

Pessimism and Nostalgia in the Second Nuclear Age

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Abstract

The “second nuclear age” created a renaissance in theorizing about nuclear weapons with conclusions and speculation that were uniformly pessimistic. However, the second nuclear age is likely to be substantially less dangerous than the first. Why, then, does pessimism dominate? This article evaluates the literature of the second nuclear age and tries to understand why pessimism, and even nostalgia for the Cold War, is so common among its theorists. Drawing heavily on insights from psychology, it explains the origins of such nostalgia and explains why for so many people the past always seems better than the present, even when—as in the case of nuclear weapons—it is, by all empirical measures, far better.



There's nobody that understands the horror of nuclear better than me.

—Donald J. Trump, 15 June 2016

The ever-present threat of nuclear annihilation was one of the Cold War's less charming features. Although rational calculations from elites suggested deterrence would maintain a stable peace, to the average, helpless civilian, mutually assured destruction never seemed terribly reassuring. Many people were resigned to the notion that, sooner or later, the klaxon would sound and World War III would begin.

Today, the “horror of nuclear,” to use President Trump's phrase, seems to have receded. Superpower arsenals are 10 percent of what they once were, and the chances of nuclear holocaust have diminished. Our average,

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helpless civilian might be surprised to discover, however, that those same elites who were so calm in the face of past nuclear dangers are more worried about the present. Proliferation, instability, regional wars, and catastrophic terrorism are widely expected to be hallmarks of this “second nuclear age.”¹ Expectations for the new, post–Cold War era have been quite negative regarding many aspects of security, particularly nuclear weapons. Why does pessimism dominate today, when by all accounts the unipolar world is significantly better in almost every respect than the one that preceded it?²

The end of the Cold War ushered in a broad renaissance in nuclear weapons studies. This article examines the predictions, evidence, and psychology of this second nuclear age. It reviews the assertions commonly made during this renaissance and compares them to the evidence that has accumulated over the past 25 years. It renders judgment, to the extent possible, on the relationship between nuclear weapons and unipolarity, arguing that the second nuclear age is likely to be substantially less dangerous than the first. The article concludes by examining the psychological foundation of nuclear pessimism, including the puzzling nostalgia for the Cold War that pervades so much of this literature. Popular perceptions regarding nuclear weapons are once again different from those of the experts, and this time they seem more rational.³

Predictions of the Second Nuclear Age

The moment when many people began to take seriously the possibility of fundamentally new nuclear rules came in 1998 when India and Pakistan conducted a round of tests. “Atomic weapons have returned for a second act,” wrote one of this literature’s major figures, Paul Bracken. For him, “1998 was the turning point.”⁴ Once South Asia “had broken free of Western nuclear controls,” he argued, other countries in the “arc of terror” would surely follow.⁵ Others mark its beginning somewhat earlier, but all those who write about the second nuclear age (SNA) attempt to describe and predict behavior regarding nuclear weapons in a unipolar world. “It is a second age,” according to Bracken, “because it has nothing to do with the central fact of the first nuclear age, the cold war.”⁶ Taken as a whole, these analysts are a rather pessimistic lot, skeptical about the prospects for stability and nonproliferation in the absence of a superpower to balance the United States. This basic structural dynamic would lead to a number of unpleasant outcomes.

First and most obviously, the SNA would likely be marked by a great deal more proliferation than the first. According to Bracken, the “overarching theme” of the age will be the “breakdown of the major power monopoly over the bomb.”⁷ Unipolarity provides strong incentives for smaller states, who have no hope of balancing the United States, to pursue nuclear weapons. No matter how much effort the United States puts into non- and counterproliferation, “nuclear weapons will nevertheless spread, with a new member occasionally joining the club,” predicted Kenneth Waltz.⁸ “The most likely scenario in the wake of the Cold War,” argued John Mearsheimer, “is further nuclear proliferation in Europe,” and “it is not likely the proliferation will be well managed.”⁹ Instability and insecurity would spread, as would nuclear weapons, throughout the Global South.¹⁰ Since new nuclear states were almost inevitable, both Waltz and Mearsheimer felt that it was in the interest of the West to attempt to manage, and indeed even to encourage, gradual proliferation to help stabilize the system.

These chains of proliferation will lead to new, potentially unstable nuclear rivalries. Were North Korea to be accepted as the ninth nuclear-weapons state, Graham Allison warned in 2004, South Korea and Japan would build their own arsenals “by the end of the decade.”¹¹ The second nuclear age would be “much more decentralized,” with “many independent nuclear decision centers.”¹² A “multipolar nuclear order” is on the horizon, if it has not already arrived.¹³

The new nuclear powers are not likely to resemble the old. The second major assumption of the SNA literature is that proliferation will reach less enlightened parts of the globe, those led by unpredictable, semi-rational tyrants. The old rules of deterrence may not apply, since the motivations of these actors are not only less knowable but often ruled by passions and nationalism. “The idea of budding defense intellectuals sitting around computer models and debating strategy in Iran or Pakistan defies credulity,” at least in Bracken’s estimation, since in these states “hysterical nationalism” overrules rationality.¹⁴ The “overdetermined” cascades of proliferation across Asia will bring a host of new, less trustworthy actors into the nuclear camp, from rogue states to nonstate actors, all of whom will be essentially undeterrable by traditional means.¹⁵ Their motivations will be less rational or simply less transparent to the outside world.

In the second nuclear age, not just an accidental but the intentional use of nuclear weapons by new nuclear actors cannot be ruled out.¹⁶

Rogue states do not seek nuclear weapons for the reasons that motivated earlier proliferants. While all US observers believe that Washington's arsenal exists for defensive purposes, to deter any attack that our enemies would otherwise contemplate, the primary use of new nuclear weapons will be offensive. The possibility for irrationality in new nuclear powers inspired the United States to scrap the Anti-Ballistic Missile Treaty and begin thinking about how to "tailor" deterrence to target smaller actors.¹⁷ A nuclear Iran will use its weapons to bully, or even attack, not deter. In 2017, experts warned that North Korean intercontinental ballistic missiles would be coercive, to extract concessions from US allies. "North Korea's contempt for its neighbors suggests that it would hold them hostage with its nuclear weapons," wrote widely respected Ambassador Chris Hill. "Would proliferation stop with South Korea and Japan? What about Taiwan?"¹⁸ As a result, the basic assumptions of deterrence need to be rethought.

Third, preventive wars will be much more likely in the second nuclear age than they were in the first.¹⁹ The unipolar state is an essentially status quo power with strong incentives to prevent nuclear proliferation, especially if it involves states with disconcertingly inconsistent relationships with rationality.²⁰ The process of nuclearization, always profoundly unstable, will be even more dangerous now. Since many states may be interested in developing their own nuclear programs very soon, the risk of counterproliferation wars should increase.²¹

Fourth, preventive wars might not be the only ones becoming more frequent. Another characteristic of the new age expected by those who described it was an intensification of regional rivalries. The removal of the stabilizing influence of the superpowers will encourage local actors to take new steps to assure their security. Regional powers may well feel simultaneously less safe without the backing of their former patron and less constrained in their own actions. In nuclear terms, this means that the reach of nuclear umbrellas has shrunk. Extended deterrence (the promise to retaliate if one's allies are attacked), something upon which few smaller allies could completely depend during the Cold War, is particularly hard to take seriously now that it is over. The credibility of US commitments to its partners will decrease along with their strategic significance. Threats to retaliate in the periphery will not be as effective, and more wars—even nuclear wars—may be on the horizon.²² As a result, many expected to see the re-emergence of security dilemmas,

regional arms races, and their attendant negative effects on international relationships.

