What We Think

For the last half century, the task of limiting nuclear arsenals has been viewed as being related to but different from preventing proliferation. Nuclear arms restraints are "fostered" through nuclear weapons negotiations, agreements, and norms as well as by states deploying "stable" strategic weapons forces—i.e., ones that can readily survive even if they are struck first and that are themselves incapable of totally destroying a key opponent's nuclear forces in a first strike. In contrast, one "fights" or "combats" the further spread of nuclear weapons by imposing export controls, economic sanctions, international inspections, or conducting preventative and preemptive military strikes and covert intelligence and military operations.[9] The most significant nuclear arms control efforts historically have been undertaken by the most heavily nuclear-armed states—principally the United States and Russia. Preventing nuclear proliferation, in contrast, is generally a global undertaking.

The Obama administration is noteworthy among recent presidencies for consciously trying to integrate U.S. nuclear arms control efforts with nonproliferation. Following President Barack Obama's 2009

9. Sometime, roughly in the early 1990s, it became fashionable to talk about "combating" proliferation. A Google search of "combating proliferation" as of June 7, 2016, yielded 475,000 results.

appeal to eliminate nuclear weapons presented in Prague,[10] the U.S. government made reducing nuclear arms a prerequisite for preventing their further spread. If we expect other nations to repress their own nuclear weapons aspirations, administration officials argued, the nuclear superpowers had to demonstrate a greater willingness to disarm themselves. Such disarmament was feasible, they insisted, because nuclear weapons were, in their view, only useful to deter other hostile nuclear weapons states. This basic mission, they argued, could be accomplished with a relatively small stockpile of nuclear weapons. On the other hand, maintaining large stockpiles of nuclear weapons and nuclear weapons-usable fuels, they argued, only increased the prospects for instability, nuclear terrorism, and accidental or illicit use.

Hawkish supporters of nuclear weapons have a different view.[11] They argue that reducing American and Russian nuclear arms has little or no impact on reducing others' nuclear weapons activities or holdings (e.g., North Korea and Iran). Instead, reducing America's nuclear arsenal might only entice China to build up to America's current nuclear numbers and encourage America's key nonnuclear allies and friends—e.g., South Korea, Japan, Saudi Arabia, and Turkey—to hedge their bets against decreasingly credible U.S. nuclear security guarantees by developing nuclear weapons options

10. See "Remarks by President Barack Obama," Hradcany Square, Prague, Czech Republic, April 5, 2009, available from iipdigital.usembassy.gov/st/english/texttrans/2009/04/20090406115740eaifas0.9701763.html#axzz4XetYocFS.

11. The term "hawk" and "hawkish" in this book is used as shorthand for hawkish supporters of nuclear weapons. This is a concession to popular usage. It is hardly concise. The first use of the term "hawk" was made during the War of 1812. It referred to those who saw war as being the solution to America's troubles with the United Kingdom. Today, however, there are many that support America's maintenance of its nuclear arsenal who are anything but eager to go to war. There also are many security advocates and experts that may be willing to go to war in many cases but who hardly favor relying heavily on nuclear weapons for U.S. security.

of their own. Finally, they argue, nuclear weapons, especially in U.S. and allied hands, have helped keep the peace, whereas letting U.S. and allied nuclear arsenals decline quantitatively or qualitatively only increases the prospects for war.[12]

A group of academic skeptics, who identify themselves as neorealists, also question if eliminating nuclear weapons is critical to assure peace. Further nuclear weapons proliferation may be inevitable they argue, but it's unlikely to be destabilizing. A credible nuclear deterrent force that holds several major cities at risk, they insist, can keep the peace and need only be a relatively small, "finite" force. The earliest proponents of such "finite deterrence"—Pierre Gallois, his French colleagues,[13] Admiral Arleigh A. Burke, and other original supporters of the U.S. Polaris nuclear missile submarine fleet[14] and, much later, Kenneth Waltz and his academic asso-

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12. See, e.g., Loren Thompson, "Nuclear Weapons: How Few Is Too Few," *Forbes,* May 28, 2013, available from http://www.forbes.com/sites/lorenthompson/2013/05/28/nuclear-weapons-cuts-how-few-is-too-few/; Congressman Doug Lamborn, "Six Reasons Obama's Plan to Give Up Our Nukes Is a Really Bad Idea," *The Heritage Foundry* (blog), June 20, 2013, available from http://dailysignal.com/2013/06/20/guest-post-6-reasons-obamas-plan-to-give-up-our-nukes-is-a-really-bad-idea//; and Robert Zarate, "Is Obama Pushing Unilateral Nuclear Cuts," *Time*, February 12, 2013, available from http://nation.time.com/2013/02/12/is-obama-pushing-unilateral-nuclear-cuts/.

13. See Pierre-Marie Gallois, *Stratégie de l'âge nucléaire,* Paris: Francois-Xavier de Guibert, 1960; Bruno Tertrais, "'Destruction Assurée': The Origins and Development of French Nuclear Strategy," in *Getting MAD: Nuclear Mutual Assured Destruction, Its Origins and Practice*, ed. Henry Sokolski, Carlisle, PA: Strategic Studies Institute, 2004, pp. 51-122, available from npolicy.org/books/Getting_MAD/Ch2_Tertrais.pdf; and David S. Yost, "France's Nuclear Deterrence Strategy: Concepts and Operations Implementation," in *Getting MAD*, pp. 197-237, available from npolicy.org/books/Getting_MAD/Ch7_Yost.pdf.

14. See Commander P. H. Backus, "Finite Deterrence, Controlled Retaliation," *U.S. Naval Institute Proceedings* 85, No. 3, March 1959, pp. 23-29; David Alan Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy 1945-1960," *International Security* 7, no. 4, Spring 1983, pp. 3-71; William Burr, "'How Much is Enough?': The U.S. Navy and 'Finite Deterrence,'" *National*

ciates[15]—all emphasized what they saw as the virtual automaticity of nuclear deterrence between any two rival nuclear-armed states. With this, French proponents of finite deterrence argued that the further proliferation of nuclear weapons to smaller states was more likely to prevent military aggression than to prompt it. Central to their thinking was the disturbing notion that credibly threatening to destroy an adversary's major cities (what Charles de Gaulle referred to as "tearing off an arm"[16]) would deter hostile actions by other states both large and small.

A more recent version of such thinking has been made popular by scholars such as John Mueller. Mueller takes a different tack but reaches similar conclusions. He argues that nuclear weapons actually do a poor job of deterring small or major wars.[17] Citing the popular scholarship of Ward Wilson,[18] supporters of this view

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Security Archive, Electronic Briefing Book, no. 275, May 1, 2009, available from http://www.gwu.edu/~nsarchiv/nukevault/ebb275/index.htm; and Oskar Morgenstern, "The Oceanic System: The Invulnerable Force," in *The Question of National Defense,* New York: Random House, 1959.

15. See Kenneth N. Waltz, "Nuclear Myths and Political Realities," *American Political Science Review* 84, no. 3, September 1990, pp. 731-745; John J. Mearsheimer, "The Case for a Ukrainian Nuclear Deterrent," *Foreign Affairs* 72, no. 3, Summer 1993, pp. 50-80, available from http://mearsheimer.uchicago.edu/pdfs/A0020.pdf; Andrew Mack, "North Korea and the Bomb," *Foreign Policy* 83, Summer 1991, pp. 87-104; Michael D. Intriligator and Dagobert L. Brito, "Nuclear Proliferation and the Probability of Nuclear War," *Public Choice* 37, no. 2, 1981, pp. 247-259; and Bruce Bueno de Mesquita and William H. Riker, "An Assessment of the Merits of Selective Nuclear Proliferation," *Journal of Conflict Resolution* 26, no. 2, 1982, pp. 283-306.

16. See Pierre-Marie Gallois, "La dissuasion du faible au fort," in *L'aventure de la bombe: de Gaulle et la dissuasion nucléaire (1958-1969),* Paris: Plon, 1985, p. 170.

17. See Mueller, *Atomic Obsession*.

18. See Ward Wilson, "The Winning Weapon? Rethinking Nuclear Weapons in Light of Hiroshima," *International Security* 31, no. 4, Spring 2007, pp. 162-

contend that nuclear weapons were unnecessary to secure Japan's surrender in 1945[19] or to deter World War III since North Atlantic Treaty Organization (NATO) and Warsaw Pact nations were haunted by fears of suffering a yet deadlier conventionally-armed version of World War II (WWII).[20] Also, smaller wars—e.g., the Israeli War of '73 and the Korean and Vietnam wars—Mueller notes, clearly were not deterred by anyone's nuclear weapons. Nor were the terrorist attacks of 9/11 in 2001 or the terrorist attacks on Mumbai in 2008. The implication is that nuclear weapons are so ineffective at deterring aggression and their use is so unlikely that their further spread is not all that consequential.[21]

179, available from http://belfercenter.ksg.harvard.edu/files/is3104_pp162-179_wilson.pdf; "The Myth of Nuclear Deterrence," *Nonproliferation Review* 15, no. 3, November 2008, pp. 421-439, available from http://cns.miis.edu/npr/pdfs/153_wilson.pdf; and "The Bomb that Didn't Beat Japan…Stalin Did," *Foreign Policy*, May 30, 2013, available from http://www.foreignpolicy.com/articles/2013/05/29/the_bomb_didnt_beat_japan_nuclear_world_war_ii.

19. Such revisionist views about the nuclear bombing of Japan, which now find favor with liberal opponents of nuclear weapons, are oddly adaptations of arguments made from 1945 through the 1960s by some of the most hawkish and conservative of Americans. See Barton J. Bernstein, "American Conservatives Are the Forgotten Critics of the Atomic Bombings of Japan," *San Jose Mercury News,* August 2, 2014, available from http://www.mercurynews.com/opinion/ci_26253535/barton-j-bernstein-american-conservatives-are-forgotten-critics.

