing Strategy," in Bobbitt, Freedman, and Treverton, eds., *US Nuclear Strategy: A Reader*, pp. 415–425.
25. Herman Kahn, *On Escalation: Metaphors and Scenarios* (New York: Frederick A. Praeger, 1965), p. 134.
 26. William Sherman, *Memoirs of Gen. W.T. Sherman* (New York: C.L. Webster & Co., 1891), pp. 370–371.
 27. It is striking how many Northerners were sure that the capture of Richmond would end the war. Abraham Lincoln grasped sooner than most, however, the principal of war that it is the enemy's army that matters. In an 1863 exchange, General Joseph Hooker, commander of the Army of the Potomac, bragged about the certainty of his capturing Richmond in the near future. Lincoln, in a memorandum and letter, reminded Hooker that "our prime objective is the enemies' army in front of us, . . . not Richmond," and "Lee's Army, and not Richmond, is your true objective." Abraham Lincoln, *Speeches and Writings 1859–1865: Speeches, Letters, and Miscellaneous Writings Presidential Messages and Proclamations* (New York: Library of America, 1989), pp. 443, 454. Stephen B. Oates notes, "He [Lincoln] realized something else, too. The war could never be won simply by seizing the rebel capital. What Lincoln perceived from his White House windows was that only the complete annihilation of the enemy armies could win the war." Oates, *Abraham Lincoln: The Man Behind the Myths* (New York: New American Library, 1984), p. 131.
 28. *Encyclopedia Britannica*, 13th edition (London: Encyclopedia Britannica, 1911), vol. 20, pp. 758–759. In order for a nuclear war involving the United States to have comparable casualties, for example, there would have to be 200 million Americans killed.
 29. This is not intended to be a comprehensive list of acts of genocide. These are but some of the worst examples in recent history.
 30. There is a case to be made for the American Indian Wars being a war of extermination. Certainly the end result was close to being the complete destruction of the Native American peoples in North America. However, it is difficult to argue that this was a single war, waged by a single government, with a fixed purpose. It is more like a clash of civilizations with an unequal distribution of technology.
 31. John Rich, "Fear, Greed and Glory," in Craig B. Champion, ed., *Roman Imperialism: Readings and Sources* (Malden, MA: Blackwell Publishers, 2003), p. 50.
 32. It might be argued that nuclear weapons make wars of extermination easier and therefore more likely. There may be something to be said for this, but on the other hand, the fact that a war of extermination was possible with the weapons available 2,000 years ago argues that the tools are not the key factor.
 33. Max Abrahms, "Why Terrorism Does Not Work," *International Security* 31 (Fall 2006), p. 51.
 34. Abrahms, "Why Terrorism Does Not Work," p. 43.
 35. Abrahms, "Why Terrorism Does Not Work," p. 55.
 36. *Ibid.*
 37. Abrahms, "Why Terrorism Does Not Work," p. 56. Abrahms bases his conclusion on three case studies and an analysis based on "correspondent inference theory," a theory developed by the social psychologist Edward Jones based on the work of Fritz Heider, the father of attributional theory. See, for example, Edward E. Jones and Richard Nisbett, "The Actor and the Observer: Divergent Perceptions of the Causes of Behavior," in Edward E. Jones, David E. Kanouse, Harold H. Kelley, Richard E. Nisbett, Stuart Valins, and Bernard Weiner, eds., *Attribution: Perceiving the Causes of Behavior* (Morristown, NJ: General Learning Press, 1972), pp. 79–94.
 38. See Appian of Alexandria (translated by Horace White), *The Roman History of Appian of Alexandria*, vol. I (New York: MacMillan Company, 1899).
 39. George and Smoke, *Deterrence in American Foreign Policy*, p. 516.
 40. Germany was banned by the Treaty of Versailles from manufacturing or importing chemical weapons, but the means to circumvent the treaty would have been easily available.
 41. The use of chemical weapons was banned by the Geneva Protocol in 1925, which was signed by the major European powers. The United States did not sign a treaty banning chemical weapons until the 1993 Chemical Weapons Convention was signed.
 42. David Alan Rosenberg, "The History of World War III, 1945–1990: A Conceptual Framework," in Robert David Johnson, ed., *On Cultural Ground: Essay in International History in Honor of Akira Iriye* (Chicago: Imprint Publications, 1994), pp. 217–219.
 43. For U.S. expectations, see Gregg Herken, *The Winning Weapon: The Atomic Bomb in the Cold War 1945–1950* (New York: Vintage Books, 1982), especially Chapters 2 and 3. For the thin harvest of nuclear

influence, see McGeorge Bundy, "The Unimpressive Record of Atomic Diplomacy," in Robert J. Art and Robert Jervis, eds., *International Politics: Enduring Concepts and Contemporary Issues* (New York: HarperCollins, 1996).

44. The fighting in Panama, Somalia, and other places are better classed as police actions than full-fledged wars.
45. It might be argued that since Israel, which has a long-standing policy of not commenting on whether it has a nuclear weapons program, did not announce the existence of its nuclear weapons, that this is not a failure of deterrence, but merely of knowledge. You can't be deterred by weapons you don't know exist. It seems likely that Egyptian and Syrian intelligence services, however, would have been aware of Israel's nuclear program (if for no other reason than it would be in Israel's interest to quietly pass word of the existence of the weapons to those it was trying to intimidate). Even if the Egyptian and Syrian intelligence services were not reporting the existence of the Israeli weapons program, press reports were relatively widespread by 1973. In January 1969 NBC News reported that Israel "had a nuclear weapon or would soon have one." On July 18, 1970, the *New York Times* reported that, "for at least two years the United States Government has been conducting its Middle East policy on the assumption that Israel either possesses an atomic bomb or has the component parts available for quick assembly." Avner Cohen, *Israel and the Bomb* (New York: Columbia University Press, 1998), pp. 327–328, 337–338. Avner Cohen and Willam Burr, "Israel Crosses the Threshold," *Bulletin of the Atomic Scientists*, May/June 2006, pp. 22–30.
46. Brodie, "The Development of Nuclear Strategy," in Miller, *Strategy and Nuclear Deterrence*, p. 21.