



BOOK REVIEW ROUNDTABLE: The Meaning of the Nuclear Revolution 30 Years Later

April 30, 2020

Table of Contents

1. "Introduction: Bob Jervis Is the Bomb!" By Francis J. Gavin
2. "The Meaning of the Nuclear Revolution: 75 Years of Non-use" By Nina Tannenwald
3. "Nuclear Revolution Theory Marches Forward" By Charles L. Glaser
4. "The Impermanent Revolution: MAD Is a Variable, Not a Constant" By Austin Long
5. "A Book of Its Time and for Today" By Lawrence Freedman
6. "Author Response: Reflections on 'The Meaning of the Nuclear Revolution,' 30 Years Later" By Robert Jervis

Summary

For this retrospective roundtable, we asked our contributors to re-read Robert Jervis' "The Meaning of the Nuclear Revolution," published in 1989, and discuss how it holds up 30 years after the end of the Cold War.

1. Bob Jervis Is the Bomb!

Francis J. Gavin

What role do nuclear weapons play in American statecraft? Robert Jervis has spent decades, thoughtfully reflecting upon and assessing this first order question. More than any scholar, he has helped us understand and navigate a question whose answer, in many ways, remains stubbornly elusive.

Consider the perplexing ruminations of Jervis' forbearer, friend, and mentor, Thomas Schelling. Over the weekend of July 21, 1961, at his family's vacation home in Hyannis Port, Mass., President John F. Kennedy sorted through briefing materials as he weighed various responses to the dangerous crisis with the Soviets over West Berlin, including mobilizing additional conventional and nuclear forces and addressing the nation to prepare the country for the possibility of military action. Among his reading materials was a fascinating memo prepared for him by Schelling an, economist and RAND nuclear strategist.

Entitled "Nuclear Strategy in the Berlin Crisis," the paper argued that nuclear weapons should be brandished for different purposes during the crisis than was understood within the American policy and strategy community.¹ The problem of how to defend the enclave of West Berlin, located deep in East Germany and surrounded by overwhelming Warsaw Pact conventional forces, had vexed military planners in both the Eisenhower and Kennedy administrations when Nikita Khrushchev first threatened the city's western status in late 1958. Given the conventional military balance and the unique logistical

¹ Thomas Schelling, "Nuclear Strategy in the Berlin Crisis," *Foreign Relations of the United States, 1961-1963*, Volume XIV, document 56, July 5, 1961, <https://history.state.gov/historicaldocuments/frus1961-63v14/d56>.

challenges, any effort by the United States and its allies to liberate the city would require going on the offensive against vastly superior forces. What would be the president's response if the Warsaw Pact destroyed an American division heading on the autobahn toward Berlin? Would nuclear weapons be used, and if so, in what ways?

Schelling assumed that an early threat issued by the United States to launch a full-scale nuclear assault thus beginning World War III was neither wise, likely, nor credible enough to deter a Soviet bloc move against West Berlin. It was equally difficult to imagine the United States ceasing hostilities after it lost a conventional campaign. To Schelling, however, a regional use of nuclear weapons for tactical, battlefield purposes was just as problematic: "Either it would come to a pause, or it would blow up into general war. If the latter, the regional nuclear campaign serves little purpose, if any." The point of any nuclear use, according to Schelling, was not to win the battle, but to "pose a higher level of risk to the enemy." Weapons, strategies, and targets should therefore be chosen not for their military efficacy, but for their ability to signal both resolve and that intentional or inadvertent escalation could lead to general war if the Soviets do not back down. The United States "should plan for a war of nerve, of demonstration, and of bargaining, not of tactical target destruction. Destroying the target is incidental to the message the detonation conveys to the Soviet leadership."²

One wonders what Kennedy made of this curious study. McGeorge Bundy noted on the document itself that it "had made a 'deep impression' on the President." What, then, were the implications? According to Schelling's logic, if the Berlin crisis got out of hand and America and its allies were losing, the president should launch a limited nuclear strike on Soviet territory to convey seriousness and shared risk. What would the likely

² Schelling, "Nuclear Strategy in the Berlin Crisis."

Soviet response be? According to Schelling, they might pursue their own “selective use in a bargaining strategy,” which raises the question of how the crisis would ultimately be brought to an acceptable end. Given the uncertainty and devastation unleashed by any nuclear strike, where attributing the nature and the size of an attack could be difficult, the Soviets might misunderstand the intended signal and assume the Americans were launching a full-scale regional or even general war. The incentives for the Soviets to launch their own devastating response — to avoid a “use them or lose them” scenario — against Western targets would be enormous. Knowing this risk, the president of the United States might be left where he began: If he used nuclear weapons, there would be powerful incentives to use them massively and pre-emptively to limit the damage to the United States from any Soviet response. Such a horrifying possibility, however, made it unlikely he would ever use them at all. The many efforts to find an in-between place, somewhere between surrender and all-out nuclear war, seemed doomed to fail.

Did this mean nuclear weapons were of no consequence to the geopolitical circumstances of the crisis? Quite the contrary, in fact: In a non-nuclear world, there likely would have been no crisis over Berlin in the late 1950s and early 1960s. In such a world, it is difficult to imagine a scenario in which the United States would provide a military guarantee over a city located 100 miles within enemy territory and surrounded by overwhelming conventional force. Both Presidents Dwight Eisenhower and Kennedy recognized that the West was exposed in West Berlin and that it was indefensible in the face of a determined assault. It was only the threat to use nuclear weapons against the Soviets that allowed for the implausible defense of West Berlin. Why not simply negotiate a reasonable solution? Offering to negotiate a compromise, some warned, would instead indicate weak American resolve and undermine the credibility of the American nuclear guarantee. French President Charles de Gaulle, for example, agreed that West Berlin was of little *material* consequence. Any withdrawal or weakness, however, would have profound *psychological*

consequences for how the Soviets and the western Europeans viewed America's guarantee. Nuclear weapons may have been, at the same time, the cause for the Berlin crisis, the factor keeping it from escalating into a war, and the variable that prevented its resolution.³

This Schelling memo to Kennedy is like a Rorschach test for people thinking about the bomb and the strange, often confounding influence nuclear weapons have on statecraft and international politics. For some, Schelling's analysis highlights the need for nuclear strategy to focus on signaling and credibility. For others, it reveals the importance of limited, flexible nuclear options, or demonstrates why so called "damage-limitation," even pre-emptive strategies, are called for. For still others, the document proves how bonkers the whole idea of nuclear "strategy" is. How should we make sense of the impact of these terrible weapons on international affairs? While Schelling's memo is an extreme example, these kinds of dilemmas and uncertainties emerge again and again when we think about nuclear policy. Few analysts are comfortable with the puzzles, tensions, and even contradictions presented by nuclear weapons.

Except for Robert Jervis. We all own books that we read over and over again, ones that are marked by several different colors of highlighter and scribbled side notes from different years and even decades, dog-eared with the cover barely attached. Jervis' *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* is tied for first in my library (the other two being Marc Trachtenberg's *History and Strategy* and Paul Kennedy's *The Rise and Fall of Great Powers*) — a book I've returned to many times,

³ For my thoughts on the challenges and complexes involving nuclear weapons and West Berlin, see, Francis J. Gavin, *Nuclear Statecraft: History and Strategy in America's Atomic Age* (Ithaca, NY: Cornell University Press, 2012), 57-74.

with each reading providing a new and different way of understanding the same questions. It is also a great sign of a foundational scholarly work when a cottage industry has arisen to challenge your theories about nuclear weapons, statecraft, and world politics.⁴

No one has thought more seriously or thoughtfully about nuclear weapons than Robert Jervis. More importantly, however, Jervis is far more comfortable than most in exploring the puzzles, dilemmas, and contradictions inherent in the bomb. His path-breaking work in political psychology allows him to recognize that nuclear weapons are fundamentally different than other military technologies, and that any materialist explanation is incomplete without understanding ideas and beliefs about the bomb.

The distinguished authors in this roundtable agree. Nina Tannenwald, whose pioneering work identified and explained the nuclear taboo, credits reading Jervis for her decision to study international relations in graduate school. Charles Glaser, one of the leading experts on nuclear strategy, argues that *The Meaning of the Nuclear Revolution* “provides both the fullest statement of Cold War thinking on the implications for nuclear weapons

⁴ See especially, James Cameron, *The Double Game: The Demise of America's First Missile Defense System and the Rise of Strategic Arms Limitation* (Oxford and New York: Oxford University Press, 2017); Francis J. Gavin, *Nuclear Weapons and American Grand Strategy* (Washington, DC: Brookings Institution Press, 2020); Brendan Rittenhouse Green, *The Revolution that Failed: Nuclear Competition, Arms Control, and the Cold War*, (Cambridge: Cambridge University Press, forthcoming); Brendan R. Green and Austin Long, “The MAD Who Wasn’t There: Soviet Reactions to the Late Cold War Nuclear Balance,” *Security Studies* 26 no. 4 (2017): 606–41, <https://doi.org/10.1080/09636412.2017.1331639> and Austin Long and Brendan Rittenhouse Green, “Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy,” *Journal of Strategic Studies* 38 no. 1-2 (2015): 38–73, <https://doi.org/10.1080/01402390.2014.958150>; Keir A. Lieber and Daryl G. Press, *The Myth of the Nuclear Revolution: Power Politics in the Atomic Age* (Ithaca, NY: Cornell University Press, forthcoming).

for states in MAD and the foundation for an emerging debate on the future of nuclear strategy and forces between states that are highly and comparably capable.” Austin Long correctly identifies Jervis as a “*mensch*.” Lawrence Freedman says simply, “*The Meaning of the Nuclear Revolution* is a remarkable book.” I could not agree more. At a time when nuclear issues are returning to the forefront of national and international security policy, we should all revisit and wrestle with *The Meaning of the Nuclear Revolution*.

Francis J. Gavin is the chair of the editorial board of the Texas National Security Review. He is the Giovanni Agnelli Distinguished Professor and the inaugural director of the Henry A. Kissinger Center for Global Affairs at SAIS-Johns Hopkins University. His writings include Gold, Dollars, and Power: The Politics of International Monetary Relations, 1958–1971 (University of North Carolina Press, 2004) and Nuclear Statecraft: History and Strategy in America’s Atomic Age (Cornell University Press, 2012). His latest book, Nuclear Weapons and American Grand Strategy, will be published by Brookings Institution Press later this year.



2. The Meaning of the Nuclear Revolution: 75 Years of Non-use

Nina Tannenwald

In the late 1980s, I was a student sitting in Robert Jervis' class on nuclear deterrence at Columbia University. I had arrived at Columbia thinking that I was going to study economic development, but after reading Jervis' *World Politics* article, "Cooperation Under the Security Dilemma," I was bitten by the bug and switched to international relations. His class on deterrence was essentially his book, *The Meaning of the Nuclear Revolution*. It is thus a particular pleasure to be asked, 30 years after the publication of the book, to reflect on its impact.

In a comment on President Donald Trump's eyebrow-raising declaration on June 13, 2018, that North Korea was "no longer a nuclear threat" to the United States, a leading international relations scholar offered a constructivist take: "Creating an atmosphere in which people believe that war is extremely unlikely would be a major contribution to peace."⁵ Actually, that phrase was written by Jervis in 1989 (though not about North Korea, although it could have been). It was from his book *The Meaning of the Nuclear Revolution*, in which he offers a theory of how nuclear weapons have changed international politics in a revolutionary way. Although Jervis does not identify as a constructivist, the book is largely about how beliefs, ideas, and perceptions constitute and even construct the "reality" of nuclear strategy. As I discuss further below, it has become increasingly evident in the last 30 years that decision-makers of nuclear-armed states do

⁵ Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, NY: Cornell University Press, 1989), 22.

not believe large parts of Jervis' nuclear revolution theory. Yet, ironically, this is for reasons Jervis himself identified: People persist in holding beliefs and ideas that have little foundation in military strategy but matter for symbolic and psychological reasons. Beyond his nuclear revolution theory, the enduring contribution of Jervis' book is his argument that ideas, more than the arcana of nuclear arsenals themselves, is what matters for deterrence. Furthermore, in one important area the nuclear revolution theory has been borne out: The Cold War never became a hot war, and nuclear weapons have remained unused since 1945.

The Theory of the Nuclear Revolution

The Meaning of the Nuclear Revolution is a seminal work on nuclear strategy and one of the bibles of nuclear revolution theory. In it, Jervis further developed a concept — the nuclear revolution — that had first been articulated by Bernard Brodie in 1946. The term refers to the belief that the mutual vulnerability created by nuclear weapons has brought about a fundamental shift in the nature of warfare, and even of statecraft itself.⁶ As Brodie famously put it in *The Absolute Weapon*: "Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them."⁷ Jervis, along with other nuclear strategists such as Thomas Schelling and Kenneth Waltz, further developed this idea.

For Jervis, the nuclear revolution has two components. First are the material facts: the overwhelming destructive power of nuclear weapons and "the existence of mutual

⁶ Jervis, *The Meaning of the Nuclear Revolution*, 114.

