

Harvard University
John F. Kennedy School of Government
Controlling the World's Most Dangerous Weapons
HKS IGA-232, GOV 1735
Fall 2019
Matthew Bunn
William Tobey

Time: Tuesdays and Thursdays, 10:15-11:30 AM

Location: Littauer 130

Objective

Preventing nuclear war is one of the truly existential challenges facing the human species – but the danger is rising, as tensions among nuclear powers increase, nuclear agreements are challenged, and new technologies and arms competitions create new uncertainties. From Iran to North Korea, from U.S.-Russian and U.S.-Chinese nuclear competition to Syria's deadly chemical assaults, decisions about nuclear, chemical, and biological weapons can make the difference between war or peace and between safety or grave danger for people around the world. This course will give students an understanding of these weapons and the global efforts to prevent their use and control their spread. The course covers policy tools from treaties and diplomacy to sanctions and war. This year, particular attention will be paid to emerging great-power competition and its implications for deterrence and arms control. Students will learn to use an integrated, risk-informed approach to assessing policy options when difficult choices need to be made in the face of large uncertainties. This will help prepare students for careers dealing with choices about these deadly weapons.



Office Hours and Contact Information

Matthew Bunn will have office hours from 2-4 on Tuesdays and Fridays in Belfer 325. Please make appointments through his assistant, [Minoo Ghoreishi](#), phone: 617-384-7329. Prof. Bunn's phone is 617-495-9916, and his e-mail is matthew_bunn@harvard.edu. Will Tobey will be available after each class, and by appointment in his office at L-P24, William_Tobey@hks.harvard.edu. Will Tobey's cellphone is 301-318-8902 and his assistant is Rose Garcia, rosalind_garcia@hks.harvard.edu 617-496-4410. The course assistant is Jackie Parziale, Jackie_Parziale@student.hks.harvard.edu, 781-752-8576.

Assignments and Grading

There are six assignments for this course. The first assignment is a problem set intended to familiarize students with some of the key numbers associated with nuclear weapons production and effects, and how they might influence policy choices. Two of the other assignments are policy memos laying out options and making a recommendation related to a particular policy problem that will be provided in class. Two of the assignments are participation in class simulations, one focused on nuclear negotiations with Iran and the other focused on U.S. interagency decision-making with respect to a nonproliferation contingency. Students will receive somewhat different assignments for the simulations, depending on the roles they are to play. Detailed instructions will be given the week before the simulations. Students should be advised that there will be extra out-of-class work during the week of the Iran simulation, and that a short reflection must be written by the due-dates below. The final assignment is a take-home final exam.

In addition to these written assignments, there will be brief weekly on-line questionnaires on the material covered that week. These will not be graded, but are mandatory. (Learning research reveals that recalling things you have recently learned and putting them into your own words significantly enhances understanding and retention, and it will help us to track how well we are communicating major concepts.)

Written assignments must be submitted electronically by 5:00 p.m. on the dates listed below. Late papers will receive reduced grades, except in exceptional circumstances approved by the instructors.

#1: September 20	Problem set (5% of course grade)
#2: October 1	First recommendation memo (15%)
#3: October 7-11	First simulation exercise (15%)
#4: November 5	Second recommendation memo (group) (15%)
#5: December 3	Second simulation exercise (10%)
#6: December 13	Take-home final exam (25%)

The last 15% of the course grade will be based on participation in class discussion.

Class Schedule

Class	Date:	Subject:
1	5 Sep Both	Why this course matters: Nuclear, biological, and chemical weapons and global security in a risk-based framework
2	10 Sep MB	Nuclear weapons design and construction, nuclear materials, nuclear effects
3	12 Sep WT	Nuclear materials production, safeguards, threats, and diplomacy: North Korea Part I, 1988-2000
4	17 Sep MB	Why states decide to get, or not to get, nuclear weapons
5	19 Sep MB	The Nonproliferation Treaty (NPT) and the nonproliferation regime

6	24 Sep WT	North Korea Parts II, III... 2001-Present
7	26 Sep Both	Nuclear deterrence, nuclear dangers, and nuclear doctrine
8	1 Oct WT	Nuclear delivery systems and defenses
9	3 Oct Both	Nuclear arms control and disarmament
10	8 Oct Both	Simulation
11	10 Oct Both	Simulation
12	15 Oct Both	Simulation readout; future of nuclear weapons policy
13	17 Oct WT	Nuclear dangers in South Asia
14	22 Oct MB	Nuclear energy and nuclear safeguards
15	24 Oct WT	Sanctions for nonproliferation
16	29 Oct MB	Tools beyond treaties
17	31 Oct WT	Iran's nuclear program: through the JCPOA
18	5 Nov MB	Iran's nuclear program: what now?
19	7 Nov WT	Nonproliferation successes: Libya, South Africa, and more
20	12 Nov MB	Stopping black-market nuclear technology transfer
21	14 Nov WT	Preemptive and preventive strikes; and active options short of war
22	19 Nov MB	Preventing nuclear terrorism
23	21 Nov	Chemical and biological weapons (guest)
24	26 Nov	Nonproliferation policy processes (guest)
	28 Nov	THANKSGIVING: No class
25	3 Dec Both	Decision-making simulation: a nonproliferation contingency
26	5 Dec Both	Semester overview; careers in nuclear risk reduction

Optional Additional Classes

We will offer optional additional classes and review sessions on selected Fridays, 2:45-4:00, in Wexner 436. These will be announced on the Monday before or earlier.

Expectations and Readings

The Kennedy School is a professional school, training professionals. As such, students are expected to: attend all classes; be on time; submit assignments on time; and do their best to prepare professional products for their assignments. We expect students to build a culture of cooperation and mutual respect in class, including all races, nationalities, genders, past experiences, and other characteristics. Group work will be an important element; please let us know if groups are not working well. This is a discussion-based class, and class participation is very important. To be able to participate in the discussion, students are expected to have done

the reading *before* each class. (Students need only read the *required* readings; the recommended readings are only for those students who want to explore a particular topic further.) Computers, tablets, and cell phones may not be used in class.

Most of the course readings are available on the internet. Those that are not will be posted on the class web page. While there is no textbook for this course, a good general resource is Joseph F. Pilat and Nathan Busch, *The Routledge Handbook of Nuclear Proliferation and Policy* (Abingdon, Oxon, U.K.: Routledge, 2015). A good (though dated) overview of U.S. nuclear weapons policy and its intersections with nonproliferation is provided in George Bunn and Christopher F. Chyba, eds., *U.S. Nuclear Weapons Policy: Confronting Today's Threats* (Washington, D.C.: Brookings, 2006). Both of these will be on reserve in the HKS library. Students who are particularly interested may consider purchasing them.

Up-to-date information on issues regularly being shaped by new developments is an important element of policy in this area; course readings will be updated accordingly.

Note: the readings in this course present a range of views. We will certainly assign readings that one or both instructors disagree with; indeed, some of the readings disagree with each other. Use your critical reading skills, asking whether the evidence the authors offer seems adequate to support their arguments, and what you think the risks and benefits of the policies the authors advocate might be.

An Important Reminder About Citing Sources: Students *must* be familiar with and observe Kennedy School and Harvard rules regarding the citation of sources. Any sentences or paragraphs taken verbatim from the writing of (or interviews with) any other person or persons, or from your own writing that has been published elsewhere, must be placed in quotation marks and each one must have its source identified with a footnote or endnote that includes the usual bibliographic information: author's name, title of article or chapter, venue (book, journal, magazine, website, report, thesis, term paper, private letter), date, and page numbers if applicable. Changing the wording of a sentence or passage slightly does not evade the requirement for citation (nor reduce the chance of detection). Indeed, whenever you are drawing an important argument or insight from someone else, even if you reword it into your own words, a reference to the source is required. All of these requirements also apply to material taken from websites. Including material from others in assignments, exams, or term papers without appropriate quotation marks and citations is regarded, as a matter of School and University policy, as a serious violation of academic and professional standards and can lead to serious consequences.

Proliferation News Sources

In class, we will frequently be discussing events in the news, and students should keep up with at least the biggest news stories unfolding relating to nonproliferation. (In some cases, a news story to be discussed will be distributed before class.) Particularly useful sources for proliferation-related news include:

Proliferation News. Prepared by the Carnegie Endowment for International Peace's Nuclear Policy program, this source alone will allow students to keep up with the most important nonproliferation news. Students can sign up for the free e-mail service, or go to the website at <http://carnegieendowment.org/publications/pronews/>.

ArmsControlWonk. Founded by Dr. Jeffrey Lewis (former executive director of the HKS Managing the Atom project), this blog provides in-depth commentary and analysis on a variety of nonproliferation developments. <http://www.armscontrolwonk.com>

ReThink Media Nuclear News. You can subscribe to this daily e-mail compilation by e-mailing deepika@rethinkmedia.org

Non-proliferation Education Center Twitter Feed. Aggregates stories related to nuclear nonproliferation, including energy issues. <https://twitter.com/nuclearpolicy> and also emails a weekly summary. (Many of the sources above also have twitter feeds.)