Fifth, other observers have been more concerned about dangers arising from reverse vertical proliferation. The erosion of Russian spending on (and attention to) its arsenal led some to question the viability of mutual assured destruction (MAD) in the second nuclear age. The United States appears to be approaching “nuclear primacy” as a result, and the results could be destabilizing.²³ A Kremlin without full confidence in its aging early-warning radar systems might grow increasingly concerned about its vulnerability to the dreaded bolt-from-the-blue attack. “To the extent that great power peace stems from the pacifying effects of nuclear weapons,” explained Keir Lieber and Daryl Press in a widely read piece, “it currently rests on a shaky foundation.”²⁴ That foundation grows shakier as the second nuclear age, and US technology, advances. Second-strike capabilities might no longer be what they once were.²⁵

Finally, contributors to the nuclear-studies renaissance worried a great deal about the potential for catastrophic terrorism. The “Managing the Atom” project at Harvard’s Belfer Center leads the concern. “If terrorists do get their hands on a nuclear device or on highly enriched uranium or plutonium,” warned Graham Allison, the project’s founder, “they could easily make a bomb operational within a year.”²⁶ He and others have repeatedly claimed that anyone with a master’s (or, at times, merely a bachelor’s) degree in physics could assemble a nuclear weapon if they acquired fissile material. Daniel Deudney worried about “nuclear leakage” to unsavory characters, which would lead to an age of “omniviolence.”²⁷

Perhaps some SNA theorists realized that their rhetoric was a bit overheated at times, but they rationalized their occasional use of hyperbole as a necessary tool to shock society into awareness regarding the ongoing dangers posed by nuclear stockpiles. A skeptic might suggest that perhaps some had also noted the ease with which fear sells books. Even if the SNA literature had more than one inspiration, its tone is homogenous: pessimism dominates, with most theorists arguing that the risk of nuclear use has risen dramatically in the unipolar world. As of this writing, the “Doomsday Clock” maintained by the *Bulletin of the Atomic Scientists* stands at two-and-a-half minutes to midnight, which is closer to Armageddon than at almost any time in the past.²⁸ Bracken has even wondered whether it will be “possible for countries to survive the second nuclear age.”²⁹

The Second Nuclear Age: Evidence

The removal of the Cold War rivalry has indeed had a rather dramatic effect on the world's relationship with its nuclear weapons—but not quite in the way described above. Most seasoned observers of international politics would agree that, so far, there have been no regional nuclear wars, and no cities have disappeared under a terrorist's mushroom cloud. While those SNA concerns may remain without much discussion, others might deserve a bit more examination.

Proliferation

The first quarter-century of unipolarity has been remarkably good for the nonproliferation regime. As it turns out, the great powers did not take Mearsheimer up on his recommendation to aid would-be proliferators. Thus far, at least, the second nuclear age has been much less dangerous than the first.

Proliferation comes in two forms, horizontal and vertical. The former refers to the spread of weapons capability from country to country, while the latter concerns the accumulation and development of weapons within countries. The superpowers tried to discourage horizontal proliferation during the Cold War while engaging in rather gaudy vertical proliferation of their own. Neither form has occurred since its end.

Two states founded the nuclear club in the 1940s (the United States and the USSR), one more joined in the 1950s (the United Kingdom), and two each in the 1960s (France and China), 1970s (India and Israel), and 1980s (Pakistan and South Africa). In the 1990s, there were no new members, and only one has joined in the new century. The same number of states possesses nuclear capability in 2017 as did in 1990, for a net horizontal proliferation rate of zero.

Table 1. Horizontal Proliferation in the Second Nuclear Age

Nuclear Weapons States, 2017	Nuclear Weapons States, 1990
United States	United States
Russia	USSR
United Kingdom	United Kingdom
France	France
China	China
Israel	Israel
India	India
Pakistan	Pakistan
North Korea	South Africa

Three states that inherited part of the Soviet arsenal (Belarus, Ukraine, and Kazakhstan) peacefully surrendered the weapons, against the advice of some outside observers.³⁰ At the time of this writing, the beginning of 2018, for the first time in eight decades no country is actively pursuing nuclear weapons, which is an underappreciated development. Nuclear testing has effectively ground to a halt outside of the Korean peninsula.

Meanwhile, the number of nuclear-capable states continues to grow. Although enthusiasm for nuclear power waxes and wanes alongside oil-price fluctuations and climate-change fears, the process is not secret. In April 2017, 449 nuclear reactors generated power for 30 different countries.³¹ All industrialized states, and quite a few less industrialized ones, are capable of building nuclear weapons.³² As Nick Miller's recent work has shown, nuclear energy programs rarely lead to warheads.³³

The supposedly landmark events that began the second nuclear age in earnest have proven profoundly unimportant. No proliferation cascades followed the 1998 Indian and Pakistani tests, which, it is helpful to recall, were only a reminder of what was already widely known: both countries had nuclear arsenals.³⁴ India conducted its first test in 1974, insisting that it was a "peaceful nuclear device."³⁵ Pakistan was unconvinced and developed its own weapons by the 1980s, although it refrained from testing. Domestic political calculations changed in 1998, not international conditions.³⁶ The tests were irrelevant to both the nonproliferation regime and geopolitics of the subcontinent.

Only one state has acquired nuclear weapons during unipolarity, but it is a prominent one. The anxiety generated by the new North Korean arsenal and its evolving delivery system may outweigh any optimism generated by otherwise negative proliferation momentum. Perhaps it is not the quantity of proliferation that should worry us, but the quality; one North Korean nuclear program may well be the functional equivalent, in terms of its ability to inject instability into the system, as six nuclear programs within Canada and the Nordic countries. In March 2017, then-Secretary of State Rex Tillerson announced that the era of "strategic patience" with North Korea was over and preventive action was a real possibility.³⁷ Former Ambassador John Bolton is not alone in worrying that accurate long-range missiles would allow them to become a "full-fledged" nuclear state.³⁸ Apparently North Korea has only been a partially fledged nuclear state since 2006, when it tested its first weapon.

Since that time, however, the so-called “hermit kingdom” has hardly acted irrationally. Indeed, its basic behavior has not changed. Pyongyang engaged in a consistent series of aggressive actions long before it acquired nuclear weapons, including assassinating dissidents, seizing US Navy vessels (and torturing captured crews), shooting down US reconnaissance aircraft, sinking South Korean ships, infiltrating special forces into the South, and other misdeeds. The pace of North Korean missile testing has increased over the last couple of years, but overall Kim is no more aggressive today than were his father and grandfather during the first nuclear age.

Pyongyang (and Trump’s Washington) provides strong evidence for one of the most basic lessons from foreign policy analysis: much more wisdom comes from watching what countries do than from listening to what their leaders say, since the latter is often primarily designed for domestic audiences. North Korean rhetoric is maniacal, but its actions are usually somewhat rational and restrained, far more so than commonly perceived.³⁹ The world’s newest nuclear-weapons state has not used its weapons for offensive purposes and appears to be just as deterrable as all those that preceded it. It is worth remembering that the Soviet Union joined the nuclear club when its leader was at the height of his paranoid mania and in complete control of his arsenal, yet even Stalin acted rationally when it came to atomic affairs.

Predictions of further rogue state proliferation have not been borne out by events. The most obvious example of this is Iran, whose program has been halted, at least temporarily. The controversial and awkwardly named “Joint Comprehensive Plan of Action” (JCPOA) dramatically complicated Tehran’s path toward a bomb for 15 years, and probably more, if it had been renegotiated and renewed in 2030.⁴⁰ No contributor to the SNA literature anticipated that agreement or offered much hope for the prospect that Iran could be kept nonnuclear without what might be euphemistically called preventive counterproliferation. Indeed, a number of analysts called openly for a preventive strike on Iran, an outcome they deemed preferable to trusting Tehran’s basic rationality. “Iran’s rapid nuclear development will ultimately force the United States to choose between a conventional conflict and a possible nuclear war,” wrote Matthew Kroenig in support of the former option.⁴¹ Six days before the framework for the deal was announced, former ambassador John Bolton warned that “Iran will not negotiate away its nuclear program. . . . Mr. Obama’s fascination

with an Iranian nuclear deal always had an air of unreality,” he wrote. “The inconvenient truth is that only military action . . . can accomplish what is required.”⁴²

These predictions may well still come true, now that President Trump has withdrawn the US from the JCPOA. As of this writing, the agreement outline remains in place and the Iranians have not violated it despite renewed US sanctions. Much consultation is taking place in European capitals as supporters of the agreement try to salvage its benefits. The nuclear proliferation so many anticipated throughout the Middle East may have been given new life by the master dealmaker currently in the White House.

It is also surely worth noting that Iran may not have been as determined to develop nuclear weapons as has been widely assumed. Both US and Israeli intelligence believe that Tehran never made any final decisions to nuclearize. According to the *2007 US National Intelligence Estimate*, which remains the assessment of the entire community, Iran essentially abandoned its efforts to develop a bomb in 2003.⁴³ Tehran’s insistence that it had no active program was dismissed by those whose judgments were based not on inside information but on distrust of Iran, which led them to believe that they thought they understood the Islamic Republic better than did intelligence professionals (who rarely have an incentive to underestimate). Thus, the JCPOA might have put an end to a program that had already effectively ended.