⁷ Bernard Brodie, *The Absolute Weapon* (New York: Harcourt, Brace, 1946), 76.

second-strike capability, meaning that neither side can eliminate the other's retaliatory capacity by launching a first strike.”⁸ In such a world, military victory is no longer possible in confrontations between nuclear powers because even the “loser” can still destroy the society of the winner. Defense is therefore impossible. Deterrence — the threat to carry out a devastating attack — replaces defense as the way to protect the state. Mutual vulnerability is thus the central hard, cold fact of the nuclear era.

The second component of the revolution is the implication of this situation for security among nuclear-armed states. Nuclear weapons dampen or even eliminate the security dilemma that drives distrust among states. As long as a state possesses a secure second-strike capability, its security is essentially guaranteed, even if the adversary has a much larger arsenal. Because a crisis could escalate unintentionally, both sides would have to behave cautiously, regardless of the military balance. As Jervis noted, paradoxically, stability was the result of a shared perception that a crisis could escalate out of control. The nuclear revolution also meant that old ideas about how to fight wars were now irrelevant. “Many prenuclear ideas are now inappropriate,” Jervis argued.⁹ For example, “Military advantage loses most of its traditional meaning.”¹⁰ In the world of mutual assured destruction, “nuclear superiority” was a meaningless concept, since both sides could manipulate the level of risk.

In an oft-quoted passage, Jervis summarized the stabilizing effects of accepting mutual vulnerability:

⁸ Jervis, *The Meaning of the Nuclear Revolution*, 22.

⁹ Jervis, *The Meaning of the Nuclear Revolution*, 50.

¹⁰ Jervis, *The Meaning of the Nuclear Revolution*, 51.

If nuclear weapons have had the influence that the nuclear-revolution theory indicates they should have, then there will be peace between the superpowers, crises will be rare, neither side will be eager to press bargaining advantages to the limit, the status quo will be relatively easy to maintain, and political outcomes will not be closely related to either the nuclear or the conventional balance.¹¹

The “logic” of the nuclear revolution, supported by Jervis’ formidable grasp of history, seems highly compelling, especially to dovish advocates of minimum deterrence, arms control, and nuclear restraint generally. The book has had a tremendous impact in the academy and has probably appeared on almost every graduate and undergraduate syllabus on nuclear weapons. The theory serves as the starting point for almost all analyses of how nuclear weapons affect world politics. Beyond the theory itself, Jervis’ major contribution is his argument that what matters for deterrence is ideas. Indeed, as noted above, in numerous passages one might easily mistake him for a constructivist. In his chapter “The Symbolic Nature of Nuclear Politics,” Jervis argues that realism’s relentless focus on material capabilities is inadequate to understanding the nuclear era because reality is not independent of people’s beliefs about it. “Many questions of nuclear politics cannot be answered apart from the actors’ ideas,” and their “constructions of reality,” he argues, an approach that seems essential in order to understand many of the dilemmas — especially the paradoxes — of the nuclear age.¹²

¹¹ Jervis, *The Meaning of the Nuclear Revolution*, 45.

¹² Jervis, *The Meaning of the Nuclear Revolution*, 183, 216.

Was There Really a Nuclear Revolution?

Despite the compelling logic of Jervis' nuclear revolution theory, the real world has presented significant counterevidence. Many leaders of nuclear-armed states have not behaved in accordance with the theory. If they did, nuclear-armed states should have adopted minimalist, second-strike nuclear arsenals reflecting more "existential" deterrence postures and modest conventional forces, while engaging in few great-power crises. Arms competitions, including pursuit of missile defense, would be unnecessary.

Instead, the security dilemma among nuclear-armed states seems more alive and well than it should be. Despite the tremendous deterrent power of nuclear weapons, they do not appear to have greatly diminished international security competition. In recent years, Russia has invaded Crimea and Ukraine, while the U.S.-China competition is heating up. Although nuclear-armed states have invested in massive nuclear forces, the United States and other nuclear nations appear to have little confidence in the deterrent power of their nuclear arsenals either against "peer competitors" or even against small countries such as North Korea. They therefore invest in sizeable conventional forces as well. As Stephen Walt wrote a few years ago, "Nobody in power seems to think that a nuclear deterrent is sufficient to protect the country, or even to significantly reduce other defense or security requirements."¹³

Most significantly, policymakers in nuclear-armed states have sought to escape vulnerability by pursuing both missile defenses *and* nuclear superiority. The latter effort

¹³ Stephen M. Walt, "Rethinking the 'Nuclear Revolution,'" *Foreign Policy*, Aug. 3, 2010, <https://foreignpolicy.com/2010/08/03/rethinking-the-nuclear-revolution/>.

is reflected in the enduring view that the United States must be prepared to meet and block Soviet — and now Russian — force at any level of violence. In pursuit of this aim, U.S. leaders have embraced counterforce doctrines, warfighting strategies, and notions of limited nuclear war. For example, Nixon believed in the advantages of nuclear superiority, Reagan attempted to escape vulnerability with the pursuit of missile defense, and, in 2002, George W. Bush abandoned the 1972 Anti-Ballistic Missile Treaty — the treaty that most enshrined the concept of the nuclear revolution because it codified mutual vulnerability — in order to gallop toward missile defense. Current U.S. nuclear strategy and posture, with its revival of limited nuclear war and its effort to meet Russia on every level of the escalation slippery slope, continues these trends.¹⁴ These ongoing efforts to escape nuclear vulnerability undercut the theory of the nuclear revolution.

The academy has also chipped away at the theory. A new round of scholarship has documented systematically the significant gap between the pacifying predictions of the theory and the actual behavior of nuclear-armed states, which is highly competitive.¹⁵ Other scholars argue that the acquisition of nuclear weapons, rather than making states secure in the status quo, instead emboldens states to pursue expansive foreign policy aims.¹⁶ The India-Pakistan case has provided steady fodder for this debate. On one hand,

¹⁴ “U.S. Nuclear Posture Review,” Office of the Secretary of Defense, February 2018,

<https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>.

¹⁵ Brendan Rittenhouse Green, *The Revolution that Failed: Nuclear Competition, Arms Control and the Cold War* (Cambridge, UK: Cambridge University Press, 2020); and Keir A. Lieber and Daryl G. Press, *The Myth of the Nuclear Revolution: Power Politics in the Atomic Age* (Ithaca, NY: Cornell University Press, forthcoming 2020).

¹⁶ Mark S. Bell, “Nuclear Opportunism: A Theory of How States Use Nuclear Weapons in International Politics,” *Journal of Strategic Studies* 42, no. 1 (2019): 3–28, <https://doi.org/10.1080/01402390.2017.1389722>.

some argue that since Pakistan acquired nuclear weapons in 1998, it has engaged in more provocations against India in an effort to overturn the status quo with regard to Kashmir.¹⁷ Others note, however, that despite its nuclear weapons, Pakistan has had zero success in taking back Kashmir or getting anything it wants from India.¹⁸ Nevertheless, the most recent Pulwama crisis in February 2019 suggests that India and Pakistan are now adopting deliberate escalation as a strategy, even though this behavior should be rare among nuclear powers.¹⁹ As Negeen Pegahi has argued, this and other recent India-Pakistan crises appear to challenge fundamental tenets of the nuclear revolution theory: “Nuclear-armed rivals aren’t supposed to deliberately push each other, seek to overturn the status quo, or allow domestic concerns to play a large role in decision-making.”²⁰

So, Is the Theory Simply Wrong?

¹⁷ S. Paul Kapur, *Dangerous Deterrent: Nuclear Weapons Proliferation and Conflict in South Asia* (Stanford, CA: Stanford University Press, 2007).

¹⁸ Ankit Panda and Vipin Narang, “Nuclear Stability, Conventional Instability: North Korea and the Lessons from Pakistan,” *War on the Rocks*, Nov, 20, 2017, <https://warontherocks.com/2017/11/nuclear-stability-conventional-instability-north-korea-lessons-pakistan/>.

¹⁹ Maria Abi-Habib and Austin Ramzy, “Indian Jet Strike in Pakistan in Revenge for Kashmir Attack,” *New York Times*, Feb. 25, 2019, <https://www.nytimes.com/2019/02/25/world/asia/india-pakistan-kashmir-jets.html>. Frank O’Donnell, “India’s Nuclear Counter-revolution: Nuclear Learning and the Future of Deterrence,” *Nonproliferation Review* 26, no. 5–6 (2019): 407–26, <https://doi.org/10.1080/10736700.2019.1715018>; T. Negeen Pegahi, “The New India Versus the Nuclear Revolution: The Future of Crises Among Nuclear Powers,” *War on the Rocks*, June 12, 2019, <https://warontherocks.com/2019/06/the-new-india-versus-the-nuclear-revolution-the-future-of-crises-among-nuclear-powers/>.

²⁰ Pegahi, “The New India.”

Why did policymakers never really buy into the theory? Is it simply wrong? Green argues that the nuclear balance during the Cold War was “more delicate, and its meaning more fluid” than the theory of the nuclear revolution admits. This helps to explain, among other things, America’s highly competitive nuclear behavior.²¹ For Jervis, the problem lay in the continued “conventionalization” of nuclear thinking — that is, “the attempt to understand our world by employing the intellectual tools of the prenuclear era.”²² The effort to escape from mutual vulnerability, either through the pursuit of missile defenses or the abolition of nuclear weapons, fell into the category of “old, bad ideas.”²³ For example, the goal of destroying as much of the enemy’s strike forces as possible makes sense in a prenuclear world, but not in a nuclear world. Yet, this strategy continued to be the U.S. military’s basic approach to conducting general war, even though it would not protect American society from a devastating strike.²⁴ “Conventionalization perspectives cannot ... guide effective policies,” Jervis argued, “although they do help explain many aspects of American war planning.”²⁵ Furthermore, ideas create their own reality and can become part of the problem. For example, many U.S. planners may believe that superiority has no real *military* utility but that it is important because the Russians think that the United States is less likely to stand firm if U.S. leaders believe America is behind in key measures of the strategic balance. “Arguments that superiority is necessary because it will help deter the Soviets are self-perpetuating,” Jervis observed, and can reinforce or even create reality.²⁶ Thus the Trump administration criticizes Russia’s

²¹ Green, “*The Revolution that Failed*,” 7

²² Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca, NY: Cornell University Press, 1984), 14.

²³ Jervis, *The Meaning of the Nuclear Revolution*, 51.

²⁴ Mark Trachtenberg, “Robert Jervis and the Nuclear Question,” in *Psychology, Strategy and Conflict: Perceptions of Insecurity in International Relations*, ed. James W. David (New York: Routledge, 2013).

²⁵ Jervis, *The Meaning of the Nuclear Revolution*, 52–53.

²⁶ Jervis, *The Meaning of the Nuclear Revolution*, 199.

supposed “escalate to de-escalate” strategy for increasing the risk of nuclear use but nevertheless essentially adopts the same strategy itself “to correct Russian misperceptions of advantage.”²⁷

In short, despite the “logic” of the nuclear revolution, people persist with ideas and beliefs that have little foundation in military strategy but matter for political, symbolic, and psychological reasons. In a world in which perceptions of resolve are critical, unnecessary capability can become an indicator of resolve.²⁸ Leaders find it difficult to disavow either the prospect of controlled use of nuclear weapons or of emerging from a nuclear conflict with some kind of meaningful victory.²⁹ They pursue missile defense and superiority because the alternative — vulnerability — is simply politically and psychologically unacceptable.

Finally, domestic factors may play a larger role than Jervis imagined. As Pegahi observed, “The range of issues about which states might be dissatisfied can expand, the depth of that dissatisfaction can deepen, and the value of escalation as a tool can correspondingly increase.”³⁰ In this era of national populist leaders such as Trump, Narendra Modi, and Vladimir Putin, who like to brandish their nuclear weapons, this is a worrisome dynamic that may further undercut the nuclear revolution theory.

²⁷ *Nuclear Posture Review*, 2018, 31.

²⁸ Jervis, *The Meaning of the Nuclear Revolution*, 196.

²⁹ Robert W. Tucker, “Nuclear Weapons and the U.S.S.R.: The Nuclear Debate,” *Foreign Affairs* 63, no. 1 (Fall 1984), 9.

³⁰ Pegahi, “The New India Versus the Nuclear Revolution.”

Of course, Jervis and others also provide plenty of evidence that decision-makers do not actually buy into their own nuclear warfighting strategies. Frank Gavin argues that John F. Kennedy and Robert McNamara did not really believe their own flexible response policy and its vision of “controlled” nuclear war.³¹ Interviews with drafters of the 2018 *Nuclear Posture Review* suggest that, privately, they do not actually think that limited nuclear war is really possible.³² In the end, Jervis probably remains correct that strategies of “escalation dominance” or, as we now call it, “escalate to de-escalate,” lack credibility.