Belfer Center for Science and International Affairs resources:

Managing the Atom <http://www.belfercenter.org/project/managing-atom>

U.S.-Russia Initiative to Prevent Nuclear Terrorism <http://www.belfercenter.org/project/us-russia-initiative-prevent-nuclear-terrorism>

Readings (to be updated as semester proceeds)

5 September: Why this course matters: Nuclear, biological, and chemical weapons risks that must be managed

William J. Perry, "My Personal Journey at the Nuclear Brink," *European Leadership Network*, 17 June 2013, http://www.europeanleadershipnetwork.org/my-personal-journey-at-the-nuclear-brink-by-bill-perry_633.html.

Matthew Bunn, "Nuclear Dangers and Challenges," presentation, September 15, 2017 (on class Canvas page)

Matthew Bunn, "A Risk-Informed Approach to Nonproliferation Policy" (memo, on class Canvas page).

Recommended Readings

Tom Lehrer, "Who's Next?" (satire), 1964, <https://www.youtube.com/watch?v=oRLON3ddZIw> (See if you can spot the countries that were thought then to be pursuing nuclear weapons who are no longer considered major worries.)

Graham Allison, "Nuclear Disorder: Surveying Atomic Threats," *Foreign Affairs*, January/February 2010, pp. 74-85.

http://belfercenter.ksg.harvard.edu/publication/19819/nuclear_disorder.html

(Although this is nine years old, it provides a useful overview of concerns about different nuclear threats; since then, concerns over U.S.-Russian nuclear relations, North Korea's nuclear capabilities, and the nuclear arms competition between India and Pakistan have grown.)

Thomas C. Reed and Danny B. Stillman, *The Nuclear Express: A Political History of the Bomb and its Proliferation* (Osceola, WI: Zenith Press, 2009). (A useful overview of proliferation history – with some controversial judgments.)

Ashton B. Carter, "How to Counter WMD," *Foreign Affairs*, September/October 2004, Vol. 83, No. 5, pp. 72-85, <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=14348326&site=ehost-live&scope=site> (Although old, this summary of approaches to dealing

with proliferation is of special interest as a comprehensive summary, and for its author's later role as Secretary of Defense.)

10 September: Nuclear weapons design and construction, nuclear materials, nuclear effects

Watch Bunn video on these topics on class web page. (YouTube version close to a million views!)

International Panel on Fissile Materials, "Appendix: Fissile Materials and Nuclear Weapons," in *Global Fissile Materials Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production* (Princeton, N.J.: IPFM, 2015), pp. 40-47.

<http://fissilematerials.org/library/gfmr15.pdf>

Matthew Bunn and Nickolas Roth, "The Effects of a Single Terrorist Nuclear Bomb," *Bulletin of the Atomic Scientists*, September 28, 2017, <https://thebulletin.org/2017/09/the-effects-of-a-single-terrorist-nuclear-bomb/>.

Alan Robock and Owen Brian Toon, "Local Nuclear War, Global Suffering," *Scientific American*, January 2010, pp. 74-81 (skim).

<http://climate.envsci.rutgers.edu/pdf/RobockToonSciAmJan2010.pdf>

A useful resource: <http://www.nuclearsecrecy.com/nukemap>. With this on-line tool, you can examine the effects of a nuclear weapon of any size detonated at any point in the world you choose, for both air bursts and ground bursts. A 3D version is also available.

Recommended Reading

Erik Barnouw, "Hiroshima/Nagasaki, August 1945," (film, 15 minutes), Columbia University, 1969, <https://archive.org/details/hiroshimanagasakiagust1945#>. (Highly recommended. A powerful 15 minutes of footage of the aftermath of the bombings.)

Office of Technology Assessment, *The Effects of Nuclear War* (Washington, DC: OTA, May 1979), especially pp. 15-46. <http://www.princeton.edu/~ota/disk3/1979/7906/7906.PDF> (Useful overview of all of the effects of nuclear weapons.)

Office of Technology Assessment, "Technical Aspects of Nuclear Proliferation," in *Technologies Underlying Weapons of Mass Destruction* (Washington, DC: OTA, December 1993), especially pp. 119-129, 149-158. <http://www.fas.org/spp/starwars/ota/9344.html> (Helpful brief introduction to key technological aspects of nuclear proliferation.)

Donald R. Cotter, "Peacetime Operations: Safety and Security," in Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket, eds., *Managing Nuclear Operations* (Washington, D.C.: Brookings, 1987), section on pp. 42-53. (Useful discussion of Permissive Action Links and other features to prevent accidental detonations or unauthorized use of nuclear weapons.)

Samuel Glasstone and Phillip J. Dolan, *The Effects of Nuclear Weapons*, 3rd Ed. (Washington, D.C.: U.S. Department of Defense and Energy Research and Development Administration, 1977), <http://fissilematerials.org/library/gla77.pdf> (The definitive U.S. government textbook.)

Alexander Glaser, "Nuclear Weapons Effects" [lecture slides], http://www.princeton.edu/~aglaser/lecture2007_weaponeffects.pdf (Very nice summary slides.)

Frederic Solomon, M.D., and Robert Q. Marston, M.D., *The Medical Implications of Nuclear War* (Washington, D.C.: National Academy Press, 1986), esp. Theodore Postol, Chapter 1,

“Possible Fatalities from Superfires Following Nuclear Attacks in or near Urban Areas,” http://www.nap.edu/openbook.php?record_id=940&page=15 (Detailed account of mass fires and their dangers; the whole study provides a useful overview of the awesome challenge of medical response to nuclear attacks.)

Lynn Eden, *Whole World on Fire: Organizations, Knowledge, and Nuclear Weapons Devastation* (Ithaca, N.Y.: Cornell, 2006). (Fascinating discussion of the organizational reasons why U.S. analyses of strategic requirements largely ignored mass fires, one of the most devastating effects of nuclear weapons.)

12 September: Nuclear material production, safeguards, threats, and diplomacy: North Korea, 1992-1994

(Although this case occurred long ago, we start with it as it (a) sets the stage for what is happening with North Korea today; (b) involves both the plutonium and uranium paths to the bomb, which are important to understand from the beginning; and (c) involves many of the key tools of nonproliferation policy, from diplomacy to possible military strikes.)

Watch Bunn video on how plutonium and highly enriched uranium are made, on class web page.

“Standing at the Brink in North Korea: The Counterproliferation Imperative,” in Ashton B. Carter and William J. Perry, *Preventive Defense: A New Security Strategy for America* (Washington, D.C.: Brookings Institution Press, 1999), pp. 123-142.

“Carrots, Sticks, and Question Marks: Negotiating the North Korean Crisis (A)” Harvard Kennedy School Case C18-95-1297.0, 39 pp.

“Carrots, Sticks, and Question Marks: Negotiating the North Korean Crisis (B)” Harvard Kennedy School Case C18-95-1298.0, 17 pp.

Houston G. Wood, Alexander Glaser, and R. Scott Kemp, “The Gas Centrifuge and Nuclear Weapons Proliferation,” *Physics Today*, pp. 40-45 http://ptonline.aip.org/journals/doc/PHTOAD-ft/vol_61/iss_9/40_1.shtml

Recommended Reading

Office of Technology Assessment, “Technical Aspects of Nuclear Proliferation,” in *Technologies Underlying Weapons of Mass Destruction* (Washington, DC: OTA, December 1993), pp. 129-149. <http://www.fas.org/spp/starwars/ota/9344.html>

Peter Zimmerman, “Proliferation: Bronze Medal Technology is Enough,” *Orbis*, Vol. 38, No. 1 (Winter 1994), pp. 67-83. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=mth&AN=9409027514&site=ehost-live&scope=site>

R. Scott Kemp, “The Nonproliferation Emperor Has No Clothes: The Gas Centrifuge, Supply-Side Controls, and the Future of Nuclear Proliferation,” *International Security*, Vol. 38, No. 4., pp. 39-78. <http://dspace.mit.edu/handle/1721.1/89182>

Daniel B. Poneman, Joel S. Wit, and Robert L. Gallucci, *Going Critical: The First North Korean Nuclear Crisis* (Washington, D.C.: Brookings, 2004).

Leon V. Sigal, *Disarming Strangers: Nuclear Diplomacy With North Korea* (Princeton: Princeton University Press, 1998), esp. pp. 90-123, 150-161, 184-191.

William J. Perry, *Review of United States Policy Toward North Korea: Findings and Recommendations* (Washington, D.C.: U.S. Department of State, 12 October 1999), http://belfercenter.hks.harvard.edu/publication/2017/review_of_united_states_policy_toward_north_korea.html

Victor D. Cha and David C. Kang, *Nuclear North Korea: A Debate on Engagement Strategies* (New York: Columbia, 2005) 280 pp.

17 September: Why states decide to get, or not to get, nuclear weapons

Scott Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security*, Vol. 21, No. 3, Winter 1996/1997, pp. 54-86. https://fsi.stanford.edu/sites/default/files/Why_Do_States_Build_Nuclear_Weapons.pdf

Matthew Bunn, "Realist, Idealist, and Integrative Approaches to Proliferation Policy" (unpublished, 2003), available on class Canvas page.

