

PREFACE

THE GENESIS OF THIS BOOK occurred in June 2006, when I was shivering on the spine of the Andes Mountains at a place called Tres Cruces d'Oro. Thirteen thousand feet below, at the end of a windy dirt road, lay the headwaters of the Amazon. I was sitting on this ridgetop because I was told that there was no better place to watch the sun rise.

The dark cobalt sky was already streaked with shafts of light playing off against the cloud bank below me. Then, amazingly, the sun's upward rays of white light turned the cloud tops into icebergs floating in a sea of blue. Mesmerized, I felt that I had been transported to Glacier Bay above the Amazon. The focus of this light show then shifted to a ripe orange slit that appeared between the folds of the clouds. The classic half-dome shape began to emerge below, but this time, I was watching the sun emerge in an incredibly beautiful natural setting, backed by sacred mountains and fronted by torrents of water and a well-ordered riot of plant life. From this high perch, the life-giving force of the sun was overwhelming.

Then the sun's rising dome triggered another image that is indelibly printed on my brain, the outline of a hydrogen bomb that arcs from ground zero and rises to become a monstrous, mutating mushroom cloud. Physicists learned from and borrowed the fiery processes of the sun to create the H-bomb, and with it, the limitless means to incinerate cities and turn all forms of life into ashes. My mind then flashed to Hiroshima's Genbaku Dome, the skeletal arc atop an old commercial exhibition hall that has been left in ruins, a public reminder of what happened in August 1945—and what must not happen again.

The magnificent sun had now risen above me and was too bright to observe. I was bathed in its warmth, shedding layers of protection against the bone-chilling cold. The focus of my life's work and the gift of travel came together that morning, when the life-giving and life-taking forces of the sun were juxtaposed. What would we humans make of the sun's powers?

It was time to write another book about the Bomb.

My professional work has long revolved around trying to prevent big explosions. I've worked on Capitol Hill and in the executive branch for President Jimmy Carter. But most of the time, I've worked as an outsider who tries to nudge insiders to push the envelope of what's possible. This is where I have felt most comfortable, working on projects that I believe in, speaking and writing in my own voice, and feeling grateful when I hear echoes of ideas and initiatives that I had tried to midwife. My base of operations has been the Henry L. Stimson Center, a nongovernmental organization in Washington that I co-founded in 1989.

I have been gifted many times over by foundations that have shared my enthusiasms and backed my projects. In recent years, I have been working to prevent the testing and use of space weapons, trying to promote a settlement of the Kashmir dispute, and developing nuclear risk-reduction measures that the governments of India and Pakistan might consider adopting.

None of my projects take me too far from the Bomb. Satellites, for example, provide life-giving services by guiding ambulances and police cars to their destinations as quickly as possible with global positioning systems. Satellites enable emergency calls on cell phones. Without satellites, pagers don't work and disaster relief and emergency rescue teams are handicapped. Satellites monitor the health of the planet, and they help protect soldiers who have been placed in harm's way.

Satellites are also connected to the nuclear forces of major powers, providing early warning of an impending attack, targeting information, and communicating up and down the chain of command. If satellites are attacked and if space becomes a shooting gallery, nations might feel threatened enough to consider using their nuclear weapons. Even if they don't, space warfare can produce lethal debris that kills satellites indiscriminately. Marble-size pieces of debris in low earth orbit travel at ten times the speed of a rifle bullet. They can remain a lethal hazard for many decades.

I have been working to promote a code of conduct for responsible space-faring nations that would help keep space a sanctuary free of weapons. This

idea has gained traction, particularly after the Chinese test of an antisatellite weapon in January 2007, which demonstrated how much lasting damage could result from using satellites as target practice.

India and Pakistan have come a long way since they acquired nuclear bombs. They have had a series of hair-raising crises and one border war. Pakistan also became a hub of nuclear proliferation, facilitating the nuclear programs of North Korea and Iran. India and Pakistan have refused to place limits on their nuclear capabilities. In recent years, however, they have been working to demonstrate responsible nuclear stewardship. They have negotiated and properly implemented a series of confidence-building and nuclear risk-reduction measures, such as improving their means of communication in crises and providing warning of missile tests and military exercises.

Without much notice, the Kashmir dispute has become much less intractable. This dispute used to be about territory, sovereignty, religion, and inheritance—the worst causes of warfare. But in recent years, Indian and Pakistani leaders have begun to give priority to the well-being of Kashmiris. They have allowed divided families to meet, opened trade and transit routes across the Kashmir divide, and allowed cultural exchanges and religious pilgrimages to proceed.