Where Does This Leave the Theory of the Nuclear Revolution?

In terms of the effect on military planning, nuclear weapons have been less revolutionary than Jervis and others thought. Military planners’ efforts to escape vulnerability is fundamentally inconsistent with the theory.

Nevertheless, in one important area the theory holds: The Cold War never became a hot war (this is Kenneth Waltz’s strongest point in support of the nuclear revolution in his debate with Scott Sagan).³³ Most importantly, no state has used nuclear weapons since 1945. The non-use of nuclear weapons since that time is the single most important fact of the nuclear age. Many people at the time fully expected that nuclear weapons would be used again after 1945. Yet, when leaders around the world faced the prospect of fighting a nuclear war during crises throughout the Cold War and after, they stepped back from the

³¹ Francis J. Gavin, *Nuclear Statecraft: History and Strategy in America’s Atomic Age* (Ithaca, NY: Cornell University Press, 2012), 31.

³² Grant MacFadden, *Taming Armageddon: Revisiting the Concept of Nuclear War*, Senior Honors Thesis, Brown University, April 2019.

³³ Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: An Enduring Debate*, 3rd ed. (New York: W.W. Norton, 2012).

brink. As Joshua Rovner writes, “Leaders were not willing to take the kind of risks with nuclear weapons that they took with conventional military forces — precisely what the nuclear revolution thesis predicts.”³⁴

The future of this 75-year tradition of nuclear non-use is not guaranteed. But if, as Jervis argues, people’s beliefs construct reality, the belief that this tradition of restraint is a valuable norm, or even a taboo, may contribute to its preservation. And the preservation of this tradition of non-use is the core of the nuclear revolution.

*Nina Tannenwald is a senior lecturer in the Political Science Department at Brown University and former director of the International Relations Program at Brown’s Watson Institute for International and Public Affairs. Her research focuses on the role of international institutions, norms, and ideas in global security issues, efforts to control weapons of mass destruction, and human rights and the laws of war. Her book, *The Nuclear Taboo: The United States and the Non-use of Nuclear Weapons Since 1945* was awarded the 2009 Levgold Prize for best book in international relations. Her publications have appeared in *International Security*, *International Organization*, *the Journal of Strategic Studies*, *Security Studies*, *Foreign Affairs*, *Washington Quarterly*, *Daedalus*, and *Ethics and International Affairs*, among others. She holds a master’s degree from the Columbia School of International and Public Affairs and a Ph.D. in international relations from Cornell University.*



³⁴ Joshua Rovner, “Was There a Nuclear Revolution? Strategy, Grand Strategy, and the Ultimate Weapon,” *War on the Rocks*, March 6, 2018, <https://warontherocks.com/2018/03/was-there-a-nuclear-revolution-strategy-grand-strategy-and-the-ultimate-weapon/>.

3. Nuclear Revolution Theory Marches Forward

Charles L. Glaser

Robert Jervis' *The Meaning of the Nuclear Revolution* is the culmination of over four decades of post-World War II theorizing about the military and the international political implications of nuclear weapons. In this work, Jervis integrates the work of many leading nuclear theorists, including Thomas Schelling, Bernard Brodie, and Glenn Snyder, as well as his own earlier writings,³⁵ to present the fullest depiction of the implications of mutual nuclear vulnerability for how superpowers interact. The core logic of his argument applies not only to superpowers, but to any pair of states in a situation of mutual assured destruction (MAD) — states that possess the ability to essentially destroy each other in retaliation following a nuclear first strike.³⁶ The term “nuclear revolution” was not new when Jervis wrote his book in 1989. But Jervis advanced our understanding of mutual nuclear vulnerability by presenting a theory of how that vulnerability impacts the behavior of superpowers: nuclear revolution theory. In a succinct summary, Jervis writes:

If nuclear weapons have the influence that the nuclear-revolution theory indicates they should have, then there will be peace between the superpowers, crisis will be rare, neither side will be eager to press bargaining advantages to the limit, the status quo will be relatively easy to

³⁵ Other of Jervis' important contributions include *The Illogic of American Nuclear Strategy* (Ithaca, NY: Cornell University Press, 1984); and “Why Nuclear Superiority Doesn't Matter,” *Political Science Quarterly* 94, no. 4 (Winter 1979–1980): 617–33, <https://www.jstor.org/stable/2149629>.

³⁶ Jervis uses the terms mutual vulnerability, mutual second-strike vulnerability, and MAD somewhat interchangeably.

maintain, and political outcomes will not be closely related to either the nuclear or the conventional balance.³⁷

The immediate policy relevance of *Meaning* was somewhat blunted by the end of the Cold War because the disappearance of the U.S.-Soviet competition removed nuclear weapons from the center of the U.S. foreign policy and national security debate.³⁸ However, with the United States and Russia now engaged in a more adversarial relationship and with China's nuclear modernization providing Beijing with a larger survivable force, the policy relevance of *Meaning* is being restored. In addition, the India-Pakistan nuclear dyad, which emerged following the Cold War, has the potential to become a nuclear relationship that is defined by mutual vulnerability. The predictions of the nuclear revolution theory can increasingly be tested by exploring whether and when these dyads meet the theory's requirements and whether the states' actions then align with the theory's predictions.

Over the last decade, nuclear revolution theory has begun to face some serious criticism. Critics argue that maintaining an assured retaliatory destruction capability is more difficult than Jervis and other theorists of the nuclear revolution believed. They maintain that, as a result, many of the theory's predictions are flawed and its policy guidance is wanting. *Meaning* provides much of the foundation for this emerging debate — Jervis' clarification of key nuclear concepts and his expectations for superpower behavior in MAD make *Meaning* a key target for critics of nuclear revolution theory.

³⁷ Robert Jervis, *The Meaning of the Nuclear Revolution* (Ithaca, NY: Cornell University Press, 1989), 45.

³⁸ Other policy-focused nuclear books were also caught in this transition, including Charles L. Glaser, *Analyzing Strategic Nuclear Policy* (Princeton, NJ: Princeton University Press, 1990); and Barry R. Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca, NY: Cornell University Press, 1991).

In the remainder of this short piece, to highlight some of Jervis' contributions to our understanding of nuclear weapons, I review a couple of key arguments he makes in *Meaning*. I then address a few issues that critics of nuclear revolution theory have raised and consider whether clarification or amendment of the theory may be required.

Misconceptions of MAD and Exaggerations of the Stability-Instability

Paradox

Although Jervis makes many points that deserve extensive discussion, I touch briefly on only two. First, in chapter 3, Jervis writes, "MAD is a fact, not a policy." It is a fact in the narrow sense that the superpowers were both vulnerable to massive (society-ending) destruction from a retaliatory strike and in the sense that the damage a state could inflict in a retaliatory strike was essentially as large as if it had struck first.³⁹ In other words, Jervis argues that MAD is a condition and that this condition prevailed between the United States and the Soviet Union. MAD is not a policy in which a state threatens only the "value targets" — the cities and economies — of an opposing state. Nor is it a policy in which a state has only a single-attack option, in which all of the state's weapons would be launched at once. A state in the condition of MAD might choose such a single-attack policy, but nothing about the condition requires it to. In fact, there are many sound reasons for *not* adopting this type of countervalue, single-attack policy. In correcting this caricature of MAD (and related ones), Jervis is responding not only to popular misconceptions, but to a variety of arguments offered by nuclear experts and U.S. officials that were employed during the Cold War and that supported flawed policy guidance.

³⁹ Jervis, *The Meaning of the Nuclear Revolution*, 5.

Second, Jervis has a great deal to say about the stability-instability paradox. This paradox captures the relationship between the probability of conventional war and the probability of nuclear war: When the probability of escalation to nuclear war is lower (stability), all else being equal, the probability of conventional war (instability) is higher. The argument is not that nuclear weapons and stability at the highest level of conflict make conventional war more likely than if nuclear weapons did not exist. Instead, the logic is a relative claim, given the deployment of nuclear weapons. The paradox's basic logic is sound, but Jervis shows that, if taken to an extreme, it is tremendously misleading. Specifically, when one imagines that the probability of nuclear escalation is zero, then nuclear weapons would have no effect on the probability of conventional war. But zero probability is never realistic. Even when a very high degree of crisis stability exists — that is, the deployed forces do not create preemptive incentives — a state could still intentionally launch a limited nuclear attack or accidentally launch some of its nuclear weapons. An adversary's awareness of these possibilities means that nuclear weapons contribute significantly to deterrence, even under the most stable configurations of nuclear forces, because the costs of any nuclear war would be so great and escalation to all-out war would always be possible.

The implications of these persisting possibilities for nuclear war are dramatic. During the Cold War debate, analysts used the extreme version of the stability-instability paradox to support a wide variety of policies, including intense nuclear competition with the Soviet Union designed to regain nuclear superiority by undermining Soviet assured destruction capabilities, and large NATO conventional buildups in Europe to ensure that the Warsaw Pact had little chance of successfully invading Western Europe. By appreciating that the core logic of the stability-instability paradox is sound, but showing that its extreme version is entirely unrealistic, Jervis also shows that these highly competitive policies were, at best, unnecessary. Jervis may have taken this argument a bit too far when he

judges the importance of the conventional military balance in MAD, holding that “[i]f escalation is neither impossible nor certain, deterrence by denial at a lower level of violence is neither necessary nor terribly helpful.”⁴⁰ Arguably, under a range of conditions, a conventional denial capability and even conventional military advantages may be more valuable than he implies, but Jervis’ central point about the deterrent shadow created by the many paths to nuclear war is, nonetheless, powerful.

Boundaries of the Nuclear Revolution Theory and Its Critics

Although *Meaning* is clear and comprehensive, many things have changed since the late 1980s, which has created the need to clarify the limits of nuclear revolution theory’s applicability and possibly to amend some of its strongest claims. First, Jervis has little to say about nuclear logic beyond the U.S.-Soviet dyad, and specifically the United States and the Soviet Union under conditions of MAD. This is not a weakness of his book — the superpowers’ nuclear weapons were of such central importance during the Cold War that they naturally dominated related topics. But we do need to appreciate that the logic of MAD does not extend, at least not fully, to non-MAD dyads. Nuclear deterrence theory does, but nuclear revolution theory does not. As a result, some of its key findings do not travel. For example, according to the nuclear revolution theory, a state should not deploy large counterforce or ballistic missile defense systems because they cannot protect it from assured retaliation. The same guidance may not apply to nuclear dyads in which one or both of the states lack assured destruction capabilities. More specifically, whether the United States should pursue these forms of protection against North Korea or other

⁴⁰ For a recent formal exploration of some of these arguments, see, Robert Powell, “Nuclear Brinkmanship, Limited War, and Military Power,” *International Organization* 69, no. 3 (Summer 2015): 589–626,

<https://doi.org/10.1017/S0020818315000028>.

small, emerging nuclear powers is a different question and requires a quite different analysis.⁴¹ Furthermore, the insights of nuclear revolution theory will not apply in these non-MAD nuclear dyads. For example, the United States may be able to use its overwhelming ability to inflict damage to gain a bargaining advantage, even though this would be very risky unless the United States can perfectly protect itself from retaliation.

Second, and more central to his book, Jervis is not entirely clear on whether MAD is the necessary outcome of nuclear competition between superpowers and, related, how robust MAD is once it is achieved. The flavor of *Meaning* is that MAD is the expected outcome of superpower competition and is immutable. Nevertheless, Jervis is more cautious on this point than he might initially appear. For example, he argues that a “defensive shield that could protect society against nuclear attack ... is impossible in this century if not forever.”⁴² The difference between a couple of decades and forever, however, is potentially quite significant. If the latter, the nuclear revolution theory would predict, at most, mild nuclear competition. Competition is not precluded though, if the impossibility of effective strategic defense depends on the state acting to offset an adversary’s strategic defenses. In contrast, if the former — that is, if strategic defenses are expected to be ineffective only for a decade or two — the theory would predict more intense nuclear competition in MAD. And if the outcome of competition is likely to be the preservation of

⁴¹ For a detailed examination of these arguments, see, Charles L. Glaser and Steve Fetter, “National Missile Defense and the Future of U.S. Nuclear Weapons Policy,” *International Security* 26, no. 1 (Summer 2001): 40–92, <https://www.jstor.org/stable/3092078>; and Charles L. Glaser and Steve Fetter, “Counterforce Revisited: Assessing the Nuclear Posture Review’s New Missions,” *International Security* 30, no. 2 (Fall 2005): 84–126, <https://doi.org/10.1162/016228805775124552>.

⁴² Jervis, *The Meaning of the Nuclear Revolution*, 10. In the same paragraph, Jervis says that effective first-strike counterforce systems are “not technically feasible either.” Whether he means are infeasible within a decade or forever is ambiguous.

MAD, but there is even a small realistic probability that this is not the case, then still more intense nuclear competition should be expected.

