

ONE

History and the Unanswered Questions of the Nuclear Age

How much is known about nuclear weapons, foreign policy, and international relations? The bomb has been a presence on the world stage for eight decades, and an extraordinary amount of intellectual and institutional capital has been expended in an effort to understand why states do or do not seek nuclear weapons, how they deploy these weapons to achieve their aims in the world, and how and in what ways they influence war and peace. The scholarly legacy is mixed. While much has been learned, deep and often bitter divides remain, not only over the answers to key questions but also over the assumptions and methods that frame our work.

These issues are not simply a concern of the academy. Nuclear studies is an area in which policymakers and scholars have long been intertwined, sometimes enthusiastically, at other times warily, but often with great consequence. Acknowledging this relationship is especially important today, as new nuclear crises emerge and international consensus on the nuclear order dissolves. The United States, the prime driver of nuclear dynamics since 1945, currently finds itself

at an important crossroads, pulled in two mutually exclusive directions, between disarmament and deterrence. Nuclear studies can and should play a role in these debates, though only after the United States acknowledges its own struggles to make sense of the bomb and its consequences.

This chapter revisits the core questions that have animated nuclear studies from the very beginning while laying out the challenges that have prevented consensus. One overarching issue, however, pervades the research on nuclear weapons: why nuclear weapons have not been used since 1945.¹ This question, the taproot of all other queries on the subject, is hard to answer with full confidence. While rarely acknowledged, the very nature of the nuclear revolution makes certainty elusive. Acknowledging this epistemological challenge, however, may help provide the humility and perspective necessary to generate insight and craft better policies.

What have been the intellectual contributions of the nuclear studies community? On the one hand, scholars and policymakers have been fortunate to be in the midst of what has been called a renaissance in nuclear studies, within both political science and international history.² The passage of time, the opening of new archives, and the deployment of new methods have all contributed greatly to current understanding.³ Let me provide three important examples. First, in the last decade, scholars from around the world have exploited new sources to increase understanding of nuclear decisionmaking in a wide variety of states. The list of new states with nuclear ambitions includes Brazil, Germany, Iran, Israel, Italy, Japan, Pakistan, Romania, South Korea, and Sweden.⁴ This has led to a second crucial development—a deeper, more nuanced understanding of nuclear proliferation. In the past, states were coded as either nuclear or non-nuclear.

This new scholarship, however, has called into question this binary categorization. Terms such as *recessed deterrent*, *threshold state*, *nuclear reversal*, *latency*, *hedging*, and *opacity* describe what might be thought of as a spectrum of nuclear outcomes that are historically and politically short of a full-blown survivable nuclear deterrent.⁵

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The notion of who is “nuclear” and what that means is more complex than previously understood. Finally, there is a greater sense of the lengths the United States has gone to, with both foe and friend, to slow, halt, and reverse the rise of new independent weapons states.⁶ This work has gone far in undermining the grand bargain conventional wisdom surrounding the nuclear nonproliferation regime by highlighting the willingness of two bitter Cold War enemies to collude in preventing proliferation.⁷

Work on these and other subjects has been impressive, and more is being produced all the time. Yet I sometimes fear that less has been learned than might have been hoped for and, in some senses, we are spinning our wheels. I see two reasons for this. The first has to do with what questions scholars are asking. Much of the research assumes the most important questions—the core issues on which its assumptions rest and on which the research is built—have already been answered, when in fact they have not.⁸ Second, steep but often unrecognized methodological challenges prevent scholarship from getting good answers. This includes not only the disciplinary gaps between history and political science and the theoretical, qualitative, formal, and quantitative divides within the international relations subfield; more important, it also includes challenges in the very nature of how scholars study and think about nuclear weapons.⁹

As a scholar who interacts with both the history and international relations field, I want to use this opportunity for reflection. Frustratingly, I can offer no answers, only more questions. My goal is not to present anything new but rather to suggest that much might be gained by revisiting old questions, challenging the unstated assumptions that undergird research and scholarship, and thinking more deeply about how we, as scholars in the broader nuclear studies community, do our work.

Writing the History That Never Happened

There is a tension between historical work and the demands of both international relations theory and policy.¹⁰ Most people study nuclear questions to understand what makes for good policy and what lessons the past can provide for the present and the future. Good historians, however, embrace uncertainty, context, and the nongeneralizable. This is, understandably, a deeply disappointing and unsatisfying answer for policymakers and many social scientists. Why study the past if it yields no direct lessons that can be applied to current, vexing policy situations? This frustration is especially acute on military issues and the grave matter of war and peace. Mistakes in this realm have the most terrible human consequences, and scholars are eager to have all the knowledge and wisdom available to avoid disaster.