As a consequence, India and Pakistan have come closer than ever before to resolving the Kashmir dispute. Now the biggest impediment to a settlement is domestic politics in both countries. This is a significant roadblock, but it is a huge improvement over the earlier roadblocks that led to wars. Enlightened leadership in Pakistan and India deserves the credit for progress toward nuclear stabilization and a Kashmir settlement, which would be the ultimate nuclear risk-reduction measure. I am proud to have nurtured these confidence-building measures through Stimson Center programming and publications.

There have been many success stories related to the Bomb, including quiet successes every day to lock down dangerous weapons and materials. Everything is not going to hell in a handbasket. Nuclear anxieties are well founded, but anyone over the age of 25 has lived through tougher times. A wise man once told me that problems couldn't be solved at the level of the problem. The more I've thought about this advice, the more I have come to accept it. In this book I try to take a more elevated view of hard problems.

It's also hard to make headway on difficult problems from a place of deep anxiety. Pessimism doesn't help in troubled times. Neither does naïve optimism. The Stimson Center's motto is "Pragmatic steps toward ideal objectives."

This is my philosophy as well. I believe in the value of optimism tempered by realism. Optimism is realism put to good use.

I also believe that a sense of irony helps when working on nuclear problems. Good intentions can produce terrible results, and good outcomes can sometimes result from nefarious plans. The law of unintended consequences works both ways, for good and for ill. The philosophy of “better safe than sorry” has helped keep the cold war from becoming hot—but to be on the safe side, both nuclear superpowers produced more than 125,000 nuclear weapons. The U.S. nuclear stockpile peaked in 1966 at approximately 31,700 weapons; the USSR stockpile topped off at about 41,000 weapons in 1986.¹

The economic costs of nuclear preparedness were considerable—by 1998, the tab for the United States had risen to \$5.5 trillion.² Spending priorities were badly skewed by public anxieties and poor choices. In recent years, the United States has spent ten times more on missile defenses that serve as the last line of defense against nuclear danger than on safeguarding the most deadly weapons and materials, which is the nation’s first line of national defense. Congress appropriates approximately \$1 billion annually to prevent the most dangerous weapons and materials from falling into the most dangerous hands. In 2007, Congress appropriated \$286 billion in a subsidy-laden farm bill.³ President George W. Bush sincerely believed that a war to topple Saddam Hussein was necessary in order to be safe rather than sorry. The United States spends as much money in Iraq in three days as it spends in one year locking down nuclear bombs and bomb-making materials.⁴

The nuclear dilemmas of the digital age are not carbon copies of the past. New threats appear, and old ones fade away. The threat of a surprise Soviet attack is gone, as are approximately 39,000 vintage nuclear weapons from the Soviet arsenal.⁵ Americans no longer live under the specter of a massive, bolt-from-the-blue attack orchestrated by the Kremlin and the Soviet Strategic Rocket Forces. The Red Army is not poised to carry out a blitzkrieg attack across central Europe, accompanied by the detonations of hundreds of tactical nuclear weapons.

The shedding of old worries and the accumulation of new ones is a natural process, whether or not they are related to the Bomb. Because nuclear anxieties are often characterized as existential, they can override reality—even when rational analysis can demonstrate that anxieties are overdrawn. Many Americans are not old enough to compare contemporary nuclear anxieties to those faced by their parents. When everything is a crisis, yardsticks aren’t necessary.

So how do the old nuclear dangers compare to the new ones? The threats of nuclear terrorism and proliferation are real and worth worrying about. But they cannot hold a candle to the nuclear threats and crises that defined the cold war. The old nuclear threats were indeed existential. They could obliterate the United States and create a planetary environmental crisis far, far worse than extreme scenarios of global warming. Contemporary threats of nuclear terrorism and proliferation are serious, but Americans have been through much worse times.

Predictions of maximum danger during the cold war were overdrawn, as were many of the proposed remedies. Today, warnings of maximum danger and many proposed remedies are also overdrawn. During the cold war, national leaders managed to navigate through dangerous waters by keeping their powder dry and their defenses up. Safe passage was secured by means of containing and deterring dangerous foes, by maintaining strong military capabilities, and by reducing dangers and maintaining domestic and alliance cohesion through diplomatic engagement. Patient and persistent engagement eventually produced diplomatic breakthroughs that were codified in arms control and reduction agreements. During previous hard times, American leaders did not denigrate treaties. Back then, reassurance was as essential as deterrence in keeping the peace.

These tools worked best when they worked together. They provided safe passage through far greater nuclear threats than what we face today. These tools can also work against new threats of nuclear terrorism and proliferation, but they will have to be adapted to meet new challenges.

