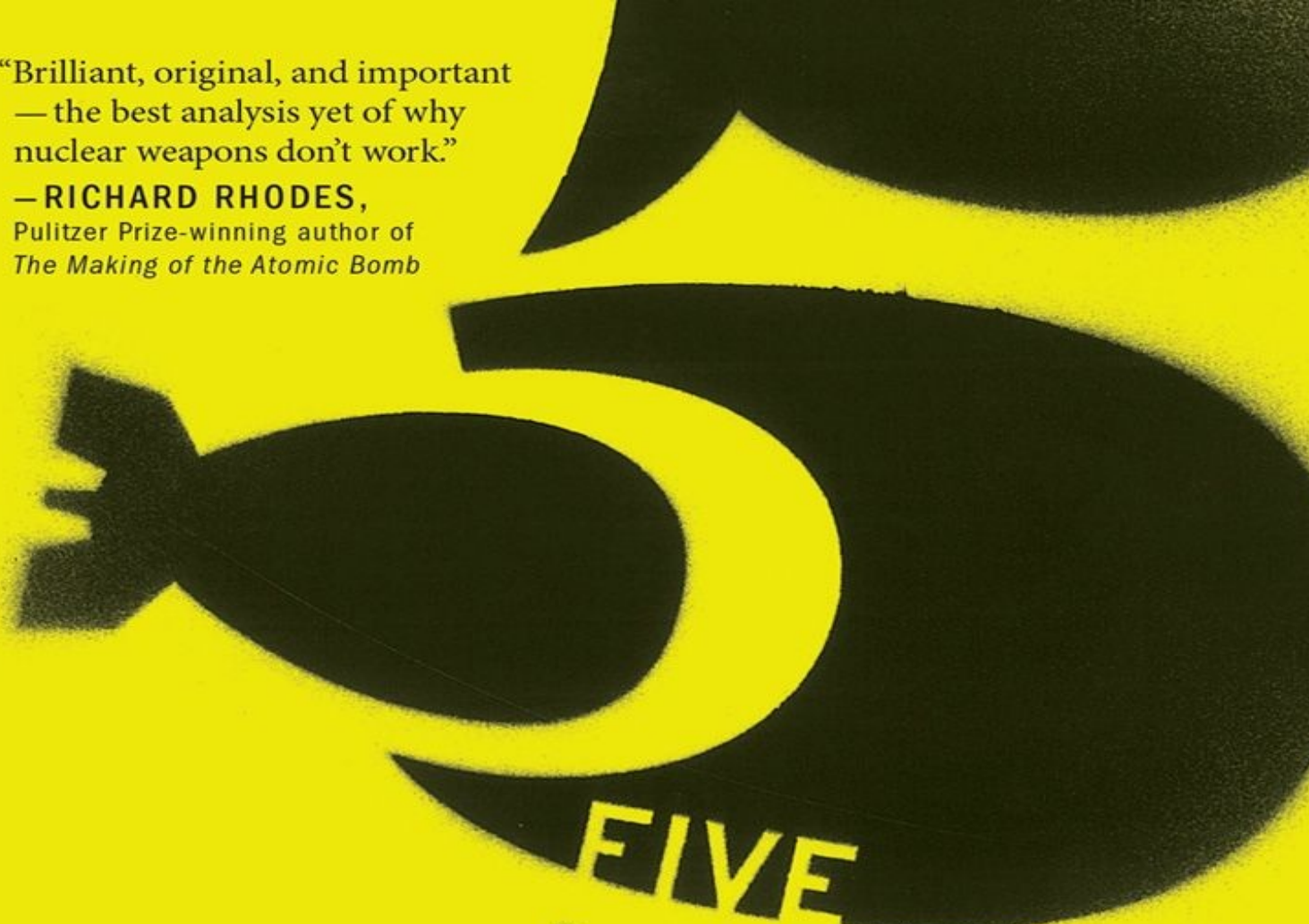


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Pulitzer Prize-winning author of
The Making of the Atomic Bomb



**FIVE
MYTHS
ABOUT
NUCLEAR
WEAPONS**

**WARD
WILSON**

FIVE MYTHS ABOUT NUCLEAR WEAPONS

WARD WILSON



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This book is dedicated to the man on the train.

I am convinced that to avoid nuclear war it is not sufficient to be afraid of it. It is necessary to be afraid, but it is equally necessary to understand. And the first step in understanding is to recognize that the problem of nuclear war is basically not technical but human and historical. If we are to avoid destruction, we must first of all understand the human and historical context out of which destruction arises.

—FREEMAN DYSON

Introduction

FOR NEARLY SEVENTY years, we have lived in fear—even in abject terror—of nuclear weapons. These fears have changed shape and intensity depending on the world situation, but they have never disappeared. At one time, we were so worried about “mutual assured destruction” that schoolchildren practiced hiding under their desks, and homeowners built bomb shelters. Today, though we may be somewhat less concerned about the prospects of wiping out the human race, we still fear nuclear terrorism, nuclear proliferation, and, especially, regimes that seem to be racing to get nuclear weapons, like Iran’s.

Nuclear weapons seem to loom over us. We worry that we won’t be able to control these dangerous weapons in a crisis. The thought of using nuclear weapons is so unpalatable that for decades we called it “unthinkable.” The weapons are the source of deep anxiety and concern. Yet we can’t get rid of them because they are—apparently—necessary.

Fear and necessity: the two forces pull in opposite directions. It is a deeply troubling dilemma that echoes throughout the nuclear weapons debate. Consider *Dr. Strangelove*, a darkly comic movie from the early 1960s about a paranoid U.S. Air Force commander who, muttering strange conspiracy theories, sends his bombers to attack Russia without authorization. Despite frantic and bleakly funny efforts to recall the bombers, the movie ends with one mushroom cloud after another rising on the screen. *Dr. Strangelove* still works as a film even today because the actions of the air force general are believable; we can easily imagine someone being driven mad by the responsibility of planning for nuclear war.