Perhaps even more frustrating is that historians traffic in ironies. War and military competition are rife with dilemmas and puzzles. For example, it is understood that modern conflict is horrific. It is also understood that war can be a necessary evil. And in a terrible irony, war and military competition have played a large role in the extraordinary economic, political, social, and technological progress the Western world has achieved in the past few centuries. There is hardly a political practice, a beloved technology, or an improved norm—from the rise of finance capitalism and greater wealth, to the navigation and transportation revolution, to modern medicine, to representative democracy and efficient bureaucracy, to civil rights for African Americans and women—that cannot be traced to, if not war, then military and international political competition. This helps explain why historians are often humble, crusty, and ironic (in both their scholarship and demeanor). We hate war. But we understand that what the distinguished scholar William McNeill called “the pursuit of power” has created a remarkable, lasting legacy.¹¹

The ironies and uncertainties with regard to nuclear weapons are, if anything, far greater than in other areas of conflict and military competition. Thermonuclear weapons are especially monstrous, with

the potential to destroy civilization. Yet people tend to think that it is the very destructiveness of the weapons that has prevented the recurrence of great-power war since 1945. Great-power land wars had been the scourge of Eurasia for thirty-one years before the United States dropped atomic weapons on Hiroshima and Nagasaki, killing tens of millions on the battlefield and tens of millions more through disease and political upheaval. Some seventy years ago, most responsible people expected a third world war to follow the first and second, with consequences far worse than those. We are all around today because that war never came, and, to misuse a title from a famous Paul Fussell essay, it has led many people to proclaim, "Thank God for the atom bomb."¹²

Have nuclear weapons prevented a third world war, and do these weapons have the intended effect of stabilizing world politics by making great-power war unthinkable? This potent notion is the foundation of what has come to be called "nuclear deterrence," and much of current thinking about nuclear weapons is centered on the concept. A large part of U.S. national security strategy has been driven for well over a half century by the idea that an attack on the United States or its allies might elicit a nuclear response, even if the aggressor had not used nuclear weapons first. This posture has been taken for granted for so long that we have long since forgotten, in the context of American history, how novel it was or what the United States had to do to implement it.

Consider that from its founding until 1950, the United States entered no permanent peacetime alliances, was almost completely demobilized during peacetime, and pursued strategies that allowed it to be hit first and mobilize slowly and massively to win wars of attrition. This strategy prioritized powerful civilian control over the military and strong legislative oversight over the executive branch in matters of war and peace while allowing the United States to remain relatively isolated from world affairs.¹³ The thermonuclear revolution, and the strategies the United States adopted to deal with it, demanded permanent alliances, forward military deployments, and an often pre-emptive military strategy that left enormous discretion in

the hands of battlefield commanders, permanently shifting the power to make war away from Congress to the president.¹⁴ This represents an extraordinary break from our past.

Again, this strategy is premised on the idea that deterrence—the promise of awful retribution if attacked—kept the United States relatively safe and the world relatively stable for decades. Most important, it is widely believed that it prevented thermonuclear war.¹⁵ But do we know this to be true? How can we be sure that thermonuclear weapons, and the deterrence that flowed from them, maintained peace and stability?

The problem is that we are trying to understand something that never happened, and we hope will never happen—a thermonuclear war. Trying to understand why something did not happen is a methodological nightmare, a situation that eludes a definitive answer from even our most powerful and sophisticated social science methods. While the idea of nuclear deterrence is intuitively compelling, there are credible alternative explanations for the relative peace and stability of world affairs after 1945.

Why does this epistemological point matter, especially to those interested in the hard realities of nuclear policy? Two crucial trends shape the nuclear world, pulling in different directions. The first is the disarmament movement, which is animated by the idea that the world should move toward eliminating nuclear weapons altogether. This aspiration was officially endorsed by President Barack Obama in his 2009 Prague speech, though presidents ranging from Harry Truman to Ronald Reagan also at times shared this goal. Yet nuclear weapons are playing an increasing role in world politics. Concerns over Iran's nuclear ambitions and the challenges generated by North Korea's burgeoning weapons program have been well publicized. Less well known is the significant expansion and modernization of the nuclear programs of Russia, China, and Pakistan. The United States is also committed to a \$350 billion modernization of its nuclear program over the next decade.