20. See John Mueller, "The Essential Irrelevance of Nuclear Weapons: Stability in the Postwar World," in *The Cold War and After: Prospects for Peace,* Cambridge, MA: MIT Press, 1997, pp. 45–69*,* available from politicalscience.osu.edu/faculty/jmueller/ISESSIRR.PDF and *Atomic Obsession*, pp. 29-48.

21. There, are, of course, more moderate views among those that might be pushed into this camp. This includes several prominent academics, such as Stephen M. Walt and Robert Jervis, who have challenged the assumed high value of nuclear weapons in deterring attacks but do not believe their value is necessarily zero and, therefore, are not entirely comfortable with their further proliferation. See e.g., Stephen M. Walt, "Rethinking the 'Nuclear Revolution'" *NPR*, July 6, 2014, available from http://www.publicbroadcasting.net/kbia/.artsmain/article/1/1338/1684234/Columns/Foreign.Policy.Rethinking.The.'Nuclear.Revolution and Robert Jervis, "Why Nuclear Superiority Doesn't Matter"

Each of these schools—arms control, hawkish, and academic—also differ on the impact and desirability of sharing dual-use nuclear technology for civilian applications. Arms control proponents insist that nuclear supplier states have an NPT obligation to transfer as much "peaceful" nuclear technology to nonweapons states as possible so long as it is for a declared civilian project that is internationally inspected. Failure to do so "without discrimination," in their eyes, risks unraveling the NPT.[22]

Most hawks, on the other hand, object to civilian nuclear cooperation with hostile states (e.g., Iran and North Korea) but otherwise support the global expansion of civilian nuclear power. They certainly are willing to share such technology with close friends even if such transfers might enhance existing or potential weapons options (e.g., India, South Korea, or Japan). As for the neorealists, some have faulted nuclear nonproliferation policies for unnecessarily inhibiting nuclear power's beneficial development domestically and overseas, but most have no set view.[23] Several have argued that letting nuclear weapons spread to selected countries or sharing "nuclear capabilities" with them might bolster U.S. security.[24]

Political Science Quarterly 94, no. 4, Winter 1979-80, pp. 617-633.

22. See note 5.

23. See e.g., Mueller, *Atomic Obsession*, pp. 138-141 and Steve Kidd, "Nuclear Proliferation Risk – Is It Vastly Overrated?" *Nuclear Engineering International*, July, 23 2010, available from http://www.neimagazine.com/opinion/opinionnuclear-proliferation-risk-is-it-vastly-overrated/.

24. See, e.g., Charles Kauthammer, "North Korea: Cold War Relic, Present Day Threat," *National Review Online*, January 5, 2017, available from http://www.nationalreview.com/article/443592/north-korea-nuclear-program-threat-china-united-states; Doug Bandow, "Letting South Korea Develop Nukes," *The Korea Times*, March 9, 2016, available from http://www.koreatimes.co.kr/www/news/opinon/2016/03/197_199975.html; Christine Leah, "Yes, Australia Still Needs Nukes: An Argument in Favor of Aussie Atom Bombs," *War is Boring*, January 2, 2016, available from https://warisboring.com/yes-australia-still-needs-nukes-29f06bb7bbe#.10ue0wo84; Harvey M. Sapolsky and Christine M. Leah, "Let

For arms control advocates, then, the superpowers must reduce their arsenals ("vertically") to encourage nonweapons states not to proliferate ("horizontally"). Failure at this risks instability or, worse, nuclear use. Hawkish critics, meanwhile, believe that reducing U.S. nuclear weapons capabilities is more likely to risk nuclear proliferation and war than otherwise would be the case if one augmented U.S. and allied strategic weapons capabilities or, at least, kept them from declining. Finally, academic skeptics deny that vertical reductions and horizontal nonproliferation are all that closely linked and suggest that more nuclear weapons in more hands may actually reduce the prospects for war or, at the very least, that nucle-

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Asia Go Nuclear," *The National Interest,* April 14, 2014, available from http://nationalinterest.org/feature/let-asia-go-nuclear-10259; Elbridge Colby, "Choose Geopolitics over Nonproliferation," *The National Interest,* February 28, 2014, available from http://nationalinterest.org/commentary/choose-geopolitics-over-nonproliferation-9969; Mark Helprin, "Why Israel Needs the Bomb," *Wall Street Journal*, October 18, 2010, available from http://online.wsj.com/articles/SB10001424052748703673604575555002060636244; John Mearsheimer, "Taiwan's Dire Straits," *The National Interest* no. 130, March/April 2014, pp. 29-39, available from http://mearsheimer.uchicago.edu/pdfs/Taiwan's%20Dire%20Straits.pdf; "The Case for a Ukrainian Nuclear Deterrent;" Rebecca Hersman, Clark A. Murdock, and Shanelle Van, *The Evolving U.S. Nuclear Narrative*, Washington DC: Center for Strategic and International Studies, November 1, 2016, available from https://www.csis.org/analysis/evolving-us-nuclear-narrative-0; and Clark Murdock and Thomas Karako, *Thinking about the Unthinkable in a Highly Proliferated World*, Washington DC: Center for Strategic and International Studies, July 2016, available from https://www.csis.org/analysis/thinking-about-unthinkable-highly-proliferated-world. It should be noted that these academic views have been reflected in the musings of both President Donald Trump during his 2016 campaign and British Foreign Minister Boris Johnson. See, "Transcript: Donald Trump Expounds on His Foreign Policy Views," *The New York Times*, March 26, 2016, available from http://www.nytimes.com/2016/03/27/us/politics/donald-trump-transcript.html and Boris Johnson, "Give Iran the bomb: it might make the regime more pliable," *The Telegraph*, October 12, 2006, available from http://www.telegraph.co.uk/comment/personal-view/3633097/Give-Iran-the-bomb-it-might-make-the-regime-more-pliable.html.

ar weapons and their proliferation are not all that significant (see Figure 1 on page 14 and 15).

Figure 1.
Nuclear Proliferation: What We Think

View	Selected Representatives	Favor Relying on Nuclear Weapons for Security
Arms Control Perspective	Most Western governments International forums (e.g., IAEA, NPT Review Conference)	No
Hawkish Supporters of Nuclear Weapons	Nuclear weapons enthusiasts Reagan-era Hawks (e.g., Donald Rumsfeld, Dick Cheney)	Yes
Academic Skeptics/ Finite Deterrence Enthusiasts	French Proponents of Force de Frappe & early backers of U.S. SLBM force (e.g., Pierre Gallois, Arleigh Burke) Neorealists (e.g., Ken Waltz)	Yes
Academic Skeptics/ Finite Deterrence Critics	Post-neorealists (e.g., John Mueller)	No

Believe Nuclear Weapons Deter	Willing to Go to Zero	Support Sharing Civil Nuclear Energy	Support Sharing Nuclear Weapons-related Technology
Yes	Yes	Yes	No
Yes	No	Yes (for friends) No (for enemies)	Yes (to some friends) No (for enemies)
Yes	No	Unclear	Yes
No	Yes	Yes	No

Reservations

These three views on how nuclear weapons reductions and non-proliferation relate are clear, plausible, and popular. They dominate the current debate over nuclear weapons policies. There is only one problem: In practice, none of them make nearly as much sense as their supporters think.

One can see this most readily by examining how each school addresses the simplest and most popular of policy questions: Should one be for or against nuclear weapons? Add to this question (for the purposes of this inquiry) the matter of nuclear weapons proliferation, and the query admits to two simple answers—yes (in support of nuclear weapons and additional proliferation) or no against both.

Let's take the against-side first. Those opposed to nuclear weapons and their further proliferation—i.e., those who want to move toward zero nuclear weapons as soon as possible—go to great lengths to explain why a world without nuclear weapons is preferable to our current world. They emphasize Ronald Reagan's observation that a nuclear war can never be won and so should never be fought. They also detail how a world with zero nuclear weapons might work, and how one might prevent a relapse into a nuclear-armed world once nuclear weapons have been eliminated.[25]

Unfortunately, these same analysts are less articulate on how one might persuade existing nuclear weapons states to give up their weapons or how exactly one would get to zero.

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25. See, e.g., George Perkovich and James M. Acton, *Abolishing Nuclear Weapons*, Adelphi Paper 396, London: International Institute for Strategic Studies, 2008; George P. Schultz, William J. Perry, Henry Kissinger, and Sam Nunn. "A World Free of Nuclear Weapons," *Wall Street Journal*, January 4, 2007, available from http://online.wsj.com/article/SB116787515251566636.html; and George P. Schultz, William J. Perry, Henry Kissinger, and Sam Nunn, "Toward a Nuclear-Free World," *Wall Street Journal*, January 15, 2008, available from http://online.wsj.com/article/SB120036422673589947.html.

So far, the United States and Russia have reduced their nuclear holdings from over 70,000 deployed nuclear weapons[26] to several thousand on each side.[27] This begs the question, though: How easy would it be to reduce further to a few hundred warheads if other states (e.g., China, Israel, France, the United Kingdom (UK), North Korea, Pakistan, or India) acquired or deployed as many or more? Would this not encourage increased military competitions, nuclear arms racing, miscalculation, and unnecessary, and potentially disastrous wars?

Securing clear answers to such questions, of course, is difficult. Nonetheless, analysts backing zero nuclear weapons offer a general picture of how things might work. According to their narrative, the more the U.S. government increases its support for nuclear weapons reductions and reduces its own arsenals with Russia, the more likely other nuclear-armed states (e.g., China, India, and Pakistan) would be to fall in line. To help promote this more restrained nuclear future, the United States and Russia, it is argued, should also abandon plans to deploy or defend their nuclear strategic forces in any effort to achieve military advantage over one another or other nations. Rather than aim their nuclear weapons against countless military targets, the superpowers should adopt finite nuclear deterrence strategies that would hold each other's population and industrial centers at risk. Defending these cities and military assets should also be eschewed in order to assure mutual vulnerability.