In one sense, our concerns are justified. The possibility that nuclear weapons will get used is a clear and present danger. War has been a stubborn and consistent part of human experience for thousands of years. War may be instinctual; it may not. But it is certainly rooted in the deepest parts of human character. These sorts of deep-seated urges can overwhelm common sense. The chances that a large war will one day come and that nuclear weapons will be used if they’re available are still disconcertingly high.

Our fears about nuclear weapons have had enormous influence upon U.S. foreign policy and the foreign policies of many other nations. During the Cold War, those fears drove us to engage in an astonishingly expensive arms race; they caused panic during the Cuban missile crisis; they hovered over the proxy wars the United States fought with the Soviet Union. But even though the Cold War has ended, nuclear weapons have not released their hold on our imaginations. They played a leading role in the Bush administration’s justification for invading Iraq in 2003; they led Israel to bomb an Iraqi reactor and a Syrian weapons facility; and they may yet lead to violence in Iran.

But what if our thinking about nuclear weapons is flat-out wrong? What if the assumptions that undergirded the Cold War arms race are wrong? What if our military planning and budgeting are based on faulty logic? What if, during the seven decades that have elapsed since atomic weapons were used in anger for the first and only time, we have made our choices based on beliefs that have little foundation in reality and that have been repeatedly contradicted? What if our deep-seated fears are justified, but our decades-old belief that nuclear weapons are necessary is not?

Recently there has been a noticeable shift in attitudes toward nuclear weapons. In 2007, prominent figures of the Cold War—led by George Shultz, William Perry, Henry Kissinger, and Sam Nunn—proclaimed publicly that they supported the goal of “a world free of nuclear weapons,” and the announcement was a turning point in the U.S. debate about nuclear security. That 2007 *Wall Street Journal* op-ed “had a transformational effect, fundamentally reconfiguring the positions within the debate on US nuclear policy for the first time in more than half a century.”¹ President Barack

Obama's speech in Prague and the 2010 Nuclear Posture Review continued the shift.

In the twenty years since the end of the Cold War, new scholarship has been quietly revolutionizing the thinking about nuclear weapons. A careful review of the facts shows that the usefulness of nuclear weapons has been overblown. Inflated claims were made (and kept inflated by Cold War fears) that cannot be substantiated by the history. Much of the thinking of proponents about nuclear weapons is built on myth, misperception, exaggeration, and error. This book lays out those myths, examines the facts, and measures how far the positions of proponents have strayed from reality.

Most opponents of nuclear weapons use horror and moral outrage to make their case. They argue that humanity needs to fundamentally change its nature. But neither emotional anguish nor revolutionary change is necessary in order to imagine solutions to the problem of nuclear weapons. Pragmatic arguments that banish myths and errors with facts from the historical record are sufficient. We do not have to surrender our values, our morals, or our way of living in order to deal sensibly with nuclear weapons. Nuclear weapons are an anomaly, and we can therefore take practical steps to handle them without having to change everything.

A Four-Part Story

Knowledge comes from experience. Our ideas about nuclear weapons have grown out of our experiences with them, limited though those experiences may be. Four key experiences led people to think they understood nuclear weapons; four events coalesced into common knowledge.

This book will reexamine the story of nuclear weapons through its four parts. Call them the shock, the leap, the crisis, and the peace. Each of these four experiences led to the formation of an idea, and each of those four ideas became a foundation stone in the current conventional wisdom. Yet each of these four experiences was misunderstood and misinterpreted. Each of the four foundational ideas they led to are wrong. These errors have become enshrined in myths and have hardened into an orthodoxy that today is as brittle as old bone.

The first part—the shock—covers early decisions to pursue nuclear weapons, and its most important event is the first (and only) use of nuclear weapons in war. The bombing of Hiroshima and Nagasaki and subsequent surrender of Japan was an event that led to a crucial conclusion: nuclear weapons have a unique ability to shock and coerce an opponent.

The second phase, the leap phase, roughly coincides with the 1950s. It covers the growth of both the Soviet and U.S. arsenals and includes a series of technological advances such as the development of hydrogen bombs and the introduction of long-range missiles to carry them. Although there had been doubts about the effectiveness of bombing cities in World War II, by the mid-1950s, there were none. The H-bomb represented, it was believed, a revolution, a quantum leap in the destructiveness, and therefore the decisiveness, of nuclear weapons.

The third part, the crisis, overlaps the others, running from the middle 1950s into the 1970s. But its high point is the early 1960s. Nuclear arsenals grew to extraordinary sizes in this phase, and Cold War tensions spiraled higher and higher as well. The key events, however, were a remarkable string of confrontations between the United States and Soviet Union, any one of which could have led to war. In the event, none of them did. This fact—the avoidance of war despite numerous crises—led people to draw a series of conclusions about nuclear weapons: nuclear deterrence was a strong force; it was robust and reliable; and nuclear weapons—paradoxically—were actually beneficial in a crisis.

The fourth and final part of the story carries us from the 1970s through five decades to the present day. It is a period of relative quiet during which arsenals diminished; for the most part, peace prevailed between nuclear-armed states; and the belief that nuclear arsenals actually promote peace (or maybe even guarantee it) steadily gained adherents. This period also saw the end of the Cold War and a steady de-emphasizing of nuclear weapons. Looking back, people began to say more and more often that nuclear weapons were necessary because they generated and maintained the long peace that stretched from the end of World War II to the present.

Each of these four experiences had a profound impact on ideas about nuclear weapons. Each phase represents an important shift in thinking, and each contributed in different ways to shaping the ideas that make up the orthodoxy that exists today.

Let's consider those four ideas a little more closely. When U.S. officials looked at the prospects for forcing Japan out of the war in the summer of 1945, things appeared pretty bleak. Japan's military had been beaten again and again. Sixty-six cities had been firebombed, to no apparent effect. A submarine blockade was preventing food, economic resources, and military reinforcements from getting in or out of Japan. Starvation loomed. Japan had so little fuel remaining that its fleet was confined to port. Almost all of its experienced pilots had been killed. Yet despite the desperate situation, Japan fought stubbornly on. Then, after the United States' use of only two nuclear weapons, Japan suddenly

signaled its willingness to surrender. In his radio broadcast announcing the surrender, the emperor specifically mentioned the atomic bomb as the reason for capitulating.