One trend moves the world toward delegitimizing and eventually eliminating nuclear weapons. The other pulls in the opposite

direction, highlighting the importance to states of nuclear weapons for achieving national security and foreign policy objectives. These worldviews, and the policies that flow from them, center around whether and how nuclear deterrence works and whether or not it is responsible for the absence of great-power war since 1945.

The right approach to the disarmament-versus-deterrence debate also turns on a number of other important questions from our past, questions for which answers are as elusive as they are consequential. As a historian of the nuclear age, I wrestle with a number of puzzles, but I want to focus on four of them. Debating and thinking about these questions are not only important in and of themselves but also help us assess contemporary and future nuclear dilemmas and choices. They cut to the fundamental questions surrounding nuclear weapons, deterrence, peace, and stability.

Revisiting the Core Questions

Many would protest that revisiting the core questions is a waste of time. Wouldn't it be more profitable to spend time on new issues? Think of the recent quantitative work on nuclear crisis dynamics, leadership experiences, or the forward deployment of nuclear and non-nuclear forces and their influence on extended deterrence and proliferation.¹⁶ Other profitable areas of research are opening up all the time. For example, large global investments in civilian nuclear energy are being made around the globe.¹⁷ Will this lead to more weaponization? It is these emerging questions and issues, it might be argued, on which scholarly efforts should be focused.

The problem is that many of the small and medium-size issues build on these larger questions that are believed, quite wrongly, to have been settled. This goes beyond the question of whether we have certain knowledge that nuclear deterrence works and of how it works and whether the nuclear revolution has prevented great-power war. Other core concepts and phenomena that are highly contestable on further examination are taken for granted: for example, that there is a universally shared definition of strategic stability (in fact, there

are wide variations in how it has been understood) and that the superpowers consistently sought it (they did not); that there is a meaningful and easy distinction between deterrence and compellence; that arms control always leads to political stability and is about the weapons, not underlying political questions (the Anti-Ballistic Missile Treaty [ABM] and the Strategic Arms Limitations Treaties [SALT I and SALT II] led to deep political problems in the United States, the Soviet Union, and Western Europe that increased political tensions); that security-dilemma dynamics drove the arms race; and that the decision to go nuclear lies largely in the hands of the potential proliferator (U.S. nuclear nonproliferation efforts have been a key, if not the principal, variable). This is not to say these concepts, theories, and arguments are wrong or cannot provide great insight into nuclear dynamics; they can and do. The focus, however, should be on revisiting and challenging such claims.

Four big questions in particular warrant exploration. How dangerous have nuclear weapons made world politics? How does nuclear deterrence work, and can nuclear weapons be used to achieve other political goals? What determines a state's decision to pursue nuclear weapons? Once a state possesses these weapons, what is the ideal number to have, and what are the best strategies to employ them?

Have Nuclear Weapons Made the World More Safe?

Did nuclear weapons create the so-called Long Peace between otherwise bitter adversaries, the Soviet Union and the United States, during the Cold War?¹⁸ The belief that they did is widely held and informs much of the contemporary understanding of nuclear deterrence. And if nuclear weapons prevented a war that would have otherwise occurred, can it be inferred that nuclear deterrence can prevent wars at other times, in other regions, and in other circumstances?

There are at least three ways to look at this. First, through the course of the whole Cold War, did nuclear weapons and the strategies the superpowers employed make great-power war and a nuclear exchange more or less likely? Second, how did nuclear weapons, and the risk of nuclear war, affect state behavior during sharp political

crises? Did nuclear weapons make it easier or harder to exit crises without a risk of war? Third, how high were the risks of an unintentional nuclear launch or a nuclear accident?

On this last question, nuclear weapons clearly had contradictory effects. Writ large, the fear and horrors of thermonuclear war no doubt gave both Soviet and American leaders pause, both during stable times and in crises. That said, one could not read this history without some feeling of terror. Eric Schlosser's *Command and Control* joins the works of Scott Sagan and other scholars in highlighting the mistakes, accidents, and near misses that have plagued nuclear management.¹⁹ Reading documents on both sides of the Cold War during the Berlin crises from 1958 to 1961, the 1962 Cuban missile crisis, or the set of challenges during 1983 and NATO's Able Archer 83 exercise is frightening.

Perhaps, more important, the most significant and dangerous crises of the Cold War were generated by the very existence of nuclear weapons. In a world without nuclear weapons, the Cuban missile crisis could not have occurred. Even the crises over West Berlin from 1958 to 1961, if they were, as is now believed, initiated by the Soviet Union to express its anger over the United States' move to arm the West German Bundeswehr with nuclear weapons, were nuclear to their core. The crises over the Euromissiles in the late 1970s, the Soviet fear of a NATO nuclear first strike—it is hard to create the counterfactual where these occur in a non-nuclear world. Could it be that in a non-nuclear Cold War, the United States and the Soviet Union, and NATO and the Warsaw Pact, would balance each other perfectly, grudgingly accept each other's sphere of influence, and avoid major crises? It is a scenario worth thinking about.