Recommended Reading

Scott Sagan, "The Causes of Nuclear Weapons Proliferation," *Annual Review of Political Science* 2011, Vol. 14, pp. 225-44. http://iis-db.stanford.edu/pubs/23205/Sagan_Causesof_NuclearWeaponsProliferation.pdf (An excellent survey of how the literature evolved after his seminal 1996/1997 paper.)

Mark Bell, "Examining Explanations for Nuclear Proliferation," *International Studies Quarterly*, (2015), 0, pp. 1-10, <http://isq.oxfordjournals.org.ezp-prod1.hul.harvard.edu/content/isq/early/2015/12/14/isq.sqv007.full.pdf> (A detailed case that the statistical analyses of proliferation offer less insight than may at first appear. See also the important discussion of this article here: <http://www.isanet.org/Publications/ISQ/Posts/ID/5003/What-Drives-Nuclear-Proliferation>)

Jacques E. C. Hymans, "The Study of Nuclear Proliferation and Nonproliferation: Toward a New Consensus?" in William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century: The Role of Theory: Vol. 1* (Stanford: Stanford University Press, 2010), pp. 13-37. (Both volumes of this book are quite useful, providing a strong overview of the literature on why states get or do not get nuclear weapons and on particular cases.)

Philipp Bleek, *When Did (and Didn't) States Proliferate? Chronicling the Spread of Nuclear Weapons* (Cambridge, Mass: Project on Managing the Atom, Belfer Center for Science and International Affairs, Belfer Center for Science and International Affairs, Harvard Kennedy School, and the James Martin Center for Nonproliferation Studies, Middlebury Institute of International Studies, Monterey, Calif., June 2017), <https://www.belfercenter.org/publication/when-did-and-didnt-states-proliferate> (The best available dataset on which countries explored, pursued, or acquired nuclear weapons, and when.)

Jim Walsh, *Bombs Unbuilt: Power, Ideas, and Institutions in International Politics*, unpublished Ph.D. dissertation, Massachusetts Institute of Technology, 2001. (Unfortunately, never turned into a book – a remarkable analysis of why states do not build nuclear weapons, breaking countries' programs down into many smaller decisions that are either in the direction toward or away from nuclear weapons.)

Mitchell Reiss, *Bridled Ambition: Why States Constrain Their Nuclear Capabilities* (Washington D.C.: Woodrow Wilson Center Press, 1995), esp. Chapter 7, “Conclusion,” pp. 321-333. (Another very useful analysis of what states choose not to build nuclear weapons.)

William C. Potter and Gaukhar Mukhatzhanova, “Divining Nuclear Intentions: A Review Essay,” *International Security*, Vol. 33, No. 1, Summer 2008, pp. 139-169. (A useful summary of the literature, based in part on the papers from the *Forecasting Nuclear Proliferation in the 21st Century* volumes.)

Ariel E. Levite, “Never Say Never Again: Nuclear Reversal Revisited,” *International Security*, Vol. 27, No. 3, Winter 2002/2003, pp. 59-88. (A classic. Just because a country stopped its nuclear weapons effort for the time being doesn’t mean that will last forever.)

19 September: The Nonproliferation Treaty (NPT) and the global nonproliferation regime

“Treaty on the Non-Proliferation of Nuclear Weapons”

<http://www.un.org/events/npt2005/npttreaty.html>

George Bunn, “The Nuclear Nonproliferation Regime and Its History,” Chapter 3 in George Bunn and Christopher Chyba, eds., *U.S. Nuclear Weapons Policy: Confronting Today’s Threats* (Washington, D.C.: Brookings, 2006), pp. 75-88, 94-103. (Perhaps the best available overview of the regime, by one of the NPT’s negotiators – and one of the instructors’ father.)

Graham T. Allison, “Flight of Fancy,” in *Annals of the American Academy of Political and Social Science*, Vol. 607 (September 2006), pp. 162-166, <http://www.jstor.org.ezp-prod1.hul.harvard.edu/stable/25097846> (Though old, this provides a useful crystallization of the view that the NPT regime is fragile and might collapse.)

Matthew Bunn, “The Success and Resilience of the NPT.” (Memo, to be provided; an argument that the NPT regime has been successful and shows strong signs of resilience.)

Matthew Bunn, “The Impact of States Outside the NPT Regime.” (Memo, to be provided.)

Recommended Reading

Jim Walsh, “Learning From Past Success: The NPT and the Future of Non-Proliferation,” No. 41 (Stockholm: Weapons of Mass Destruction Commission, October 2005), <http://www.blixassociates.com/wp-content/uploads/2011/03/no41.pdf> (An excellent overview of evidence for the NPT’s success, and a very interesting theory of the reasons for that success.)

Steven E. Miller, “Nuclear Collisions: Discord, Reform & the Nuclear Nonproliferation Regime,” *American Academy of Arts & Sciences*, 2012, <http://www.amacad.org/pdfs/nonproliferation.pdf> (Now several years old, this is still an excellent summary of the debates between nuclear weapon states and non-nuclear-weapon states over the NPT and its future.)

Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: An Enduring Debate* (New York: Norton, 2012). (3rd edition of a classic: exploring the arguments as to whether nuclear proliferation makes the world more dangerous – the dominant view – or safer.)

Lewis A. Dunn, “The NPT: Assessing the Past, Building the Future,” *Nonproliferation Review*, Vol. 16, No. 2 (July 2009), pp. 143-172, <https://www.nonproliferation.org/wp-content/uploads>

[/npr/npr_16-2_dunn.pdf](#). (Useful assessment of the impact of each of the key articles of the NPT.)

Matthew Bunn, “The Origin and Importance of the Nuclear Nonproliferation Treaty,” (remarks at event celebrating the 50th anniversary of the NPT, U.S. State Department, June 28, 2018), available on the class Canvas page.

Michael Krepon, “Proliferation Optimism vs. Pessimism Revisited,” *Arms Control Wonk*, March 30, 2018, <https://www.armscontrolwonk.com/archive/1204999/proliferation-optimism-vs-pessimism-revisited/>

Avner Cohen and William Burr, “The Untold Story of Israel’s Bomb,” *Washington Post*, 30 April 2006, http://www.washingtonpost.com/wp-dyn/content/article/2006/04/28/AR2006042801326_pf.html

Subrata Ghoshroy, “Taking Stock: The U.S.-India Nuclear Deal 10 Years Later,” *Bulletin of the Atomic Scientists*, 16 February 2016, <http://thebulletin.org/taking-stock-us-india-nuclear-deal-10-years-later9165>

Beatrice Fihn, “Nobel Peace Prize Acceptance Speech,” December 10, 2017, <https://www.wagingpeace.org/beatrice-fihn-nobel-peace-prize-acceptance-speech/> (Statement in favor of the treaty prohibiting all nuclear weapons, from a key leader of the movement that brought it into being.)

Scott Sagan and Benjamin A. Valentino, “The Nuclear Weapons Ban Treaty: Opportunities Lost,” *Bulletin of the Atomic Scientists*, July 16, 2017, <https://thebulletin.org/2017/07/the-nuclear-weapons-ban-treaty-opportunities-lost/> (A thoughtful critique of the ban treaty.)

Jeffrey W. Knopf, ed., *Security Assurances and Nuclear Nonproliferation* (Stanford, Calif.: Stanford University Press, 2012).

“Nuclear-Weapon-Free Zones,” *Disarmament Forum* (United Nations Institute for Disarmament Research), 2011, No. 2, <http://www.unidir.org/files/publications/pdfs/nuclear-weapon-free-zones-en-314.pdf>

Thomas Graham, “The Nuclear Non-Proliferation Treaty and the Comprehensive Test Ban Treaty, the Relationship,” in Pierce S. Corden, David Hafemeister, and Peter Zimmerman, *Nuclear Weapon Issues in the 21st Century*, conference proceedings (Washington, D.C.: American Institute of Physics, 2014), <https://aip.scitation.org/doi/pdf/10.1063/1.4876457>

Oliver Meier, *The 2015 NPT Review Conference Failure: Implications for the Nuclear Order* (Berlin: German Institute for International and Security Affairs, October 2015), https://www.swp-berlin.org/fileadmin/contents/products/arbeitspapiere/mro_wp_NVV_October2015.pdf

Andrey Baklitsky, “The 2015 NPT Review Conference and the Future of the Nonproliferation Regime,” *Arms Control Today*, July/August 2015, http://www.armscontrol.org/ACT/2015_0708/Features/The-2015-NPT-Review-Conference-and-the-Future-of-The-Nonproliferation-Regime

“Agree to Disagree: Banning WMD in the Middle East,” *Bulletin of the Atomic Scientists*, June-August 2013 <http://thebulletin.org/banning-wmd-middle-east> (A variety of perspectives on the proposal for a Weapons of Mass Destruction Free Zone in the Middle East, which has been a

central element of NPT politics for over 20 years.)