The obvious conclusion: Nuclear weapons had some remarkable power to coerce an enemy, a power that all those other military means—repeated defeats, economic starvation, even firebombing—could not match. Nuclear weapons, military thinkers and government officials around the world concluded, were unlike any conventional weapon. This weapon could deliver a blow so horrifying that it could coerce surrender when all else could not.

This is the first and most important idea about nuclear weapons. It is the idea on which all the others are built: Nuclear weapons have a psychological power that enables them to coerce and deter when other weapons cannot.

The second episode—the sudden leap upward in destructive power of the H-bomb—made certainty even surer. If it had been possible to question whether atomic weapons were decisive, these new weapons removed all doubts. Hydrogen bombs were “thousands of times” bigger than the bomb that had destroyed Hiroshima. They could devastate even the largest city at a single blow. And there was theoretically no limit to the size of a hydrogen bomb—if you could figure out how to deliver it, you could build a bomb that was a million times more powerful. People took to saying that the hydrogen bomb represented a quantum leap in the power of nuclear weapons.

The third set of events, the part I call the crisis, led to two conclusions. In combination, these two ideas are the most important and dangerous misperceptions there are about nuclear weapons because they have to do with the way we use them. The first conclusion drawn from this period of crisis was that nuclear weapons could be useful in a confrontation. Beginning with the Berlin crisis of 1948, continuing on through the Cuban missile crisis, the Middle East war of 1973, and even to the Gulf War of 1990, nuclear weapons seemed to be effective at persuading opponents to rein in their aggressive actions. When the chips were down, it seemed that the danger of an all-out nuclear war imposed a caution that would not have otherwise existed. Nuclear theorists concluded that it was possible to manipulate the fear of nuclear war to achieve diplomatic and political objectives. It wasn't necessary to use nuclear weapons—to actually explode them on the battlefield—for them to have an impact. Just the mention of them was enough, apparently, to influence events. The experience of the Cold War crises taught most nuclear theorists that nuclear deterrence was robust and had a powerful effect on events.

The second lesson that came out of the Cold War was that nuclear weapons seemed to have a calming effect during a crisis. Nuclear weapons didn't seem to incite recklessness or increase the danger. On the contrary, nuclear weapons apparently led to greater caution and made resolving the crisis easier. Increasingly, nuclear strategists assumed that nuclear weapons created something called crisis stability. All in all, people concluded, nuclear deterrence was a pretty reliable thing, a useful tool for promoting peace.

The experience of the fourth phase—the long period of peace among the nuclear powers—seemed to amplify the lessons of the third. As the years without a major confrontation between the United States and the Soviet Union stretched out, it came to seem as if nuclear weapons not only promoted peace in a crisis but actually contributed to peace overall. In a famous article, historian John Lewis Gaddis argued that the “Long Peace,” the sixty-five years in which no major war was fought either in Europe or between the United States and Russia, was due to the influence of nuclear weapons.² And foreign policy experts from nuclear-armed states agreed: nuclear weapons were not only beneficial in a crisis but necessary for peace.

At least one of the mistaken ideas that were formed during the story of nuclear weapons was the result of intentional misrepresentation: Japan's leaders purposely misled America's leaders about why they surrendered. But not all the mistaken ideas about nuclear weapons have such clear-cut origins. Some of the things that are said about these weapons are inexplicable. At least to me. How these ideas transformed from tentative hypotheses to enduring myths is uncertain. But that they *did* transform from possibility to certainty to myth is undeniable.

Consider the Berlin crisis of 1948 and the mysterious way that the facts seemed to shape-shift after the event. The Berlin blockade was the first major crisis of the nuclear era, and in many ways it set the pattern for the crises that came after it. It illustrates how nuclear theorists, historians, and government officials have—in retrospect—consistently transformed what appear to be nuclear-deterrence failures into successes.

Three years after the end of World War II, in the summer of 1948, tensions were rising between the Soviet Union and its former allies. The United States, Great Britain, and France were forging ahead with rebuilding Germany in ways that the Soviets disagreed with. Frustrations mounted, and when negotiations to resolve the disputes went nowhere, the Soviet Union decided to cut off rail and road access to Berlin. Each of the Allies had been assigned a region of Germany as well as a slice of the capital city to oversee. Berlin, divided into four sectors, lay deep in the Soviet portion—the eastern part—of Germany. On June 24, 1948, Soviet forces refused to allow any highway or train traffic from the western part of Germany into Berlin. Without access to supplies from the western part of Germany, the German civilians in the U.S., British, and French sectors of Berlin would starve. It touched off a crisis. There was talk of war. Eventually, the Western powers figured out a way to supply their three sectors of Berlin by air, and after eleven months, the Soviets relented.

During the crisis, as part of the pressure that the United States brought to bear on the Soviet Union, President Truman ordered that a number of B-29 bombers—the same type of plane that had been used to bomb Hiroshima and Nagasaki—be sent to Great Britain. News of the redeployment was leaked to the press, and the move was “widely interpreted as a demonstration of resolve.”³ In fact, these bombers could not drop atomic bombs. Only a small number of planes had been specially modified to do so, and those were still in the United States. But at the time, what people saw was the possibility of nuclear war. In any event, the redeployment did not seem to have a significant impact on the crisis. The blockade continued for eleven more months, and there is little reason to believe the redeployment affected the final outcome.⁴

As one historian summarized the general reaction in Washington, “In the summer of 1948, American statesmen doubted that the B-29 deployment contributed directly to settlement of the Berlin Blockade crisis.” But then a funny thing happened: “as time hazed over the particulars of this episode they came to believe that atomic arms could be instruments of ‘force without war.’” They came to believe, despite the evidence and despite the earlier conclusion they had drawn, that the nuclear weapons had, in fact, played an important part in resolving the crisis. It's not exactly clear what people thought the nuclear weapons had done, but as time passed, there seemed to be a growing sense in Washington that having nuclear weapons was vital in a crisis. Within a year, opinions about the usefulness of nuclear weapons for influencing events had flipped. Even though nuclear weapons hadn't seemed to have much effect at the time, U.S. officials assigned an increasingly important role to them in retrospect. When the Korean War broke out two years later, one historian wrote in 1988, “American statesmen and soldiers brought to the Korean War the conviction that atomic arms, if

properly employed, could be extremely valuable tools for conflict management.”⁵

What happened here? How could the evidence support one conclusion while the beliefs that eventually emerged took the opposite view?⁶ Apparently, where nuclear weapons are involved, beliefs are formed by factors other than evidence alone. And the Berlin crisis is not the only case. Other events led to ideas that didn’t fit well with the facts. Concepts of nuclear weapons often seem to acquire the qualities of myth while the facts go unattended.