Precisely what nuclear revolution theory says about nuclear competition between superpowers is likely an issue that requires further examination and sorting out. Daryl Press and Keir Lieber, critics of this theory, have recently argued that it holds that “survivability is a one-way street: once a country deploys a survivable arsenal, it will remain that way.”⁴³ I believe this claim is overstated, if they mean that a superpower’s retaliatory capabilities will not be diminished even if it does not respond to advances in technology and the adversary’s modernization. In contrast, even given the nuances in Jervis’ views on the robustness of MAD, it is reasonable to characterize nuclear revolution theory as arguing that, in an action-reaction competition between economically and technically capable superpowers, MAD will be preserved and competition will not be intense.

In the end, however, this judgment of nuclear revolution theory cannot be made without considering the technologies that are available to and can be created by states. A number of factors favor retaliation over damage limitation and unpin the theory’s confidence in the ability of superpowers to preserve their assured destruction capabilities. First, nuclear weapons are extremely destructive, especially thermonuclear weapons, which are capable of destroying vast areas. Second, nuclear weapons are relatively inexpensive for a wealthy superpower. During the Cold War, for example, the United States and Soviet Union each deployed roughly 10,000 strategic warheads. Third, there are a relatively small number of targets — industrial and population centers, and critical hubs — that the

⁴³ Keir A. Lieber and Daryl G. Press, “The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence,” *International Security* 41, no. 4 (Spring 2017): 15, https://doi.org/10.1162/ISEC_a_00273.

retaliator must be able to destroy to essentially take down an adversary's society. In broad terms, there are somewhere from tens to a few hundred such targets. The result of these factors is that, to eliminate a state's assured destruction capability, the attacker must destroy an extraordinarily high percentage of the adversary's force. And the retaliator can drive up the required effectiveness by increasing the size of its force. Finally, a state can deploy its forces in a variety of basing modes, including mobile modes, thereby further increasing the technological challenges facing the attacker.

Nevertheless, if the technology were "good enough," it could offset these types of advantages held by the retaliator. Brendan Green and Austin Long have shown that the United States was more effective at holding Soviet forces vulnerable than was previously known, with advances in U.S. intelligence capabilities playing the central role in such efforts.⁴⁴ In the same spirit, Lieber and Press argue that technological advances are making counterforce relatively easier for advanced states, although they do conclude that "countries that have considerable resources can buck these trends and keep their forces survivable, albeit with considerable cost and effort."⁴⁵ But, even if superpowers can maintain their assured destruction capabilities, they show that doing so will be more difficult and more uncertain, and they argue that arms competition will be more intense than predicted by nuclear revolution theory. Of course, whether this turns out to be the case is itself largely a technological question. These critics of this theory have advanced the nuclear debate by exploring many important technological developments, America's ability to harness them, and their consequences. Further technical analysis, including of countermeasures to these new technologies, is warranted.

⁴⁴ Austin Long and Brendan Rittenhouse Green, "Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy," *Journal of Strategic Studies* 38, no. 1-2 (2015): 38-73, <https://doi.org/10.1080/01402390.2014.958150>.

⁴⁵ Lieber and Press, "The New Era of Counterforce," 10.

Lieber and Press take their argument a step further, writing that “if nuclear stalemate can be broken, one should expect countries to act as they always have when faced with military threats: by trying to exploit new technologies and strategies for destroying adversary capabilities.”⁴⁶ This should not, however, be true in general. A rational state would need to consider an important alternative — competing to preserve its nuclear retaliatory capability, while not pursuing the ability to destroy its adversary’s nuclear forces. The choice between the two depends on a variety of factors. Technology is the most important: When the relative difficulty of damage-limitation and retaliation is roughly equal, or when retaliation retains an advantage, a state’s choice to forego damage limitation would face few military-technical barriers. But a state’s choice should also be influenced by beliefs about the bargaining and deterrent advantages that could be gained by acquiring an advantage in the ability to inflict societal damage and by beliefs about the political risks and benefits of intense military competition. *Meaning* identifies many advantages of being in the condition of MAD and suggests that a state’s bargaining advantage is likely to be small, so long as it remains highly vulnerable in a nuclear war, even if it is less vulnerable than its adversary. A state might, therefore, reasonably decide that preserving these benefits exceeds the potential benefits of acquiring an uncertain capability to somewhat reduce an adversary’s retaliatory capability, if it would remain highly vulnerable to nuclear retaliation. Divergent assessments of these considerations are already playing out in the current debate over whether the United States should attempt to deny China an assured destruction capability.⁴⁷

⁴⁶ Lieber and Press, “The New Era of Counterforce,” 15–16.

⁴⁷ See, for example, Charles L. Glaser and Steve Fetter, “Should the United States Reject MAD? Damage Limitation and U.S. Nuclear Strategy Toward China,” *International Security* 41, no. 1 (Summer 2016): 49–98, https://doi.org/10.1162/ISEC_a_00248; and Brendan Rittenhouse Green and Austin Long, “Correspondence:

Third, we may need to revisit the political implications of MAD when its durability is less certain than imagined by Jervis and other nuclear revolution theorists. Jervis' arguments essentially assume that states know they are under MAD conditions and expect that they will persist. Critics suggest, at a minimum, that superpowers will have less confidence in their ability to retain their massive retaliatory capabilities. I expect that the majority of Jervis' predictions in *Meaning*, with the possible exception of arms-racing behavior, will hold when states are in MAD, but believe its future is uncertain. When an all-out war would essentially destroy both countries, making meaningful victory impossible, Jervis' predictions about peace, crises, and bargaining would still obtain. But these propositions deserve to be revisited.

In closing, *The Meaning of the Nuclear Revolution* provides both the fullest statement of Cold War thinking on the implications of nuclear weapons for states in MAD and the foundation for an emerging debate on the future of nuclear strategy and forces between states that are highly and comparably capable. While some of his arguments require clarification and possibly elaboration, Jervis' insights will remain essential as scholars and analysts continue to grapple with the pressing questions created by nuclear weapons.

Charles L. Glaser is professor of political science and international affairs at George Washington University. He was the founding director of the Elliott School's Institute for Security and Conflict Studies from 2009–2019. His research focuses on international relations theory, including the security dilemma, defensive realism, and arms races; and on

The Limits of Damage-Limitation,” *International Security* 42, no. 1 (Summer 2017): 193–99,

https://doi.org/10.1162/ISEC_c_00279.

BOOK REVIEW ROUNDTABLE: The Meaning of the Nuclear Revolution 30 Years Later

<https://tnsr.org/roundtable/book-review-roundtable-the-meaning-of-the-nuclear-revolution-30-years-later/>

international security policy, including U.S. policy toward China, U.S. nuclear weapons policy, and energy security. Glaser holds a Ph.D. from the Kennedy School of Government at Harvard University, a B.S. in Physics from MIT, and an M.A. in Physics and M.P.P. from Harvard. Before joining George Washington University, Glaser was the Emmett Dedmon Professor of Public Policy at the University of Chicago. His books include Rational Theory of International Politics (2010) and Analyzing Strategic Nuclear Policy (1990). In 2018, he was awarded the International Studies Association, Security Studies Section, Distinguished Scholar Award for lifetime achievement in research and mentoring.



4. The Impermanent Revolution: MAD is a Variable, Not a Constant

Austin Long

Retrospectively reviewing the work of Robert Jervis is tough, in large part due to the outstanding nature of the work, but also because on a personal level Jervis is, in the words of one of his colleagues, a “*mensch*.”⁴⁸ The field of security studies is not lacking in egotists and curmudgeons, and he is decidedly neither. Jervis is also more willing to offer critiques of his own work than many senior scholars.⁴⁹ It is thus easy for the reviewer to default to praise, particularly with a work as logically compelling as *The Meaning of the Nuclear Revolution*.

Yet, as impressive as the work is, it is not without limitations. These limitations are important, as they help explain curious Soviet behavior, and to some degree subsequent Russian behavior, regarding the nuclear balance. If Jervis is right about the nuclear revolution, why did the Soviet Union, armed with tens of thousands of nuclear weapons, feel deeply insecure in the late Cold War period (from roughly 1979 to 1989)? In this

⁴⁸ Truth in reviewing requires me to disclose that I have known Jervis personally for some time, including having had an adjacent office at Columbia for eight years. One anecdote that I think sums up his character: I first interacted with him as a young graduate student when I learned that a classified study he authored was being declassified. I wrote him an email out of the blue asking how I might obtain a copy, an email many busy senior scholars would have simply ignored or perhaps replied to curtly when they got around to it. Jervis wrote back almost immediately asking for my mailing address so he could send me a copy, which arrived a few days later.

⁴⁹ See, for example, Robert Jervis, “Politics and Political Science,” *Annual Review of Political Science*, no. 21 (2018): 10, <https://doi.org/10.1146/annurev-polisci-090617-115035>, in which Jervis reflects on *The Meaning of the Nuclear Revolution* as not just scholarship but also one of his “interventions in a fierce political debate.”

review, I focus on two distinct but related limitations in Jervis' thesis. The first limitation is empirical: Thanks to declassification and other means, scholars now have vastly more knowledge of U.S. and Soviet nuclear plans, policies, and overall perceptions than was available in 1989 when Jervis' book was published.⁵⁰ The second is the overarching requirement that Jervis places at the heart of the nuclear revolution: mutual second-strike capability. Without mutual second strike, the logic of the nuclear revolution does not function. Jervis treats U.S.-Soviet mutual second-strike capability as essentially fixed once it was established, a reflection of the state of empirical knowledge at the time of writing as well as some of the intellectual antecedents of Jervis' thinking. I conclude with reflections on the legacy of *The Meaning of the Nuclear Revolution*.

The Transformative Logic of Mutual Second Strike and Its Limits

The logic of Jervis' argument in *The Meaning of the Nuclear Revolution* is relatively simple yet utterly compelling, as the opening two sentences of the book demonstrate: "The most important points often are the simplest ones. No one can win an all-out nuclear war."⁵¹ From this proposition, and building on a variety of earlier works, Jervis derives a number of subsidiary conclusions ranging from potential mechanisms for escalation to moral transformations.

⁵⁰ In his work, Jervis benefited from holding a high-level security clearance and having connections to the U.S. defense and intelligence communities, as he has described. Yet, while this gave him insights otherwise unavailable to scholars, significant lacunae remained. See, Jervis, "Politics and Political Science," and Robert Jervis, *Why Intelligence Fails: Lessons from the Iranian Revolution and the Iraq War* (Ithaca, NY: Cornell University Press, 2010), 7–12.

⁵¹ Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, NY: Cornell University Press, 1989), 1.

Throughout the book, Jervis displays not only a compelling logic but also the breadth of historical knowledge that marks many of his other works.⁵² He finds useful analogies in often obscure corners of history. Perhaps most notable is his example of a state defining its “interests, motives and behavior” to avoid challenges. Jervis describes a tactical decision of the Russian ambassador to the 18th-century Polish king: to arrive late to an audience with the king. In doing so, the ambassador avoided the choice of losing face or provoking a crisis with the Vatican, as the Polish king intended to speak to the pope’s emissary first. The late arrival enabled the ambassador to avoid what would otherwise have been a potential no-win scenario for Russia.⁵³

Of particular note is the extent to which Jervis avoids “straw-man” versions of the arguments he seeks to critique. For example, in criticizing the views of Paul Nitze and Colin Gray, he notes that their concept of “winning” a nuclear war hinges on the relative post-war position of the combatants. While allowing that relative position is a perfectly natural standard to apply, Jervis notes that it is no longer useful as a metric when the absolute level of damage that combatants can inflict on one another far exceeds any possible gain. This relative standard “does not relate the cost of the war to the objectives and thus ignores the question of whether the destruction would be so great that the winner, as well as the loser, would regret having fought it.”⁵⁴

In pressing his case for a nuclear revolution, Jervis is careful to note that the mere existence of nuclear weapons is not sufficient to make all-out nuclear war unwinnable.

⁵² See, Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press, 1976); and Robert Jervis, *The Logic of Images in International Relations* (Princeton, NJ: Princeton University Press, 1970).

⁵³ Jervis, *The Meaning of the Nuclear Revolution*, 218.

⁵⁴ Jervis, *The Meaning of the Nuclear Revolution*, 15-19; quotation on 19.

This scenario exists only when “neither side can launch a first strike that is successful enough to prevent retaliation from the other” — a condition of “mutual second-strike capability.”⁵⁵ Mutual second strike, sometimes referred to as mutual vulnerability or mutually assured destruction (MAD), produces peace between states that possess this capability and greatly contributes to the maintenance of the status quo and the avoidance of crises.⁵⁶

However, because mutual second strike is not an automatic consequence of the acquisition of nuclear weapons, it is a variable — that is, there are periods when it will exist between nuclear adversaries and periods when it will not. Jervis notes that prior to some point in time (between 1962 and 1972 it would seem) the Soviet Union did not have a truly survivable second strike.⁵⁷ However, he concludes that, at least between the United States and Soviet Union, mutual second strike could not vary once established. In his book’s conclusion, he claims “[n]either superpower will allow the other to gain what it thinks might be a decisive advantage... Nuclear arms are not so expensive and the American lead in technology is not so great that the Soviet Union cannot develop important systems that are available to the West.”⁵⁸

The claim that the existence of mutual second strike was essentially unalterable once established between the superpowers in the Cold War reflects one of the critical intellectual antecedents of Jervis’ work — Kenneth Waltz’s *Theory of International Politics*. Waltz characterizes the distribution of power in the international system of the Cold War as one of bipolarity, where the two poles are the two superpowers. Each

⁵⁵ Jervis, *The Meaning of the Nuclear Revolution*, 5.