What this means is that the simple notion laid out by John Lewis Gaddis, Kenneth Waltz, Robert Jervis, and John Mearsheimer—that nuclear weapons generated stability between the superpowers—is certainly open to question. On the other hand, the bitter ideological and geopolitical rivalry did not lead to nuclear or even conventional war between the superpowers. What role did nuclear weapons play in making the world safer, or more dangerous, or both? Given that

this historical experience forms the foundation of current thinking on deterrence, it would be well worth encouraging younger scholars to revisit the role of nuclear weapons during the Cold War.

Can Nuclear Weapons Compel as well as Deter?

Many argue that nuclear weapons are only good for one thing: deterrence, or preventing states from challenging the global status quo. In theory, this allows nuclear weapons to keep the peace.

The historical record reveals, however, that one man's deterrence may be another's compellence. In other words, nuclear-armed states have issued deterrent threats that most likely appeared aggressively coercive to their targets. During the dangerous crises between 1958 and 1961, was Premier Nikita Khrushchev trying to compel the Western powers to leave West Berlin or to deter the United States from supporting West Germany's nuclearization? Or both? Did the United States' threat to use its superior nuclear strength to protect West Berlin, an isolated and conventionally indefensible outpost deep within enemy territory, constitute a reasonable definition of deterrence? The distinction between deterrence, which is stabilizing, and compellence, which is not, is often in the eye of the beholder.

Nuclear deterrence is not always peace inducing. Some believe strategic nuclear deterrence allows and even encourages military conflict at lower levels. Furthermore, since the use of nuclear weapons is unimaginable in almost any circumstance, a reckless leader can take advantage of a more responsible nuclear state to make gains through nuclear threats. Furthermore, states do not always view deterrence as an unalloyed good. One imagines that China deeply resents a status quo, buttressed by American nuclear deterrence, that prevents it from exercising what it believes to be its legitimate claims to Taiwan (claims that in a non-nuclear world it may have already exercised). One reason the United States goes to such great lengths to limit nuclear proliferation is that it does not like being deterred by others. As a state with overwhelming conventional military, economic, and soft-power advantages, it has shown that it will do whatever it can to

prevent its freedom of action from being limited by the nuclear deterrent efforts of others.

On the other side of the coin, if the use of nuclear weapons becomes increasingly unthinkable, is even their role as a deterrent undermined? After the Cuban missile crisis, few leaders in the Soviet Union or the United States could have imagined any political circumstance in which they would use nuclear weapons, even as both developed military strategies predicated on increasing the credibility of the threat to use them. Since the Cold War, this skepticism has only increased. While it may not rise to the level of a taboo, it is hard to dispute that there is a powerful norm against their use.²⁰

Why Do States Pursue Nuclear Weapons?

Our world is far less nuclearized than predictions of fifty years ago suggested. If nuclear deterrence is so powerful, if nuclear weapons guarantee a state's sovereignty and security, it is puzzling that there are currently fewer than ten nuclear-armed states.

Many powerful explanations have been offered for this lower-than-expected number.²¹ There are arguments about capacity and technology: building a weapons program was beyond the technological or organizational capabilities of the states that most wanted them, especially in an age in which sanctions and export controls were becoming more prevalent and the global supply of nuclear materials less easily accessed. There are ideational and normative arguments: nuclear weapons were increasingly seen as ineffective or immoral or both, even in the rough-and-tumble world of international politics. There are institutional arguments, as the 1968 Non-Proliferation of Nuclear Weapons treaty (NPT) added other arrangements, such as the London Nuclear Suppliers Group, and strengthened organizations such as the International Atomic Energy Agency to become an increasingly effective regime. There are arguments about a state's political system, orientation, and leadership types that would make it more prone to acquire nuclear weapons, as well as how a state positioned itself in the global economic order. Finally, there were the

traditional security arguments. Some have argued that in many cases nuclear weapons were not needed to generate state security; others suggest that the vigorous nonproliferation efforts of other states, especially the United States, kept the number of nuclear weapons states low. Perhaps, one might respond, the lower numbers are not a puzzle at all, and nuclear weapons are less appealing, provide fewer benefits, and expose more vulnerabilities, or are more difficult to develop and deploy, than some of our theories expect.