Despite widespread concerns to the contrary, the nonproliferation regime has proven even more robust in the second nuclear age than it was in the first. The story is even better regarding vertical proliferation: There are far fewer nuclear weapons on the planet after the first 25 years of unipolarity. The largest arsenals shrank the most precipitously, decreasing the overall number of warheads by over 70 percent. The United Kingdom and France maintain far fewer weapons than they did during the Cold War, and despite threats to build a new generation of warheads following the election of Trump, thus far the Chinese arsenal remains essentially unchanged.⁴⁴ Only India and Pakistan experienced meaningful vertical proliferation in the first decades of the second nuclear age.

Table 2. Vertical proliferation in the Second Nuclear Age⁴⁵

Total warheads	USA	Russia	China	UK	France	India	Pakistan	Israel	North Korea	South Africa	Global total
1990	21,392	37,000	230	422	420	7	4	53	0	6	59,534
2017	6,800	7,000	260	215	300	110	140	~80	~10	0	14,915

Meanwhile, Moscow has taken steps to address its eroding second-strike capabilities. The Russians embarked upon a nuclear modernization program in 2011, spending billions to upgrade systems and replace older weapons with new ones.⁴⁶ This renewed activity may or may not imperil bilateral arms-control treaties, but if it continues it should alleviate concerns that the United States is about to achieve nuclear primacy, with all its attendant, potentially destabilizing tensions. While the capability to take out an opponent's arsenal with a bolt-from-the-blue attack has been a concern of theorists since the dawn of the nuclear age, no state has appeared eager to put theory into practice. Reluctance to use nuclear weapons, whether as a result of a taboo or merely prudent caution, is a central feature of both the first and second nuclear ages.⁴⁷ Improvements in targeting or intelligence have not (yet?) weakened the basic logic of MAD, which was put to the test far more often in the first nuclear era.

Nuclear experts are perpetually identifying tipping points at which the world stands. Despite a vast decrease in the number of weapons and net-zero horizontal proliferation, the world always finds itself on the precipice of disaster, only a few minutes from midnight. Fortunately, the nonproliferation regime is far less fragile than SNA theorists feared. The pace of proliferation in the second nuclear age has thus far been substantially slower than most predicted.⁴⁸

Preventive War

How much credit can prevention take for these negative proliferation trends? The only unambiguously preventive war of the second nuclear age—the 2003 invasion of Iraq—had nothing to do with nuclear weapons, even if it was occasionally (and disingenuously) sold that way. “We know he [Saddam Hussein] has been absolutely devoted to trying to acquire nuclear weapons,” Vice President Dick Cheney said on *Meet the Press* four days before the tanks rolled. “And we believe he has, in fact, reconstituted nuclear weapons.”⁴⁹ It is unclear who the vice president meant by “we,” because no one in the US government or security community thought that Iraq had “reconstituted” nuclear weapons in March

2003.⁵⁰ Erroneous beliefs regarding other weapons of mass destruction were among the reasons for the war, but it was not the kind of preventive strike on a nuclear program foreseen by SNA theorists.

Iran was not the only rogue state to abandon its nuclear program without a fight. At times de-nuclearization occurred by choice, as with South Africa and Libya, while at other times nonproliferation was thrust upon states, as was the case with the inchoate Syrian program. Colonel Mu‘ammar Gadhafi’s motivation for his decision to shut down his WMD programs has been the subject of ferocious and heavily partisan debate. At issue is the extent to which the war in Iraq affected his calculations: Was Gadhafi concerned about being the next target of US counterproliferation, or was his decision a reflection of a broader effort to remove his government from the list of international pariahs? Supporters of the Bush administration posit a direct connection between the war and Gadhafi’s sudden change of heart. Negotiations with him had begun some years earlier under the Clinton administration, however, leading a number of observers to conclude that Libya would have abandoned its program regardless of what happened in Iraq.⁵¹ More recent work on the issue suggests that fear of being next on the US target list did affect Gadhafi’s thinking and can at the very least account for the timing of his offer to disarm.⁵² “Disarm” is probably not the right word, however, since Libya had nowhere near the requisite state capacity to build a bomb, and Gadhafi probably knew it. International Atomic Energy Agency inspectors found centrifuges and other crucial materials in their original packing crates, where they had apparently been for years.⁵³ Libya may have announced it would not be joining the nuclear club following the invasion of Iraq, but that was likely a conclusion it had reached some time before. For these purposes, it is sufficient to note that Libya abandoned its program for the foreseeable future. Diplomacy worked, the nonproliferation regime held, and the rogue-state list shrank by one member.⁵⁴

While it cannot yet be said that the 2007 Israeli airstrikes on a reactor construction site permanently removed the possibility of a Syrian nuclear weapon, the program has not restarted since the attack. Three-and-a-half years passed between those strikes and the current civil war, during which Assad presumably had plenty of time to re-establish his reactors, should he have desired to do so. Instead it appears that his government abandoned its efforts, which had not progressed very far

anyway.⁵⁵ American intelligence had never been confident about Syria's desire to build nuclear weapons in the first place, in large part because additional facilities required for such an effort were not under construction.⁵⁶

Overall, while prevention occurred in the second nuclear age, its pace is not increasing.⁵⁷ Israel, for example, struck facilities of its Arab neighbors during the first nuclear age as often as in the second. Non-proliferation in the Middle East has come in different forms in the unipolar era, from high-level diplomacy to air strikes. But the outcomes have been roughly the same, and nightmares of a region in a "nuclear context," or a gallery of nuclear-armed rogues, have not come to pass.

Terrorism

Finally, despite the string of bleak and terrifying projections from a variety of experts, nuclear weapons have remained well beyond the capabilities of the modern apocalyptic terrorist. The great fear of the SNA literature, that scientific knowledge and technology would gradually become more accessible to nonstate actors, has remained only a dream. Nor does there appear to be a great reservoir of fissile material in the world's various black markets waiting to be weaponized.⁵⁸

Just because something has not yet occurred does not mean that it cannot or will not occur eventually. However, it is worth noting that the world has not experienced any close calls regarding nuclear terrorism. Forecasting future unique events is a necessarily dicey enterprise, but one way to improve accuracy is to examine events that have already or almost happened. Given the many complexities involved with nuclear weapons, especially for amateurs as any terrorists would almost certainly be, it is not unreasonable to expect a few failures, or near misses, to precede success. While it is possible that we might not know about all the plots disrupted by international law enforcement, keeping the lid on nuclear near misses would presumably be no small task. As of this writing, the public is aware of no serious attempts to construct, steal, or purchase nuclear weapons, much less smuggle and detonate one. "Leakage" does not seem to be a problem, yet.⁵⁹

The uniformly pessimistic projections about the second nuclear era have not, at least thus far, been borne out by events. Post-Cold War trends have instead been generally moving in directions opposite to these expectations, with fewer nuclear weapons in the hands of the same number of countries and none pursuing more. Why, then, does

nuclear pessimism persist? What are the roots of the current fashionable unwillingness—or even inability—to detect positive patterns in nuclear security?