Martin B. Malin and Steven E. Miller, “A WMD Free Zone in the Middle East: From the Outside Looking In”; Sameh Aboul-Enein, “Making Progress on the Middle East Nuclear- and WMD-Free Zone: Egypt’s NPT Pillar”; “Where do We Go From Here? A New Israeli Approach to Tension-Reduction in the Middle East”; and Paolo Foradori, “Conclusion: Keep the Ball Rolling” in Paolo Foradori and Martin B. Malin, eds., *A WMD Free Zone in the Middle East: Regional Perspectives* (Cambridge, Mass.: Project on Managing the Atom, Harvard University, November 2013), http://belfercenter.ksg.harvard.edu/files/dp_2013-09.pdf

George Bunn, “The NPT: Banning Transfers of Nuclear Weapons Takes Two Decades,” and “The NPT Finally Brings Widespread International Safeguards on Reactors,” in *Arms Control by Committee: Managing Negotiations with the Russians* (Stanford: Stanford University Press, 1992). (Explaining the history of key provisions of the NPT.)

Roland Popp, Liviu Horowitz, and Andreas Wenger, eds., *Negotiating the Nuclear Nonproliferation Treaty: Origins of the Nuclear Order* (Abingdon, Oxon, U.K.: Routledge, 2016).

William C. Potter and Sarah Bidgood, *Once and Future Partners: The United States, Russia, and Nuclear Non-Proliferation* (London: International Institute for Strategic Studies, 2018), especially Lewis A. Dunn, “Negotiating and Sustaining the Non-Proliferation Treaty: Challenges and Lessons for U.S.-Russia Cooperation,” pp. 117-134. (Another version of the history of the NPT negotiation.)

24 September: North Korea Parts II, III... 2001-Present

William H. Tobey, “Lessons from Negotiations with North Korea, 2002-2018” (memo, to be provided)

David Albright, “Understanding North Korea’s Nuclear Weapon Capabilities,” presentation (Washington, D.C.: Institute for Science and International Security, May 9, 2018), http://isis-online.org/uploads/isis-reports/documents/Albright_North_Korea_slides_for_CTR_talk_may_9%2C_2018_final_pdf.pdf.

Victor Cha, *The Impossible State: North Korea, Past and Future* (New York: Harper-Collins, 2012), pp. 255-274.

Six Party Talks Joint Statement, 19 September 2005, http://www.chinadaily.com.cn/english/doc/2005-09/19/content_479150.htm

Jeffrey Lewis, “Rockets and the Leap Day Deal,” *armscontrolwonk.com*, 23 March 2012, <http://lewis.armscontrolwonk.com/archive/5098/rockets-and-the-leap-day-deal>

Singapore summit statement, June 12, 2018: <https://www.whitehouse.gov/briefings-statements/joint-statement-president-donald-j-trump-united-states-america-chairman-kim-jong-un-democratic-peoples-republic-korea-singapore-summit/>

William H. Tobey, “Kim Got What He Wanted in Singapore. Trump Didn’t,” *Foreign Policy*, June 13, 2018, <https://www.belfercenter.org/publication/kim-got-what-he-wanted-singapore-trump-didnt>

Graham Allison, "Grading the Singapore Summit: Compared to What?" *The National Interest*, June 15, 2018. <https://nationalinterest.org/feature/grading-the-singapore-summit-compared-what-26275>

Recommended Reading

Emma Chantlett-Avery, Mark E. Manyin, Mary Beth D. Nikitin, Caitlin Elizabeth Campbell, and Wil Mackey, *North Korea: U.S. Relations, Nuclear Diplomacy, and Internal Situation* (Washington, D.C.: Congressional Research Service, July 27, 2018), <https://fas.org/sgp/crs/nuke/R41259.pdf>

Arms Control Association, "Chronology of U.S.-North Korean Nuclear and Missile Diplomacy," August 2018, <http://www.armscontrol.org/factsheets/dprkchron>

38 North: <http://38north.org/> (Useful source for analysis related to North Korea generally.)

Mark Fitzpatrick, "Kim Jong-Un's Singapore Sting," *Survival*, pp. 29-36, <https://www.tandfonline.com/doi/full/10.1080/00396338.2018.1494977>

Joby Warrick, "Did Kim Jong Un's 'Historic' Missile Get a Boost From Old Soviet Weapons?" *Washington Post*, February 16, 2018, https://www.washingtonpost.com/world/national-security/did-kim-jong-uns-historic-missile-get-a-boost-from-old-soviet-weapons/2018/02/15/b8085ba6-1291-11e8-9570-29c9830535e5_story.html?utm_term=.5719492aed04

Chung-in Moon, "There Were No Losers at the Singapore Summit: What Critics of the U.S. North-Korea Meeting Get Wrong," *Foreign Affairs*, June 19, 2018, <https://www.foreignaffairs.com/articles/north-korea/2018-06-19/there-were-no-losers-singapore-summit>

John S. Park, "Inside Multilateralism: The Six-Party Talks," *Washington Quarterly*, Vol. 28, No. 4 (Autumn 2005), pp. 75-91 http://catalogo.casd.difesa.it/GEIDFile/05autumn_park.PDF?Archive=191987991916&File=05autumn_park_PDF

U.S. Department of State, "U.S.-North Korea Understandings on Verification," 11 October 2008, http://www.cfr.org/publication/17538/usnorth_korea_understandings_on_verification.html

Mike Chinoy, *Meltdown: The Inside Story of the North Korean Nuclear Crisis* (New York: St. Martin's Press, 2008), 432 pp.

Victo Cha, *The Impossible State: North Korea, Past and Future* (New York: Harper-Collins, 2012).

26 September: Nuclear deterrence, nuclear doctrine, and nuclear risks

Albert Wohlstetter, "The Delicate Balance of Terror," *Foreign Affairs*, Vol. 37, No. 2, January 1959. <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=14722047&site=ehost-live&scope=site>

(A classic description of the danger of nuclear forces vulnerable to enemy attack; highlights the nuclear fears of the early Cold War, and the belief, still common, that deterrence is delicate and difficult to maintain.)

Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960), 1st two pages of “The Reciprocal Fear of Surprise Attack” (pp. 207-208), and 1st 13 pages of “Surprise Attack and Disarmament,” (pp. 230-242), <http://elcenia.com/iamapirate/schelling.pdf> (Another classic. Highlights the increased risk of war if both sides believe that if war came, they would be much better off if they were the one that struck first, a concept known as “crisis instability.”)

Robert Jervis, “Eric Schlosser and the Illusion of Nuclear Weapons Safety,” *The Nation*, October 15, 2013, <https://www.thenation.com/article/eric-schlosser-and-illusion-nuclear-weapons-safety/> (A brief description of key dangers from accidents, unauthorized use, and false alarms, reviewing Eric Schlosser’s book *Command and Control*.)

Matthew Bunn, “Wohlstetter, Schelling, and Sagan: Concepts of How Nuclear War Might Start,” unpublished memo, 2019. (To be provided.)

Jeffrey Lewis, “Minimum Deterrence,” *Bulletin of the Atomic Scientists*, Vol. 64, No. 3 (July/August 2008), pp. 38-41 http://www.newamerica.net/publications/articles/2008/minimum_deterrence_7552 (A useful brief presentation of the argument that deterrence only requires a modest number of survivable nuclear weapons.)

Keith B. Payne et al., *Minimum Deterrence: Examining the Evidence* (Fairfax, Vir.: National Institute for Public Policy, 2013), Executive Summary, pp. xiii-xxv. <http://www.nipp.org/Final%20for%20Distro%207.17.pdf> (A fierce critique of the minimum deterrence argument.)

“Russian Nuclear Doctrine,” GlobalSecurity.org, November 28, 2018, <https://www.globalsecurity.org/wmd/world/russia/doctrine.htm> (Please consider also the description of U.S. doctrine and its response to Russian doctrine.)

Liping Xia, “China’s Nuclear Doctrine: Debates and Evolution,” Carnegie Endowment for International Peace, June 30, 2016, <https://carnegieendowment.org/2016/06/30/china-s-nuclear-doctrine-debates-and-evolution-pub-63967> **Note: only the section entitled “The Key Features of China’s Nuclear Doctrine” is required.**

Michael Krepon, “Sechser and Fuhrman: Deterrence Yes; Coercion No,” *Arms Control Wonk*, June 13, 2017, <https://www.armscontrolwonk.com/archive/1203367/sechser-coercion-no/> (Useful short summary of recent book on what nuclear threats can and cannot accomplish.)

Recommended Reading

Ashton B. Carter, “Nuclear Deterrence: Still the Bedrock of U.S. Security,” *American Interest*, Vol. 12, No. 6 (April 2017), <https://www.the-american-interest.com/2017/04/06/nuclear-deterrence-still-the-bedrock-of-us-security/> (A strong statement on the need for nuclear deterrence from the former Secretary of Defense.)

Robert S. McNamara, “Forty Years After 13 Days,” *Arms Control Today*, November 2002 (with additional oral history and documents) at “The Cuban Missile Crisis: Revisited on the Anniversary,” http://www.armscontrol.org/act/2002_11/cubanmissile (Reflections on the dangers of the Cuban Missile Crisis by the Secretary of Defense at the time.)