One day a week I teach in the Department of Politics at the University of Virginia, where I am struck every semester by how strange and new the story of the Bomb is to my students. Episodes that are fresh and vital to me occurred before they were born. My sense is that my students and others might benefit from an impressionistic account highlighting themes rather than offering a historical narrative of the Bomb. My account includes episodes that may not be familiar to readers and some that do not merit inclusion in diplomatic histories, but these episodes might speak volumes about how we dealt with the Bomb and how the Bomb dealt with us.

Nuclear fears run much deeper at present, not just because of the 9/11 attacks but also because the George W. Bush administration as well as its harshest critics have tapped into public anxieties to promote favored policies. My approach is different. Yes, there are serious nuclear dangers, and yes, the Bush administration has acted unwisely. Remedial steps are required, and I talk about

them. I also believe that nuclear dangers have been overblown and that the echo chamber of anxiety in our public square is part of the problem. The United States has been through far worse periods of nuclear peril, and we have found safe passage. We can get through this mess as well. This is a hopeful book.

There is no shortage of books or articles on the episodes highlighted in these pages. In this book I do not cover many aspects of our nuclear history, but I do draw on wonderful journalistic accounts of nuclear negotiations and superb, detailed diplomatic histories of U.S.-Soviet relations. If one episode or another in these pages beckons readers, they can turn to my endnotes to learn more. There are also many contemporary accounts in this field from strongly held points of view. Books that are deeply pessimistic or simplistic do not, in my view, help to chart our nuclear future.

I have tried to write an accessible book about dense subjects because I wish to reach general readers in addition to students and professionals in this field. Those who have worked on various aspects of the Bomb share a common language—bomb-speak—but they congregate into tribes that tend to get lost in detail and mire in ancient debates. The time is ripe for the tribes to reconnect with their fellow citizens. The way forward will require joint effort.

Henry L. Stimson once wrote, “We cannot take refuge in the folly of black and white solutions.”⁶ Stimson was a cabinet-level adviser for American presidents from Taft to Truman. He wrote this warning in 1947—a black-and-white time if there ever was one—when the world was dividing into the great historical face-off between Communism and the free world. Stimson was then thinking hard about the nuclear dilemma, a danger that, in his mind, dwarfed the others he wrestled with, including the defeat of Nazi Germany and Imperial Japan. As secretary of war, he oversaw and authorized the use of the Bomb to end World War II as quickly as possible, and then he resolved that no other national leader should ever have to make a similar decision. Stimson was convinced that the path to nuclear safety lay in accepting complexity and taking risk. He was prepared to take the hard path toward nuclear abolition.

I can understand why. We have memorabilia at the Stimson Center, including a copy of the briefing Stimson received about the Bomb from General Leslie Groves, the man who ran the Manhattan Project. The copy was given to Harvey Bundy, Stimson’s close confidante at the War Department. Harvey Bundy passed the briefing along to his son, McGeorge, who served as President John F. Kennedy’s national security adviser during the Cuban missile crisis. McGeorge Bundy gave the briefing to the Stimson Center for safekeeping before he died.

Back then, briefings were given on easels. The briefing consisted of large photographs pasted on 2 by 3 foot slabs of cardboard. These folios were the first portraits of the Bomb. The opening folio was a picture of the mushroom cloud from the first nuclear test at Alamogordo, New Mexico. The next folios consisted of aerial photographs of Hiroshima and Nagasaki before and after the atomic bomb drops. Staring at these black-and-white photographs, I can understand why Stimson warned against taking refuge in black-and-white solutions.

I begin this book with a snapshot of where we are and then move back in time to snapshots of previous periods of presumed maximum nuclear danger. The purpose of these vignettes is to place contemporary anxieties into historical context. In Chapters 3 and 4 I look at the first and second nuclear ages. My dividing point is 1991, the year that the Soviet Union collapsed and when victorious U.S. troops discovered Saddam Hussein's surprisingly advanced nuclear weapon program. The nuclear dangers and proposed remedies of the first and second nuclear ages have been quite different. These chapters provide context for my assessment of alternative nuclear futures that follows (Chapter 5). Here I suggest key drivers that can shape what lies ahead. By focusing on the events that can do the most damage, my intention is to clarify and reinforce useful preventive measures.

One lesson that will hopefully become apparent from the pages that follow is that pessimism serves no useful purpose in dealing with the dangers of nuclear proliferation and terrorism. Nuclear dangers are real and must be recognized, but overhyping the threat invites paralysis or missteps. The United States has stumbled before, but America has also made it through hard times and rebounded. With wisdom, persistence, and luck, another dark passage can be successfully navigated.