Psychology and the Second Nuclear Era

“I look back wistfully at the Cold War,” said James Inhofe, the ranking Republican in the Senate Armed Services Committee, in February 2014. “There were two superpowers, they knew what we had, we knew what they had, mutually assured destruction meant something. It doesn’t mean anything anymore.”⁶⁰ Inhofe is hardly alone. When he was secretary of defense, Robert Gates was fond of noting that the Cold War was “less complex” than the current era.⁶¹ Then-Secretary of State Rex Tillerson expressed this clearly in his first major address to his department in May 2017. “In many respects the Cold War was a lot easier,” he said:

Things were pretty clear, the Soviet Union had a lot of things contained, and I had a conversation with Secretary-General Guterres at the UN. He described it as during the Cold War, we froze history. History just stopped in its tracks because so many of the dynamics that existed for centuries were contained. They were contained with heavy authoritarianism. And when the Cold War ended and the Soviet Union broke up, we took all of that off and history regained its march. And the world got a whole lot more complicated. And I think that’s what we see. It has become much more complicated in terms of old conflicts have renewed themselves because they’re not contained now.⁶²

Former Chairman of the Joint Chiefs Martin Dempsey waxed nostalgic for the Soviet era over and over, repeatedly claiming that the world had become more dangerous than at any point in his lifetime.⁶³

On its face, this point of view, no matter how widespread, demonstrates a significant lack of perspective. As all who study international politics know—or should know—the post-Cold War era has not only been far more stable than the one that preceded it, but it has also been the most peaceful in all of human history. It will not be news to tell this community of readers that great power war has been absent for more than a half century, or that interstate conflict is rarer than ever, or that intrastate wars like civil and ethnic conflicts are also at historically low levels.⁶⁴ The total numbers tell only part of the story: By almost any measure the world has become significantly more peaceful, with measurable declines in coups, repression, the chances of dying in battle, territorial and border disputes, conquest, and genocide and other forms of violence

against civilians.⁶⁵ Peace settlements have proven to be more durable over time, and fewer new conflicts are breaking out than ever before.⁶⁶ Whether these trends represent a fundamental change in the rules that govern state behavior or a temporary respite between cataclysms is not yet clear, but there is no doubt the post–Cold War era has been far more stable and peaceful than any that preceded it.

Since these trends in conflict are the subject of great debate in the field, particularly over their cause and significance, healthy skepticism persists.⁶⁷ Popular perceptions about warfare certainly do not match empirical reality. Anxiety and unease about the state of the world remain high. The bloody mess in Syria in particular has blinded many observers to the broader security trends, which remain essentially unchanged. Security is after all relative; absolute safety is an illusion, something promised by leaders but unattainable in a world of imperfect actors. Stability has meaning only in comparison to other times. And when the current era—as dangerous as it may seem—is compared to any other, the verdict is clear: this is a golden age of peace and security, one in which the odds of dying in warfare are lower than ever before.

Even if the “New Peace” remains controversial, the trajectory of proliferation and nuclear issues is not.⁶⁸ The verdict on the second nuclear age is plain and irrefutable: thus far, it has been better in most ways than the first. The world is far less dangerous than it was during the Cold War, when many thousands more nuclear weapons stood on alert in superpower arsenals. States might not always have been able to cooperate, or even agree, over the course of the last 25 years, but at no time have tensions risen to the heights reached by a dozen or more Cold War crises. General Dempsey was born in 1952, so although he missed the Berlin Airlift by a few years, he was alive for the Korean War, Cuban Missile Crisis, Vietnam, Yom Kippur War, Soviet invasion of Afghanistan, 1983’s “Able Archer” scare, and a host of other perilous moments that have no post–Cold War equivalents. The unipolar era has not seen serious analysts urging the use of nuclear weapons on nonnuclear states, as happened in the United States in 1950 and 1954 (and in the Soviet Union in the early 1960s). It has seen nothing remotely similar to China’s Great Leap Forward, where as many as 30 million people perished.⁶⁹ Massive, bloody wars occurred during General Dempsey’s lifetime that dwarf even the horror in Syria, some of which involved the United States. Somewhere around 2 million people died in Vietnam alone while

the general was a teenager. The attacks of 9/11 shook this country to its core, but terrorism since has not been as dangerous to Americans as have bathtubs, cows, lightning, deer, and even the televisions that bring the frightening images into their living rooms.⁷⁰ By any reasonable measure, the Cold War was not only bloodier and less stable than the period since its end, but it also was less safe for the United States.

How soon so many in our national security establishment forget the consistent, nagging fear that hung over much of the Cold War, which was stronger at some times than others but could rarely be dismissed entirely: at times it seemed as if the West was losing. In retrospect, this seems rather silly, given the advantages of the first world over the second in nearly every measurable category of power, but back then the concern was real. Disasters seemed cumulative, as long as one interpreted them correctly. The Chinese civil war, Sputnik, Vietnam, and other occasional setbacks fed the impression that momentum was on the other side. The ultimate outcome of the struggle was not clear, which led to a steady waxing and waning of national anxiety. Today, no such fear exists. No matter what happens during the current “war on terror,” no major Western country is going to be speaking Arabic when it is over. Defeat is unimaginable, regardless of what time frame one uses.⁷¹ Today’s modern industrialized state faces no imminent existential threats.

Cold War nostalgia is particularly inappropriate regarding nuclear weapons. Almost all of those who write about the second nuclear age look back wistfully at the simpler, rational, predictable first. This claim overlooks the fact that many specialists and laymen alike were unconvinced that the Soviet leadership was rational, and some were fully convinced that it was not. Moscow sought not stability, hardliners endlessly warned, but revolution. Richard Pipes was typical when he argued that significant danger arose from the fact that “we consider nuclear war unfeasible and suicidal for both, and our chief adversary views it as feasible and winnable for himself.”⁷² Anyone attributing basic rationality to Soviet leaders engaged in naïve “mirror imaging,” the mistaken assumption that they were essentially like us.⁷³ The Soviets could not even be trusted to oppose the deaths of hundreds of millions, as long as such sacrifice advanced the cause of communism somehow. When today’s analysts look back wistfully at a time when US rivals were rational and predictable, they are recalling a fantasy, one that did not reflect the reality of the time.

The People's Republic of China seemed even less rational. A half century of Chinese nuclear behavior makes it easy to forget just how fast and loose Beijing once played with its rhetoric. Mao appeared quite sanguine regarding a global nuclear conflict, since it would result in the "total elimination of capitalism." He told Soviet leader Nikita Khrushchev in 1957 that in such a war "we may lose more than 300 million people. So what? War is war. The years will pass and we'll get to work producing more babies than ever before."⁷⁴ His bluster turned out to be just that, for since China tested its bomb it has acted quite responsibly. This was hardly predictable in the early 1960s as it was nuclearizing. As historian Francis Gavin observed, "No country in the post-World War II period—not Iraq, Iran, or even North Korea—has given U.S. policymakers more reason to fear its nuclearization than China."⁷⁵ All this was enough to encourage the superpowers to contemplate large-scale preemption, even during the supposedly stable and predictable first nuclear era.⁷⁶

The amorphous, generalized anxiety pervasive in the United States today is of a fundamentally different character and intensity than the existential dread that accompanied the Cold War. Nuclear war would have meant death not only for the individual but for civilization, the total annihilation of the past and future, which for many people seemed worse than mere death.⁷⁷ Threats of apocalypse permeated all layers of society, affecting the general mental health in ways that no terrorist, no matter how frightening, can match.⁷⁸ To keep their rosy memories intact, nostalgics have to forget or suppress the ever-present danger of World War III that hung over the Cold War and the utter terror and helplessness it produced.

Explaining Cold War Nostalgia

Expectations of a calamitous second nuclear age, as well as the general refusal to recognize the relative safety of the New Peace, are symptomatic of a larger, rather puzzling phenomenon. A lingering nostalgia for the Cold War has accompanied the unipolar era, a plaintive longing for an earlier, supposedly simpler, more predictable, and less dangerous time. Such nostalgia is the result of a few related phenomena working together, subconsciously making that dangerous past seem preferable to the much safer present. They are all related to one of the classic subjects in psychology: the manner in which memory operates.

A good deal of research has been done on how people remember. Psychologists have long known that memory is an active process, one that involves the purposeful reconstruction of events, opening the door to the influence of a variety of identifiable cognitive and motivational biases.⁷⁹ Over the years, researchers have identified many factors that shape the reconstruction and reinterpretation we call our memories. This process produces noticeable patterns that, when taken together, help account for the common tendency to look back upon earlier eras with unearned, positive feelings, in both SNA theorists and the general public.

First, psychologists describe a phenomenon sometimes referred to as rosy retrospection, according to which the past seems better in memory than it was in reality.⁸⁰ A strong line of research suggests that people often engage in “active forgetting” of negative events, for a variety of reasons, and focus instead on the positive.⁸¹ The human mind has an incentive, in a sense, to minimize the details and duration of unpleasant experiences. As a result, there tends to be a positivity bias to memory, which makes it easier to recall positive events or outcomes than negative ones. Our memories of the past are left rosier than our experiences of the present, and nostalgia forms.