⁵⁶ Jervis, *The Meaning of the Nuclear Revolution*, 23–45.

⁵⁷ See, for example, Jervis, *The Meaning of the Nuclear Revolution*, 37 and 43–44.

⁵⁸ Jervis, *The Meaning of the Nuclear Revolution*, 230–32.

superpower, in this view, can match the other through mobilization of its own resources, a concept known as “internal balancing.”⁵⁹ Jervis thus echoes Waltz in asserting that “[i]nternal balancing, then, allows each side to deny the other long-term important advantages.”⁶⁰ Yet, much of the empirical record now available casts doubt on the claim that, once established during the Cold War, mutual second strike could never disappear.

New History, Mutual Second Strike, and the Character of the Cold War Competition

Newly available evidence has led to revisionist histories that significantly alter our understanding of the Cold War competition.⁶¹ Briefly, the key points of this revisionist history are that the Soviet Union was much less capable of qualitative arms competition with the United States than observers believed at the time, and that U.S. arms control policy successfully limited quantitative arms competition (i.e., the policy limited the number of strategic nuclear weapons the United States and Soviet Union deployed). This combination meant the Soviets were competing at a significant disadvantage from the mid-1970s onward and, crucially, by the early 1980s Soviet leaders had become deeply

⁵⁹ Kenneth N. Waltz, *Theory of International Relations* (Reading, MA: Addison-Wesley Publishing, 1979), 168.

⁶⁰ Jervis, *The Meaning of the Nuclear Revolution*, 231.

⁶¹ Among the most relevant for this review are Brendan Rittenhouse Green, *The Revolution That Failed: Nuclear Competition, Arms Control, and the Cold War* (Cambridge, UK: Cambridge University Press, 2020); James Cameron, *The Double Game: The Demise of America’s First Missile Defense System and the Rise of Strategic Arms Limitation* (Oxford and New York: Oxford University Press, 2017); Brendan R. Green & Austin Long, “The MAD Who Wasn’t There: Soviet Reactions to the Late Cold War Nuclear Balance,” *Security Studies* 26, no. 4 (2017): 606–41, <https://doi.org/10.1080/09636412.2017.1331639>; and Austin Long and Brendan Rittenhouse Green, “Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy,” *Journal of Strategic Studies* 38, no. 1–2 (2015): 38–73, <https://doi.org/10.1080/01402390.2014.958150>.

concerned that if competition continued the Soviets could not maintain their second-strike capability. Further, the Soviets were hobbled in the early 1980s by a geriatric leadership and civil-military concerns that made the Soviet military and technical elite fearful that Soviet nuclear command and control would not allow a retaliatory strike.⁶²

The culmination of Soviet fears took place with the “war scare” of the early 1980s. General Secretary Yuri Andropov, a former head of the KGB, became gravely concerned the United States was seeking strategic superiority and might even be planning a surprise attack, noting in 1983 that the Americans might soon have “genuine readiness to take the fatal step.”⁶³ Andropov ordered the KGB and allied intelligence services to launch a major intelligence collection effort to ensure they would have warning of such an attack. A highly classified U.S. postmortem on the war scare, declassified in 2015, notes, “senior Soviet officials with high-level contacts said that during this time Soviet leaders formally cautioned the bureaucracy that the new US Administration was considering the possibility of starting a nuclear war, and that the prospect of a surprise nuclear strike against the Soviet Union had to be taken seriously.”⁶⁴

⁶² See, for example, John G. Hines, Ellis M. Mishulovich, and John F. Shull, *Soviet Intentions 1965–1985, Vol. II: Soviet Post-Cold War Testimonial Evidence* (McLean, VA: BDM Federal, 1995); Steven J. Zaloga, *The Kremlin’s Nuclear Sword: The Rise and Fall of Russia’s Strategic Nuclear Forces 1945–2000* (Washington, DC: Smithsonian Books, 2002); and David E. Hoffman, *The Dead Hand: The Untold Story of the Cold War Arms Race and Its Dangerous Legacy* (New York: Anchor, 2010).

⁶³ Quoted in, Green and Long, “The MAD Who Wasn’t There,” 619.

⁶⁴ Green and Long, “The MAD Who Wasn’t There,” 621. Note that this general “war scare” is distinct from alleged Soviet interpretations of NATO’s 1983 Able Archer exercise. The latter event has probably been significantly overstated in terms of the degree to which the Soviets believed the exercise was cover for an attack. See, Simon Miles, “The War Scare That Wasn’t: Able Archer 83 and the Myths of the Second Cold War,” *Journal of Cold War Studies* (forthcoming); and Mark Kramer, “Able Archer 83 and the Rise of a

Why were the Soviets so fearful of a surprise attack if a condition of mutual second strike prevailed? The answer is that Soviets were unsure it *did* prevail. The classified postmortem noted above is blunt in its assessment: “Although the Soviet strategic nuclear force in the late 1970s was powerful and versatile (over 7,000 strategic nuclear weapons), it was nonetheless highly vulnerable to a US surprise attack—a so-called bolt from the blue.”⁶⁵ Soviet estimates were often equally pessimistic, with a memorandum from the 1980s written by a senior adviser to the Soviet Ministry of Defense concluding, “Existing Strategic Rocket Forces are capable of hitting 80 enemy targets in retaliation, by 1995 100 targets and by 2000 150 targets, slightly below the calculated level of retaliation required—200 targets.”⁶⁶ Despite possessing thousands of strategic warheads, some senior Soviet officials did not have confidence they could retaliate with sufficient force to maintain the logic of mutual second strike.

Beyond the threat of a near-term surprise attack, many Soviet leaders were also pessimistic about whether, over the long term, the Soviet Union could maintain a second-strike capability. Contrary to Jervis’ expectation, the Soviets did not believe internal balancing would enable them to deny U.S. advantages. Chief of the General Staff Marshal Nikolai Ogarkov summed up the source of Soviet pessimism:

We cannot equal the quality of U.S. arms for a generation or two. Modern military power is based on technology, and technology is based on computers. In the U.S., small children play with computers ... Here, we

Myth: Did Soviet Leaders Really Fear an Imminent Nuclear Attack in November 1983?” paper presented at the Nuclear Studies Research Institute Conference, Arlie, VA (2015).

⁶⁵ Quoted in Green and Long, “The MAD Who Wasn’t There,” 611.

⁶⁶ Green and Long, “The MAD Who Wasn’t There,” 637.

don't even have computers in every office of the Defense Ministry. And for reasons you know well, we cannot make computers widely available in our society. We will never be able to catch up with you in modern arms until we have an economic revolution. And the question is whether we can have an economic revolution without a political revolution.⁶⁷

Soviet weakness in technology had far reaching implications, many of which were not well appreciated at the time of Jervis' writing. Soviet submarines, air defense, and command and control were all vulnerable as a result of technological weakness, with little prospect of improvement.⁶⁸

In political science terms, Soviet leaders were fearful of their "constitutional fitness" — the ability of the regime to mobilize and employ resources — for sustaining a continued qualitative military competition.⁶⁹ By the early 1980s, the Soviet Union was probably devoting between 16 and 25 percent of its Gross Domestic Product to that competition.⁷⁰ In contrast, the United States was spending probably at most 7–8 percent of its economy on the competition in the same period, depending on what one includes.⁷¹ Indeed, the

⁶⁷ Green and Long, "The MAD Who Wasn't There," 620.

⁶⁸ See, Long and Green, "Stalking the Secure Second Strike," for an overview of these weaknesses.

⁶⁹ The term is from David D'Lugo and Ronald Rogowski, "The Anglo-German Arms Race and Comparative Constitutional 'Fitness,'" in *The Domestic Bases of Grand Strategy*, ed. Richard Rosecrance and Arthur A. Stein (Ithaca, NY: Cornell University Press, 1993).

⁷⁰ The lower figure is from CIA estimates of the 1980s, and the higher figure from the work of Russian historian Irina Bystrova. See discussion in, Austin Long, "Rubles, Dollars, and Power: Intelligence on the Soviet Economy and Long-Term Competition," *Texas National Security Review* 1, no. 4 (August 2018), <http://doi.org/10.15781/T2NV99X6Q>.

⁷¹ Total U.S. spending on national defense in the 1980s was 5–6 percent of Gross Domestic Product. See, "National Defense Budget Estimates for FY 2019," Office of the Under Secretary of Defense (Comptroller),

Soviets of the 1980s were dependent on the United States for everything from high technology to grain.⁷² In short, they proved to be lousy competitors because their political-economic system was not fit for the sort of contest the late Cold War had become.

The lack of Soviet constitutional fitness for competition illuminates why Soviet leaders were more concerned about strategic defenses than Western analysts, including Jervis, believed was warranted. Strategic defenses are barely mentioned in passing in *The Meaning of the Nuclear Revolution*. The Reagan-era Strategic Defense Initiative (aka “Star Wars”) is noted only briefly in the context of the symbolic nature of nuclear politics.⁷³

In contrast, Soviet leaders, already worried about the extent to which they could preserve their second-strike capability even in a world without strategic defenses, viewed the Strategic Defense Initiative with substantially more trepidation. If, as noted above, some Soviet analyses were predicting the Soviets might only be able to hit 100 targets in a second strike, even modestly capable strategic defenses could loom large. The Soviets thus considered many ways to deal with such an eventuality. According to a declassified CIA analysis, “General Secretary Yuri Andropov had considered such options as ... developing and deploying underwater missiles that would not be affected by the space-based missile shield...” This was apparently no idle consideration, as the system — a

April 2018, https://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2019/FY19_Green_Book.pdf.

Foreign assistance, support to science and space research, and other categories probably add no more than 2 percent of Gross Domestic Product.

⁷² On technology dependence, see, Long, “Rubles, Dollars, and Power.” On grain dependence, see, “Issue Paper on U.S.-Soviet Grain Agreement,” prepared for a U.S. Cabinet meeting, July 14, 1982, available online at: <https://www.cia.gov/library/readingroom/docs/CIA-RDP84B00049R001700200010-6.pdf>

⁷³ Jervis, *The Meaning of the Nuclear Revolution*, 222–23.

nuclear-powered, nuclear-armed torpedo of transoceanic range — was eventually developed, and after some delay following the collapse of the Soviet Union, was revealed publicly by Russian President Vladimir Putin in 2018.⁷⁴

Jervis, in *The Meaning of the Nuclear Revolution*, is also much more sanguine about the vulnerability of nuclear command and control than the Soviets were. While noting that threats to command and control were real, he argues they “should not be exaggerated” and that attacks on command and control “probably would not prevent retaliation.”⁷⁵ In contrast, the Soviets were very worried about command and control for two reasons related to constitutional fitness.

First, there were the technical realities of command and control vulnerability. The Soviets were apparently aware of alleged U.S. electronic warfare programs intended to interfere with their command and control, including control of their strategic nuclear forces.⁷⁶ While the efficacy that these programs would have had in war is impossible to judge, they doubtlessly amplified Soviet concerns about maintaining command and control to permit retaliation. In addition, the Soviets were well aware of the significant limitations of their

⁷⁴ See, Austin Long, “Red Glare: The Origin and Implications of Russia’s ‘New’ Nuclear Weapons,” *War on the Rocks*, March 26, 2018, <https://warontherocks.com/2018/03/red-glare-the-origin-and-implications-of-russias-new-nuclear-weapons/>.

⁷⁵ Jervis, *The Meaning of the Nuclear Revolution*, 146–48.