Lisbeth Gronlund, David Wright, and Steve Fetter, “How to Limit Presidential Authority to Order the Use of Nuclear Weapons,” *Bulletin of the Atomic Scientists*, January 23,

2018, <https://thebulletin.org/2018/01/how-to-limit-presidential-authority-to-order-the-use-of-nuclear-weapons/>

James N. Miller and Richard Fontaine, *A New Era in U.S.-Russia Strategic Stability: How Changing Geopolitics and Emerging Technologies are Reshaping Pathways to Crisis and Conflict* (Washington, D.C.: Center for a New American Security, September 2017), <https://www.cnas.org/publications/reports/a-new-era-in-u-s-russian-strategic-stability>

McGeorge Bundy, "To Cap the Volcano," *Foreign Affairs*, Vol. 48, No. 1, October 1969, <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=5802706&site=ehost-live&scope=site> (A classic argument that beyond a few survivable nuclear weapons, more does not help for nuclear deterrence.)

Dmimitri Trenin, "Strategic Stability in the Changing World," Carnegie Moscow Center, March 2019, https://carnegieendowment.org/files/3-15_Trenin_StrategicStability.pdf

James Acton, "Reclaiming Strategic Stability," in Elbridge A. Colby and Michael S. Gerson, eds., *Strategic Stability: Contending Interpretations* (Carlisle, Penn.: Strategic Studies Institute and U.S. Army War College Press, 2013), <http://www.strategicstudiesinstitute.army.mil/pdf/files/pub1144.pdf>

Keir A. Lieber and Daryl G. Press, "The Nukes We Need: Preserving the American Deterrent," *Foreign Affairs*, Vol. 88, No. 6 (November/December 2009), pp. 39-51.

http://www.alternatewars.com/BBOW/ABC_Weapons/TheNukesWeNeed.pdf
(Also recommended: the exchange of letters over this article in the March/April 2010 issue, <http://www.heinonline.org.ezp-prod1.hul.harvard.edu/HOL/Page?handle=hein.journals/fora89&id=1&size=2&collection=journals&index=journals/fora>)

Mark Bell, "Beyond Emboldenment: How Acquiring Nuclear Weapons Can Change Foreign Policy," *International Security*, Vol. 40, No. 1 (Summer 2015), pp. 87-119. (Nuclear weapons can allow states to change their foreign policies in a variety of ways.)

Alexei Arbatov and Vladimir Dvorkin, *Beyond Nuclear Deterrence: Transforming the U.S.-Russian Equation* (Washington, D.C.: Carnegie Endowment for International Peace, 2006). (A perspective from Russian arms control advocates on reducing the dangers of the nuclear balance.)

Matthew Bunn, Valentin Kuznetsov, Yuri Morozov, Gary Samore, Simon Saradzhyan, William Tobey, Victor Yesin, and Pavel Zolotarev, *Transcending Mutual Deterrence in the U.S.-Russian Relationship* (Cambridge, Mass.: Belfer Center for Science and International Affairs, Harvard Kennedy School, and Institute for USA and Canada Studies, September 2013), <http://belfercenter.ksg.harvard.edu/files/MAD%20English.pdf>

Thomas C. Schelling and Morton H. Halperin, *Strategy and Arms Control* (1985 ed.) (Washington, D.C.: Pergamon-Brassey's, 1985), pp. 9-31. (A classic, originally published in 1961; most debates about deterrence and arms control that have occurred since are prefigured somewhere in this book.)

Lawrence Freedman, *The Evolution of Nuclear Strategy*, 3rd Ed. (Basingstoke, U.K.: Palgrave MacMillan, 2003) (A classic description of the U.S. debates over nuclear doctrine and forces during the Cold War.)

Scott D. Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton: Princeton University Press, 1993) [especially the chapter, “The Limits of Safety,” pp. 250-279.] (Through an exploration of particular incidents, assesses the nuclear risks that may arise accidentally, rather than by intention.)

Eric Schlosser, *Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety* (New York: Penguin, 2013). (A thoroughly reported account of the dangers of nuclear weapons accidents and false alarms, and the efforts to cope with them over the years.)

Charles L. Glaser, *Analyzing Strategic Nuclear Policy* (Princeton, N.J.: Princeton University Press, 1990) (A clear, careful discussion of key debates about counterforce, extended deterrence, missile defenses, and more.)

Vipin Narang, *Nuclear Strategy in the Modern Era: Regional Powers and International Conflict* (Princeton, N.J.: Princeton University Press, 2014). (Describes the somewhat different nuclear doctrines that regional powers adopt.)

1 October: Nuclear delivery systems and defenses

Kingston Rief and Travis Sharp, “Pruning the Nuclear Triad? Pros and Cons of Submarines, Bombers, and Missiles,” Center for Arms Control and Nonproliferation, May 16, 2013, <https://armscontrolcenter.org/pruning-the-nuclear-triad-pros-and-cons-of-submarines-bombers-and-missiles/>

Gen. C. Robert Kehler, USAF (ret.), “The U.S. Needs a New ICBM Now,” National Institute for Public Policy, Information Series, No. 444, August 16, 2019, <http://www.nipp.org/wp-content/uploads/2019/08/IS-444.pdf>

Hans M. Kristensen and Matt Korda, “Status of World Nuclear Forces,” July 2019, <https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>

Hans M. Kristensen and Matt Korda, “Chinese Nuclear Forces, 2019,” *Bulletin of the Atomic Scientists*, 75:4, pp. 171-178, <https://www.tandfonline.com/doi/pdf/10.1080/00963402.2019.1628511?needAccess=true>

Hans M. Kristensen and Matt Korda, “Russian Nuclear Forces, 2019,” *Bulletin of the Atomic Scientists*, 75:2, pp. 73-84, <https://www.tandfonline.com/doi/pdf/10.1080/00963402.2019.1580891?needAccess=true>

Hans M. Kristensen and Matt Korda, “United States Nuclear Forces, 2019,” *Bulletin of the Atomic Scientists*, 75:3, pp. 122-134, <https://www.tandfonline.com/doi/pdf/10.1080/00963402.2019.1606503?needAccess=true>

“U.S. Missile Defense Programs at a Glance,” *Arms Control Association*, May 2018 (Updated January 2019), <http://www.armscontrol.org/factsheets/usmissiledefense>

Steve Pifer, “The Limits of U.S. Missile Defense,” *The National Interest*, March 30, 2015, <https://nationalinterest.org/feature/the-limits-us-missile-defense-12503>

“U.S. Missile Defense System in Europe May Be Used Against Russia – Putin,” *TASS*, 18 June 2016, <http://tass.ru/en/politics/883251>

Recommended Reading

“2019 Missile Defense Review,” U.S. Department of Defense, Washington, DC, https://www.defense.gov/Portals/1/Interactive/2018/11-2019-Missile-Defense-Review/The%202019%20MDR_Executive%20Summary.pdf (particularly the Executive Summary)

Jonathan Masters, “CFR Backgrounder: Ballistic Missile Defense,” August 15, 2014 <http://www.cfr.org/missile-defense/ballistic-missile-defense/p30607>

“U.S. Missile Defense Programs at a Glance,” *Arms Control Association*, May 2018, <http://www.armscontrol.org/factsheets/usmissiledefense>

Rod Lyon, “The Hard Truth About THAAD, South Korea, and China,” *The National Interest*, 23 February 2016, <http://nationalinterest.org/blog/the-buzz/the-hard-truth-about-thaad-south-korea-china-15295>

Dean A. Wilkening, “Does Missile Defense in Europe Threaten Russia?” *Survival*, Vol. 54, No. 1 (February-March 2012), pp. 31-52.

Bruce W. MacDonald and Charles D. Ferguson, “Chinese Strategic Missile Defense: Will it Happen, and What Would it Mean?” *Arms Control Today*, November 2015, https://www.armscontrol.org/ACT/2015_11/Features/Chinese-Strategic-Missile-Defense-Will-It-Happen-and-What-Would-It-Mean

Ballistic and Cruise Missile Threat, NASIC-1031-0985-17 (Wright-Patterson Air Force Base, Ohio: National Air and Space Intelligence Center, 2017), <https://fas.org/irp/threat/missile/bm-2017.pdf>

Leonard Spector, “The Missile Technology Control Regime and Shifting Proliferation Challenges,” *Arms Control Today*, April 2018, <https://www.armscontrol.org/act/2018-04/features/missile-technology-control-regime-shifting-proliferation-challenges>

Center for Strategic and International Studies Missile Defense Project, “Missiles of the World” <https://missilethreat.csis.org/missile/> (A useful compendium of information on different countries’ missiles.)

Center for Strategic and International Studies Missile Defense Project, “Defense Systems” <https://missilethreat.csis.org/defsys/> (An overview of information on different systems for missile defense.)