Man is a mythmaker. Recent neuroscience research shows that story is an essential part of how we think and understand. Even where coherent stories do not exist, our brains try to make up plots to fit the facts.⁷ Why we make up myths and how we make up myths are questions we have not completely answered. But that we do shape our experience into myths that reinforce our beliefs is beyond question. Despite the scorn with which we sometimes refer to them (“It’s just a *myth!*”), myths have the power to shape identity.⁸

Think about the way myths shape national self-images. Patriotic myths have extraordinary longevity and power. For example, U.S. schools have been teaching children for more than two hundred years that the country’s first president could not tell a lie. In the United Kingdom, young children learn about a British king who had a magic sword and believed in equality so strongly that he made his knights sit at a round table.

Where nuclear weapons are concerned, a series of powerful myths have shaped our thinking, distancing us from the facts and undermining pragmatic policymaking. Indeed, these myths have shaped history—for the worse.

Apocalypse

We don't think about nuclear war in terms of carefully reasoned analyses; we think about it in grandiose metaphors. The grandest of all are ancient stories of the Apocalypse. Think about that. The average person's conception of nuclear war is as factual as the story about the guy with the winged horse.

Everyone knows what a nuclear war would be like: it would be an apocalypse. We hardly give that concept a second thought. It is a notion that powerfully frames our thinking about nuclear weapons policy, and it is so common that we notice it about as much as the furniture in our living rooms. But doesn't it seem rather odd that so much of the talk about nuclear weapons is infused with ideas and images from a two-thousand-year-old religious book?

Biblical talk about nuclear weapons appeared from the very beginning. James Chadwick, a British scientist observing the first nuclear test explosion, was awestruck and reached for religious imagery to describe what he saw. "A great blinding light lit up the sky and earth as if God himself had appeared among us . . . there came the report of an explosion, sudden and sharp as if the skies had cracked . . . vision from the Book of Revelation."⁹ Air force general Thomas Farrell described it this way: "Thirty seconds after the explosion came, first, the air blast pressing hard against the people and things, to be followed almost immediately by the strong, sustained, awesome roar which warned of doomsday and made us feel that we puny things were blasphemous to dare tamper with the forces heretofore reserved to the Almighty."¹⁰ J. Robert Oppenheimer, the man who led the scientists who developed nuclear weapons in the United States, claimed that what leaped to his mind as he watched that first fireball rise in the night sky were words from the Bhagavad-Gita, "Now I am become Death, the Destroyer of Worlds."¹¹ Apocalypse was just a natural way to understand nuclear weapons, apparently.¹²

Consider the other popular name we use for nuclear war. We don't call it super-science war. We don't call it mega-death war. We don't even call it by the luridly whimsical coinage of the strategist Herman Kahn: wargasm. The second most popular name for nuclear war is a reference to the hill in Israel that the Bible states will be the site of the Last Battle at the End of Days. When we're not calling nuclear war apocalypse, we call it Armageddon.

The apocalypse appears as religious prophecy and popular myth across cultures and eras. The book of Daniel in the Jewish Bible is apocalyptic; there are apocalyptic prophecies in the Christian book of Revelation; the Koran has apocalyptic suras.¹³ The Zoroastrians predicted the end of time, and Norse sagas have a story about a cataclysmic battle between the gods.¹⁴ Apocalyptic writing is not confined to ancient times. The Sibylline oracles were written by different European authors from the third century to the fifth.¹⁵ The apocalyptic Shangqing scripture of Taoism was produced in China in the fourth century. Nostradamus wrote in the 1500s. Apocalyptic writings led to political uprisings in Germany and England in the sixteenth and seventeenth centuries.¹⁶ At the turn of the nineteenth century, millennialists predicted the end of time and the coming of the Lord at midnight of December 31.

The outlines of the various apocalypses are remarkably similar. Typically, there is a world filled with sin and degradation, and a lone group in that evil world that remains pure through devout faith and strict rules of conduct. The central drama is a world-shaking battle or cataclysmic event that causes staggering death and devastation but that the group—because of its faith—survives. What results is a new and better place: a world washed clean of sin. Believers in apocalypse see approaching doom but feel themselves protected by divine power.

People around the globe have felt the pull of apocalypse for thousands of years. Nuclear weapons did not create our feelings about apocalypse, but they seem to have connected with them strongly. Apocalypse is, however, either a myth or a prophecy. It is not fact. Many different peoples at different times and places have fashioned similar stories to meet what is clearly an important psychic need. Nuclear war would be a very concrete reality. It would have specific characteristics and dimensions. In all likelihood, it would be somewhat like other all-out wars from human history, such as the Mongol wars, the Thirty Years' War, the Napoleonic wars, World War I, and World War II.¹⁷ The exact form nuclear war will take is largely unknowable, but it is unlikely to resemble stories about the apocalypse. There will be no cleansing. An all-out nuclear war is far more likely to lead to a period similar to the Dark Ages (call it the Darkest Age) than an apocalypse. A smaller nuclear war would be even less like an apocalypse—inordinately destructive but not a washing clean of everything.

What the widespread apocalypse analogy tells us is that, given the choice between thinking in terms of religious prophecy or cultural myth and delving into the reality of nuclear war, we grabbed the myth with both hands. Our desire to view nuclear war in terms of the Apocalypse isn't motivated by a need to think realistically about nuclear war. And it's not clear that mythical thinking makes policies more sensible. Why does it make sense to think about a twenty-first-century military phenomenon in terms of religious prophecy or cultural myth?