For example, a number of studies have looked at the ways people remember enjoyable events, such as vacations and festivals.⁸² Participants consistently report greater satisfaction with their experiences after they return than they did while the event was taking place. They focus on the positive moments and forget those that were disappointing, frightening, or just plain boring. Lying by the pool seemed pretty nice while it was happening but great once they were back in the office. The same basic dynamics may well apply to bipolar standoffs; we are more likely to focus on the good events and forget the less pleasant or terrifying. Rosy retrospection encourages people to remember the moon landings more clearly than Sputnik or Reagan’s speech at the Berlin Wall more than that of Khrushchev at the UN. Most of all, we remember the end, when the wall fell, the Soviet Union collapsed, and the West emerged victorious.

Second, according to what psychologists call the immediacy bias, people experience current emotions more intensely than they do older ones.⁸³ The fear, dread, and pessimism of the Cold War faded long ago, while emotions generated by events of the present era remain powerful in our minds. In the argot of the field, recent events are more easily available in our memories than those of the past, so the emotions they

engender are more salient. As a result, for example, more recent humanitarian crises are more likely to attract the attention of outsiders than persistent problems, regardless of objective level of need.⁸⁴ Immediate emotions are often more powerful than older ones that, over time, may have lost their affective edge.

The present always outweighs the past, and as a result the Cold War seems less dangerous than it was, especially when compared to current events. Temporal distance makes 9/11 far more terrifying than the Cuban Missile Crisis, Iraq appear more heartbreaking than Vietnam, and ISIS as scary as the Soviets. Although a detached assessment might suggest that the reverse is true, people rarely make detached assessments. Current problems lead stereotypical teenagers to declare every few weeks that they are experiencing the worst day of their entire life and perhaps even seasoned generals to decide that no time is more dangerous than the present.⁸⁵

The third explanation for Cold War nostalgia has to do with how memory operates. People might look back fondly upon that era in part because they simply do not remember it accurately. For our purposes here, the important point is that the more events fade into the past, the more abstractly people tend to remember them.⁸⁶ The concrete, day-to-day details are lost to time, leaving behind only overall impressions. “As we move away from direct experience of things, we have less information about those things.”⁸⁷ The act of abstraction allows actors to retain certain features in their memories while omitting those deemed less important or less central. High levels of abstraction open the door to incomplete or incorrect reconstruction of memory, leaving actors with representations of the past that are “simpler, less ambiguous, more coherent, more schematic, and more prototypical than concrete representations.”⁸⁸ In other words, people impose order on their memories, even if no such order existed when the events occurred. The past appears simpler, more coherent, and—whether regarding nuclear weapons or other geopolitical threats—less dangerous.

The relationship between psychological distance and abstraction is complicated and just beginning to be understood. A couple of issues seem clear, however, that relate to the way people remember the Cold War. First of all, affective memory appears to fade faster than cognitive aspects of memory. In other words, people tend to remember facts but forget the intensity of emotions they generated. The terror of the Cuban

Missile Crisis fades, but the general story remains. This process only accelerates as the psychological distance grows. Furthermore, in many instances, negative emotions fade faster than positive ones.⁸⁹ Yaacov Trope and Nira Liberman use the example of houseguests: Soon after they leave, we may remember both the inconvenience they produce and the good times we had with them. Over time, though, the former fades, and we recall the positive emotions more clearly and are ready to welcome new guests.⁹⁰ The research therefore supports the notion of rosy retrospection, offering even more reason to believe that people tend to remember the positive aspects of the past more than the negative.

Finally, and perhaps most importantly, all memory of the Cold War is filtered through the lens of certainty. We know how the bipolar era ended, and we know that the world managed, through some combination of skill, luck, and/or inertia, to avoid a nuclear holocaust. Khrushchev blinked during the Cuban Missile Crisis. Zbigniew Brzezinski chose not to wake up President Carter when his military aides erroneously detected hundreds of inbound Soviet missiles in 1979.⁹¹ On the other side, a heroic Soviet lieutenant colonel disobeyed orders and refused to start a chain reaction after detecting a similarly false radar signature, averting an accidental nuclear war.⁹² Not only did the species survive, but the West won, and communism was essentially vanquished.

In contrast, no one knows what the future holds, either for the next would-be terrorist or the unipolar moment. One of the most robust findings in psychology, supported by behavioralists and neuroscientists alike, is that uncertainty is profoundly stressful.⁹³ The past might not have been uniformly pleasant, but its outcome is known, and it had a more-or-less happy ending. The present carries no such guarantees. No one can say for sure what North Korea or Vladimir Putin will do, or what plots ISIS is working on, or what catastrophes the warming climate will bring. The unknown unknowns, to borrow from Donald Rumsfeld, keep people awake at night.⁹⁴

These four psychological processes help explain why so many continue to believe the Cold War was somehow more predictable and less complicated than the current era. Without the natural bias regarding the past commonly created by memory, more reasonable evaluations of the current security environment would be possible, regarding nuclear weapons and all other imaginable categories. For many people, life is

always better in the rearview mirror, no matter what the facts say and no matter how strong the empirical case of those who argue otherwise.

Conclusion

Throughout the Cold War, the millions of words devoted to deterrence were all based on a series of assumptions that could never be tested. Foremost among them was the notion that the desire to attack was omnipresent or at least occasionally present between the superpowers. Without that desire, nothing would actually be deterred. In practice, it was impossible to determine when exactly states were deterred from attacking by guarantees of retaliation and when they were simply not contemplating aggression.⁹⁵ Superpower peace and the existence of enormous stockpiles of nuclear weapons may be merely coincidental.⁹⁶ The current era poses particular challenges to those seeking to ascertain whether nuclear weapons are actually deterring anything. Cross-border attacks with the goal of conquest have been just as rare in regions with no nuclear weapons as in those supposedly kept secure by deterrence. Would today's leaders really contemplate assaults on other states if nuclear weapons were absent? What if the world's nuclear weapons are essentially deterring no one, because the will to attack is essentially absent? In a system where conquest has been rendered so rare as to be obsolete, deterrence may be an illusion. The New Peace has tremendous implications for deterrence theory, in other words, none of which are currently captured by the current thinking on the second nuclear age.

If policy makers and leaders would realize that any nostalgia for the Cold War is being affected by predictable biases, they might be able to recognize their biases and correct their perceptions. They might be able to keep current threats in perspective, separate the major threats from the minor, and make better decisions. Fortunately, the international system today contains precious few major threats. No matter how many times it is repeated, we are not living in more dangerous times, when compared to any other.

Theorizing about the second nuclear age seems like security studies at its best. The parameters are well defined, the puzzles clear, the expectations elegant and logical. The only problem is the evidence, which stubbornly refuses to cooperate. Proliferation has not increased, regional rivalries have not deepened, and omniviolence has not materialized. Instead unipolarity has diminished the importance of nuclear weapons for

all but a handful of states. The second nuclear age is indeed different from the first; contrary to most expectations, however, thus far it has been significantly better. The end of the Cold War has improved nuclear security in every measurable way. Many observers are unlikely to realize the extent of these improvements as long as they remain unaware of the deeper psychological biases that make the past seem better than it was.

John Mueller once described the tendency of people to romanticize the past, elevating prior ages over the present, no matter how irrational. Human beings have a “tendency to look backward with misty eyes, to see the past as much more benign, simple, and innocent than it really was,” he observed. No matter how much better the present gets, the past gets better in reflection, and we are, accordingly, always notably worse off than we used to be. Golden ages, thus, do happen, but we are never actually in them: they are always back there somewhere (or, sometimes, in the ungraspable future).⁹⁷ As big problems become resolved, he continued, “we tend to elevate smaller ones, sometimes by redefinition or by raising standards, to take their place.”⁹⁸ The second nuclear age may turn out to be a golden one, but human nature might make it impossible for citizens and scholars alike to appreciate its benefits. **SSQ**

Notes

1. Paul Bracken may be most closely associated with the “second nuclear age,” but he did not coin the term. See his *Fire in the East: The Rise of Asian Military Power and the Second Nuclear Age* (New York: Harper Collins, 1999), and *The Second Nuclear Age: Strategy, Danger, and the New Power Politics* (New York: Henry Holt, 2012). See also Keith B. Payne, *Deterrence in the Second Nuclear Age* (Lexington: University Press of Kentucky, 1996); Colin S. Gray, *The Second Nuclear Age* (Boulder, CO: Lynn Rienner, 1999); Toshi Yoshihara and James R. Holmes, eds., *Strategy in the Second Nuclear Age: Power, Ambition, and the Ultimate Weapon* (Washington, DC: Georgetown University Press, 2012), 81–98; and those cited below.