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26. See Natural Resources Defense Council, "Table of Global Nuclear Weapons Stockpiles, 1945-2002," available from http://www.nrdc.org/nuclear/nudb/datab19.asp, last updated November 25, 2002 and Robert S. Norris and Hans M. Kristensen, "Global Nuclear Weapons Inventories, 1945-2013," *Bulletin of the Atomic Scientists* 69, no. 5, September/October 2013, pp. 75-81, available from http://bos.sagepub.com/content/69/5/75.full.

27. See U.S. Department of State, "New START Treaty Aggregate Numbers of Strategic Offensive Arms," Fact Sheet, April 1, 2016, available from https://web.archive.org/web/20170108180000/https://www.state.gov/t/avc/rls/2016/255377.htm.

This would reduce the need for ever larger, more accurate, quick-alert nuclear arsenals and make deep cuts in existing nuclear stockpiles more feasible. With increased nuclear restraint by the major nuclear states, states lacking nuclear weapons would become more willing to eschew nuclear weapons and support nuclear nonproliferation.[28]

This is the upbeat narrative. The downbeat narrative has us clinging to our bombs. The more we maintain our nuclear stockpiles, we are warned, the more it will undermine our claims that we want to rely less on nuclear arms to assure our security. This, in turn, risks encouraging other states to acquire nuclear weapons (i.e., promoting more North Koreas, Irans, and Pakistans), which will only strain existing security relations and tempt America's friends and allies (e.g., South Korea, Japan, Saudi Arabia, Turkey, etc.) to acquire nuclear weapons options of their own.

Those backing nuclear reductions also offer historical analysis to challenge the presumed security utility of nuclear weapons. Nuclear arms, they note, have failed to deter important conventional wars (e.g., the Korean or Vietnam wars or the Egyptian strike against

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28. See e.g., Gareth Evans and Yoriko Kawaguchi, *Eliminating Nuclear Threats: A Practical Agenda for Global Policymakers,* Canberra: International Commission on Nuclear Non-proliferation and Disarmament, 2009, available from http://icnnd.org/Reference/reports/ent/downloads.html; Bruce Blair, et al., "Smaller and Safer," *Foreign Affairs* 89, no. 5, September-October 2010, available from http://www.foreignaffairs.com/articles/66540/bruce-blair-victor-esin-matthew-mckinzie-valery-yarynich-and-pav/smaller-and-safer; Gen. (Ret.) James Cartwright, et. al., *Global Zero U.S. Nuclear Policy Commission Report: Modernizing U.S. Nuclear Strategy, Force Structure and Posture,* Global Zero, May 2012, available from http://www.globalzero.org/files/gz_us_nuclear_policy_commission_report.pdf; and Deep Cuts Commission, *Preparing for Deep Cuts: Options for Enhancing Euro-Atlantic and International Security*, First Report of the Deep Cuts Commission, Hamburg: Institute for Peace Research and Security Policy at the University of Hamburg, April 2014, available from http://www.cissm.umd.edu/publications/preparing-deep-cuts-options-enhancing-euro-atlantic-and-international-security-0.

Israel in '73) or terrorist attacks (e.g., 9/11 and the Pakistani-backed terrorist strikes against targets in India and Afghanistan).

Attempts to acquire nuclear weapons, as well as mere possession, also have prompted military strikes (e.g., Iran, Israel, and the United States against Iraq's nuclear reactor at Osirak in 1980, 1981, 1991, and 2002; Iraq against Iran's reactor at Bushehr in repeated attacks from 1984-1988; Iraq's failed Scud missile strike against Israel's reactor at Dimona in 1991; and Israel's strike against Syria's reactor in 2007). In addition, attacks were seriously considered against new nuclear states (e.g., the United States against the Soviet Union in 1949 and the Soviet Union against China in 1969).[29] Bottom line: The possession and spread of nuclear weapons generally undermines security. What, then, are nuclear weapons good for? Only the peculiar task of deterring other states from using their nuclear weapons.

This last reflection, of course, is intended to further demonstrate how little value nuclear weapons add and why their early elimination is desired. This conclusion, though, is triple-edged. Certainly, if nuclear weapons truly are not all that militarily valuable, what is the urgency to eliminate them? Some states held on to their horse cavalries after the First World War and their battleships long after the Second World War, but that hardly encouraged their rivals to acquire them, and by mid-century these military instruments hardly posed a strategic threat to anyone.

On the other hand, if nuclear weapons can effectively deter other nuclear-armed states, wouldn't that make their acquisition by non-

29. See Matthew Fuhrmann, "Preventive War and the Spread of Nuclear Programs," in *Moving Beyond Pretense: Nuclear Power and Nonproliferation*, ed. Henry Sokolski, Carlisle, PA: Strategic Studies Institute, 2014, pp. 91-115, available from http://www.npolicy.org/books/Moving_Beyond_Pretense/Ch4_Fuhrmann.pdf.

weapons states all but irresistible? The refrain of many security analysts after the first Gulf War against Iraq was that the United States would never have tried to remove Saddam Hussein if he actually had the bomb. In what way were they wrong?

Finally, is it reasonable to think that no one will ever use their nuclear weapons first? Don't states that believe in nuclear deterrence presume that if they lacked a survivable nuclear deterrent, their nuclear adversaries might strike their or their allies' vulnerable forces in an attempt to gain some clear advantage? If so, wouldn't they constantly (and naturally) be worried that their or their allies' nuclear retaliatory capabilities might be knocked out or be seriously degraded in a first strike by their opponents? Wouldn't failing to attend to these matters and merely making bluffs to retaliate against a few targets of dubious military value (e.g., large population centers versus strategic weapons bases) risk making a hash of the whole notion of deterrence?[30]

If you allowed, as one should, that the answers to these questions are, at least, unclear, you would expect lengthy, heated debate about what the answers might be. What's telling, however, is how little debate there is. Instead, if these issues are raised at all, the subject of conversation invariably is shifted to a much less contentious set of concerns: The horrors of nuclear theft, nuclear accidents, unauthorized use, sabotage, and terrorism. Focusing on these issues quickly brings one to the desired conclusion (again) that the immediate reduction of nuclear weapons would immediately make for a much safer world.[31] In the interim, we need to do all we can to increase

30. On these points see Michael Quinlin, "Easements and Escape Routes," *Thinking About Nuclear Weapons,* Oxford: Oxford University Press, 2009, pp. 99-111.

31. See, e.g., James E. Doyle, "Why Eliminate Nuclear Weapons?" *Survival* 55, no. 1, February-March 2013, pp. 7-34, available from http://www.iiss.org/en/publications/survival/sections/2013-94b0/survival--global-politics-and-strategy-

security over existing nuclear weapons assets and reduce the readiness and numbers of deployed nuclear forces to head off these possible threats.

Most of these nuclear security concerns are necessarily speculative. Neither accidental nor unauthorized nuclear use has yet occurred. Yet, there *is* plenty of near history (close calls of Russian, South African, French, Chinese, and American nuclear launches, tests, and thefts, Broken Arrow incidents, provocative nuclear tests, "lost" warheads, and nuclear weapons-usable materials gone unaccounted for).[32] As for preventing acts of nuclear terrorism, though, such efforts are entirely anticipatory: Specific, validated intelligence regarding acts of nuclear terrorism has, so far, gone wanting.[33]

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february-march-2013-3db7/55-1-02-doyle-a88b. Mr. Doyle challenges the security utility of nuclear deterrence and argues that accidental use, nuclear terrorism, and the probability of deterrence failure--recommend the elimination of nuclear weapons.

32. See Henry D. Sokolski and Bruno Tertrais, eds., *Nuclear Weapons Security Crises: What Does History Teach?* Carlisle, PA: Strategic Studies Institute, 2013; Ed Pilkington, "US nearly detonated atomic bomb over North Carolina – secret document," *Guardian* (Manchester), September 20, 2013, available from http://www.theguardian.com/world/2013/sep/20/usaf-atomic-bomb-north-carolina-1961; Michael Winter, "Report: Nuke that fell on N.C. in 1961 almost exploded," *USA Today*, September 20, 2013, available from http://www.usatoday.com/story/news/nation/2013/09/20/north-carolina-atomic-bomb/2845381/; "Lost nuclear weapons are an unreported problem," *NJ Today.net*, February 24, 2016, available from http://njtoday.net/2016/02/24/lost-nuclear-weapons-are-an-unreported-problem/; and Peter Burt, *Playing With Fire: Nuclear Weapons Incidents and Accidents in the United Kingdom*, Reading, UK: Nuclear Information Service, February 2017, available from http://nuclearinfo.org/article/nis-reports/playing-fire-nuclear-weapons-incidents-and-accidents-united-kingdom. For much more comprehensive analyses see Eric Schlosser, *Command and Control: Nuclear Weapons, the Damascus Accident and the Illusion of Safety,* New York: Penguin Press, 2013 and Scott D. Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons,* Princeton, NJ: Princeton University Press, 1993.