Pragmatism Versus Myth

Using myths as a guide to cultural identity or for metaphysical storytelling seems to work for human beings. At least, we've done it for thousands of years. But using myths as a guide for dealing with practical problems is a formula for difficulty, at the very least. If you were trying to find the cheapest flight to Europe, would it help to read the story of Daedalus and Icarus?

As it turns out, the debate about nuclear weapons since the 1950s illustrates what happens when you use myth instead of pragmatic analysis. For decades, opponents of nuclear weapons argued that because of the danger, we had to admit that we are too warlike, too prone to aggressive behavior, too caught up in the thrill of new weapons. Nuclear weapons are immoral, they said, and only when we changed our hearts and made war impossible would we be safe from complete destruction. The first response to the creation of nuclear weapons was a wave of support for world government.

Proponents of the weapons, however, argued that we were not being realistic. You can't change human nature, they'd say; nuclear weapons are decisive weapons, and as long as our enemies have them, only a fool would advocate giving them up. Even though nuclear weapons are horrible weapons, they said, in a dangerous world, we have to harden our hearts and do what must be done.

These positions became wearily familiar over the course of the next sixty years. Philip Bobbitt once wrote that the nuclear weapons debate was like a prehistoric bug trapped in amber: it had obviously been alive once, but it hadn't moved in millions of years.¹⁸ The unchanging nature of this discussion (really, more like two sides talking past each other) is what, in part, has made people feel that the problems associated with nuclear weapons are largely intractable.

What is striking about the debate described above, however, is the extent to which it is not really about nuclear weapons. Both sides, at bottom, are talking about *us*, about human nature. They touch on nuclear weapons but very quickly turn to the inner workings of the human soul. *We* need to be more mindful of morality, say the opponents. It is our flawed and warlike nature that is the problem. No, no, say proponents. *We* need to be more realistic; it is our foolish unwillingness to face the harsh realities of life that gets us in trouble. Both sides imply that the fault is not in our stars, but in ourselves, that we live under the fear of nuclear war. This is as true of Einstein—"Nuclear weapons have changed everything, except our way of thinking" (*we* have failed to change)—as it is of the famously warlike U.S. Air Force general Curtis LeMay—"I think there are many times when it would be most efficient to use nuclear weapons. However, the public opinion in this country and throughout the world throw up their hands in horror when you mention nuclear weapons, just because of the propaganda that's been fed to them"¹⁹ (*we* are too squeamish).

But this way of thinking about nuclear weapons makes no sense. It shows how quickly and strongly myths can tempt us away from the real matters at hand. It is a practical problem. When a rockslide has blocked a road, the best way to clear the rockslide or find a way around it is not to focus on one's character flaws. You wouldn't look at the rocks and say, *The first step to solving this problem, I think, is for me to have a long talk with my therapist.* To solve a practical problem, you examine the situation, evaluate it realistically, and then take concrete steps. Nuclear weapons are not a nature-of-humans problem; they are a practical problem.

Pragmatism is, in part, an insistence on taking the world as it is. It is a philosophy that values experience before everything. There have been large theoretical treatments of nuclear weapons. There have been works of complex logic stuffed full of mathematical formulas. There have been angry polemics full of emotion and unexamined assumptions. There have not been very many pragmatic analyses that focus just on the facts. Now that the Cold War is over and some of the anger and fear

have faded, it might be worth taking a careful look at the facts about nuclear weapons. It might make sense to try to look dispassionately at the evidence.

Emotionally, there is an enormous amount at stake. Even if we are inclined to be realistic about nuclear weapons, we also desperately *want* them to keep us safe. The difficulty is not so much the technology involved as the size of our awe and intensity of our desires. As Ludwig Wittgenstein said “What makes a subject hard to understand—if it’s something significant and important—is not that before you can understand it you need to be specially trained in abstruse matters, but the contrast between understanding the subject and what most people *want* to see.”²⁰

The stakes are high and very real in terms of policy and violence. Consider most Americans’ current attitudes toward Iran. Many people seem to believe that if Iran gets nuclear weapons, it will be magically transformed from a middle-sized power of middling significance on the border between Asia and the Middle East into a behemoth that is able to dominate all the states around it. People seem to imagine that nuclear weapons will make Iran much more influential, that they will give it the power to fundamentally change the situation in the Middle East. Every Republican candidate for president in 2012 (save the lone libertarian, Ron Paul) stated flatly that he or she would not allow Iran to develop nuclear weapons. The likelihood of violent bombing raids on Iran by Israel or even the United States increases with every such statement. But the powers imagined for a nuclear Iran are the kinds of powers that mythical implements give, like the winged sandals used by Perseus or Arthur’s sword, Excalibur. It doesn’t make sense to expect ordinary weapons to have the power of mythical objects. A pragmatic review of the situation in the Middle East would remind all parties involved that nuclear weapons haven’t given Israel the power to dominate the Middle East, and they probably won’t give Iran that power either. It would be a bad thing for Iran to get nuclear weapons. The more states that have nuclear weapons, the more likely a war involving nuclear-armed states; the greater the possibility of a war involving nuclear-armed states, the greater the possibility of a war in which nuclear weapons are used. Our ideas about nuclear weapons inform policies that matter, that can bring sudden violence on a massive scale.

But even though in the past, the way we approached these questions was flawed, pursuing radical changes might not be sensible either. With so much at stake, there are good reasons to be cautious. A single nuclear weapon can devastate a city in an instant, and the United States and Russia have thousands of nuclear weapons poised to launch at a moment’s notice. Nine nations now have nuclear weapons, and worldwide arsenals total more than twenty thousand nuclear warheads.

In a situation in which international calamity could result from a single misstep, sticking with ideas that have worked in the past might seem like simple prudence. Unfortunately, the danger of nuclear weapons cuts both ways: holding on to mistaken ideas simply because they are familiar can also lead to catastrophe. Basing actions on incorrect theories is like wearing glasses with the wrong prescription: everything is blurry, and the real world is almost impossible to perceive. There is something particularly horrifying about watching a person stumbling near a precipice that he cannot see.