2. Although the assertion that the world is unipolar would not be accepted by all observers, an extensive defense of the proposition is outside the scope of this paper. “The question [of polarity] is an empirical one,” wrote Kenneth Waltz some time ago, “and common sense can answer it.” Kenneth N. Waltz, *Theory of International Politics* (Reading, MA: Addison-Wesley Pub. Co., 1979), 131. The United States towers over all potential competitors in all measurable (and many less-than-measurable) categories. See Stephen G. Brooks and William C. Wohlforth, *World Out of Balance: International Relations and the Challenge of American Primacy* (Princeton, NJ: Princeton University Press, 2008); the essays in G. John Ikenberry, Michael Mastunduno, and William C. Wohlforth, eds., *International Relations Theory and the Consequences of Unipolarity* (New York: Cambridge University Press, 2011); and Christopher J. Fettweis, “Unipolarity, Hegemony, and the New Peace,” *Security Studies* 26, no. 3 (Fall 2017): 423–51, <https://doi.org/10.1080/09636412.2017.1306394>.

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3. This paper is a revised, updated and (hopefully) improved version of an argument that first appeared in Christopher J. Fettweis, *Psychology of a Superpower: Security and Dominance in U.S. Foreign Policy* (New York: Columbia University Press, 2018), used by permission.

4. Bracken, *Second Nuclear Age*, 1, 105.

5. Bracken, *Fire in the East*, 95.

6. Bracken, 96.

7. Bracken, *Second Nuclear Age*, 10.

8. Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: A Debate* (New York: W. W. Norton, 1995), 1.

9. John J. Mearsheimer, "Back to the Future: Instability in Europe after the Cold War," *International Security* 15, no. 1 (Summer 1990): 37 and 39, <https://www.jstor.org/stable/2538981>. See also Benjamin Frankel, "The Brooding Shadow: Systemic Incentives and Nuclear Weapons Proliferation," *Security Studies* 2, nos. 3/4 (Spring/Summer 1993): 37–78, <https://doi.org/10.1080/09636419309347519>.

10. John J. Mearsheimer, "Disorder Restored," in *Rethinking America's Security: Beyond Cold War to New World Order*, ed. Graham Allison and Gregory F. Treverton (New York: W. W. Norton, 1992), 225. For specific predictions of proliferation in the Third World, see 234–35.

11. Graham Allison, *Nuclear Terrorism: The Ultimate Preventable Catastrophe* (New York: Henry Holt, 2004), 186.

12. Bracken, *Second Nuclear Age*, 95. Not everyone foresaw increased proliferation, of course: Jacques E. C. Hymans, *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy* (New York: Cambridge University Press, 2006).

13. Bracken, *Second Nuclear Age*, 3. See also Fred Charles Iklé, "The Second Coming of the Nuclear Age," *Foreign Affairs* 75, no. 1 (January-February 1996): 119–28, <http://dx.doi.org/10.2307/20047472>.

14. Paul Bracken, *Fire in the East: The Rise of Asian Military Power and the Second Nuclear Age* (New York: Harper Collins, 1999), 113. On the same page, Bracken demonstrates that he is one who believes "penultimate" means "extra ultimate." Bracken's history of ethnocentrism is reviewed by Victor D. Cha in "The Second Nuclear Age: Proliferation Pessimism versus Sober Optimism in South Asia and East Asia," *Journal of Strategic Studies* 24, no. 4 (December 2001): 79–120, esp. 100–101, <https://www.tandfonline.com/doi/abs/10.1080/01402390108437857>.

15. Cha makes the point about overdetermination in "The Second Nuclear Age," 79 and thereafter, and Payne worries about undeterrable actors throughout his *Deterrence in the Second Nuclear Age*, but esp. 40–52.

16. See Rebecca Davis Gibbons and Matthew Kroenig, "Reconceptualizing Nuclear Risks: Bringing Deliberate Nuclear Use Back In," *Comparative Strategy* 35, no. 5 (October 2016): 407–22, <https://doi.org/10.1080/01495933.2016.1240995>. The authors claim to "marshal empirical evidence" to support the claim that the danger of intentional use of nuclear weapons is increasing.

17. "Tailored deterrence" made its debut as a concept in the 2006 Quadrennial Defense Review of the US Department of Defense. White House, "Quadrennial Defense Review Report" (Washington, DC: Department of Defense, 6 February 2006), <archive.defense.gov/pubs/pdfs/QDR20060203.pdf>.

18. This is a rather bizarre line of argument, since North Korea had nuclear weapons for a decade without such bullying. Chris Hill, "Avoiding the Temptation to do Nothing," *Time*, 3 April 2017, 42, <https://www.scribd.com/article/342952711/Avoiding-The-Temptation-To-Do-Nothing>.

19. Nuno P. Monteiro, *Theory of Unipolar Politics* (New York: Cambridge University Press, 2014), 14–15.
20. Bracken, *Second Nuclear Age*, 160.
21. The terms “nonproliferation” and “counterproliferation” are often conflated. The former aims at preventing proliferation, while the latter (an invention of the US Department of Defense in the 1990s) essentially refers to rolling back existing WMD programs. According to Barry Schneider of the USAF Counterproliferation Center, the basic difference is that nonproliferation “features the velvet glove of the diplomat,” and counterproliferation, “the iron fist of the military.” Barry R. Schneider, “Military Responses to Proliferation Threats,” in *Pulling Back from the Nuclear Brink: Reducing and Countering Nuclear Threats*, ed. Barry R. Schneider and William L. Dowdy (London: Frank Cass, 1998), 306.
22. Payne, *Deterrence in the Second Nuclear Age*, 118.
23. Keir A. Lieber and Daryl G. Press, “The End of MAD? The Nuclear Dimension of U.S. Primacy,” *International Security* 30, no. 4 (Spring 2006): 7–44, <http://dx.doi.org/10.1162/isec.2006.30.4.7>.
24. Lieber and Press, 8.
25. Austin Long and Brendan Rittenhouse Green, “Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy,” *Journal of Strategic Studies* 38, nos. 1–2 (February 2015): 38–73, <https://doi.org/10.1080/01402390.2014.958150>; and Keir A. Lieber and Daryl G. Press, “The New Era of Counterforce: Technological Change and the Future of Deterrence,” *International Security* 41, no. 4 (Spring 2017): 9–49, http://dx.doi.org/10.1162/ISEC_a_00273.
26. Allison, *Nuclear Terrorism*, 120.
27. Daniel Deudney, “Unipolarity and Nuclear Weapons,” in *International Relations Theory and the Consequences of Unipolarity*, ed. G. John Ikenberry, Michael Mastunduno, and William C. Wohlforth (New York: Cambridge University Press, 2011), 308.
28. The clock was at two minutes until midnight between 1952 and 1960, and dipped down to three minutes from 1983 to 1988. Its timeline can be accessed at <http://thebulletin.org/timeline>.
29. Paul Bracken, *The Second Nuclear Age: Strategy, Danger, and the New Power Politics* (New York: Henry Holt, 2012), 7.
30. John J. Mearsheimer, “The Case for a Ukrainian Nuclear Deterrent,” *Foreign Affairs* 72, no. 3 (Summer 1993): 50–66, <https://www.foreignaffairs.com/articles/ukraine/1993-06-01/case-ukrainian-nuclear-deterrent>.
31. Nuclear Energy Institute, “Nuclear Energy Around the World,” April 2017, <https://www.nei.org/Knowledge-Center/Nuclear-Statistics/World-Statistics>.
32. By one estimate, there are nearly 50 “nuclear capable” countries. Jacques E. C. Hymans, *The Psychology of Nuclear Proliferation* (New York: Cambridge University Press, 2006), 4. See also Adam N. Stulberg and Matthew Fuhrmann, eds., *The Nuclear Renaissance and International Security* (Stanford, CA: Stanford University Press, 2013).
33. Nicholas L. Miller, “Why Nuclear Energy Programs Rarely Lead to Proliferation,” *International Security* 42, no. 2 (Fall 2017): 40–77, https://doi.org/10.1162/ISEC_a_00293.
34. Those like Bracken who insist on claiming that both are new members of the nuclear club should explain how the Pakistanis could go from zero to testing in 17 days following the surprise Indian test. Nonetheless, he has made this claim repeatedly; see *The Second Nuclear Age: Strategy, Danger, and the New Power Politics* (New York: Henry Holt, 2012), 93, where he also says that Israel is “coming out of the closet” with its arsenal and other countries are considering joining the club.