33. At least this was so up through 2010 when The Commission on the Prevention

Despite this (or, perhaps, because of it), addressing these threats has become a public policy cause célèbre. Today, nuclear terrorism is viewed by both Republican and Democratic officials as the "most immediate and extreme" threat facing America and the world.[34] Bil-

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of WMD Proliferation and Terrorism, which I served on as a member, concluded its work. The commission originally set out to demonstrate that nuclear terrorism was the most pressing threat to the U.S. After seeking and failing to find any validated, specific intelligence on any known nuclear terrorist threats, however, the commission shifted its focus to bioterrorism, which included the celebrated anthrax letter attacks of September 18, 2001. As for the possible hand off of nuclear arms to terrorists, even those most eager to focus U.S. efforts against nuclear terrorism downplay this threat. See, e.g., Travis Sharp and Erica Poff, "Understanding and Preventing Nuclear Terrorism," *The Center for Arms Control and Non-proliferation*, December 3, 2008, available from research.policyarchive.org/11818.pdf and Keir A. Lieber and Daryl Press, "Why States Won't Give Nuclear Weapons to Terrorists," *International Security* 38, no. 1, Summer 2013, pp. 80-104, available from http://belfercenter.ksg.harvard.edu/files/IS3801_pp080-104.pdf. Much more plausible is the risk that governments might lose control of their nuclear weapons assets to illegitimate factions operating within their government, or that civilian or military nuclear facilities might be sabotaged particularly in unstable regions of the Middle and Far East. The first, though, is not a terrorist problem per se and the second does not threaten nuclear use. On these risks, see Edwin Lyman, "Nuclear Plant Protection and the Homeland Security Mandate," paper prepared for Institute of Nuclear Materials Management 44th Annual Meeting, Phoenix, AZ, July 13-17, 2003, available from http://nuclear-power-security.blogspot.com/2007/03/nuclear-plant-protection-and-homeland_02.html; Bruno Tertrais, "The Unexpected Risk: The Impact of Political Crises on the Security and Control of Nuclear Weapons," in *Nuclear Weapons Security Crises,* pp. 3-22, available from http://npolicy.org/books/Security_Crises/Ch1_Tertrais.pdf.; and Alissa J. Rubin and Milan Schreuer, "Belgium Fears Nuclear Plants Are Vulnerable," *The New York Times*, March 25, 2016, available from http://www.nytimes.com/2016/03/26/world/europe/belgium-fears-nuclear-plants-are-vulnerable.html.

34. See "Remarks by President Barack Obama," Hradcany Square, Prague, Czech Republic, April 5, 2009. President George W. Bush said that nuclear weapons falling "in the hands of a terrorist enemy" is the single most serious threat the security of the United States. In "The First Bush-Kerry Presidential Debate," The Commission on Presidential Debates, September 30, 2004, transcript available from http://www.debates.org/index.php?page=september-30-2004-debate-transcript. Senator John Kerry, Democratic Presidential Nominee in 2004,

lions of dollars are appropriated annually on questionable nuclear weapons detection and forensics efforts and nuclear security and cooperative threat reduction programs.[35] Meanwhile, broad intelligence sweeps, including of domestic phone and internet communications, have been justified, in no small part, to prevent possible terrorist use of weapons of mass destruction.[36]

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remarked in a campaign speech that "the possibility of al Qaeda or other terrorists getting their hands on a nuclear weapon" was the "greatest threat we face today" See "New Strategies to Meet New Threats," Remarks of John Kerry, June 1, 2004, in Gerhard Peters and John T. Woolley, eds., *The American Presidency Project,* available from http://www.presidency.ucsb.edu/ws/?pid=29697. Also see Graham Allison, "Nuclear Terrorism Poses the Gravest Threat Today," *Wall Street Journal*, July 14, 2003, available from http://online.wsj.com/news/articles/SB105813273777796800. For a contrarian view, see Leonard Weiss, "On Fear and Nuclear Terrorism," *Bulletin of the Atomic Scientists* 71, no. 2, March 2015, pp. 75-87; Brian Jenkins, *Will Terrorists Go Nuclear*? New York: Prometheus Books, 2008; and Brian Jenkins, "Nuclear Terrorism, the Last 40 Years: What Has and Has Not Happened," in Henry Sokolski, ed., *The Nuclear Terrorism Threat: How Real Is It?* Arlington, VA: The Nonproliferation Policy Education Center, 2016, available from http://npolicy.org/article_file/1602_Jenkins.pdf.

35. See, e.g., Gina Page, "U.S. Borders Flunk Smuggling Test," *CBS News*, March 27, 2006, available from http://www.cbsnews.com/news/us-borders-flunk-smuggling-test/; Richard Weitz, "Nuclear Forensics: False Hopes and Practical Realities," *Political Science Quarterly* 126, no. 1, Spring 2011, pp. 53-75; U.S. Government Accountability Office, *Nuclear Detection: Domestic Nuclear Detection Office Should Improve Planning to Better Address Gaps and Vulnerabilities,* GAO-09-257, Washington, DC: GPO, March 2, 2009, available from http://www.gao.gov/products/GAO-09-257; *Combating Nuclear Smuggling: Lessons Learned from Cancelled Radiation Portal Monitor Program Could Help Future Acquisitions,* GAO-13-256, Washington, DC: GPO, May 2013, available from http://www.gao.gov/products/gao-13-256; and Anthony Kimery, "Risks Posed By Foreign Ports Shipping Cargo to U.S. Not Adequately Assessed, GAO, Authorities Say," *Homeland Security Today*, September 30, 2013, available from http://www.hstoday.us/index.php?id=483&cHash=081010&tx_ttnews%5Btt_news%5D=32913.

36. See Eric Lichtblau, "In Secret, Court Vastly Broadens Powers of NSA," *The New York Times*, July 6, 2013, available from http://www.nytimes.com/2013/07/07/us/in-secret-court-vastly-broadens-powers-of-nsa.html?pagewanted=all&_r=0 and Ken Dilanian, "Intelligence Leakers Post 'Critical Threat' to U.S., Say Spy

Far less controversial are the international nuclear security summits President Obama launched in 2009. The fourth, held in Washington D.C. in 2016, allowed scores of nations, including those acquiring or deploying nuclear weapons, to extol the virtues of keeping their nuclear weapons-related assets safe against seizure, sabotage, and illicit use. Details about how they might accomplish this, however, were kept, as with previous summits, to a minimum, lest hostile states learn what might be needed to attack or seize these holdings.

Although this set of nuclear security worries has been spotlighted to maximize alarm, many who voice them are nonetheless convinced that further progress on nuclear arms control, which would eliminate most of these problems, is all but inevitable. They celebrate the New START (Strategic Arms Reduction Treaty) agreement and are enthusiastic about reaching further unilateral and negotiated cuts as well as ratification of the Comprehensive Nuclear-Test-Ban Treaty (CTBT).[37] They also remain steadfast in their belief that negotiated settlements can roll back Iran's and North Korea's "aberrant" nucle-

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Chiefs," *Los Angeles Times*, January 29, 2014, available from http://articles.latimes.com/2014/jan/29/world/la-fg-wn-us-intelligence-snowden-leakers-threat-20140129. See also the reaction to the recommendations within a recent Defense Science Board Task Force Report in U.S. Department of Defense, Defense Science Board, *Assessment of Nuclear Monitoring and Verification Technologies,* Washington, DC: Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, January 2014, available from http://www.acq.osd.mil/dsb/reports/NuclearMonitoringAndVerificationTechnologies.pdf and Siobhan Gorman, "Panel Calls for More Spy Capability: NSA Cited as Model in Monitoring Nuclear Threats," *Wall Street Journal*, January 21, 2014, available from http://www.wsj.com/news/articles/SB10001424052702304027204579335120352342540.

37. See, e.g., R. Jeffrey Smith, "Obama Administration Embraces Major New Nuclear Weapons Cut*," Center for Public Integrity*, February 8, 2013, available from http://www.publicintegrity.org/2013/02/08/12156/obama-administration-embraces-major-new-nuclear-weapons-cut and Daryl G. Kimball, "Obama's Second Chance," *Arms Control Today* 43, no. 1, January-February 2013, available from https://www.armscontrol.org/act/2013_01-02/Focus.

ar misbehavior. Yet, little is said about other nuclear or near-nuclear weapons states. Instead, there is self-congratulation that President John F. Kennedy's earlier warnings that there might be 20 or more nuclear weapons states by 1970[38] proved to be unfounded and insistence that pushing more arms control is our best hope to eliminate the remaining nuclear threat.

What else must be pursued besides more START negotiations and nuclear security summits? Three things, all of which President Obama announced in his 2009 Prague speech: Bring the CTBT and Fissile Material Cut-off Treaty (FMCT) into force and share "peaceful" civilian nuclear technology under appropriate international safeguards. This roughly tracks the now popular "three-pillar" view of the NPT—that to get nonweapons states not to acquire nuclear weapons, the weapons states must reduce their nuclear arms and offer more "peaceful" nuclear energy transfers.

Putting aside the improbability of the U.S. Senate or Moscow backing the ratification of more significant arms control agreements any time soon, accomplishing this agenda is practically impossible without the unlikely support of states such as Iran, North Korea, Pakistan, India, Israel, and Egypt. More important, some of the objections to these agreements are not merely political, but substantive.[39]

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38. John F. Kennedy, "Speech at State Department Auditorium," Speech, Washington D.C., March 21, 1963, available from https://www.jfklibrary.org/Research/Research-Aids/Ready-Reference/Press-Conferences/News-Conference-52.aspx.

39. Several arms control critics have noted that nuclear testing may not be necessary for initial weapons acquisition and that what constitutes a test may be in disagreement among those that have signed the CTBT. See Jonathan Medalia, "Comprehensive Nuclear-test-ban Treaty: Issues and Arguments," CRS Report for Congress, RL 34494, Washington, DC: Congressional Research Service, March 12, 2008, pp. 20-22, available from http://www.fas.org/sgp/crs/nuke/RL34394.pdf; U.S. Congressional Commission on the Strategic Posture of the United States, *America's Strategic Posture,* Washington, DC: United States

As for sharing "peaceful" nuclear technology and disarming to secure continued nonproliferation, it is difficult to see how such an approach can prevent future Indias, Irans, Syrias, or North Koreas. Even if one ignores how little of the NPT's diplomatic history actually supports today's legalistic enthusiasm for the "three-pillar" view,[40] promoting this bargain is, at best, problematic.