A strong case can be made for caution in the area of nuclear weapons. A stronger case can be made for attending to the facts. We should always cast a skeptical eye on theories or speculations that aren’t supported by the actual evidence, even if those theories are the ones that make us feel comfortable and safe. Comfortable illusions are as dangerous in their own way as rushing off after every shiny new theory. Facts matter, and in the arena of nuclear weapons, where the danger is so high, real prudence can only be had by taking the facts seriously, no matter how uncomfortable they make us feel.

Five Myths

Much of the orthodox opinion about nuclear weapons (in nuclear-armed states) is based on “realism.” Realism takes facts as they are and denies emotional pleas to believe the world is a better place than really is. From the realist’s perspective, nuclear weapons are the most powerful weapons there are, which gives them a central role in international relations. The ability to destroy a city at a single blow gives states the power to punish on an unprecedented scale, which in turn makes nuclear deterrence almost unquestionably effective. The original success of the bombings of Hiroshima and Nagasaki and the subsequent central role of nuclear weapons in the Cold War confirms the existence of a special, awesome “aura” around the weapons. This aura increases their influence and is a crucial part of their political power. Because they have the ability to punish on a massive scale, nuclear weapons make attacks that threaten the existence of nuclear-armed states unthinkable. They therefore assure the survival of states that possess them. They are, in other words, the ultimate insurance.

In the view of proponents, nuclear weapons are essential weapons; they prop up the international order and prevent the recurrence of massive wars like World War II. In their view, while it is nice to think about a world without nuclear weapons, the possibility of actually getting there without fundamental changes in the way international politics is conducted, and even in the way that human beings conduct themselves, is remote.

The assumptions of proponents of nuclear weapons are theoretically sound. Realism has some little acknowledged flaws, but it is a generally sensible approach to building sound policies. The difficulty with the position of nuclear proponents is not with the framework of their thinking, but with the facts on which their thesis is founded.

We use the term *myth* loosely in our everyday talk. Sometimes we mean *myth* in the strictly anthropological sense: a story embedded in a culture that works to shape and structure beliefs. Sometimes we use it as a simple pejorative for events that aren’t true. Sometimes it has a meaning somewhere in between these two. I’m using the term in this same loose way in this book. The myths here are not all like the apocalypse myths; they are not all clearly symbolic stories. Some are errors or mistakes; some are misperceptions. As the historian Geoffrey Blainey said, “The process by which nations evade reality is complicated.”²¹ But each myth or error is connected with central misconceptions we have about nuclear weapons.

My plan is to go back over each of the four events in the nuclear weapons story—shock, leap, crisis and peace—reexamine the evidence, and see if the common interpretations line up with the facts. We’ll begin with the bombing of Hiroshima and the belief that grew out of it that nuclear weapons have a special power to shock adversaries into surrendering. Next we’ll turn to the idea that killing civilians en masse is an effective way to prosecute a war—the lesson that nuclear strategists drew from the quantum leap in power that occurred when the hydrogen bomb was developed. Then we’ll look at the crises of the Cold War—particularly the Cuban missile crisis—from which people concluded that nuclear deterrence is a powerful and reliable way to restrain leaders’ aggression. The fourth event—the long peace—will come next. This is the experience people point to when they say that nuclear weapons have kept us safe for more than sixty-five years. Finally, I’ll look at an idea that is not associated with any particular historical event but that has grown out of the other four—specifically, that there is no alternative to keeping nuclear weapons.

Each of these ideas will be examined and the facts behind it reviewed. It is a remarkable and surprising business. In some cases, it is clear that the facts directly contradict what is generally believed. In other cases, conclusions have been reached that, while not contradicted by the facts, are

not supported by them either. In every case, there are clear problems with the general beliefs about nuclear weapons.

This book challenges conventional thinking about nuclear weapons. It raises questions about fundamental issues. You may find that you don't agree with all of the objections raised here. That would not be surprising. People don't usually agree completely on anything having to do with fundamental issues, much less challenges to long-established ideas. But I hope you will come away with the conviction that there are unaddressed problems in the thinking about nuclear weapons, problems that matter. I hope you will feel that some sort of reexamination and rethinking of those ideas is needed.

People look at how little headway has been made over the past sixty-five years in finding sensible policies for dealing with nuclear weapons, and they feel discouraged. The general perception is that we have talked nuclear weapons issues to death and gotten nowhere. But pessimism is unnecessary. The fact is that the essential conversation, the one that will make a difference, is a conversation we have not yet had. We have not yet had a realistic conversation about nuclear weapons. We have talked about the horror and the military stakes; we have told stories very much like myths; we have shouted angrily about morality and survival; but we have never examined the practical problems—the *usefulness* of nuclear weapons—closely or objectively. It is an exciting, engaging, and perhaps even hopeful prospect. After a careful review, we could well draw radically different conclusions about nuclear weapons than thinkers have in the past.

This book attempts to begin that conversation, a conversation centered not on morality or a false realism but on pragmatic questions. We have to put myths aside, get our identity from other stories that don't involve nuclear weapons, and evaluate these weapons realistically. Are nuclear weapons practical, useful, effective? If they are, then we must keep them. Are they not very useful and enormously dangerous? Then we can safely and sensibly change the way we deal with them.

Now that the Cold War is over, it is time for a conversation that is not overwhelmed by fear and visions of extinction. Let us attempt a pragmatic discussion of nuclear weapons, one characterized by clear-eyed investigation, open minds, and the courage to face uncomfortable truths.