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35. The story is told well by George Perkovich in *India's Nuclear Bomb: The Impact on Global Proliferation* (Berkeley: University of California Press, 1999). The “peaceful nuclear device” is explained in pages 161–89.

36. The era is reviewed in Strobe Talbott, *Engaging India: Diplomacy, Democracy, and the Bomb* (Washington, DC: Brookings Institution Press, 2004).

37. David E. Sanger, “Secretary of State Rejects Talks with North Korea on Nuclear Program,” *New York Times*, 18 March 2017, A8, <https://www.nytimes.com/2017/03/17/world/asia/rex-tillerson-north-korea-nuclear.html>.

38. Ambassador John Bolton (@AmbJohnBolton), Twitter, 14 August 2017, <https://twitter.com/AmbJohnBolton>.

39. Leon V. Sigal, *Disarming Strangers: Nuclear Diplomacy with North Korea* (Princeton, NJ: Princeton University Press, 1998); Dennis Roy, “North Korea and the ‘Madman Theory,’” *Security Dialogue* 25, no. 3 (September 1994): 307–16, <https://doi.org/10.1177/0967010694025003006>; David C. Kang, “International Relations Theory and the Second Korean War,” *International Studies Quarterly* 47, no. 3 (September 2003): 301–24, <https://doi.org/10.1111/1468-2478.4703001>; Victor D. Cha, “Five Myths about North Korea,” *Washington Post*, 10 December 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/12/10/AR2010121002488.html>; Terrence Roehrig, “North Korea’s Nuclear Weapons Program: Motivations, Strategy, and Doctrine,” in *Strategy in the Second Nuclear Age*, ed. Yoshihara and Holmes, 81–98; and Max Fisher, “North Korea, Far from Crazy, Is All Too Rational,” *New York Times*, 10 September 2016, A6, <https://www.nytimes.com/2016/09/11/world/asia/north-korea-nuclear-missile-programs-rational.html>.

40. All arms-control agreements expire after a certain period. The Non-Proliferation Treaty has been renegotiated and (so far) renewed every five years, for example, and SALT agreements only lasted eight. The JCPOA has a period of 15 years, longer than any similar agreement, and was written under the impression that it will be extended.

41. Matthew Kroenig, “Time to Attack Iran: Why a Strike Is the Least Bad Option,” *Foreign Affairs* 91, no. 1 (January/February 2012): 86, <https://www.jstor.org/stable/23217150>. See also his *A Time to Attack: The Looming Iranian Nuclear Threat* (New York: St. Martin’s Press, 2014); Norman Podhoretz, “The Case for Bombing Iran,” *Commentary* 123, no. 6 (June 2007): 17–23, <https://www.commentarymagazine.com/articles/the-case-for-bombing-iran/>; Alan J. Kuperman, “There’s Only One Way to Stop Iran,” *New York Times*, 24 December 2009, A23, <https://www.nytimes.com/2009/12/24/opinion/24kuperman.html>; and Joshua Muravchik, “War with Iran is Probably Our Best Option,” *Washington Post*, 13 March 2015, https://www.washingtonpost.com/opinions/war-with-iran-is-probably-our-best-option/2015/03/13/fb112eb0-c725-11e4-a199-6cb5e63819d2_story.html?utm_term=.fe2f2cec2390.

42. John R. Bolton, “To Stop Iran’s Bomb, Bomb Iran,” *New York Times*, 26 March 2015, A23, <https://www.nytimes.com/2015/03/26/opinion/to-stop-irans-bomb-bomb-iran.html>.

43. National Intelligence Council, “Iran: Nuclear Capabilities and Intentions,” November 2007, www.isisnucleariran.org/assets/pdf/2007_Iran_NIE.pdf.

44. On China’s nuclear program, see Jeffrey Lewis, *Paper Tigers: China’s Nuclear Posture* (London: International Institute for Strategic Studies, Adelphi Book 446, December 2014). For an analysis of Chinese nuclear behavior in the early days of the Trump regime, see Melissa Hanham, “China’s Happy to Sit Out the Nuclear Arms Race,” *Foreign Policy* blog, 30 January 2017, <http://foreignpolicy.com/2017/01/30/chinas-happy-to-sit-out-the-nuclear-arms-race/>.

45. Estimates of 1990 arsenals: Robert Norris and Hans M. Kristensen, “Global Nuclear Inventories, 1945–2010,” *Bulletin of the Atomic Scientists* 66, no. 4 (July 2010): 77–83, <https://thebulletin.org/2010/julyaugust/global-nuclear-weapons-inventories-1945%E2%80%932010>.

Most up-to-date estimates are taken from the Arms Control Association, “Nuclear Weapons: Who Has What at a Glance,” January 2017, <https://www.armscontrol.org/factsheets/Nuclear-weaponswhohaswhat>.

46. Hans M. Kristensen and Robert S. Norris, “Russian Nuclear Forces, 2016,” *Bulletin of the Atomic Scientists* 72, no. 3 (16 April 2016), 125–34, <https://thebulletin.org/2016/may/russian-nuclear-forces-20169394>.

47. On the taboo, see Nina Tannenwald, *The Nuclear Taboo: The United States and Non-Use of Nuclear Weapons since 1945* (New York: Cambridge University Press, 2007); on other reasons for non-use, see Thomas M. Nichols, *No Use: Nuclear Weapons and U.S. National Security* (Philadelphia: University of Pennsylvania Press, 2013).

48. Some (primarily American) observers might give primary credit for SNA nonproliferation to the various “inhibition strategies” employed by the United States of the kind discussed by Francis J. Gavin in “Strategies of Inhibition: U.S. Grand Strategy, the Nuclear Revolution, and Nonproliferation,” *International Security* 40, no. 1 (Summer 2015): 9–46, https://doi.org/10.1162/ISEC_a_00205. It is equally possible that US actions had little effect and this belief is a result of common motivated biases, especially the “illusion of control” (see Fettweis, *Psychology of a Superpower*). Fortunately for this discussion, the exact cause of decreased proliferation is not as important as the fact that it has occurred.

49. Remarks on *Meet the Press*, 16 March 2003, transcript available on the website of the George W. Bush archives, <https://georgewbush-whitehouse.archives.gov/vicepresident/news-speeches/speeches/vp20010916.html>.

50. Philosophers and grammarians might point out that it would have been technically impossible for Hussein to “reconstitute” weapons he had not previously constituted.

51. Flynt Leverett, “Why Libya Gave Up on the Bomb,” *New York Times*, 23 January 2004, <https://www.nytimes.com/2004/01/23/opinion/why-libya-gave-up-on-the-bomb.html>; and Martin S. Indyk, “The War in Iraq Did Not Force Gadaffi’s Hand,” *Financial Times*, 9 March 2004, <https://www.brookings.edu/opinions/the-iraq-war-did-not-force-gadaffis-hand/>.

52. William R. Tobey, “A Message from Tripoli: How Libya Came to Give Up its WMD,” *Bulletin of the Atomic Scientists*, 3 December 2014, <http://thebulletin.org/message-tripoli-how-libya-gave-its-wmd7834>, which is the first of a five-part series on the issue. All other installments are linked to the first page.

53. Jacques E. C. Hymans makes the case that strong state institutions are necessary conditions for nuclear development in *Achieving Nuclear Ambitions: Scientists, Politicians, and Proliferation* (New York: Cambridge University Press, 2012). Libya is discussed on 239–48, its crated centrifuges on 242. See also Målfrid Braut-Hegghammer, *Unclear Physics: Why Iraq and Libya Failed to Get the Bomb* (Ithaca, NY: Cornell University Press, 2016).

54. Bruce W. Jentleson and Christopher A. Whytock, “Who ‘Won’ Libya? The Force-Diplomacy Debate and Its Implications for Theory and Policy,” *International Security* 30, no. 3 (Winter 2005/06): 47–86, <http://dx.doi.org/10.1162/isec.2005.30.3.47>.