⁷⁶ See, Long and Green, “Stalking the Secure Second Strike”; Benjamin B. Fischer, “CANOPY WING: The U.S. War Plan that Gave the East Germans Goose Bumps,” *International Journal of Intelligence and Counterintelligence* 27, no. 3 (2014): 431–64, <https://doi.org/10.1080/08850607.2014.900290>; Fred Kaplan, *Dark Territory: The Secret History of Cyber War* (New York: Simon and Schuster, 2016), 12–20. Note the Soviets apparently had similar programs aimed at U.S. nuclear command and control. See, Marc Ambinder, *The Brink: President Reagan and the Nuclear War Scare of 1983* (New York: Simon and Schuster, 2018), 3–5, 156–58 and 206–11.

own early warning systems, which made launching their weapons after being warned of an incoming U.S. attack, but before the attack arrived, problematic if not impossible.⁷⁷

Second, the nature of the Soviet system meant that the Communist Party was unwilling to delegate nuclear employment to the military. The Communist Party also crucially lacked a well-regulated order of succession so that if the general secretary, whose authorization was required for nuclear use, was killed, it was not clear who had the authority to replace him and order retaliation.⁷⁸ The declassified postmortem reports that in the immediate period following the death of General Secretary Leonid Brezhnev on Nov. 10, 1982, there was “considerable anxiety within the Soviet military during this time over who had nuclear release authority in case of a feared US surprise attack.”⁷⁹

In response to this concern about the political aspect of their nuclear command and control, the Soviets developed a kind of technical solution. They deployed a system known as Perimetr, a semi-automatic mechanism that, when activated on the order of Soviet leaders, would permit nuclear release without further authorization under certain conditions. This system, sometimes referred to as “the Dead Hand,” is, according to some Russian officials and unclassified U.S. intelligence assessments, still available for use in a crisis.⁸⁰

⁷⁷ Green and Long, “The MAD Who Wasn’t There,” 627–30.

⁷⁸ See discussion in, Green and Long, “The MAD Who Wasn’t There;” Stephen M. Meyer, “Soviet Nuclear Operations,” in *Managing Nuclear Operations*, ed. Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket (Washington, DC: Brookings Institution Press, 1987); and Hoffman, *The Dead Hand*.

⁷⁹ Quoted in, Green and Long, “The MAD Who Wasn’t There,” 635.

⁸⁰ See, Hoffman, *The Dead Hand*; Green and Long; and Defense Intelligence Agency, *Russian Military Power: Building a Military to Support Great Power Aspirations* (2017);

Of course, one could argue that U.S. efforts to exploit Soviet weakness in the competition and undermine mutual second strike were unwise. Faced with the shadow of a losing competition that might threaten the Soviet Union's national survival, Mikhail Gorbachev chose risky internal reform over other courses of action that might have led to war.⁸¹ A more hawkish Soviet leader might have chosen differently and perhaps disastrously. Yet, the fact that mutual second strike could, at least in the minds of some in the Soviet leadership, recede once it is established is an important insight into the impermanence of the nuclear revolution — MAD is a variable, not an entirely irrevocable condition.

Moreover, U.S. efforts to change the condition of mutual vulnerability were probably inevitable. Most U.S. leaders were unwilling to rely on “the threat that leaves something to chance” and an allegedly superior resolve.⁸² Jervis recognized this reality and has elsewhere noted the difference in perspective between academics and policymakers:

[P]eople in positions of power feel a great sense of responsibility that academics cannot share. They need to face the question of what they would

<https://www.dia.mil/portals/27/documents/news/military%20power%20publications/russia%20military%20power%20report%202017.pdf>.

⁸¹ See Chris Miller, *The Struggle to Save the Soviet Economy: Mikhail Gorbachev and the Collapse of the USSR* (Chapel Hill: University of North Carolina Press, 2016); and James Graham Wilson, *The Triumph of Improvisation: Gorbachev's Adaptability, Reagan's Engagement, and the End of the Cold War* (Ithaca, NY: Cornell University Press, 2015).

⁸² At least they were unwilling while in office. The views of several changed once they were out of office, where they emphasized the deterrent power of any degree of nuclear risk. Notable in this category is McGeorge Bundy, Kennedy's national security adviser. Subsequently a professor at New York University, Bundy was an influence on Jervis as he wrote *The Meaning of the Nuclear Revolution*, as the preface and citations indicate.

do in the event of a conflict, and it would be very hard for them to forego the pursuit of usable military options and instead count [on] their having stronger nerves than their Soviet counterparts. Academics could argue that the Soviets were not strongly motivated to attack or that, even if they were, the bargaining advantage lay with the defender and so warfighting nuclear options were not necessary (and might even be dangerous). But those who had to think about what they would do if a terrible situation arose could not be satisfied by those responses.⁸³

The Meaning of the Nuclear Revolution in the 21st Century

The Meaning of the Nuclear Revolution was published just as fears of a nuclear war between the superpowers began to recede. In the 1990s and early 2000s, nuclear concerns migrated to “rogue states” like Iran and North Korea, as well as the acquisition of nuclear weapons by terrorist groups. Mutual second strike lurked in the background of U.S. relations with the post-Soviet Russian Federation but was hardly a major issue, nor was it an issue with China.

By the middle of the 2010s, Jervis’ work became increasingly (perhaps depressingly) salient again, as Russia invaded Ukraine and China began to increasingly challenge U.S. interests in the western Pacific. The Russians, as noted, inherited much of the Soviets’ nuclear systems and command and control — as well as their fears about constitutional fitness. China, in contrast, appears to have internalized more of *The Meaning of the*

⁸³ Robert Jervis, response to roundtable reviews of Francis J. Gavin, *Nuclear Statecraft: History and Strategy in America’s Atomic Age*, in *H-Diplo* 15, no. 1 (2013); <https://issforum.org/roundtables/PDF/Roundtable-XV-1.pdf>.

Nuclear Revolution, though, as Caitlin Talmadge notes, those views may change quickly in a crisis in which nuclear weapons loom large.⁸⁴ As with the Soviet Union at the end of the Cold War, it is not a foregone conclusion that China will be a good competitor in seeking and maintaining mutual second-strike capability.⁸⁵ Meanwhile, India and Pakistan may have cause to review Jervis' work as they modernize and expand their nuclear arsenals. Whatever its limitations, *The Meaning of the Nuclear Revolution* will likely remain indispensable for decades to come.

Austin Long is a nuclear policy adviser in the U.S. Joint Staff J5. The views expressed here are his own and do not represent the views or policy of the Joint Staff, the Department of Defense, or any other entity.



⁸⁴ Caitlin Talmadge, "Would China Go Nuclear?: Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States," *International Security* 41, no. 4 (Spring 2017): 50–92, https://doi.org/10.1162/ISEC_a_00274.

⁸⁵ See, Brendan R. Green and Austin Long, "Correspondence: The Limits of Damage Limitation," *International Security* 42 no. 1 (Summer 2017); and Austin Long, "U.S. Nuclear Strategy Toward China: Damage Limitation and Extended Deterrence," in *America's Nuclear Crossroads*, ed. Eric Gomez and Caroline Dorminey (Washington, DC: Cato Institute, 2019).

5. A Book of Its Time and for Today

Lawrence Freedman

The Meaning of the Nuclear Revolution is a remarkable book. The analysis is lucid and the reasoning is methodical. It displays Robert Jervis' signature ability to draw upon a range of academic literature and think-tank debates, combined with a keen sense of technical developments and contemporary history. Yet, published in 1989, it is also a book of its time. It refers to entities — the Soviet Union and the Warsaw Pact — that no longer exist and policy issues that are no longer pressing or even relevant. As the book anticipated, we have not yet left the nuclear age and may never do so. But, since *Meaning's* publication, proliferation has become much more of a problem (in the book, it's not even an index entry) and new uncertainties have been introduced because of digital-age technologies (the World Wide Web was invented that same year). While recognizing the book's strengths, it is fair to ask whether, 30 years on, it is still relevant to current debates on nuclear policy. Jervis' aim was to show that "large-scale violence is no longer a viable tool of statecraft."⁸⁶ No time limit was put on this statement. A proposition asserted with such confidence and demonstrated with such vigor should be expected to remain true.

If the book had been published a year or so later, it would have been swamped by the news of the implosion of European Communism and then of the Soviet Union itself. Some of the preoccupations that run through the book would have been dismissed as a reflection of old thinking, of a world dominated by two hostile blocs apparently doomed to an everlasting conflict that neither dare resolve by force of arms. By 1989, Jervis could build upon a mature literature, going back over four decades, but also reflect on the recent years of intense debate as the Reagan administration explored a variety of means

⁸⁶ Robert Jervis, *The Meaning of the Nuclear Revolution* (Ithaca, NY: Cornell University Press), ix.

to escape the logic of the revolution, from finding ways to “prevail” in a war to defending against a Soviet first strike to eliminating the nuclear arsenals. If nothing else, *Meaning* ably captures the state of thinking on nuclear policy issues just as the Cold War was coming to an end.

It is important to assess Jervis’ book as if the Cold War was going to carry on largely as before. By the end of the 1980s, the great texts were looking dated. The contributions of figures such as Bernard Brodie, Albert Wohlstetter, Glenn Snyder, and Tom Schelling were from an earlier time when the novelty of the situation stimulated conceptual innovation and when it was unclear whether the “balance of terror” was going to be delicate or stable.⁸⁷ These authors produced bold ideas about how to make deterrence, rather than warfighting, America’s main priority and what this meant for the security guarantees America offered to allies. They did so against the backdrop of a technological arms race, with scares about a missile gap in the Soviets’ favor and fearsome crises over Berlin and Cuba. These foundational works shaped a developing consensus that there were no convincing combinations of weapons and tactics to keep a nuclear war limited. There could be no guarantee that a war between nuclear powers would be anything other than a catastrophe for either side. Jervis was not dissenting from this consensus but, instead, explaining to his readers why it was justified.

⁸⁷ Bernard Brodie, *Strategy in the Missile Age* (Princeton, NY: Princeton University Press, 1959); Albert Wohlstetter, “The Delicate Balance of Terror” *Foreign Affairs* 37, no. 2 (January 1959): 211–34; Glenn Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton, NJ: Princeton University Press, 1961); and Thomas Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966).

At the heart of the consensus was the condition of “mutual vulnerability,” confirmed by the dominance of second-strike capabilities. This shaped the thinking of Robert McNamara as secretary of defense from 1961 to 1968. It led him to work against proposals for ballistic missile defenses. Any attempt to protect the country from a nuclear strike, it was thought, would fail. Making the attempt would simply encourage the other side to improve its offensive capabilities. The most influential new development lay not in defense — though improvements were made to radars and interceptors — but in offense as multiple warheads were put atop individual missiles, increasing the number of targets that could be attacked and promising to overwhelm any defensive effort. Each side could “assure” the destruction of the other. Although McNamara was unable to block the development of anti-ballistic missiles, he left them disparaged, with proponents unable to explain how they would cope with improved Soviet offenses.

The strategic arms talks of the 1970s at first worked to consolidate mutual vulnerability. By now, the Soviet Union, which at first dismissed the logic of McNamara’s anti-defensive posture, joined the consensus and accepted this condition as a permanent feature of superpower relations. Yet, even if the logic was compelling, the consensus offered only a gloomy and uncomfortable prospect. The objections to accepting it as an unavoidable feature of the modern world grew. Critics complained that it was grotesque to prepare to commit mass murder and obliterate another society — even in the name of deterrence and strategic stability, and even with a reassuring conviction that the threat would never be implemented. Dissenting voices from both left and right argued that some way had to be found to escape this terrible logic.

Embracing MAD

At the start of the 1970s, Don Brennan, an erstwhile arms controller who believed in the potential of anti-ballistic missiles, was the first to make play with the acronym “MAD” for “mutual assured destruction.”⁸⁸ His point was that imagining that mutual destruction was the only possible outcome of a future war and configuring forces to ensure that this was the case indeed constituted a form of madness. There were very practical objections to Brennan’s plans to move from the dominance of offence to the dominance of defense, but he did succeed in highlighting the craziness of a situation in which security depended on the very real possibility of a complete catastrophe. Those who wished to defend strategic arms control and avoid a wasteful and futile new round in the arms race argued that nobody claimed the situation was ideal but that these measures would make the best of a bad job. You could do anything with an acronym, but coming to terms with a harsh reality was not actually mad.

Jervis did not dismiss the “MAD” acronym but instead embraced it. The point about mutual assured destruction was that it was a “fact, not a policy.”⁸⁹ It was not one choice among others but a description of the current state of affairs. Jervis developed his point by identifying four different versions of MAD. “MAD-1,” he noted, was the version that appeared in the most trenchant criticisms: It relied on punishing the adversary by threatening “unacceptable” damage inflicted by forces in an “all-or-none” configuration. Jervis pointed out that this caricatured actual policy and had always done so (although the targeting options of the 1960s would have seemed more total than limited if ever authorized). The next variant, “MAD-2,” presented the issue as less about intent and

⁸⁸ Donald Brennan, “Strategic Alternatives I,” *New York Times*, May 24, 1971.

⁸⁹ Jervis, *Meaning*, 74.

more about the result. Even if decision-makers wanted to keep a war limited, there were many reasons, from hardware failures to human emotions, why they might fail to do so. This was not so much a policy option itself but a warning of the unintended consequences of actions taken on the assumption that escalation could be controlled. It drew attention to factors that should condition policy. The third variant, one with which Jervis disagreed, was “MAD-3.” Here it was argued that, because a nuclear war could not be kept limited and so must always be high risk, the only conceivable role of one nuclear arsenal was to deter the use of another. This argument led to the claim that other forms of aggression, including aggression against allies, were best deterred by building up conventional capabilities.