Myth 1

Nuclear Weapons Shock and Awe Opponents

PSYCHOLOGICAL WEAPONS, he called them. Courtly, tall, reserved—Henry L. Stimson was the perfect man to deliver the first authoritative statement by a U.S. government official on the meaning and importance of nuclear weapons. Two years after the war ended, there were still questions about the use of nuclear bombs on Hiroshima and Nagasaki. Had they really been necessary? What did the new weapons mean for the safety of the United States? Did they foretell the doom of mankind? Stimson was now retired, but during the war, he had been the man in Washington most responsible for the bomb project. So it was natural that when establishment insiders were casting about for a respected figure to reassure the public and justify the use of the Bomb, they chose Stimson. The article that appeared in *Harper's Magazine* in February of 1947 under Stimson's signature framed much of the thinking about nuclear weapons for the next sixty years.

The bombings were justified, Stimson said, and as for the weapons, they were not only phenomenally destructive but also unique in their ability to shock opponents into surrendering. As Stimson explained it: "We had developed a weapon of such a revolutionary character that its use against the enemy might well be expected to produce exactly the kind of shock on the Japanese ruling oligarchy which we desired. . . . [T]he atomic bomb was more than a weapon of terrible destruction; it was a psychological weapon."¹

It made sense. Cities destroyed with ordinary bombs hadn't forced the Germans to surrender, but two cities destroyed with nuclear bombs coerced Japan's leaders into surrendering in a heartbeat. Here is Stimson again:

Hiroshima was bombed on August 6, and Nagasaki on August 9. These two cities were active working parts of the Japanese war effort. One was an army center; the other was naval and industrial. Hiroshima was the headquarters of the Japanese Army defending southern Japan and was a major military storage and assembly point. Nagasaki was a major seaport and it contained several large industrial plants of great wartime importance. We believed that our attacks had struck cities which must certainly be important to the Japanese military leaders, both Army and Navy, and we waited for a result. We waited one day.²

In the years since Stimson wrote this, the belief that nuclear weapons' psychological power is as important as their enormous destructive power—or even more important—has become one of the fundamental tenets of international relations. The notion is repeated again and again in congressional testimony by military men and government experts from the Defense Department. It makes its appearance in scholarly articles and political debates. It is part of our everyday discourse.³ Nuclear weapons have a special ability to inspire fear. Reliance on this special psychological power is central to the way the world is currently ordered. After all, nuclear deterrence is based on the ability of nuclear weapons to inspire fear, and the leading nations of the world—China, Russia, and the United States—rely on nuclear deterrence for security. And many other nations—European countries, Japan, South Korea, and others—rely on their nuclear allies to extend nuclear deterrence over them.

Hiroshima was the crucial first impression of nuclear weapons. It provided the proof of their psychological impact. If nuclear weapons were a religion, Hiroshima would be the first miracle. Japan's leaders had stubbornly resisted surrender despite a clearly hopeless situation. Suddenly, miraculously, nuclear weapons coerced them.

The case provides not only a measure of nuclear weapons' effectiveness but a metric for comparing

them with other types of military power. The United States and its allies employed a number of military means against Japan. A submarine cordon was blockading Japan's home islands, the economy had collapsed, and starvation was looming. But this was not enough to force Japan to surrender. Japan's navy had suffered a series of stunning defeats, leaving American forces unchallenged in the Pacific and able to launch an invasion of the Japanese home islands at any time. But this was not enough to force Japan to surrender. U.S. ground forces had painfully and with enormous loss of life recaptured many of the islands that Japan's army had conquered in the first years of the war. But this was not enough to force Japan to surrender. The U.S. Army Air Forces had been pounding Japanese cities with high explosives and firebombs for five months, and scores of cities had been hit. But this was not enough to force Japan to surrender. It was only when the atomic bombs destroyed Hiroshima and Nagasaki that Japan's leaders decided they had had enough. So nuclear weapons, one might conclude, are more effective than city bombing with conventional bombs, economic blockade, or a string of military defeats. Or all three combined. They are impressively effective military means.

But even though this seems obvious and wholly persuasive and this version of events has been confidently told as fact for more than sixty years, and even though the lessons drawn from this episode have hardened into certain belief, there are problems. Over the past twenty years, new, more detailed evidence has gradually been unearthed in archives in Japan, Russia, and the United States that often starkly contradicts the traditional narrative. The evidence suggests different ways of looking at the events and offers new interpretations that fit the facts just as well. Or better. The more closely you look, the more difficult it is to feel entirely comfortable with the orthodox interpretation of this event. Almost every Japanese official, from the Showa emperor (Hirohito) on down, said after the war that the atomic bombings compelled them to surrender, but there are troubling actions, meeting minutes, and diary accounts that contradict this assumption.

Revisionists

These problems with the traditional account of events have nothing to do with the revisionist school of thinking about Hiroshima, which was founded by historian Gar Alperovitz in 1965, and which has been the subject of angry debate ever since.⁴ Alperovitz argued that Japan's leaders wanted to surrender and that the bombings were therefore unnecessary. Obviously, if the bombings weren't necessary to win the war, then bombing Hiroshima and Nagasaki was wrong. In the decades since Alperovitz introduced the argument, many have joined the fray, some denouncing the bombings, others rejoicing hotly that the bombings were moral, necessary, and saved lives. Intense, profound emotions are apparently at stake here. In 1995—*fifty years* after the event—the Smithsonian touched off an angry national debate (that even members of Congress joined in) by planning an exhibit that included critical statements about the bombing.⁵

It is remarkable. How many issues hold a nation's attention for almost half a century? But it doesn't tell us much about nuclear weapons. They show up in the discussion, of course, but the debate is really about something else. It's actually a discussion about the character of the United States. It is about whether the United States was wrong to bomb Hiroshima and Nagasaki, about whether the United States is morally good. The endpoint of the argument is not "And therefore nuclear weapons are [or are not] effective." The revisionists' argument is "So the bombings were not necessary and therefore were wrong." The revisionist debate about Hiroshima matters to people because it is a reflection on the moral standing of the United States.

That debate, however, is irrelevant here. Whether the United States was right or wrong, what Harry Truman knew and why he agreed to go ahead, whether an offer to allow the emperor to remain would have gotten Japan to surrender earlier, why the scientists who had doubts about using the Bomb were ignored, whether lives were saved, whether Japan would have surrendered anyway because of conventional bombing or some other reason—all this is beside the point.