U.S. Department of Defense, Director of Operational Test and Evaluation, “2014 Assessment of the Ballistic Missile Defense System” (Washington, D.C.: U.S. DOD, March 2015), <https://www.documentcloud.org/documents/3033790-2014-Assessment-of-the-Ballistic-Missile-Defense.html> (This version is detailed, laying out the status of systems specifically; the most recent updates are quite brief, indicating what progress has and has not been made since then: U.S. Department of Defense, Director of Operational Test and Evaluation, “FY18 Ballistic Missile Defense Systems” (Washington, D.C.: U.S. DOD, 2018), <https://www.dote.osd.mil/pub/reports/FY2018/pdf/bmds/2018bmds.pdf>

Laura Grego and David Wright, “Why a Missile Defense System in Space is a Bad Idea,” *Politico*, August 10, 2018, <https://www.politico.com/story/2018/08/10/space-missile-defense-system-opinion-768941>

A.M. Sessler, chair, *Countermeasures: A Technical Evaluation of the Operational Effectiveness of the Planned U.S. National Missile Defense System* (Cambridge, Mass: Union of Concerned Scientists and MIT Security Studies Program, April 2000)
http://www.ucsusa.org/assets/documents/nwgs/cm_all.pdf

3 October: Nuclear arms control and disarmament

John D. Maurer, “The Purposes of Arms Control,” *Texas National Security Review*, Vol. 2, Issue 1., November 2018, <https://2llqix3cnhb21kcxpr2u9o1k-wpengine.netdna-ssl.com/wp-content/uploads/2018/11/TNSR-Vol-2-Issue-1-Maurer.pdf>

Ernest J. Moniz and Sam Nunn, “The Return of Doomsday: The New Nuclear Arms Race—and How Washington and Moscow Can Stop It,” *Foreign Affairs*, August 2019

Daryl Kimball and Kingston Rief, “U.S.-Russian Nuclear Arms Control Agreements at a Glance,” Arms Control Association, August 2019,
<https://www.armscontrol.org/factsheets/USRussiaNuclearAgreements> (Note, this summary excludes the 1972 ABM Treaty, which arguably was an important arms control agreement.)

Matthew Bunn, “For Security’s Sake: Saving U.S.-Russian Nuclear Arms Control,” presentation, Oak Ridge National Laboratory, October 11, 2018, https://scholar.harvard.edu/files/matthew_bunn/files/for_securitys_sake_saving_us-russian_nuclear_arms_control_presentation_10-11-18.pdf

Amy Woolf, “Russian Compliance with the Intermediate Nuclear Forces (INF) Treaty: Background and Issues for Congress,” Congressional Research Service, Washington, DC, August 2, 2019, <https://fas.org/sgp/crs/nuke/R43832.pdf>

George P. Schultz, William J. Perry, Henry Kissinger, and Sam Nunn, “A World Free of Nuclear Weapons,” *Wall Street Journal*, 4 January 2007
<https://www.wsj.com/articles/SB116787515251566636?ns=prod/accounts-wsj> (The op-ed from senior U.S. statesmen that helped to revive discussion of going to zero nuclear weapons.)

Padraig Belton, “Can the Ban Treaty Eliminate the Threat of Nuclear War? The Clock is Ticking Down,” PRI, March 14, 2019, <https://www.pri.org/stories/2019-03-14/can-ban-treaty-eliminate-threat-nuclear-war-clock-ticking-down>

Recommended Reading

Lewis A. Dunn, “The Strategic Elimination of Nuclear Weapons: An Alternative Global Agenda for Nuclear Disarmament,” *Nonproliferation Review*, Vol. 24, No. 5-6 (May 2018), with a broad range of responses and commentaries,
<https://www.tandfonline.com/doi/full/10.1080/10736700.2018.1440733> (Dunn argues that even if nuclear weapons cannot readily be physically eliminated, they can be made irrelevant as “instruments of strategy, power, and security” by 2045, 100 years after the Hiroshima and Nagasaki attacks, and outlines steps in that direction.)

Beatrice Fihn, “The Logic of Banning Nuclear Weapons,” *Survival*, Vol. 59, No. 1 (2017),
<https://www.tandfonline.com/doi/full/10.1080/00396338.2017.1282671>

Keith B. Payne, “Why the ‘Nuclear Utopians’ are Wrong,” *Wall Street Journal*, March 15, 2015 <http://www.wsj.com/articles/keith-payne-the-nuclear-utopians-are-wrong-1426457846> (Subscription required, but full text available free from ProQuest through the Harvard Libraries.)

Sergey Rogov, “Can the U.S. and Russia Find a Path Forward on Arms Control?” *Foreign Affairs*, May 22, 2018, <https://www.foreignaffairs.com/articles/russian-federation/2018-05-22/can-us-and-russia-find-path-forward-arms-control> (A useful summary of the current near-breakdown in U.S.-Russian arms control – though it will take more than Russia offering inspections of the relevant missile to resolve Russia’s violation of the INF Treaty.)

George P. Schultz, William J. Perry, Henry Kissinger, and Sam Nunn, “Toward a Nuclear-Free World,” *Wall Street Journal*, 15 January 2008 <http://www.nti.org/analysis/opinions/toward-nuclear-free-world/>

George P. Schultz, William J. Perry, Henry Kissinger, and Sam Nunn, “Deterrence in the Age of Nuclear Proliferation,” *Wall Street Journal*, 7 March 2011, <http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/855148212/13F97594B8659E3E0F1/1?accountid=11311>

George P. Schultz, William J. Perry, Henry Kissinger, and Sam Nunn, “Next Steps in Reducing Nuclear Risks,” *Wall Street Journal*, 5 March 2013, <http://online.wsj.com/article/SB10001424127887324338604578325912939001772.html>

Union of Concerned Scientists, “Reducing the Danger of Nuclear War: Taking Nuclear Weapons Off High Alert” (Cambridge, Mass.: UCS, 2016), <https://www.ucsusa.org/sites/default/files/attach/2016/02/Reducing-Risk-Nuclear-War-full-report.pdf>

Robert J. Berls, Jr., and Leon Ratz, *Rising Nuclear Dangers: Steps to Reduce Risks in the Euro-Atlantic Region* (Washington, D.C.: Nuclear Threat Initiative, December 2016), http://www.nti.org/media/documents/NTI_Rising_Nuclear_Dangers_Paper_FINAL_12-5-16.pdf

8 October: Simulation

10 October: Simulation

During this week, students will participate in a negotiation simulation involving a scenario in which there is a new U.S. President and new arms control talks involving the United States, Russia, and China.

15 October: Simulation readout; future of nuclear weapons policy

Office of the Secretary of Defense, *Nuclear Posture Review* (Washington, D.C.: U.S. Department of Defense, February 2018), <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>, Secretary’s Preface, Executive Summary, and pp. 19-24. (Both continuity and change in the Trump administration’s nuclear policy.)

Thomas Countryman, “An Assessment of the New Nuclear Posture Review,” speech, February 20, 2018, <https://www.armscontrol.org/events/2018-02/assessment-new-nuclear-posture-review> (A critique of the Trump document from the current chairman of the Arms Control Association and former Assistant Secretary of State for Nonproliferation.)

Frank Miller, “Addressing Fears About the Nuclear Posture Review and Limited Nuclear Use,” *War on the Rocks*, February 28, 2018, <https://warontherocks.com/2018/02/addressing-fears-nuclear-posture-review-limited-nuclear-use/>. (A defense of the new initiatives in the Trump nuclear posture review from a former Defense Department nuclear official who advised the review.)

Ernest J. Moniz, Sam Nunn, Steve Andreasen, Samantha Pitts-Kiefer, Leon Ratz, Brian Rose, and Lynn Rusten, *A Roadmap for America’s Nuclear Policy and Posture* (Washington, D.C.: March 2018)

http://www.nti.org/media/pdfs/NTI_Paper_Roadmap_for_Nuclear_Policy_and_Posture_FINAL.pdf?_=1532986315 (Proposals on a broad range of key aspects of U.S. nuclear policy.)

Recommended Reading

Congressional Budget Office, *Approaches for Managing the Costs of U.S. Nuclear Forces, 2017-2046* (Washington, D.C.: CBO, October 2017), <https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53211-nuclearforces.pdf> (Current plans to modernize U.S. nuclear forces will cost \$1.2 trillion over 30 years; there are options to save money, but saving a major portion of the total would require substantial changes in U.S. nuclear forces.)

William J. Perry (chair), James R. Schlesinger (vice-chair), *America’s Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States* (Washington, D.C.: United States Institute of Peace, 2009)

http://www.usip.org/files/America's_Strategic_Posture_Auth_Ed.pdf (A bipartisan commission on nuclear policy from 2009 – the last time Congress commissioned a bipartisan effort.)

William Perry and Brent Scowcroft, co-chairs, *U.S. Nuclear Weapons Policy* (Washington, D.C.: Council on Foreign Relations, 2009) <https://www.cfr.org/report/us-nuclear-weapons-policy> (Another bipartisan effort involving Perry from 2009, with some slightly different perspectives.)

Brad Roberts, *The Case for U.S. Nuclear Weapons in the 21st Century* (Palo Alto, Calif.: Stanford University Press, 2015). (A thoughtful version of the argument that the United States needs a robust nuclear force.)

Robert Joseph, “Trump Nuclear Posture Outlines Reasoned Steps to Ensure Deterrence After Years of Neglect,” *The Hill*, February 6, 2018, <http://thehill.com/opinion/national-security/372301-trump-nuclear-posture-sets-forth-reasoned-steps-to-ensure> (Another supportive take on the Trump nuclear posture review.)

Pierce Corden, Tony Fainberg, David Hafemeister, and Allison Macfarlane, eds., *Nuclear Weapons and Related Security Issues* (Washington, D.C.: American Institute of Physics, 2017), especially Steve Pifer, “The Future of U.S.-Russia Nuclear Arms Control.”