Jervis expressed some objections to all these variants of MAD. Just because the possibility of mutual annihilation was always present did not mean that other outcomes were precluded. There were options for directing attacks against military targets, especially as command-and-control capabilities improved, although once the command posts themselves were attacked this could undermine attempts to control escalation. At any rate, all of these claims and counter-claims based on the likely course of a future war were speculative. What *could* be said with more confidence was that the current policy, however characterized, was not failing. Both sides in the Cold War had acted cautiously. Despite the problems of mutual assured destruction and the implied undermining of U.S. guarantees to allies, there had been no great crises since the early 1960s. Allies showed no sign of demoralization.

This insight led Jervis to outline “MAD-4.” The importance of the “shadow of mutual vulnerability” was that it strongly influenced attitudes before a war had begun — and possibly even once a war had started but before nuclear weapons had been used.

Whatever the hopes for controlled and deliberate escalation, the risk was that control

would be irrecoverably lost. Decision-makers were bound to be mindful of this possibility. Deterrence worked not because it was credible to threaten all-out war but because, even when the intention was to avoid an all-out war and try to gain advantage by more limited measures, all-out war might nonetheless occur.

The 1980s had begun with major demonstrations against new nuclear programs in all NATO countries and warnings about the dire consequences of a nuclear war. These demonstrations were prompted to a significant extent by the policies of the incoming Reagan administration in 1981 with its search for usable nuclear options and talk of “prevailing” in a general war. In the event, the administration’s various efforts to get around the logic of mutual vulnerability came to naught. In November 1985, Ronald Reagan and Mikhail Gorbachev reaffirmed the old consensus in a joint statement (with which Jervis’ book opens): “A nuclear war cannot be won and must never be fought.”⁹⁰

Meaning is not written as a commentary on the debates of the 1980s. Jervis neither engages with the anti-nuclear movement nor discusses the controversial question of Intermediate Nuclear Force deployments in Europe and the 1987 treaty that eliminated them, except in passing. Nor does he explore in detail the tedious debates on the implications of the vulnerability of intercontinental ballistic missiles. They are mentioned only as they concluded in 1983 with the Scowcroft commission that came up with a “confused military rationale for the MX missile” based on “Soviet perceptions of our national will and cohesion.”⁹¹ Here, Jervis mentions this flimsy rationale for an expensive program as an example in one of the most original chapters in *Meaning*, which addresses

⁹⁰ “Joint Soviet-United States Statement on the Summit Meeting in Geneva,” Nov. 21, 1985, Ronald Reagan Presidential Library and Museum, <https://www.reaganlibrary.gov/research/speeches/112185a>.

⁹¹ Jervis, *Meaning*, 198.

the oddity of the facile psychological theories that had been taken up by nuclear strategists and policymakers for want of anything better, justifying weapons programs by the need to manipulate the perceptions of others. As one of the pioneers of applying developments in cognitive psychology to the study of politics (were many others in the discipline quoting Daniel Kahneman in 1989?), Jervis slashes through claims about the need to create impressions of will and resolve, if only to reassure allies and keep adversaries on their toes, even if such impressions are without substance and therefore largely trickery. He understands the symbolism but teaches us not to take it too seriously.

Of Lasting Value

So, *Meaning of the Nuclear Revolution* was not a book written as a guide to current debates. The chapters on morality and crisis stability speak to broad principles and avoid a tour of the most recent trouble-spots. Historical references mingle with the contemporary. Yet, it was still a book of its time. Reading the final chapter, it is striking how much Jervis assumed not only continuity in the nuclear relationship between the United States and the Soviet Union but also in the underlying political relationship. There is not even a hint of the tumultuous events that made 1989 such a memorable year. When he talks of loosening the Soviet ties to the satellite states in Eastern Europe, it is to warn against attempting to coerce Moscow to achieve this goal. He acknowledges the lacuna in the preface. In explaining why he did not address the “recent changes in Soviet domestic and foreign policy,” he acknowledges that they “may be the most important developments in world politics since 1945” but observes that they are “simply too new and too rapidly changing to be analyzed here.” He then adds that he doubts that they will

lead to the abolition of nuclear weapons and that, if this was the case, then “they will leave intact much of the framework this book presents.”⁹²

In this, of course, he was correct. It is also probably the case that introducing speculative commentary at that stage on the future of the Soviet bloc would have been unhelpful. The book still has value precisely because of the strength of the conceptual framework. No doubt, if it was being written now, there would be discussions of how well the logic of deterrence can work in South Asia or the implications of the North Korean and Iranian programs. The issue of command and control in an era of cyber warfare would need to be addressed. *Meaning*, however, is largely about the implications of the nuclear revolution for great-power behavior, the risks of escalation, and the need for restraint. This argument remains valid when considering the great-power rivalries of today, even though Russia is in a quite different strategic position than the former Soviet Union, and China has its own distinctive attitudes and priorities in its foreign policy. Mutual vulnerability remains a feature of great-power relations and continues to influence the behavior of these powers.

Sir Lawrence Freedman was Professor of War Studies at King’s College London between 1982 and 2014, and vice principal from 2003 to 2013. He now holds the position of ‘Emeritus Professor’ in the Department of War Studies. Before joining King’s, Sir Lawrence held research positions at Nuffield College Oxford, IISS, and the Royal Institute of International affairs. In 1997, he was appointed as official historian of the Falklands Campaign and in 2009 was appointed to serve as a member of the official inquiry into Britain and the 2003 Iraq War. His most recent books include Strategy: A History (2013), The Future of War: A

⁹² Jervis, *Meaning*, ix-x.

History (2017), *Ukraine and the Art of Strategy* (2019), and, with Jeff Michaels, the 4th edition of *The Evolution of Nuclear Strategy* (2019).



6. Reflections on *The Meaning of the Nuclear Revolution*, 30 Years Later

Robert Jervis

It is both flattering and discouraging to comment on my colleagues' insightful discussion of *The Meaning of the Nuclear Revolution*. Flattering for the obvious reason that we all hope our scholarship will last; discouraging because the danger of nuclear war did not disappear with the end of the Cold War and has, in fact, increased over the past several years. In retrospect, it was a mistake to think the end of the Soviet-American conflict would render nuclear weapons irrelevant, but even those of us who believed that they had helped prevent World War III had hoped that we could stop having nightmares about world-wide destruction.⁹³

The contributors to this roundtable correctly note that my book was simultaneously a book of its time and an effort to draw on and contribute to theories about the relationship between the potential for the use of force on the one hand and patterns of international politics on the other. So they are quite right that we need to ask both how the analysis stands up in light of new research on the Cold War and how much of the argument applies today.

⁹³ I have discussed the way in which nuclear weapons provide some continuity between the Cold War years and those that followed in "Nuclear Weapons: Before and After the Cold War," in *Before and After the Fall: World Politics and the End of the Cold War*, ed. Nuno Montiero and Fritz Bartel (New York: Cambridge University Press, forthcoming).

How *The Meaning of the Nuclear Revolution* Came About

As a preface, let me briefly note how the book came to be written, because this helps explain what it meant for this to be a book of its time and also raises some general issues. Since my college years of 1958–62, I had been interested in nuclear strategy thanks to the belief that there was a looming “missile gap” and my reading of key books by Thomas Schelling and Glenn Snyder.⁹⁴ Portions of my first two books touched on the subject,⁹⁵ and I decided take it head-on because of the confluence of the raging debate about U.S. policy in the late 1970s and my work for the CIA that exposed me to official analyses that I felt were superficial. So I wrote first an article and then a book, *The Illogic of American Nuclear Strategy*.⁹⁶ After that, invitations to elaborate on aspects of my position and the continuing debate about an appropriate American nuclear strategy led to subsequent essays. The opportunity to put them together with some new chapters, especially the argument that “MAD is a fact, not a policy,” was irresistible, even though, as Austin Long points out, the Cold War was over by the time it was done.

The book basically synthesized the work of many others, including Bernard Brodie and Schelling, to argue that once the United States and Soviet Union had established secure second-strike forces and entered a world of Mutual Assured Destruction (MAD), military victory was impossible. This constituted a revolution in the relationship between military force and political outcomes. Since war would be suicidal, both sides would avoid it. But

⁹⁴ Thomas Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960); and Glenn Snyder, *Deterrence and Defense* (Princeton, NJ: Princeton University Press, 1961).

⁹⁵ Robert Jervis, *The Logic of Images in International Relations* (Princeton, NJ: Princeton University Press, 1970; 2nd ed. New York: Columbia University Press, 1989); and Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press, 1976, 2017).

⁹⁶ Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca, NY: Cornell University Press, 1984).

this good news was tempered, if not negated, by the fact that the United States was committed to coming to the aid of its NATO allies if they were attacked by the Soviet Union (“extended deterrence” is the term of art). The perceived advantage of the Warsaw Pact in conventional forces meant that the United States would have had to be the first country to use nuclear weapons in rendering such aid. The threat to do so, however, was not very credible as long as it was thought that this would lead to all-out war. As Charles Glaser notes, this problem was understood as soon as MAD was seen to be on the horizon, and was put in theoretical terms by Snyder in his discussion of the “stability-instability paradox.”⁹⁷

The need for extended deterrence created a great tension: MAD produced stability through eliminating any incentive to strike first, a situation that theorists applauded and which American arms control policy supposedly sought to enshrine. But if nuclear weapons were to do more than deter an all-out attack on the American homeland (which, if MAD held, could never make sense), then the United States had to create the necessary weapons as well as the doctrines and contexts in which it would, in fact, strike first, or at least in which the Soviets might fear that it would. Too little stability could produce an inadvertent war; too much could undercut extended deterrence. So ironically, if the incentives to strike first were vanishingly low, the United States (and the Soviet Union) would have to behave particularly recklessly if it sought bargaining leverage, most obviously in a crisis. The possibility of inadvertent war was thus not a bug, but a necessary feature, of the program. But it is also true that the fear that war could break out

⁹⁷ Glenn Snyder, “The Balance of Power and the Balance of Terror,” in *The Balance of Power*, ed. Paul Seabury (San Francisco: Chandler Publishing, 1965), 184–201.

would be stabilizing as long as the probability of war was not too high and the incentives to strike first were slight.⁹⁸

This configuration does not guarantee extended deterrence because, in principle, the Soviet Union could have used the unacceptability of all-out war as a lever to change the situation in Europe. Compellence is harder than deterrence, however, because the defender is likely to value what is at stake more than the revisionist does; the revisionist has to take the initiative to trigger the crisis; and even limited attempts to change the status quo raise the question of where the revisionist will stop, thus increasing the incentives for the defender to resist. Resolve, and perceptions of resolve, were crucial during the Cold War, and while contests of resolve are inherently dangerous, defenders usually have the upper hand.⁹⁹

American decision-makers understood the stability-instability paradox even before it was formalized and focused on the dilemmas of extended deterrence, which they tried to solve through a number of routes. When it became clear that conventional defense was beyond reach, they sought to develop limited nuclear options that could be effective in rolling back the Warsaw Pact armies and/or showing the Soviets that if they persisted the United States would launch even more deadly strikes — but ones that would be limited enough to convince the Soviets that escalation was not inevitable and so they should not launch a full retaliatory strike. Theorists like Herman Kahn talked about squaring the circle by developing a “not incredible first-strike capability” that would deter Soviet

⁹⁸ My discussion here is indebted to Marc Trachtenberg, “Robert Jervis and the Nuclear Question,” in *Psychology, Strategy, and Conflict: Perceptions of Insecurity in International Relations*, ed. James Davis (New York: Rutledge, 2003), 101–20, and to discussions with him, Francis Gavin, and Austin Long.

⁹⁹ Thomas Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966).

adventures without accelerating the arms race and leading them to fear an unprovoked U.S. attack.¹⁰⁰

As translated into policy, the perceived requirements of extended deterrence led to demands for ever more capable American strategic forces that would make it clear to the Soviets that they could not gain the military advantage at any rung of an escalation ladder, an approach called “escalation dominance.” As the reviewers in this roundtable explain, I thought this was dangerous and unnecessary: dangerous because it could encourage arms races and an unwarranted faith that force could be readily controlled; unnecessary because what was crucial were Schelling’s “competition in risk-taking” and “threats that leave something to chance,” as any use of military force in Europe would inevitably carry with it a significant, if unpredictable, risk of events getting out of control. Even when the United States abandoned President Dwight Eisenhower’s policy of “Massive Retaliation” it could not escape from the danger of a civilization-ending war. That is what I meant by saying that “MAD is a fact, not a policy,” which Lawrence Freedman and Glaser correctly identify as the key to my arguments.

The Meaning of the Nuclear Revolution, like my earlier book, was not only a statement of international relations theory but an intervention in a raging political debate. The latter fact explains why I noted, but gave less than full attention to, problems raised by my analysis: If MAD made the world quite stable, why was the pursuit of limited options, if not military superiority, dangerous as well as wasteful? (A question raised by Secretary of Defense James Schlesinger when he defended U.S. policy.)¹⁰¹ And if it was so clear that MAD dominated,

¹⁰⁰ Herman Kahn, *On Thermonuclear War* (Princeton, NJ: Princeton University Press, 1960).