55. A January 2015 report in *Der Spiegel* made waves by suggesting that the Syrian program may have restarted (Erich Follath, “Evidence Points to Syrian Push for Nuclear Weapons,” *Der Spiegel* online, 9 January 2015, <http://www.spiegel.de/international/world/evidence-points-to-syria-still-working-on-a-nuclear-weapon-a-1012209.html>). Subsequent reports have strongly disagreed. The Nuclear Threat Initiative has concluded that “it is highly unlikely that Syria currently has an active nuclear weapons program.” “Syria,” <http://www.nti.org/learn/countries/syria/nuclear/>.

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56. Leonard S. Specter and Avner Cohen, "Israel's Airstrike on Syria's Reactor: Implications for the Nonproliferation Regime," *Arms Control Today* 38, no. 6 (July/August 2008): 15–21, <https://www.jstor.org/stable/23628417>.

57. Advocates of coercive diplomacy might be tempted to give US actions credit for obviating the need for preventive war; such positions are difficult to prove, since explaining non-events is not usually possible. And it is also possible that impressions of inevitable prevention from the United States would have resulted in greater imperatives to proliferate. A good discussion of coercive diplomacy can be found in Alexander L. George, *Forceful Persuasion: Coercive Diplomacy as an Alternative to War* (Washington, DC: US Institute of Peace Press, 1991).

58. John Mueller reviews the black market for fissile material in *Atomic Obsession: Nuclear Alarmism from Hiroshima to Al-Qaeda* (New York: Oxford University Press, 2009), 169–72.

59. There is a robust literature on the relationship between deterrence and nuclear terrorism. Those interested should begin with Robert Litwak, *Deterring Nuclear Terrorism* (Washington, DC: Wilson Center, 2016).

60. Quoted by Jussi M. Hanhimaki, "The (Really) Good War? Cold War Nostalgia and American Foreign Policy," *Cold War History* 14, no. 4 (November 2014): 673–74, <https://doi.org/10.1080/14682745.2014.950245>.

61. Thom Shanker, "Gates Counters Putin's Words on U.S. Power," *New York Times*, 11 February 2007, <https://www.nytimes.com/2007/02/11/us/11cnd-gates.html>.

62. Rex W. Tillerson, "Remarks to U.S. Department of State Employees," 3 May 2017, <https://www.state.gov/secretary/20172018tillerson/remarks/2017/05/270620.htm>.

63. Gideon Rose, "Notes from the Chairman: A Conversation with Martin Dempsey," *Foreign Affairs* 95, no. 5 (September/October 2016): 2, <https://www.foreignaffairs.com/interviews/2016-08-01/notes-chairman>. His long track record of nostalgia is critically addressed throughout the essays in Christopher A. Preble and John Mueller, eds., *A Dangerous World? Threat Perception and U.S. National Security* (Washington, DC: Cato Institute, 2014).

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67. For some skepticism, see Bear F. Braumoeller, *Only the Dead: International Order and the Persistence of Conflict in the Modern Age* (working title), forthcoming, Oxford University Press; Anita Gohdes and Megan Price, "First Things First: Assessing Data Quality before Model Quality," *Journal of Conflict Resolution* 57, no. 6 (December 2013): 1090–108, <https://doi.org/10.1177/0022002712459708>; and Tanisha M. Fazal, "Dead Wrong? Battle Deaths, Military Medicine, and Exaggerated Reports of War's Demise," *International Security* 39, no. 1 (Summer 2014): 95–125, https://doi.org/10.1162/ISEC_a_00166.

68. The "New Peace" is a phrase coined by Steven Pinker in *The Better Angels of Our Nature: Why Violence Has Declined* (New York: Viking, 2011). The "Long Peace" is also occasionally used, but that phrase can also refer to the period of great power peace that followed World War II. See John Lewis Gaddis, "The Long Peace: Elements of Stability in the Postwar International System," *International Security* 10, no. 4 (Spring 1986): 99–142, <http://dx.doi.org/10.2307/2538951>.

69. Paul Kennedy makes similar points in "The Good Old Days of the Cold War," *Los Angeles Times*, 18 February 2007, <http://www.latimes.com/news/la-op-kennedy18feb18-story.html>.

70. Televisions occasionally fall on people, and cows kill more Americans than ISIS does. See Andrew Shaver, "You're More Likely to be Fatally Crushed by Furniture than Killed by a Terrorist," *Washington Post*, 23 November 2015, https://www.washingtonpost.com/news/monkey-cage/wp/2015/11/23/youre-more-likely-to-be-fatally-crushed-by-furniture-than-killed-by-a-terrorist/?utm_term=.c98af92c126d; and Christopher Ingraham, "Chart: The Animals that Are Most Likely to Kill You this Summer," *Washington Post*, 16 June 2015, https://www.washingtonpost.com/news/wonk/wp/2015/06/16/chart-the-animals-that-are-most-likely-to-kill-you-this-summer/?utm_term=.0e86c8d22f32.

71. Not everyone agrees with (or realizes the basic truth of) this statement, including Gen Michael Flynn, the disgraced first National Security Advisor of President Trump. Over and over throughout a book he co-wrote with Michael Ledeen (*Field of Fight: How We Can Win the Global War against Radical Islam and Its Allies* [New York: St. Martin's Press, 2016]), Flynn warns that the United States is losing the war on terror. How exactly the United States could possibly "lose" in any real way is left, shall we say, underexplained.

72. Richard Pipes, "Why the Soviet Union Thinks It Could Fight and Win a Nuclear War," *Commentary* 64, no. 1 (July 1977): 34, <https://www.commentarymagazine.com/articles/why-the-soviet-union-thinks-it-could-fight-win-a-nuclear-war/>.

73. For Cold War hawks, "mirror imaging" referred to the fallacy of believing that opponents think like we do. For political psychologists, the term refers to the tendency to perceive others as the opposite of oneself, as one would see in mirror. For the former usage, see Raymond L. Garthoff, "On Estimating and Imputing Intentions," *International Security* 2, no. 3 (Winter 1978): 22–33, <https://muse.jhu.edu/article/446197/pdf>; for the latter, Ralph K. White, "Images in the Context of International Conflict: Soviet Perceptions of the U.S. and the U.S.S.R.," in

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International Behavior: A Social-Psychological Analysis, ed. Herbert C. Kelman (New York: Holt, Rinehart and Winston, Inc., 1965), 236–76, esp. 255–58.

74. Quoted by Lawrence S. Wittner, *Resisting the Bomb: A History of the World Nuclear Disarmament Movement, 1954–1970* (Palo Alto, CA: Stanford University Press, 1997), 161–62.

75. Francis J. Gavin, “Same as it Ever Was: Nuclear Alarmism, Proliferation, and the Cold War,” *International Security* 34, no. 3 (Winter 2009–2010): 15, <http://dx.doi.org/10.1162/isec.2010.34.3.7>.

76. William Burr and Jeffrey T. Richelson, “Whether to ‘Strangle the Baby in the Cradle’: The United States and the Chinese Nuclear Program, 1960–64,” *International Security* 25, no. 3 (Winter 2000/01): 54–99, <https://doi.org/10.1162/016228800560525>.

77. Michael Mandelbaum, “The Bomb, Dread, and Eternity,” *International Security* 5, no. 2 (Autumn 1980): 3–23, <https://www.jstor.org/stable/i323252>.

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89. Yaacov Trope and Nira Liberman, "Temporal Construal and Time-Dependent Changes in Preference," *Journal of Personality and Social Psychology* 79, no. 6 (December 2000): 876–89, <http://dx.doi.org/10.1037/0022-3514.79.6.876>. The valence-dependent time-discounting hypothesis has been around for quite some time; see Kurt Lewin, *Field Theory in Social Science: Selected Theoretical Papers* (New York: Harper & Row, 1951). This is according to the "valence-dependent time-discounting hypothesis," which was an important influence on the early tests of CLT.

90. Trope and Liberman, "Temporal Construal," 404.

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92. Stanislav Petrov's amazing story is told by David E. Hoffman in "I Had a Funny Feeling in my Gut," *Washington Post*, 10 February 1999, A19, <http://www.washingtonpost.com/wp-srv/inatl/longterm/coldwar/soviet10.htm>. See also his Pulitzer-Prize-winning *The Dead Hand: The Untold Story of the Cold War Arms Race and Its Dangerous Legacy* (New York: Anchor Books, 2009), esp. 6–11.

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97. John Mueller, *Quiet Cataclysm: Reflections on the Recent Transformation of World Politics* (New York: Harper Collins, 1995), 14.

98. Mueller, 8.

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