In certain circles in Washington, Geneva, Vienna, and elsewhere, there is no puzzle. A relatively slow rate of nuclear proliferation has simply been a function of the effectiveness of the NPT. As such, any and all efforts should be focused on strengthening and reinforcing the regime and implementing the so-called grand bargain whereby the nuclear powers move more quickly toward their promise of disarmament.

There are several issues with that interpretation. The first is that many policymakers and analysts were skeptical that the NPT could work. Even beyond the obvious (and many thought unsustainable) hypocrisy that allowed a few states to possess nuclear weapons when others could not, when in the past had any treaty prevented the spread of powerful military technologies? Nuclear weapons possessed qualities that were bound to appeal to a government: their powerful deterrent effects practically guaranteed, for the first time in history, that a state could maintain its sovereignty, independence, and freedom from conquest. Regardless of any treaty, how reasonable was it to expect states to eschew a technology that accorded protection, power, and prestige?

There were further reasons to question the durability of the NPT. The Nixon administration was notably unenthusiastic about a treaty negotiated by the Johnson administration and did little to encourage states to sign and ratify.²² Furthermore, the sense that the bipolar international system was giving way to a more multipolar system led observers to anticipate that middle powers (such as Italy, Japan, Sweden, Yugoslavia) would acquire the bomb. Finally, the acute energy crisis of the 1970s, marked by dramatically rising oil prices,

increased the appeal of civilian nuclear energy programs. The NPT, which recognized the right of states to build a robust civilian nuclear architecture, was woefully inadequate to regulate those states that used this path to pursue nuclear weapons. Much of the 1970s saw both international efforts, such as the Nuclear Suppliers Group, and domestic policies in the United States to close the gaping loopholes between civilian and military programs left by the NPT.²³

In fact, there were more nuclear proliferation pressures than was once thought. Australia, Italy, and Japan, it appears, may have used signing the treaty (but not ratifying it) as an opportunity to reconsider the weapons option.²⁴ Other countries, from Argentina and Brazil to South Korea and Taiwan, explored nuclear weapons. An intense nuclear rivalry commenced in South Asia.

Still, the prospect in 1968 that a half century later the number of nuclear weapons states would remain in the single digits would have been met with surprise and relief. Why—especially given the rough circumstances in the decade following the NPT—did so few states acquire and deploy nuclear weapons?

Again, the reasons are not fully known, and there are many opinions that demand consideration. One interesting surprise can be found in the historical record, however. The United States has expended as much effort to keep its friends and allies—countries ranging from West Germany to Australia, Italy, Japan, South Korea, Sweden, and Taiwan—non-nuclear as it has to keep its adversaries non-nuclear. And it was quite willing to work against its friends and with its major adversary, the Soviet Union, to achieve this end.

How Much Is Enough?

What are the force and strategy requirements for nuclear deterrence? Are they different from the requirements for reassuring allies? Can a state achieve meaningful nuclear superiority, and, if so, what are the benefits of achieving such primacy?

This is a complex question, but, during the Cold War, there were two leading views within the United States. Many of the academic and think tank analysts—renowned thinkers such as Bernard Brodie,

Robert Jervis, and Ken Waltz—believed that once a state possessed survivable forces—in other words, enough nuclear weapons that even after an attack it could inflict unacceptable damage on the enemy—there was really no point in building more forces.²⁵ Once strategic stability had been achieved, building a larger or more accurate strategic nuclear force, or spending money on missile defenses, would be a waste.

Many American decisionmakers did not seem to accept this logic. From the beginning of the atomic age and accelerating from the early 1950s to the mid-1960s, the United States actively pursued nuclear supremacy. It was once thought that by the late 1960s, U.S. decisionmakers had abandoned what many strategists saw as either a pointless or a destabilizing pursuit and accepted mutual vulnerability and strategic stability. These views appeared to be enshrined in the 1972 ABM Treaty and the 1972 SALT I and 1979 SALT II. Even here, however, there is a puzzle. Concurrent with signing these treaties limiting the numbers of strategic nuclear weapons, the United States undertook massive investments in strategic nuclear weapons and associated programs that sought (and appeared to achieve) massive qualitative superiority over the Soviet Union. Instead of seeking more and larger bombs, the United States invested in faster, more accurate, stealthier nuclear forces, a posture that most likely looked menacing and flew in the face of strategic stability. The United States developed and deployed multibillion-dollar weapons programs—the Trident D-5, the Peacekeeper, stealth bombers, cruise missiles and the Pershing II, upgrades to C3-I, missile defense, and massive investments in antisubmarine warfare and sub silencing—in what appeared to be an effort to achieve and maintain nuclear superiority. What did American decisionmakers think they were getting for this massive investment, for these counterforce systems that arguably undermined strategic stability, and did they get what they sought?