Institute of Peace Press, 2009, p. 83, available from http://www.usip.org/sites/default/files/America's_Strategic_Posture_Auth_Ed.pdf; Keith B. Payne and R. James Woolsey, "Reconsidering the Comprehensive Test Ban Treaty," *National Review Online*, September 8, 2011, available from http://www.nationalreview.com/article/276530/reconsidering-comprehensive-test-ban-treaty-r-james-woolsey-keith-b-payne; and Kathleen Bailey, et al., *The Comprehensive Test Ban Treaty: An Assessment of the Benefits, Costs, and Risks,* Fairfax, VA: National Institute Press, 2010, available from http://www.nipp.org/wp-content/uploads/2014/12/CTBT-3.11.11-electronic-version.pdf. Several of these critics also note that the current versions of the FMCT do not address civilian production that could be easily diverted to make bombs nor does it address past fissile production. See, e.g., Christopher A. Ford, "Five Plus Three: How to Have a Meaningful and Helpful Fissile Material Cutoff Treaty," *Arms Control Today* 39, no. 2, March 29, 2009, available from http://legacy.armscontrol.org/act/2009_03/Ford and Idem., "The United States and the Fissile Material Cutoff Treaty," Paper presented to the "Preparing for 2010: Getting the Process Right" conference, Annecy, France, March 17, 2007, available from http://2001-2009.state.gov/t/isn/rls/other/81950.htm.

40. See Albert Wohlstetter, "Spreading the Bomb without Quite Breaking the Rules," *Foreign Policy*, no. 25, Winter 1976-77, pp. 88-94, 145-179, available from http://www.npolicy.org/userfiles/file/Nuclear%20Heuristics-Spreading%20the%20Bomb%20without%20Quite%20Breaking%20the%20Rules.pdf; Arthur Steiner, "Article IV and the 'Straightforward Bargain,'" PAN Heuristics Paper 78-832-08, in Albert Wohlstetter, et al., *Towards a New Consensus on Nuclear Technology*, Vol. II, Supporting Papers, ACDA Report No. PH-78-04-832-33, Marina del Rey, CA: PAN Heuristics, 1978, pp. 1-8; Eldon V.C. Greenberg, *The NPT and Plutonium: Application of NPT Prohibitions to "Civilian" Nuclear Equipment, Technology and Materials Associated with Reprocessing and Plutonium Use,* Washington, DC: The Nuclear Control Institute, 1993, available from http://npolicy.org/books/Reviewing_NPT/Ch6_Greenberg.pdf; Henry Sokolski, "The Nuclear Nonproliferation Treaty and Peaceful Nuclear Energy," Testimony before "Assessing 'Rights' under the Nuclear Nonproliferation Treaty," a hearing of the U.S. House of Representatives, Committee on International

First, although encouraging nuclear weapons restraint can indirectly support nonproliferation, it is unclear how insisting on making nuclear disarmament a legally binding quid pro quo for adopting sound nonproliferation measures would work. In practice, nonweapons states have held their adoption of nonproliferation measures hostage to the superpowers doing more to disarm while their claim of insufficient progress on this front gives them a diplomatic pretext to threaten to acquire nuclear weapons themselves. From a nuclear control perspective, none of this is helpful. Backing off necessary nonproliferation controls only increases the prospects for more nuclear weapons proliferation. This, in turn, is only likely to increase demand for more nuclear armament.

Second, it is unclear how supplying nonweapons states with the benefits of truly "peaceful" nuclear technology could assist in promoting more or tighter nonproliferation controls. If the technology in question is genuinely benign, by definition, it ought to be easy to safeguard effectively against military diversions and so be safe to share free of any apprehensions it might be diverted to make bombs. If, furthermore, the nuclear item in question is profitable to sell, it is difficult to understand why nuclear supplier states would need additional incentives, much less nonproliferation ones, to share it.

Relations, Subcommittee on International Terrorism and Nonproliferation, March 2, 2006, available from http://www.npolicy.org/article.php?aid=392&rtid=8; Robert Zarate, "The Three Qualifications of Article IV's 'Inalienable Right'" and Christopher Ford, "Nuclear Technology Rights and Wrongs: The NPT, Article IV, and Nonproliferation," in Henry Sokolski, ed., *Reviewing the NPT,* Carlisle, PA: Strategic Studies Institute, 2010, pp. 219-384, available from http://npolicy.org/books/Reviewing_NPT/Ch11_Ford.pdf; and Dean Rust, "How We've Come to View the NPT: Three Pillars," in Henry Sokolski, ed., *Nuclear Rules, Not Just Rights: The NPT Reexamined*, Arlington, VA: The Nonproliferation Policy Education Center, 2017, available from http://npolicy.org/books/Nuclear_Rules_Not_Just_Rights/Ch2_Rust.pdf.

On the other hand, if what was being sold is proliferation-prone (i.e., close and essential to bomb-making) and, therefore, dangerous to share, it is unclear why any state eager to promote nuclear nonproliferation would think it had an NPT obligation to transfer it. Again, effective nuclear nonproliferation presumes the sharing of only truly "peaceful" nuclear goods and technologies—i.e., of nuclear items and know-how that are so far from making bombs that attempts to divert them for this purpose could be detected early and reliably enough to intervene effectively to prevent any weapons from ever being built. The alternative would be that there is an NPT obligation to share dangerous nuclear technologies and goods that can bring a nonweapons state to the very brink of acquiring bombs. But how much nonproliferation sense would that make? The answer is all too clear.

This, then, brings us to hawks who object to such wishful thinking—those who are "for" nuclear weapons. Their brief essentially is that nuclear weapons have kept the peace. If you push for deeper nuclear reductions, they argue, it will do nothing to slow determined proliferators from acquiring nuclear weapons.[41] More important, it could undermine our security alliance system, which, in turn, would increase the risks that our friends and allies might go nuclear.[42] All of this, in turn, would only increase the prospects for war and the possible use of nuclear weapons.

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41. See, c.f., Stuart Colin, "A Nuclear Earthquake: The Case Against Unilateral Disarmament," *Foreign Affairs Review*, October 25, 2016, available from http://foreignaffairsreview.co.uk/2016/10/a-nuclear-earthquake-the-case-against-unilateral-disarmament/; Stephen Rademaker, "Blame America First," *Wall Street Journal*, May 7, 2007, available from http://online.wsj.com/news/articles/SB117849961888494020/; and Kyle Mizokami, "Obama Administration Cuts Back Size of Nuclear Arsenal," *Popular Mechanics*, January 12, 2017, available from http://www.popularmechanics.com/military/weapons/a24739/obama-administration-unilateral-nuclear-arms-cuts/.

42. See e.g., Josh Rogin, "Exclusive: House Republicans Ding Obama on Nuke Treaty in Previously Unreported Letter," *Foreign Policy, The Cable*, September

This line of argument, like that of the zero nuclear weapons crowd, makes a number of sensible points. Yet, it too is imperfect. First, as has already been noted, we know that nuclear weapons have not deterred all wars. Both North Korea and North Vietnam took the United States on in long-fought wars. Nor did U.S. nuclear weapons deter China and Russia from lending Hanoi and Pyongyang substantial military support.[43] Then there's the Israeli war of 1973. Israeli possession of nuclear arms may have changed the way the war was fought (the United States finally came to Israel's aid at the last moment for fear that the war might go nuclear). But Israeli nuclear weapons did not prevent the war.[44] Finally, it is unclear how, if at all, nuclear weapons might deter nonstate actors from engaging in terrorism—nuclear or nonnuclear.[45]

16, 2009, available from http://thecable.foreignpolicy.com/posts/2009/09/16/exclusive_house_republicans_ding_obama_on_nuke_treaty_in_previously_unreported_lett.

43. See, e.g., Carl A. Posey, "How the Korean War Almost Went Nuclear," *Air and Space Smithsonian*, July 2015, available from http://www.airspacemag.com/military-aviation/how-korean-war-almost-went-nuclear-180955324/; Bernard Gwertzman, *The New York Times*, "US Papers Tell of '53 Policy to Use A-Bomb in Korea," June 8, 1984, available from http://www.nytimes.com/1984/06/08/world/us-papers-tell-of-53-policy-to-use-a-bomb-in-korea.html; William Burr and Jeffrey Kimball, "Nixon White House Considered Nuclear Options Against North Vietnam, Declassified Documents Reveal," *National Security Archive Electronic Briefing Book No. 195*, posted July 31, 2006, available from http://nsarchive.gwu.edu/NSAEBB/NSAEBB195/; and Fredrick Logevall, "We Might Give Them a Few," Did the US Offer to Drop Atom Bombs at Dien Bien Phu?" *The Bulletin of Atomic Scientists*, February 21, 2016, available from http://the-bulletin.org/we-might-give-them-few-did-us-offer-drop-atom-bombs-dien-bien-phu9175.

44. See Shlomo Brom, "Utility of Nuclear Deterrence in the Middle East," and Karim Haggag, "Proliferation and Deterrence beyond the Nuclear Tipping Point in the Middle East" in George P. Shultz and James E. Goodby, eds., *The War that Must Never Be Fought: Dilemmas of Nuclear Deterrence*, Stanford, CA: Hoover Institution Press, 2015, pp. 221-223 and 235-243.

45. In the case of nonnuclear terrorism, Pakistani-backed terror strikes against

Perhaps the point is nuclear weapons have prevented some "major" (nuclear) wars or "major" defeats rather than all forms of military aggression. This seems plausible. Certainly, the number of war casualties as a percentage of the world's population has declined significantly since Hiroshima and Nagasaki.[46] Yet, any "proof" of why something didn't happen can never be known with scientific certainty. As we have discussed, a good number of security experts question if nuclear deterrence ever really "worked" during the Cold War.[47] Nor is the threat of nuclear escalation the only possible expla-

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India suggest nuclear deterrence against such threats is hardly effective. Hawkish defenders of nuclear deterrence insist that given the heavy state sponsorship of nonstate actors, though, nuclear threats properly focused could, in some cases, help deter WMD terrorism. See, e.g., Brad Roberts, "Deterrence and WMD Terrorism: Calibrating Its Potential Contributions to Risk Reduction," IDA Paper P-4231, Institute for Defense Analyses, Alexandria, VA, June 2007. That said, no act of terrorism involving the detonation of a nuclear weapon has yet been seriously attempted.