<https://aip.scitation.org/toc/apc/1898/1?expanded=1898> (These conference proceedings provide a useful update on a broad range of current issues in arms control and reducing nuclear dangers.)

17 October: Nuclear Dangers in South Asia

Vipin Narang, “Pakistan’s Nuclear Posture: Implications for South Asian Stability,” Policy Brief (Cambridge, Mass.: Belfer Center for Science and International Affairs, Harvard Kennedy

School, January 2010).

http://belfercenter.ksg.harvard.edu/files/Pakistans_Nuclear_Posture_policy_brief.pdf

Vipin Narang, remarks on Indian nuclear policy potentially evolving toward counterforce strikes against Pakistan, Carnegie Endowment International Nuclear Policy Conference, March 2017

<http://carnegieendowment.org/2017/03/20/plenary-beyond-nuclear-threshold-causes-and-consequences-of-first-use-pub-64779> (beginning at 13:40; for a written text rather than a video, see: <https://southasianvoices.org/sav-dc-nukefest2017-potential-indian-nuclear-first-use/>)

Michael Krepon, "The Counterforce Compulsion in South Asia," *Arms Control Wonk*, April 12, 2017 (response to Narang), <http://www.armscontrolwonk.com/archive/1203018/the-counterforce-compulsion-in-south-asia/>

Stimson Center, "Confidence-Building Measures in South Asia" (Washington, D.C.: Henry L. Stimson Center, September 17, 2010) <http://www.stimson.org/research-pages/confidence-building-measures-in-south-asia/>

Recommended Reading

Sumit Ganguly and S. Paul Kapur, *India, Pakistan, and the Bomb: Debating Nuclear Stability in South Asia* (New York: Columbia University Press, 2010).

Vipin Narang, *Nuclear Strategy in the Modern Era: Regional Powers and International Conflict* (Princeton, N.J.: Princeton University Press, 2014), esp. pp. 55-120.

Shashank Joshi, "Pakistan's Tactical Nuclear Nightmare: Déjà Vu?" *Washington Quarterly*, Vol. 36, No. 3 (Summer 2013), pp. 159-172

http://csis.org/files/publication/TWQ_13Summer_Joshi.pdf

Mansoor Ahmed, "Pakistan's Tactical Nuclear Weapons and Their Impact on Strategic Stability" (Washington, D.C.: Carnegie Endowment for International Peace, June 30, 2016), <https://carnegieendowment.org/2016/06/30/pakistan-s-tactical-nuclear-weapons-and-their-impact-on-stability-pub-63911>

C. Raja Mohan, "10 Years of Indo-US Civil Nuclear Deal: Transformation of the Bilateral Relationship is the Real Big Deal," *Indian Express*, July 20, 2015, <http://indianexpress.com/article/explained/10-yrs-of-indo-us-civil-nuclear-deal-transformation-of-the-bilateral-relationship-is-the-real-big-deal/>

Sumit Ganguly and Devin T. Hagerty, *Fearful Symmetry: India-Pakistan Crises in the Shadow of Nuclear Weapons* (Seattle: University of Washington Press, 2005).

"Reagan, Bush, and Pakistan's Bomb," in Peter Clausen, *Nonproliferation and the National Interest: America's Response to the Spread of Nuclear Weapons* (New York: HarperCollins, 1993), pp. 164-171.

Ashton B. Carter, "America's New Strategic Partner?" *Foreign Affairs*, July/August 2006, <http://www.jstor.org/stable/20032039>.

Daryl G. Kimball and Joseph Cirincione, "A Nonproliferation Disaster" (Washington, D.C.: Center for American Progress, 11 December

2006) <http://www.americanprogress.org/issues/security/news/2006/12/11/2403/a-nonproliferation-disaster/>

22 October: Nuclear safeguards and nuclear energy

Watch Bunn video on how safeguards work.

Matthew Bunn, “Proliferation Resistance (And Terror-Resistance) of Nuclear Energy: How to Think About the Problem,” presentation, Engineering and Public Policy, Carnegie Mellon University, December 12, 2014,

<http://www.belfercenter.org/sites/default/files/files/publication/prolif-resist-talk-2014.pdf>

Mohammed ElBaradei, “Nuclear Energy: The Need for a New Framework,” remarks to the International Conference on Nuclear Fuel Supply: Challenges and Opportunities, 17 April 2008,

<http://www.iaea.org/NewsCenter/Statements/2008/ebasp2008n004.html>

Martin Kalinowski and R. Scott Kemp, “Detection of Clandestine Fissile Material Production,” Chapter 9 in International Panel on Fissile Materials, *Global Fissile Materials Report 2007* (Princeton: IPFM, 2007), pp. 101-109,

http://www.fissilematerials.org/ipfm/site_down/gfmr07.pdf

Laura Rockwood, “The IAEA’s State-Level Concept and the Law of Unintended Consequences,” *Arms Control Today*, September 2014, <http://www.armscontrol.org/node/6556>

David Albright and Paul Brannan, “The Al-Kibar Reactor: Extraordinary Camouflage, Troubling Implications” (Washington, D.C.: Institute for Science and International Security, 12 May 2008)

http://www.isis-online.org/publications/syria/SyriaReactorReport_12May2008.pdf

Recommended Reading

Nuclear energy and proliferation:

Matthew Bunn, “Civil Nuclear Energy and Nuclear Weapons Programs: The Record” (unpublished memo) http://ocw.mit.edu/courses/nuclear-engineering/22-812j-managing-nuclear-technology-spring-2004/readings/prolif_history.pdf

Chapter 7, “Assessing the Proliferation Risks of Civilian Nuclear Programmes,” pp. 141-150, and Chapter 8, “Policy Options for Preventing a Proliferation Cascade,” pp. 151-164, in Mark Fitzpatrick, ed., *Nuclear Programmes in the Middle East: In the Shadow of Iran* (London: International Institute for Strategic Studies, 2008).

John P. Holdren, “Nuclear Power and Nuclear Weapons: The Connection is Dangerous,” *Bulletin of the Atomic Scientists*, Vol. 39, No. 1, January 1983, pp. 40-45.

Bernard I. Spinrad, “Nuclear Power and Nuclear Weapons: The Connection is Tenuous,” *The Bulletin of the Atomic Scientists*, Vol. 39, No. 2, February 1983, pp. 42-47.

Harold Feiveson, Alexander Glaser, Marvin Miller, and Lawrence Scheinman, *Can Future Nuclear Power be Made Proliferation Resistant?* (College Park, Md.: Center for International and Security Studies at Maryland, University of Maryland, July 2008), http://ciissm.umd.edu/papers/files/future_nuclear_power.pdf

Sarah Burkhard, Erica Wenig, David Albright, and Andrea Stricker, "Nuclear Infrastructure and Proliferation Risks of the United Arab Emirates, Turkey, and Egypt" (Washington, D.C.: Institute for Science and International Security, August 25, 2017), http://isis-online.org/uploads/isis-reports/documents/Middle_East_Proliferation_Assessments_25Aug2017_Final.pdf

Matthew Fuhrman, "Spreading Temptation: Proliferation and Peaceful Nuclear Cooperation Agreements," *International Security*, Vol. 34, No. 1 (Summer 2009), pp. 7-41, http://belfercenter.ksg.harvard.edu/files/IS3401_pp007-041_Fuhrmann.pdf

John Deutch, Arnold Kanter, Ernest Moniz, and Daniel Poneman, "Making the World Safe for Nuclear Energy," *Survival*, vol. 46, no. 4 (Winter 2004-2005), pp. 65-80. <http://web.mit.edu/chemistry/deutch/policy/2004-MakingtheWorld.pdf>

Proliferation Resistance and Physical Protection Evaluation Methodology Expert Group, Generation IV International Forum, *Evaluation Methodology for Proliferation Resistance and Physical Protection of Generation IV Nuclear Energy Systems*, Rev. 6, GIF/PRPPWG/2011/003 (Paris: OECD Nuclear Energy Agency, 15 September 2011) https://www.gen-4.org/gif/upload/docs/application/pdf/2013-09/gif_prppem_rev6_final.pdf

Nuclear safeguards and verification:

Trevor Findlay, *Unleashing the Nuclear Watchdog: Strengthening and Reform of the IAEA* (Waterloo, Ont.: Center for International Governance Innovation, 2012), https://www.cigionline.org/sites/default/files/unleashing_the_nuclear_watchdog.pdf

Mark Hibbs, "Russia's Safeguards Problem," *Armscontrolwonk*, 3 December 2012, <http://hibbs.armscontrolwonk.com/archive/1196/russias-safeguards-problem>

Kory Budlong-Sylvester, Joseph F. Pilat, and Chantell L. Murphy, "Developing State-Level Approaches under the State-Level Concept," LA-UR-14-28812, IAEA "Symposium on International Safeguards: Linking Strategy, Implementation, and People," 20-24 October 2014, <https://www.iaea.org/safeguards/symposium/2014/home/eproceedings/sg2014-papers/000292.pdf> (Note: The full proceedings of the symposium well summarizes the state of the technical dialogue over safeguards, and is available here: https://www.iaea.org/safeguards/symposium/2014/home/eproceedings/sg2014_eproceedings_online.pdf)

Trevor Findlay, *Proliferation Alert! The IAEA and Non-Compliance Reporting* (Cambridge, Mass.: Project on Managing the Atom, Harvard University, October 2015), <http://belfercenter.ksg.harvard.edu/files/Proliferation%20Alert.pdf>

R. Scott Kemp, "Environmental Detection of Clandestine Nuclear Weapon Programs," *Annual Review of Earth and Planetary Science*, Vol. 44 (2016), pp. 17-35. (This is a remarkably detailed account of techniques that might be used to find hidden nuclear weapons programs.)