There is limited but quite revealing evidence that the Soviet side understood that the Americans were trying to acquire meaningful superiority in the 1970s and 1980s, based on capabilities that the Soviet Union possessed neither the technology nor the economic resources

to match, and it worried them. It is an interesting contrast to what appears to be a much different attitude in China today, where, despite an increasingly vigorous foreign policy based on an impressive economic and technological base, its leaders seem relatively sanguine about being on the short end of the nuclear balance with the United States.

This whole story is in many ways puzzling. On the one hand, both superpowers sought to limit quantitative arms races, while also acknowledging the increasing inconceivability of any use of nuclear weapons. On the other, they pursued weapons that undermined stability and acted or reacted as if meaningful political benefit could be obtained from nuclear superiority far short of a first strike. What was going on here? Were the superpowers simply hedging? Were they purposively pursuing a form of arms racing, similar to Andrew Marshall's notion of competitive strategies, to expose the adversary's weaknesses and force it to put scarce resources into expensive weapons systems?²⁶ And how many of these lessons have been embraced by other nuclear powers? The People's Republic of China, for example, does not seem to have pursued similar policies. There is much that scholars do not know, and this is an area in which they should be encouraged to explore.

Framing Answers to the Core Questions

Many other big questions, and other ways of framing them, can be profitably revisited. Yet scholars and policymakers are not limited only by what questions they ask. They face barriers—often unrecognized—to developing better insight into nuclear dynamics. I count at least four: identifying the appropriate method, properly accounting for chronology, perspective, and belief, recognizing the interconnectedness between nuclear dynamics and larger political questions, and considering morality and judgment.

Method

The reasons scholars are interested in a variety of questions surrounding nuclear dynamics—especially why states do or do not acquire nuclear weapons and what factors influence that decision—derive from one great concern: how to ensure that nuclear weapons are never detonated again. A conclusive answer has proved elusive. But there are at least three competing hypotheses.

First is the well-known concept of nuclear deterrence. The argument here is simple, familiar, and powerful: nuclear weapons are horrific, and launching them, intentionally or otherwise, would be catastrophic. That very characteristic of the weapon, however, makes their use unlikely. There is no political goal worth the cost of a nuclear war. Most realists and many American strategists embrace this view and believe this explains why there have been no nuclear wars since 1945.

Second, there are those who argue that nuclear use has been avoided through sheer luck. These analysts point to the dangerous crises, the near misses, the accidents, and even the Schelling-esque competitions in risk-taking that almost led to nuclear use in the past and are bound to lead to disaster at some point in the future.²⁷ Nuclear weapons can create dangers even where none existed before: it is hard to imagine the dangers of a third world war over Soviet forces in Cuba or the jurisdictional status of West Berlin in a non-nuclear world. Some observers with this viewpoint challenge whether deterrence was ever as robust as advocates claim (and point out that, even if so, it would have to work 100 percent of the time forever if we were to put our confidence in it). Others see nuclear deterrence as uniquely associated with the Cold War rivalry between the Soviet Union and the United States and not as relevant to the post-Cold War world of regional conflicts, middle-size powers, so-called rogue states, and nonstate actors. Many fear that faith in the overwhelming power of nuclear deterrence lulls policymakers into false and dangerous overconfidence that makes war more, not less, likely.

Third, there are those who think factors that have nothing to do with nuclear weapons explain the absence of world war since

1945. Shifting demographic patterns, globalization, and the changing nature of power has made conquest far less appealing now than it was in the past. Land is no longer the most important source of power—states aim to be Singapore, not Kazakhstan—and ethnic and national differences make occupation far more costly now than during the imperial age. Others see norms against war and violence as playing a key role. Although the nuclear revolution may have given states pause in the first few decades of the Cold War, since at least the 1970s nuclear weapons have been largely irrelevant to explaining what matters in international politics.

What does this mean for how these questions are studied? Which framework is best? How one thinks about specific issues—one's attitudes toward disarmament, for example, or proliferation writ large, or specific cases, such as Iran's nuclear program—derives directly from these largely unprovable hypotheses about the influence of nuclear weapons on world politics. Defining (coding) nuclear crises, for example, or dealing with the selection effects inherent in any question surrounding nuclear deterrence are formidable challenges that have not been handled impressively in the international relations literature. Formal models can illuminate trade-offs and highlight strategic calculations under ideal conditions, but they forgo most context and interconnectedness.