46. For a graphic analysis of this last point, see Admiral Richard Mies, USN (ret.), "Strategic Deterrence in the 21st Century," *Undersea Warfare*, no. 48, Spring 2012, pp. 12-19, available from http://www.public.navy.mil/subfor/underseawarfaremagazine/Issues/PDF/USW_Spring_2012.pdf and Adam Lowther, "The Nation's Ultimate Insurance Policy: Nuclear Weapons," *Real Clear Defense,* May 16, 2016, available from http://www.realcleardefense.com/articles/2016/05/16/the_nations_ultimate_insurance_policy_nuclear_weapons_109364.html.

47. See e.g., Steven P. Lee, *Morality, Prudence, and Nuclear Weapons,* Cambridge Studies in Philosophy and Public Policy, Cambridge: Cambridge University Press, 1993. It's well to keep in mind that a nuclear deterrence effort might fail to prevent a particular act of aggression or some other undesirable event because of some deficiency in the nuclear deterrent force or the manner in which the nuclear threat itself was made. The challenge nuclear deterrence presents for security analysts, then, is determining what, if any, impact it has had in the past and is likely to have in the future. Unfortunately, posing this question is all too similar to the illicit mathematical operation of dividing an integer by zero: It immediately produces an infinite number of possible answers. This suggests two possibilities. The first is that nuclear deterrence is a myth that should be disregarded. The second is that whatever people think the specific impact of nuclear deterrence is, is itself a political military reality that must be dealt with—whether the view held

nation for why post-WWII war casualties declined so much (smaller wars usually follow large ones; post-war alliances were created and kept strong; military science improved; with lower aiming inaccuracies, indiscriminate damage in war declined, etc.) These other explanations certainly cannot be entirely discounted.

This, then, brings us to the second problem—this argument's lack of qualification. If one allows that nuclear weapons have deterred major wars, what is one to make of the observation? If some nuclear weapons have deterred some wars, wouldn't more deter more and wouldn't more advanced (or, at least, an ability to produce them quickly) deter even more?[48] Wouldn't this recommend increasing nuclear production capacities and resuming nuclear testing?[49] Also,

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is itself sound or not. In either case, the general concept of nuclear deterrence (as distinct from the key technical requirements for effective, affordable, and survivable nuclear forces) is something that is less than a science.

48. On the desirability of being able to "adapt" the size and character of one's nuclear weapons force quickly and of redeploying U.S. tactical nuclear weapons overseas, see Keith B. Payne, et al., *Nuclear Force Adaptability for Deterrence and Assurance: A Prudent Alternative to Minimum Deterrence,* Fairfax, VA: National Institute Press, 2014, available from http://www.nipp.org/wp-content/uploads/2014/12/MD-II-for-web.pdf and Clark Murdoch et al., *Project Atom: A Competitive Strategies Approach to Defining U.S. Nuclear Strategy and Posture for 2025-2050*, CSIS Reports, Center for Strategic & International Studies, May 2015, available from http://csis.org/files/publication/150601_Murdock_ProjectAtom_Web.pdf.

49. See, e.g., Matthew Kroenig, "Trump Said the U.S. Should Expand Nuclear Weapons. He's Right.," *Politico*, December 23, 2016, available from http://www.politico.com/magazine/story/2016/12/trump-said-the-us-should-expand-nuclear-weapons-hes-right-214546; Robert R. Monroe, "Trump Should Change U.S. Policy On Nuclear Weapons," *Investors Business Daily*, December 16, 2016, available from http://www.investors.com/politics/commentary/trump-should-change-u-s-policy-on-nuclear-weapons/; Michaela Dodge and Brett Schaefer, "Rejection of UN Nuke Ban Not Enough, Administration Must Do More to Maintain Arsenal," *The Daily Signal*, October 31, 2016, available from http://dailysignal.com/2016/10/31/rejection-of-un-nuke-ban-not-enough-administration-must-do-more-to-maintain-arsenal/; Frank Gaffney, "Fight

what of other states that lack such arms? Wouldn't their acquisition of nuclear forces help deter wars as well? Might the further proliferation of weapons, at least to our friends, then, be a good thing? Vice President Cheney argued that if China failed to get North Korea to eliminate its nuclear weapons capabilities, it might well prompt Japan to acquire nuclear weapons of its own. Donald Trump has argued that Japan and South Korea will eventually go nuclear and this may be good; Boris Johnson that helping Iran get the bomb might bolster peace. One also hears hawkish American support for Israel maintaining its nuclear forces until there is peace in the Middle East and for India to build its nuclear capabilities up to counter China's nuclear forces.[50]

As logically consistent as these arguments may be, they ought to cause unease. An unspoken assumption is that nuclear deterrence will work perfectly (as it supposedly did with Russia during the Cold War) and that it can be counted upon to work perfectly forever into the future. This is presumed no matter how many nuclear-armed states there might be, how rash or reckless these countries' leaders are, or how vulnerable their forces might be to a first strike. It also presumes, *sub silentio*, that the lack of truly disastrous nuclear weapons accidents, unauthorized firings, acts of nuclear terrorism, and thefts that we have experienced so far is a permanent feature.[51] All of this might well be correct in the near

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Nuclear Provocation with Nuclear Provocation," transcript, Secure Freedom Minute, April 24, 2014, available from http://www.breitbart.com/Breitbart-TV/2014/04/24/Gaffney-Fight-Nuclear-Provocation-With-Nuclear-Provocation; and Jon Kyl, "Why We Need to Test Nuclear Weapons," *The Wall Street Journal*, October 20, 2009, available from http://www.wsj.com/articles/SB10001424052748704500604574483224117732120.

50. See note 24.

51. Recent analysis of past U.S. and Soviet nuclear accidents suggests the size of these two states' arsenals hardly correlated to the number of nuclear accidents. In fact, historically the correlation has been negative. What is unknown, however, is

and mid-term. But barring the adoption of new, more effective nuclear restraints and security controls that apply not just to the United States, but to other nations, it is difficult to believe such optimism is much more than a bet against the house.

Yet another unspoken premise at play is that smaller nuclear weapons states and states eager to develop a nuclear weapons option are merely "lesser included threats." The notion here is that if the United States can deter or constrain Russia, the largest nuclear weapons state, the United States and its allies are safe (or much safer) against any other lesser nuclear-armed state. This roughly was the message in the 2012 presidential election campaign when candidate Mitt Romney described Russia as America's number one geopolitical foe and the Obama Administration defended the primacy of working with Russia (versus China or other smaller nuclear states) to limit America's nuclear arsenal. Russia is our most important strategic competitor.[52] Deal with it and you can deal with

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how well other countries have secured their arsenals against theft and accidents, what their history has been and what it and the history of U.S. nuclear weapons accidents will be. In this regard, only one large accident is needed to change history forever. Thus, our experience so far is not necessarily dispositive. Compare note 32 with Keith Payne, et al., *Minimum Deterrence: Examining the Evidence,* Fairfax, VA: National Institute Press, 2013, pp. 52-54, available from http://www.nipp.org/wp-content/uploads/2014/12/Final-Distro.pdf. Also consider "Lost nuclear weapons are an unreported problem," *NJ Today*, February 24, 2016, available from http://njtoday.net/2016/02/24/lost-nuclear-weapons-are-an-unreported-problem/.

52. For a fulsome discussion of campaign comments made by Romney and Obama on these issues, see Molly Moorhead, "Obama: Romney Called Russia Our Top Geopolitical Threat," October 22, 2012, available from http://www.politifact.com/truth-o-meter/statements/2012/oct/22/barack-obama/obama-romney-called-russia-our-top-geopolitical-fo/ and Matt Spetalnick and Jeremy Laurence, "Obama Vows to Pursue Further Nuclear Cuts with Russia," *Reuters*, March 26, 2012, available from http://www.reuters.com/article/2012/03/26/us-nuclear-summit-idUSBRE82P01620120326. Also see Dan Lamothe, "Russia is greatest threat to the U.S., says Joint Chiefs chairman nominee Gen. Joseph Dunford," *Washington Post*, July 9, 2015, available from http://www.

the others; fail to neutralize Moscow, and you are unlikely ever to prevail.[53]

But is this true? Russian President Vladimir Putin has yet to explicitly threaten to destroy the United States.[54] North Korea, however, has.[55] If North Korea followed through with its military threats against South Korea or Japan (two states the United States is bound by formal security agreements to defend), would that not threaten a general war that the United States would be loath to wage? What

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washingtonpost.com/news/checkpoint/wp/2015/07/09/russia-is-greatest-threat-to-the-u-s-says-joint-chiefs-chairman-nominee-gen-joseph-dunford/.

53. See e.g., Loren Thompson, "Why Putin's Russia is the Biggest Threat to America in 2015," *Forbes*, January 1, 2015, available from http://www.forbes.com/sites/lorenthompson/2015/01/02/why-putins-russia-is-the-biggest-threat-to-america-in-2015/ and J.D. Leipold, "Milley: Russia No. 1 Threat to US," *WWW.ARMY.MIL: The Official Homepage of the United States Army*, November 9, 2015, available from http://www.army.mil/article/158386/Milley__Russia_No_1_threat_to_US/.