The question here—the *only* question—is whether the bombing of Hiroshima and Nagasaki with new, more powerful bombs forced Japan to surrender. Did it, in other words, *work*? This is a pragmatic investigation, after all. It might seem heartless to ignore the moral issues. Everyone wants to be proud of his country. And clearly, whether the United States was right or wrong to use nuclear weapons matters a great deal to Americans. But the issue of the effectiveness of nuclear weapons will affect hundreds of millions of people around the globe for generations to come.⁶

In this chapter, we'll be taking a purely pragmatic approach to the bombing of Hiroshima and Nagasaki. The question is: Did nuclear weapons work? The half-century-old debate about whether the bombings were right or wrong, what Truman knew, and so forth is outside the scope of this discussion.

Traditional Interpretation

The traditional story unfolds like this: On August 6, the United States drops a nuclear bomb on Hiroshima, devastating the city. Word of the destruction is slow to reach the capital (as most means of communication have been destroyed, and this is an entirely new phenomenon). The emperor soon hears about it, however, and is deeply moved. Back in the United States, President Truman issues a press release announcing that an atomic bomb (as nuclear weapons were then called) was used and threatens “a rain of ruin” on Japan’s cities if Japan does not surrender. After three days of inaction, on August 9, Japan’s leaders meet to discuss surrender. They talk all day, debating conditions of surrender, but even though the situation is hopeless, the military stubbornly refuses to admit defeat. Even after word arrives during the late morning that Nagasaki has also been bombed with a nuclear weapon, they are still deadlocked. Finally, late that night, a special meeting with the emperor is called and he tells the military that they must surrender because of the Bomb. The emperor then announces the surrender to Japan in a radio broadcast, explaining that the cause of Japan’s defeat is the horrible new weapon the United States has invented. In the United States, where people had expected a long and bloody invasion of Japan, the news is greeted with disbelief, gratitude, and joy. The Bomb is regarded as a miracle and dubbed “the winning weapon.”

This is the version of events that has been told by most historians for more than sixty-five years.⁷

The lesson people have drawn from this narrative is that the military and psychological power of nuclear weapons is extraordinary. The dramatic destruction of an entire city in the blink of an eye was decisive. While bombing cities with conventional bombs did not force Germany or Japan to surrender (or Great Britain or any number of other countries, for that matter), bombing with nuclear weapons was clearly different. The story of Hiroshima shows—and this is all according to the traditional version of events—that the ability of nuclear weapons to shock and overawe nations is enormous.

This orthodox view of the bombing of Hiroshima and Nagasaki is widely taught and widely believed. The support for this view of history runs deep. But there are four major problems with telling the story in this way, and, taken together, they significantly undermine the traditional explanation of the Japanese surrender. It is, perhaps, an indication of what’s at stake here that the facts have so rarely been examined closely.

Timing

The first problem with the traditional interpretation is timing. And it is a serious problem. The traditional interpretation has a simple timeline: On August 6, the U.S. Army Air Forces bomb Hiroshima with a nuclear weapon; three days later, it bombs Nagasaki with another; the next day, the Japanese signal their intention to surrender.⁸ One can hardly blame American newspapers for running headlines like “Peace in the Pacific: Our Bomb Did It!”⁹

When the story of Hiroshima is told in most American histories, the day of the bombing—August 6—serves as the narrative climax. All the elements of the narrative point to that moment: the decision to build a bomb, the secret research at Los Alamos, the first impressive test all lead to the final culmination at Hiroshima. It is told, in other words, as a story about the Bomb. But you can’t objectively analyze Japan’s decision to surrender in the context of a story about the Bomb. Casting it as the story of the Bomb already presumes that the Bomb’s role is central.

Viewed from the Japanese perspective, the most important day of the war wasn’t August 6 but August 9. That was the day that the Supreme Council met to discuss—for the first time in the war—unconditional surrender. The Supreme Council was a group of the top six members of the government—a sort of higher-level cabinet—who effectively ruled Japan in 1945. Japan’s leaders had not seriously considered surrendering prior to that day. Unconditional surrender (what the Allies were demanding) was a bitter pill to swallow. The United States and Great Britain were already convening war-crimes trials in Europe. What if they decided to put the emperor—who was believed to be divine—on trial? What if the other nations got rid of the emperor and changed Japan’s form of government entirely? Even though the situation was bad in the summer of 1945, the leaders of Japan were not willing to contemplate giving up their traditions, their beliefs, or their way of life. Until August 9. What caused them to so suddenly and decisively change their minds? What made them sit down and seriously discuss surrender for the first time after fourteen years of war?

It could not have been Nagasaki. The bombing of Nagasaki occurred in the late morning of the ninth, after the Supreme Council had already begun discussing surrender. Nagasaki can’t have been what motivated them to meet.

Hiroshima isn’t a very good candidate either. It had come seventy-four hours—more than three days—earlier. What kind of crisis takes three days to unfold? The hallmark of a crisis is a sense of impending disaster and the overwhelming desire to take action *now*. How could Japan’s leaders have felt that Hiroshima touched off a crisis and yet not met to talk about the problem for three days?

President John F. Kennedy was sitting up in bed reading the morning papers at about 8:45 a.m. on October 16, 1962, when McGeorge Bundy, his national security adviser, came in to inform him that the Soviet Union was secretly putting nuclear missiles in Cuba. Within two hours and forty-five minutes, a special committee had been created and its members selected, contacted, brought to the White House, and seated around the Cabinet Room table to discuss what should be done.

President Harry Truman was vacationing in Independence, Missouri, on June 24, 1950, when North Korea sent its troops across the 38th Parallel, invading South Korea. Secretary of State Acheson called Truman immediately to give him the news. Within twenty-four hours Truman had flown halfway across the United States and was seated at Blair House (the White House was undergoing renovations) with his top military and political advisers talking about what to do.

Even Major General George Brinton McClellan, the Union commander of the Army of the Potomac during the Civil War and a man of whom President Lincoln had said sadly, “He’s got the *slows*”—even McClellan wasted only twelve hours after he was given a captured copy of General Robert E.

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