That said, it is not clear that qualitative methods offer much more than theory and interpretations that are hard to test against the empirical record. Nuclear policy is shrouded in secrecy, and evidence is hard to come by. Even when evidence exists, there is often a gap between what policymakers say and what they do.²⁸ There is an even deeper issue: if the nuclear revolution did have a transformative effect on world politics, presumably there are few appropriate lessons or models from pre-1945 history that can clarify nuclear dynamics. In other words, reasoning from historical analogies may impede rather than explain what is driving the issues we care about.

Chronology, Perspectives, and Beliefs

Certain periods are marked by clear beginnings and endings. World War I began weeks after the assassination of Austria-Hungary's archduke, Franz Ferdinand, by state-supported Serbian terrorists and ended a little more than four years later, when Germany surrendered to the Entente powers in November 1918. For other events, the beginning and the end are open to debate: Did the Cold War begin in 1949, 1946, or even as early as 1917? Did it end when Mikhail Gorbachev took power, after the surprising 1986 Reykjavik conference, or when the Soviet Union collapsed?

It is far easier to assess and analyze an event or phenomenon that exists within explicit temporal bounds. We know when the nuclear age began, but we have no idea when, if ever, it will end, so we do not know where we are in the story or how it will turn out. Outcome bias can distort perception—things are much clearer in the rearview mirror of history than in the rainstorm in the night through the front windshield.

Periodization is different depending on the actor. The Cold War and nuclear dynamics were interconnected in the nuclear relationship between the Soviet Union and the United States, less so for France and Great Britain. For other actors, the Cold War was of far less significance, even if their nuclear decisionmaking took place during the Cold War. There is a move within international history to look at the 1970s, and even the 1960s, as being distinct from the Cold War, with global forces outside of the bipolar conflict driving important issues (even, according to Daniel Sargent's book, between the superpowers).²⁹

Furthermore, it is likely that the influence of nuclear weapons on international relations evolves and changes over time, similar to the systems-effects process so wonderfully described by Robert Jervis.³⁰ The study of nuclear proliferation is a moving target: attitudes and policies about nuclear weapons have changed over the past eight decades and will continue to shift, and these changes will interact within both national and international political processes and culture to produce an ever-changing set of realities.

Finally, much of what has evolved over time are ideas and beliefs

about nuclear weapons. This makes the historian's task even harder: ideational and normative factors are far more elusive than material or structural factors. How does one identify an idea, how it is generated and circulated, and when and how it matters? Ideas diverge among different groups, both within a society and between states. Epistemic communities—especially in the field of arms control—often hold ideas across national borders. How can their influence be assessed, especially as they evolve over time?

The so-called wizards of Armageddon, the RAND strategists of the early nuclear age, had powerful and important ideas about how policymakers should think about nuclear weapons. Bruce Kuklick suggests that these ideas had far less influence on policy—on what actually happened—than was once thought.³¹ Even if they did matter, they emerged from a certain time and place. Thomas Schelling developed many of his ideas about nuclear dynamics during the crises over Berlin and Cuba from 1958 to 1962. In retrospect, many aspects of the history of this period were bizarre and *sui generis*. Should that influence how policymakers assess the theories that emerged from this experience—something David Holloway has termed “frozen theories”?

Interconnectedness of Issues

The field of nuclear studies often suffers from a certain narrowness, as if nuclear weapons can be studied as a thing alone, separate from the other great forces in politics and history. There is little doubt these weapons have profoundly altered international affairs. But nuclear weapons are still tools of statecraft and must be understood within particular national and international contexts, related to a state's goals and the realities of international relations.

In the early and middle 1950s, NATO embraced a military strategy—pushed by the Eisenhower administration—that called for the early and massive use of nuclear weapons. It was clearly a preemptive strategy, seeking to blunt the adversary's ability to use its nuclear weapons before a conflict began, and, as is often the case with preemptive, counterforce strategies, it produced both huge target lists and a great deal of predelegated authority to use nuclear weapons.

This was what David Rosenberg labels the “origins of overkill,” and it has often been interpreted as the (especially U.S.) military’s love of weapons and offensive strategies.³² In other words, this massive buildup of nuclear weapons, combined with hair-raising plans to use them early and massively, was seen as a terrifying mix of bureaucratic and organizational politics combined with ideology.