¹⁰¹ “If the nuclear balance is no longer delicate and if substantial force asymmetries are quite tolerable, then the kinds of changes I have been discussing here will neither perturb the balance nor stimulate an arms race. If, on the other hand, asymmetries do matter (despite the existence of some highly survivable forces),

why did American decision-makers seek escalation dominance and, if they did, how could my theory explain what was happening? As Nina Tannenwald asks, how could there be a nuclear revolution if those responsible for national policy acted as though there wasn't one? There was significant tension between the prescriptive and descriptive aspects of my analysis. Indeed, the former was needed only because I was deeply troubled by the direction of American policy. This conundrum was not unique to my argument. Many theories, especially realist ones, claim (usually implicitly) to be both descriptive and prescriptive and criticize decision-makers who do not conform.¹⁰² And, unlike some others who talked about the nuclear revolution, I pointed this out. I did not discuss it at great length, however, and the main reason was the political context. Although my book was primarily aimed at fellow scholars, I also wanted to make a persuasive argument against pursuing escalation dominance and believed highlighting the fact that decision-makers were rejecting the theory of the nuclear revolution would make my task more difficult.

Even putting aside the prescription/description tension, this line of argument raises two issues. First, as Tannenwald notes, my analysis is at least partly constructivist. Without going so far as to say that nuclear weapons are what states make of them, to crib Alexander Wendt's well-known claim about international anarchy,¹⁰³ if the revolution exists, it must be reflected in the way leaders act. Below I will argue that this is in fact the case, but the degree

then the critics themselves should consider seriously what response we should make to the major programs the Soviets currently have underway to exploit their advantages in numbers of missiles and payload.”

Quoted in, Lawrence Freedman and Jeffrey Michaels, *The Evolution of Nuclear Strategy*, 4th ed. (London: Palgrave Macmillan, 2019), 472.

¹⁰² For further discussion, see, Robert Jervis, “Liberalism, the Blob, and American Foreign Policy: Evidence and Methodology,” *Security Studies*, forthcoming, vol. 29, June-July 2020.

¹⁰³ Alexander Wendt, “Anarchy Is What States Make of It,” *International Organization* 42, no. 2 (Spring 1992): 391–425, <https://www.jstor.org/stable/2706858>.

of agency should not be denied. During the Cold War there were furious — and consequential — arguments about whether the Soviets believed MAD. Regardless of the validity of the claims on either side, the principle is clear: Here as elsewhere in international relations, scholars are theorizing about actors who have their own theories. Second, and related, what is needed to deter or influence an adversary is determined by that adversary's beliefs and perceptions, not those of the actor. Credibility, like reputation to which it is often linked, exists in the eye of the beholder.¹⁰⁴ What mattered was not what threats and posture the United States thought would dissuade the Soviet Union from attacking Western Europe or pursuing adventures elsewhere, but what the Soviet leaders thought. If they were impressed by U.S. limited nuclear options, then this posture had political utility even if the measures would have led to disaster had they been implemented.

Revelations of the Past 30 Years

Looking back, how do things stand? First, I should note that although issues of nuclear strategy no longer have a prime place in the American political debate, they do remain. The policies of the George W. Bush and Donald Trump administrations roughly follow the escalation dominance school in seeking to match and over-match Russia's options. Take, for example, the perceived need for low- (or at least lower-) yield nuclear weapons as a potential response to the Russian use of tactical nuclear weapons in a conflict over the Baltic republics. So, as William Faulkner said, "the past is never dead, it's not even past."

¹⁰⁴ Robert Jervis, Keren Yarhi-Milo, and Donald Casler, "Power, Interests and Past Actions: Redefining the Debate Over Credibility and Reputation," *World Politics*, forthcoming [this is yet to be confirmed, which I hope will happen in early April].

We do have a past, however, and thanks to the declassification of documents and the careful work of scholars, we now know more about the plans, policies, and thinking of Cold War decision-makers. This work makes clear that American leaders — civilian as well as military — never were comfortable with MAD.¹⁰⁵ The very fact that I was arguing against current doctrine meant that I realized that U.S. leaders were rejecting the position for which I was advocating. But I failed to fully appreciate two factors that the recent research has revealed. First, the hope to escape MAD was stronger than I had realized. American leaders sought capabilities that would allow for a form of military victory through the ability to limit damage to the United States, if not to obtain full first-strike capability. The motives were to gain peacetime bargaining advantage (or at least deny it to the Soviets) and to seek the least horrible outcome if nuclear war should break out. The latter objective loomed larger for the military. This is not surprising: Brodie’s famous claim at the start of the Cold War that the purpose of the military now had to be to deter rather than to fight a war never could be fully accepted by an organization whose *raison d’être* was to fight, or at least be prepared to fight. Civilian leaders were more impressed by the bargaining edge they believed would accrue to some sort of military advantage. As Henry Kissinger told his colleagues in 1969 when evaluating alternative arms control agreements, “I question whether the strength of an

¹⁰⁵ Brendan R. Green and Austin Long, “The MAD Who Wasn’t There: Soviet Reactions to the Late Cold War Nuclear Balance,” *Security Studies* 26, no. 4 (July 2017) 606–41, <https://doi.org/10.1080/09636412.2017.1331639>; Austin Long and Brendan Rittenhouse Green, “Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy,” *Journal of Strategic Studies* 38, no. 1–2 (February 2015): 38–73, <https://doi.org/10.1080/01402390.2014.958150>; Brendan Rittenhouse Green, *The Revolution that Failed: Nuclear Competition, Arms Control, and the Cold War* (New York: Cambridge University Press, forthcoming); Keir A. Lieber and Daryl G. Press, *The Myth of the Nuclear Revolution: Power Politics in the Atomic Age* (Ithaca, NY: Cornell University Press, forthcoming 2020). For a discussion of the attempts by political leaders to develop tactics and technologies that defeat the dominance of defense in earlier eras, see, Keir Lieber, *War and the Engineers: The Primacy of Politics over Technology* (Ithaca, NY: Cornell University Press, 2005).

American president's resolve in a crisis will be unaffected by the magnitude of Soviet retaliatory capability."¹⁰⁶

Although American presidents (and apparently Soviet leaders as well) spent as little time as possible thinking about having to fight a nuclear war, the chance that they would have to, however slight, weighed on them. It was easy for theorists like me to say that nuclear superiority didn't matter and that the only function of limited nuclear options was to generate risk. But for those in charge this stance seemed irresponsible. They felt — they had to feel — that they were doing everything in their power not only to avoid a war, but to enable their country to come through one as well as possible. Striving for escalation dominance seemed not only common sense, but what their duty required.¹⁰⁷

The second and related revelation is that technological improvements held out the prospects for significant damage limitation if not of full first-strike capability. As Austin Long points out, I paid little attention to technology and ignored Soviet weaknesses in the supporting systems that were necessary to enable weapons to do their jobs. Given the normal propensity for conservative planning, Soviet leaders were not paranoid to be worried about a disarming strike.¹⁰⁸ The American fears that the Soviets were gaining usable nuclear superiority were unwarranted; the Soviets had more reason to worry about usable American superiority — and this was a goal of U.S. policy. (But if the Soviets had to calculate conservatively, so did the Americans, who could not safely assume that their sensors and

¹⁰⁶ "Analysis of Strategic Arms Limitation Proposals," Memorandum from Henry Kissinger to President Nixon, May 23, 1969, National Archives, Nixon Presidential Materials, National Security Council Files, box 873, SALT Jan-May Vol. I, pp. 2-3, <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB60>.

¹⁰⁷ For a related argument, see David Alan Rosenberg, "Reality and Responsibility: Power and Process in the Making of United States Nuclear Strategy, 1945-68," *Journal of Strategy Studies* 9 (March 1986): 35-52.

¹⁰⁸ Green and Long, "The MAD Who Wasn't There."

weapons would work as well as planned and that the Soviets' would work as badly as the United States hoped.) Not only did America successfully seek to increase missile accuracy, but top-secret advances in anti-submarine warfare combined with the fact that Soviet submarines had to pass choke points to get to the open ocean means that what I had thought was a clearly invulnerable retaliatory force was, in fact, not so. Furthermore, the Soviet warning system was even less robust than I had realized. Long and Glaser are quite right that I and others, like Kenneth Waltz,¹⁰⁹ simply assumed that with missiles, bombers, and submarines both sides had secure second-strike forces and could retain them with ease. We now know that this was not true, at least not for the Soviet Union.

The Legacy of the Nuclear Revolution

So does this mean the nuclear revolution was a myth, or at least was greatly overstated? In political terms, I do not think so. When it came to their international behavior, both Soviet and American leaders acted on the premise that all-out war would be an unimaginable disaster. As far as the conduct of international politics is concerned, this was crucial. As President Ronald Reagan and First Secretary Mikhail Gorbachev said at their initial meeting at Geneva in 1985, “a nuclear war cannot be won and must never be fought.”¹¹⁰ No leaders could have said this in the pre-nuclear era. So while American leaders may have developed technologies and weapons that held out some prospect for gaining a relative advantage were war to occur (and Soviet leaders would have done the same had they had the ability to do so), when it came to staking out positions in the world, bargaining, behavior in a crisis, and,

¹⁰⁹ Kenneth N. Waltz, “Nuclear Myths and Political Realities,” *American Political Science Review* 84, no. 3 (September 1990): 730-45, <https://doi.org/10.2307/1962764>.

¹¹⁰ “Joint Soviet-United States Statement on Summit Meeting in Geneva,” Nov. 21, 1985, Ronald Reagan Presidential Library and Museum, <https://www.reaganlibrary.gov/research/speeches/112185a>.

perhaps most of all, the impulse to avoid a crisis, they thought in terms of the danger of absolute losses. Neither the commentators nor the research cited in endnote 13 dispute this.

This is not to say that my claims are beyond debate. Glaser and Tannenwald quote the main ones: If I am right, “then there will be peace between the superpowers, crises will be rare, neither side will be eager to press bargaining advantages to the limit, the status quo will be relatively easy to maintain, and political outcomes will not be closely related to either the nuclear or the conventional balance.”¹¹¹ Matthew Kroenig reads the record differently, but his measures of the nuclear balance are too crude to be useful and some of the confrontations he examines were so far below the nuclear threshold that I do not think they are relevant.¹¹² More intriguingly, it is possible that the Reagan administration’s willingness to engage in military provocations toward the Soviet Union were at least partially caused by the belief that American nuclear superiority would inhibit the Soviets from making a dangerous response (although Reagan and his colleagues professed to believe that the United States lagged behind, at least until the programs they authorized made themselves felt).¹¹³ A fuller discussion of this important topic will have to await the declassification of relevant documents. Unfortunately, it may be a long wait. Here, as elsewhere, theories needed to be tested against evidence, and a more complete record often leads to a more complicated picture. But for now, I think the evidence supports the main line of argument

¹¹¹ *Meaning of the Nuclear Revolution*, 45.

¹¹² Matthew Kroenig, *The Logic of American Nuclear Strategy: Why Strategic Superiority Matters* (New York: Oxford University Press, 2018). Also see the Roundtable on this book in the International Security Studies Forum: Charles Glaser, T. Negeen Pegahi, Rachael Elizabeth Whitlark, Matthew Kroenig, and James Goldgier, “Roundtable 10-25 on *The Logic of American Nuclear Strategy: Why Strategic Superiority Matters*,” *H-Diplo/ISSF*, March 29, 2019, <https://issforum.org/roundtables/10-25-nuclear>.

¹¹³ Thomas Reed, *At the Abyss: An Insider’s History of the Cold War* (New York: Presidio Press, 2004).

started by Brodie: By radically increasing the cost of war to even a state with significant relative advantages, the advent of nuclear weapons drastically changed world politics.¹¹⁴

Robert Jervis is the Adlai E. Stevenson Professor of International Affairs at Columbia University.

Specializing in international politics in general and security policy, decision-making, and theories of conflict and cooperation in particular, his Why Intelligence Fails: Lessons from the Iranian Revolution and the Iraq War was published by Cornell University Press in April 2010. Among his earlier books are American Foreign Policy in a New Era (Routledge, 2005), System Effects: Complexity in Political and Social Life (Princeton, 1997); The Meaning of the Nuclear Revolution (Cornell, 1989); Perception and Misperception in International Politics (Princeton, 1976); and The Logic of Images in International Relations (Columbia, 1989). Jervis also is a coeditor of the Security Studies Series published by Cornell University Press. He serves on the board of nine scholarly journals, and has authored over 100 publications.

Dr. Jervis is a fellow of the American Association for the Advancement of Science and the American Academy of Arts and Sciences. He has also served as the president of the American Political Science Association. In 1990 he received the Grawemeyer Award for his book The Meaning of the Nuclear Revolution.



¹¹⁴ Bernard Brodie et al., *The Absolute Weapon* (New York: Harcourt, Brace, 1946).