54. Putin, in fact, recently denied that he had any desire to enter in to a nuclear arms race with the United States. See Roland Oliphant, "Vladimir Putin says Russia 'won't start an arms race' at annual press conference that lasts almost four hours," *The Telegraph*, December 23, 2016, available from http://www.telegraph.co.uk/news/2016/12/23/vladimir-putin-updates-russia-world-annual-press-conference/. Putin, however, has voiced concerns that the United States may be threatening to destroy Russia. See Katie Mansfield, "US Nuclear War Fears: Vladimir Putin Warns Americans are in 'Impending and Grave Danger,'" *Express*, October 18, 2016, available from http://www.express.co.uk/news/world/722203/US-Russia-Putin-WW3-nuclear-war-vladimir-putin and Anna Nemtsova, "Russia Is Building Fallout Shelters to Prepare for a Potential Nuclear Strike," *The Daily Beast*, October 17, 2016, available from http://www.thedailybeast.com/articles/2016/10/17/russia-is-building-fallout-shelters-to-prepare-for-a-potential-nuclear-strike.html.

55. See "North Korea threatens to launch nuclear strike on America if it feels threatened and confirms it has a 'first use' preemptive policy," *Daily Mail.com*, October 16, 2016, available from http://www.dailymail.co.uk/news/article-3842604/It-s-policy-nuclear-North-Korea-says-launch-preemptive-strike-against-threatened.html#ixzz4VtSXivht.

if Iran acquired nuclear weapons and deployed them to deter the United States and its Gulf allies from countering Iranian conventional military aggression and covert actions against its neighbors? Such nonnuclear aggression could drive the international price of oil to levels that could strategically weaken both the United States' and most of the world's economies. Would nuclear strategic superiority over Russia enable Washington to counter such concerns?

This set of questions brings us to the views of our academic skeptics. As already noted, this school is split into two groups. The first includes those who think that the further proliferation of nuclear weapons may be beneficial, that upon a state's acquisition of nuclear arms effective nuclear deterrence is automatically assured. The second includes those who question the deterrence value of nuclear arms but who also believe that preventing their proliferation is generally unnecessary or misguided.

What is appealing about the second group is its willingness to take on those who extol the virtues of nuclear deterrence. Did nuclear weapons force Japan to surrender in WWII? *No,* Japan's Emperor only argued they did to save face in surrendering because he knew Japan was destined for defeat by American and Soviet conventional arms. Did they deter the Soviet Union from invading Europe during the Cold War? *No,* what kept the peace after 1945 was the creation of effective East-West security alliance systems and the very real fears these military alliances fostered of a massive, conventional WWIII if Cold War diplomacy failed.

This second group of academics also offers thoughtful rejoinders to the conventional wisdom that nuclear terrorism should be worry number one. Is the threat of nuclear terrorism the most imminent and extreme security threat we face? *Not really.* There are good reasons why no acts of nuclear terrorism have yet taken place and these are likely to apply well into the future. Building or stealing nuclear weapons is too large and complex an operation for most

terrorist organizations. A terrorist team tasked to build or seize such weapons would have to worry about being penetrated and betrayed to authorities. Certainly, the high levels of trust and cooperation needed to pull off such efforts would be difficult to maintain. Nor is it in the interest of states that possess such weapons to let anyone but the most trusted and loyal gain access to them.[56]

This pushback to what are now the most popular views on nuclear deterrence and terrorism is edifying. Yet, ultimately one counterfactual on what might have prevented an event (e.g., various post-WWII wars) can hardly trump another. Nor do negative projections on nuclear terrorism top positive ones if only because the future probability of events that have not yet occurred can't be known statistically. In the end, all such projections are speculative.

Moreover, what the two skeptical academic camps agree on—that the dangers associated with nuclear weapons proliferation are exaggerated—is rebuttable. First, they gloss over the serious military risks faced by nations acquiring nuclear weapons. One can see this most clearly by their inattention to the numerous historical cases of preventive military actions taken against states attempting to build their first bomb and to serious plans countries have made to knock out the nuclear capabilities of new nuclear weapons states.

In the first category are the British campaign against the Nazi-operated heavy water plant in Norway, Iran's air strike against Iraq's Osirak reactor in 1980, Israel's attack of the same reactor in 1981,

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56. See, e.g., John Mueller, "The Atomic Terrorist: Assessing the Likelihood," paper prepared for the Program on International Security Policy, University of Chicago, January 15, 2008, available from http://politicalscience.osu.edu/faculty/jmueller//apsachgo.pdf and *Atomic Obsession,* pp. 181-215. Also see Francis J. Gavin, "Same As It Ever Was: Nuclear Alarmism, Proliferation, and the Cold War," *International Security,* Winter 2009/10, pp. 19-23, available from http://belfercenter.ksg.harvard.edu/files/Gavin.pdf and Lieber and Press, "Why States Won't Give Nuclear Weapons to Terrorists."

Iraq's repeated strikes against Bushehr between 1984 and 1988, America's air strike against Iraq's nuclear facilities in 1991, Saddam's failed Scud missile strike against Israel's Dimona reactor in the same year, an American Tomahawk strike against Iraq's uranium enrichment plant at Zaafaraniyah, British and American strikes against a variety of suspect Iraqi nuclear sites in 1998, Israel's air strike against Syria's covert nuclear reactor in 2007, and U.S. and Israeli covert and cyber attacks against Iran's nuclear program from 2006 to 2010.

Just as numerous are the occasions that states planned or prepared to knock out the nuclear weapons capabilities of their adversaries. The U.S. military gave serious thought to using nuclear weapons to destroy the Soviet Union's nuclear complex in 1949 and China's in 1964. It also made preliminary military preparations for attacking North Korea's nuclear complex in 1994. The Russians, meanwhile, considered attacking South African nuclear facilities in 1976 after detecting South African preparations to test. They even asked the United States for assistance in making the strike. In 1969, a major border dispute between China and Russia went hot and Moscow gave serious consideration to attacking China's nuclear complex. Two years before, Egypt threatened Israel's production reactor at Dimona. Israel and India, meanwhile, cooperated in several schemes in the 1980s (one of which nearly was implemented) to knock out Pakistan's nuclear weapons facilities at Kahuta.[57]

Second, while most academic skeptics believe nuclear weapons automatically deter aggression nearly perfectly even in small

57. See Fuhrmann, "Preventive War and the Spread of Nuclear Programs;" Isabella Ginor and Gideon Remez, *Foxbats Over Dimona: The Soviets' Nuclear Gamble in the Six-Day War*, New Haven, CT: Yale University Press, 2008 and Tom Cooper, "Joyriding Egyptian Pilots Helped to Provoke the Six-Day War With Israel," *War Is Boring*, October 17, 2016, available from https://warisboring.com/joyriding-egyptian-pilots-helped-to-provoke-the-six-day-war-with-israel-c2db466aa48d?mc_cid=88408123c2#.3hty6rwjy.

numbers, yet others believe nuclear weapons are militarily useless even if these weapons are numerous and advanced. Because of this, academic skeptics pay little attention to the security risks that may come with deep nuclear weapons reductions—i.e., the transitions from nuclear plenty to zero—risks which are potentially serious.

Finally, academic skeptics tend to ignore or gloss over the risks "upward" nuclear transitions present. These dangers are three-fold. First, as the number of nuclear weapons players increases, the gravity, complexity, and likelihood of ruinous nuclear incidents may increase within states (e.g., unauthorized or accidental use, terrorist theft, irredentist seizure, etc.) and between them (e.g., catalytic wars, misread nuclear signaling, etc.). Second, and closely related, are the numerous technical and managerial challenges each nuclear state faces to make their nuclear forces robust and survivable enough to have any hope of effectively deterring attacks. These challenges are most severe for new nuclear weapons forces but are hardly inconsequential for large, mature forces.[58] Last, as the number of states possessing nuclear forces increases to include nations covered by nuclear security alliance guarantees, the continued viability and coherence of these alliance systems are likely to be tested in the extreme, increasing the prospects for war.[59]

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58. For the earliest and most accessible discussion of these technical hurdles, see Albert Wohlstetter, "The 'Delicate' Balance of Terror," RAND Paper P-1472, RAND Corporation, Santa Monica, CA, November 6, 1958, available from http://www.rand.org/about/history/wohlstetter/P1472/P1472.html. It should be noted that Wohlstetter goes to considerable lengths in his study to spotlight how mastering the technical requirements for securing an effective nuclear deterrent force is essential to prevent preemptive, accidental, and unauthorized nuclear wars as well as nuclear accidents generally. This suggests that attention to these requirements is desirable whatever the merits of nuclear deterrence might be.

59. See note 24; Robert Zarate, "America's Allies and Nuclear Arms: Assessing the Geopolitics of Nonproliferation in Asia," *Project 2049 Futuregram* 14-002, Project 2049 Institute, Arlington, VA, May 6, 2014, available from http://www.project2049.net/documents/Zarate_America_Allies_and_Nuclear_Arms_Geopolitics_Nonproliferation; and Albert Wohlstetter, "Nuclear Sharing and the N

Optimists All

Putting aside the close calls during the various Cold War crises (e.g., the Cuban Missile Crisis and the possibility of the United States offering France nuclear weapons to use in Vietnam), the nuclear brinkmanship that has been conducted by India and Pakistan, and the nuclear preemption and dares of the Israeli wars of 1967 and 1973,[60] none of the cases noted above seem to support the idea that nuclear proliferation is "inconsequential," much less stabilizing. Just the opposite. Of course, until and unless there is nuclear use, there is no proof in these matters: We can't predict the future with much certainty and the causes of wars are always complex. All we know is that the United States fired nuclear weapons in anger on Hiroshima and Nagasaki, that the United States and Russia threatened to use them several times during the Cold War, but that, for some reason, since 1945, they never have been used.