But does that really tell the full story? It turns out that in the early and middle 1950s, NATO and especially the United States wrestled with the incredibly complicated issue of defending Western Europe while dealing with the politics of the German question. Western Europe could not really be defended without a meaningful economic and military contribution from the nascent Federal Republic of Germany. Yet rearming Germans so soon after the horrors of World War II was deeply problematic. The West Germans, for their part, had to be given something in return for embracing the Western alliance—powerful neutral instincts and incentives existed within the German political system.

The ideal outcome—a West Germany that was fully aligned with the West, contributing its ample economic and conventional military capabilities to the defense of Europe but not possessing its own nuclear weapons (an outcome that neither the Soviets nor the Western European allies would allow)—presented a difficult challenge. For their part, the West Germans would not sign on to a military strategy that saw NATO forces thrown back to France after a Soviet invasion, turning its territory into a nuclear battlefield. West Germany had to be defended at the intra-German border, or even better, within Eastern Europe and the Soviet Union, if they were to agree to contribute conventional forces but eschew their own nuclear weapons. In other words, the political realities of the German question—not strictly military preferences—demanded a preemptive nuclear strategy, which, in order to work, required predelegation.³³ As an aside, to get the French to go along with all this, the United States found itself reluctantly underwriting France’s disastrous policies in Southeast Asia. The political logic driving the military strategy is often overlooked.

It makes no sense to look at NATO nuclear strategy or prolifera-

tion dynamics in a vacuum. Nuclear weapons matter, and they may push international politics to new limits. But they do not make politics irrelevant or secondary.

Morality and Judgment

Scholarship, especially in the social sciences, seeks objectivity. Historians tell themselves that they want to know why things happened in the past and what will happen in the future, without interjecting their own prejudices and hoped-for outcomes in their analysis. This is a noble but typically unreachable objective when studying war and peace and especially when exploring nuclear dynamics. At some level, scholars study nuclear dynamics because there is an outcome they desperately want to avoid. This tends to make us, as a community, passionate about our views. Passion can be a good thing, but it can also threaten objectivity. Nuclear studies often drifts into an area closer to advocacy than scholarship.

Many within nuclear studies simply assume arms control is always and everywhere a good thing. An unimpeachable belief in the strategy and arms-control community is that SALT I and SALT II were unalloyed goods, the cornerstone of strategic stability. An alternative view holds that negative reactions within the United States poisoned foreign policy debates and gave rise to neoconservatism.³⁴ The Soviet military was furious as well, which may have led to the deployment of SS-20 missiles.³⁵ The SALT agreements inspired great mistrust and dissatisfaction among many of America's European allies, and the deployment of the SS-20s generated a crisis in NATO.³⁶ These efforts to establish strategic stability, it could be argued, perversely helped undermine détente by the late 1970s.³⁷ Might the enormous political capital expended on the SALT negotiations between the Russians and Americans have been more productively spent on other issues? Long-held moral judgments prevent this kind of counterintuitive insight.

More broadly, consider the deterrence-versus-disarmament debate. Advocates on both sides share a similar hope of avoiding thermonuclear war. Each side has a tendency to ignore or disdain the views of the other. Neither—for reasons mentioned earlier—can

prove its argument, yet neither has a tendency to acknowledge its own uncertainty or demonstrate the humility that is usually the product of trying to understand difficult questions. This is seen in the debates within the United States over the nuclear deal with Iran, where, with a few exceptions, opponents have laid out the issues in the most stark, binary terms, neither side acknowledging that the other may have a point. Both sides want the same thing—they share the same moral vision, a world without nuclear war—but they have strongly held, opposing views on how to get there. There are important and thoughtful efforts to find a balance between the moral horrors of nuclear use and the potential benefits of nuclear deterrence.³⁸ This balance, however, eludes most debates and discussion.

Conclusion

I have no answer to any of these challenges, or the others that burden efforts to address the nuclear issue. Some burdens are inherent to intellectual inquiry, especially historical work, while others are unique to nuclear studies. The plea for epistemological modesty on such critical questions can be vexing to social scientists and policymakers alike. But scholars and policymakers should confront these challenges and assumptions explicitly, undertake a rigorous stock-taking and comparison of the hypotheses they have generated, and work together to find more effective methods to produce more definitive insights into these extraordinarily consequential issues.

Why is this necessary? If for no other reason than that the important policy choices faced in Washington and abroad emerge from beliefs—often implicit and unchallenged—about these questions. Given the broad range of paths confronting policymakers—from eliminating nuclear weapons or recognizing their centrality to world politics and American national security policy—the ideas driving these options matter. There is not a more important, more consequential issue facing U.S. policymakers. Generating answers to the scholarly questions I pose would go a long way toward navigating the nuclear choices the world faces.