It would be nice to believe that they never will. Unfortunately, they might. Russia, Pakistan, and North Korea are quite explicit about the advantages of using nuclear weapons first against their adversaries.[61] Some analysts also now believe China's no first use poli-

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+ 1 Country," *Foreign Affairs, 3*9, no. 3, April 1961, pp. 355-387, available from http://npolicy.org/userfiles/file/Nuclear%20Heuristics-Nuclear%20Sharing.pdf.

60. See Logevall, "'We Might Give Them a Few;" Peter Lavoy, "Islamabad's Nuclear Posture: Its Premises and Implementation," in Henry Sokolski, ed., *Pakistan's Nuclear Future: Worries beyond War*, Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2008, pp. 129-166, available from http://npolicy.org/books/Pakistans_Nuclear_Worries/Ch5_Lavoy.pdf; and Ori Rabinowitz, *Bargaining on Nuclear Tests: Washington and Its Cold War Deals*, Oxford: Oxford University Press, 2014, pp. 70-105.

61. See Yury E. Fedorov, "Russia's Nuclear Policy," a paper presented before the National Institute for Defense Studies 12th International Symposium on Security Affairs, "Major Powers' Nuclear Policies and International Order in the 21st Century," Tokyo, November 18, 2009, available from http://www.nids.go.jp/english/event/symposium/pdf/2009/e_04.pdf; Mark Schneider, *The Nuclear*

cies may be undergoing revision.[62] All of these states, plus Israel, North Korea, and India are increasing or modernizing their nuclear arsenals. If these states are followed by Iran, South Korea, Japan, Turkey, the United Arab Emirates (UAE), or Saudi Arabia,[63] the

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Forces and Doctrine of the Russian Federation, Fairfax, VA: National Institute Press, 2006, available from http://www.nipp.org/wp-content/uploads/2014/12/China-nuclear-final-pub.pdf; "Russia carried out practice nuclear strike against Sweden," *The Local*, February 3, 2016, available from http://www.thelocal.se/20160203/russia-did-practice-a-nuclear-strike-against-sweden; Commander Muhammad Azam Khan, "India's Cold Start Is Too Hot," *U.S. Naval Institute Proceedings* 137, no. 3, March 2011, available from www.usni.org/magazines/proceedings/2011-03/indias-cold-start-too-hot; Henry Sokolski, ed., *Pakistan's Nuclear Future: Worries beyond War,* Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2008, pp. 129-166, available from http://npolicy.org/thebook.php?bid=6; and Dana Ford, "North Korea threatens nuclear strike over U.S.-South Korean exercises," *CNN*, March 7, 2016, available from http://www.cnn.com/2016/03/06/asia/north-korea-preemptive-nuclear-strike-threat/.

62. See William R. Hawkins, "Nuclear Warfare Is Still Possible," *Fortuna's Corner* (blog), June 5, 2014, available from http://fortunascorner.com/2014/06/07/nuclear-warfare-is-still-possible/comment-page-1/; John Chan, "Chinese Security Analyst Questions 'No First Use' Nuclear Policy," *World Socialist Watch*, August 15, 2013, available from http://www.wsws.org/en/articles/2013/08/15/nuke-a15.html; Michael Mazza and Dan Blumenthal, "China's Strategic Forces in the 21st Century: The People's Liberation Army's Changing Nuclear Doctrine and Force Posture," in Henry D. Sokolski, ed. *The Next Arms Race,* Carlisle, PA: Strategic Studies Institute, 2012, pp. 83-111, available from http://npolicy.org/books/Next_Arms_Race/Ch3_Mazza-Blumenthal.pdf; and Stephanie Spies, "China's Nuclear Policy: (No) First Use?" *PONI Debates the Issues* (blog), October 20, 2011, available from http://poniforum.csis.org/blog/poni-debates-the-issues-u-s-no-first-use.

63. See Kidd, "Nuclear Proliferation Risk - Is It Vastly Overrated?" Kidd, a nuclear power proponent who subscribes to the optimistic view of the nuclear neorealist skeptics, projects that there will "only" be roughly six more nuclear-armed states by 2030. He did not name them and it is impossible to know which states might go nuclear next, but the six listed here are among the most frequently mentioned in the current literature.

chances for nuclear miscalculations and war would likely go up, not down.[64]

Again, it may well be, as one recent analysis suggested, that the prospects for war will decline as soon as there is "symmetry" between any two nuclear states. This conclusion, however, begs the question of precisely when and how such "symmetry" might be achieved or perceived by each party. This matters since this same analysis concludes that without such nuclear symmetry, the prospects for conflict are increased.[65]

Nor can we assume that the consequences of nuclear use will be minor. Total industrial wars may no longer be likely. But, this hardly precludes the possibility of "limited" nuclear conflicts.[66] Also, with advanced societies' newfound distaste for protracted wars has come an increased intolerance for violence. America's security state reaction to 9/11 certainly suggests the public desire for security has reached a new all-time high. A nuclear event almost anywhere, as a result, is likely to prompt even more security

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64. See Thomas W. Graham, "Nuclear Weapons Stability or Anarchy in the 21st Century: China, India, and Pakistan," in *The Next Arms Race*, pp. 262-304, available from http://npolicy.org/books/Next_Arms_Race/Ch9_Graham.pdf.

65. See Cf. Robert Rauchhaus, "Evaluating the Nuclear Peace Hypothesis: A Quantitative Approach," *Journal of Conflict Resolution* 53, no. 2, April 2009, pp. 258-277 and Erik Gartzke, "Nuclear Proliferation Dynamics and Conventional Conflict," a paper originally presented at the 50th Annual Convention of the International Studies Association, New York, February 15-18, 2009, available from http://pages.ucsd.edu/~egartzke/papers/nuketime_05032010.pdf.

66. See Sydney J. Freedberg Jr., "No Longer Unthinkable: Should U.S. Ready for 'Limited' Nuclear War?" *Breaking Defense*, May 30, 2013, available from http://breakingdefense.com/2013/05/no-longer-unthinkable-should-us-ready-for-limited-nuclear-war/ and Arms Control Association, "Russia's Military Doctrine," *Arms Control Today*, May 1, 2000, available from http://www.armscontrol.org/act/2000_05/dc3ma00.

(i.e., repressive) governance. Think *Nineteen Eighty-Four*. For governments originally dedicated to the proposition of enlightened self-rule, this should be a concern.[67] At the very least, it ought to inform our thinking about nuclear weapons and their possible use.

Yet, those eager to go to zero ultimately do not appear to be all that worried that states might intentionally use these weapons. Just the opposite. Most nuclear abolitionists allow that nuclear weapons are only useful to deter nuclear attacks and believe that they do. For them, it would be irrational for states to use nuclear weapons to secure military advantage. Nor do they seriously consider that Russia, Pakistan, North Korea, or China might be developing their nuclear forces for purposes other than deterrence. Their worries instead focus optimistically on the yet unrealized threats of nuclear terrorism, accidental detonations, and unauthorized use. Finally, they're convinced that deeper U.S. nuclear reductions will prompt others to follow suit and insist that despite the not so peaceful past nuclear activities of India, Iraq, Iran, Egypt, Turkey, North Korea,

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67. See E. U. Condon; "The New Technique of Private War," in Dexter Masters and Katherine Way, editors, *One World or None,* Washington, DC: Federation of American Scientists, 2007, pp. 107-15; Russell Hardin, "Civil Liberties in the Era of Mass Terror," *Journal of Ethics* 8, no. 1, March 2004, pp. 77-95, available from http://www.nyu.edu/gsas/dept/politics/faculty/hardin/research/CivLiberties.pdf; David Bartoshuk, John Diamond, and Peter Heussy, "Nuclear Terrorism: Local Effects, Global Consequences," Saga Foundation, July 2008, available from http://www.sagafoundation.org/SagaFoundationWhitePaperSAGAMARK7282008.pdf; James D. Fearon, "Catastrophic Terrorism and Civil Liberties in the Short and Long Run," paper prepared for the symposium on "Constitutions, Democracy, and the Rule of Law," Columbia University, New York, October 17, 2003, available from https://www.stanford.edu/group/fearon-research/cgi-bin/wordpress/wp-content/uploads/2013/10/Catastrophic-terrorism-and-civil-liberties-in-the-short-and-long-run.pdf; and Matthew Fuhrmann, "After Armageddon: The Potential Political Consequences of the Third Use of Nuclear Weapons," in Henry Sokolski, ed., *Should We Let the Bomb Spread?* Carlisle, PA: Strategic Studies Institute, 2016, pp. 183-212, available from http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?pubID=1327.

South Korea, Taiwan, and Syria, sharing more dual-use nuclear technology will help strengthen the NPT.

Nuclear hawks, meanwhile, may fear that our enemies might use nuclear weapons but are cautiously optimistic that the United States and its allies can be made safe against such threats so long as the right number of nuclear weapons of the right kind in the right hands are on the ready and the United States and its friends are willing and able to knockout proliferators' nuclear projects in a timely fashion through conventional military strikes and covert action. Regarding the nuclear security concerns of the abolitionists, they are similarly upbeat: We have avoided accidental and illicit use so far; with due diligence we can manage this problem into the future.

Finally, academic skeptics are perhaps the most optimistic of all: Further nuclear proliferation is either good or, at least, not a worry. Nuclear weapons deter nuclear wars completely or are so useless they never will be used.

Each of our current views of nuclear proliferation, then, ends up serving our highest hopes. The question is: Do they adequately address what we should be most worried about? Do they deal with the possible military diversion of "peaceful" nuclear energy—a dual-use technology likely to spread further? Do they adequately address the perils of making nuclear cuts as other states continue to maintain or increase their arsenals? Do they assume that if we maintain our nuclear weapons force capabilities, we will forever deter the worst? Do they fully consider the military risks states run when they acquire their first nuclear weapon or try to ramp up existing arsenals significantly? Can any of them by themselves serve as a practical guide to reduce the nuclear challenges we face?