Commission of Eminent Persons, *Reinforcing the Global Nuclear Order for Peace and Prosperity: The Role of the IAEA to 2020 and Beyond*, GOV/2008/22-GC(52)/INF/4 (Vienna: IAEA, May 2008), pp. 1-11, 18-23, 27-32. <http://belfercenter.ksg.harvard.edu/files/gov2008-22gc52inf-4.pdf>

Pierre Goldschmidt, "IAEA Safeguards: Dealing Preventively With Non-Compliance" (Washington, D.C.: Carnegie Endowment for International Peace and Belfer Center for Science and International Affairs, Harvard University, 12 July 2008)

http://www.carnegieendowment.org/files/Goldschmidt_Dealing_Preventively_7-12-08.pdf

Pierre Goldschmidt, "Safeguards Noncompliance: A Challenge for the IAEA and the UN Security Council," *Arms Control Today*, January/February 2010,

https://www.armscontrol.org/act/2010_01-02/Goldschmidt

George Bunn, "Nuclear Safeguards: How Far Can Inspectors Go?" *IAEA Bulletin*, Vol. 48, No. 2 (March 2007), pp. 49-55

<http://www.iaea.org/Publications/Magazines/Bulletin/Bull482/pdfs/13GBunn.pdf>

John Carlson and Russell Leslie, "Special Inspections Revisited," paper presented at the 46th Annual Meeting of the Institute for Nuclear Materials Management, 10-14 July 2005, Phoenix, Ariz., http://www.asno.dfat.gov.au/publications/inmm2005_special_inspections.pdf

Mark Hibbs, "Board Sinks IAEA Safeguards Panel with No Agreement on Improvements," *NuclearFuel*, 2 July 2007.

[http://www.lexisnexis.com.ezpl.harvard.edu/us/lnacademic/api/version1/sr?shr=t&csi=8025&sr=HLEAD\(Board+Sinks+IAEA\)+AND+DATE+IS+07/02/2007](http://www.lexisnexis.com.ezpl.harvard.edu/us/lnacademic/api/version1/sr?shr=t&csi=8025&sr=HLEAD(Board+Sinks+IAEA)+AND+DATE+IS+07/02/2007)

U.S. Congress, Office of Technology Assessment, *Nuclear Safeguards and the International Atomic Energy Agency* (Washington, D.C.: OTA, 1995)

http://www.princeton.edu/~ota/disk1/1995/9530_n.html

U.S. Congress, Office of Technology Assessment, *Environmental Monitoring for Nuclear Safeguards* (Washington, D.C.: OTA, 1995) 1995

http://www.princeton.edu/~ota/disk1/1995/9518_n.html

Marvin Miller, "Are IAEA Safeguards on Plutonium Bulk-Handling Facilities Effective?" (Washington, D.C.: Nuclear Control Institute, August 1990) <http://www.nci.org/k-m/mmsgdrds.htm>

Henry Sokolski, ed., *Falling Behind: International Scrutiny of the Peaceful Atom* (Carlisle, Penn.: U.S. Army Strategic Studies Institute, February 2008),

<http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?pubID=841> (esp. Chapters 3, 4, 5, and 11).

24 October: Sanctions for Nonproliferation

[Readings to be provided.]

29 October: Tools beyond treaties: Cooperative threat reduction, UNSCR 1540, Proliferation Security Initiative, and more

Matthew Bunn, Martin B. Malin, Nickolas Roth, and William H. Tobey, *Advancing Nuclear Security: Evaluating Progress and Setting New Goals* (Cambridge, Mass.: Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard University, March 2014).

<http://belfercenter.ksg.harvard.edu/files/advancingnuclearsecurity.pdf> (pp. 49-60). (A brief summary of the global nuclear security regime.)

U.N. Security Council Resolution 1540 (New York: United Nations, 28 April 2004)

[http://www.un.org/ga/search/view_doc.asp?symbol=S/RES/1540%20\(2004\)](http://www.un.org/ga/search/view_doc.asp?symbol=S/RES/1540%20(2004))

William H. Tobey, "A History of United Nations Security Council Resolution 1540," in Daniel Salisbury, Ian J. Stewart, and Andrea Viski, eds., *Preventing the Proliferation of WMDs: Measuring the Success of UN Security Council Resolution 1540* (Cham, Switzerland: Palgrave MacMillan, 2018), pp. 13-33.

James Martin Center for Nonproliferation Studies, "Global Partnership Against the Spread of Weapons and Materials of Mass Destruction ('10 Plus 10 Over 10' Program)" (Washington, D.C.: Nuclear Threat Initiative, updated 2018), <http://www.nti.org/treaties-and-regimes/global-partnership-against-spread-weapons-and-materials-mass-destruction-10-plus-10-over-10-program/>

U.S. Department of State, "Proliferation Security Initiative" (Washington, D.C.: Department of State, 5 July 2012) <http://www.state.gov/t/isn/c10390.htm>

Laura Holgate, "Multilateralism and Threat Reduction: Strengthening the Global Security Architecture," Jack Ruina Memorial Lecture, MIT, October 21, 2016 (on class Canvas page).

Recommended Reading

Jeffrey Knopf, ed., *International Cooperation on WMD Nonproliferation* (Athens, Georgia: Univ. of Georgia Press, 2016). (Useful chapters exploring most of the cooperative initiatives that have been developed to supplement the NPT.)

Sara Z. Kutchesfahani, Kelsey Davenport, and Erin Connolly, *The Nuclear Security Summits: An Overview of State Actions to Curb Nuclear Terrorism 2010-2016* (Washington, D.C.: Arms Control Association and Fissile Material Working Group, July 2018),

https://www.armscontrol.org/sites/default/files/files/Reports/NSS_Report2018_digital.pdf especially Laura S.H. Holgate, "A Reflective Piece on the Nuclear Security Summits," pp. 4-9.

Matthew Bunn, "The Nuclear Security Summit: Wins, Losses, Draws," *Bulletin of the Atomic Scientists*, April 8, 2016, <http://thebulletin.org/nuclear-security-summit-wins-losses-and-draws9310>

Nuclear Security Summit 2016:

Communiqué: 1 April 2016,

<http://static1.squarespace.com/static/568be36505f8e2af8023adf7/t/56fef01a2eeb810fd917abb9/1459548186895/Communiqu%C3%A9.pdf>

Action Plans: 1 April, 2016, <http://www.nss2016.org/2016-action-plans/>

Gift Baskets: (multiple dates), <http://www.nss2016.org/2016-gift-baskets/>

The other chapters in Daniel Salisbury, Ian J. Stewart, and Andrea Viski, eds., *Preventing the Proliferation of WMDs: Measuring the Success of UN Security Council Resolution 1540* (Cham, Switzerland: Palgrave MacMillan, 2018)

U.S. Department of State, “Statement of Principles of the Global Initiative to Combat Nuclear Terrorism” (Washington, D.C.: U.S. Department of State, 20 November 2006)

http://www.gicnt.org/documents/Statement_of_Principles.pdf

Matthew Bunn, Martin B. Malin, Nickolas Roth, and William H. Tobey, “Key Steps for Continuing Nuclear Security Progress,” CN-244-574, International Conference on Nuclear Security: Commitments and Actions, International Atomic Energy Agency, Vienna, Austria, December 5-9, 2016, https://www.belfercenter.org/sites/default/files/files/publication/%5B3A-1%5D_FUL_574_Bunn.pdf

William Tobey, “What Lies Beneath” *Foreign Policy*, 30 April 2012, http://www.foreignpolicy.com/articles/2012/04/30/what_lies_beneath

Secretary of Energy Advisory Board, *Report of the Task Force on Nuclear Nonproliferation* (Washington, D.C.: Department of Energy, March 31, 2015),

http://energy.gov/sites/prod/files/2015/04/f21/2015-03-31_FINAL_Report_SEABNuclearNonproliferationTaskForce_0.pdf

Alan Heyes, Wyn Q. Bowen, and Hugh Chalmers, “The Global Partnership Against WMD,” *Royal United Services Institute for Defence and Security Studies*, Whitehall Paper 76, 2011, https://www.armscontrol.org/act/2013_04/The-Global-Partnership-on-WMD-A-Work-in-Progress

Susan J. Koch, *Proliferation Security Initiative: Origins and Evolution*, Occasional Paper 9 (Washington, D.C.: Center for the Study of Weapons of Mass Destruction, National Defense University June 2012)

http://ndupress.ndu.edu/Portals/68/Documents/occasional/cswmd/CSWMD_OccationalPaper-9.pdf

31 October: Iran’s nuclear programs: through the JCPOA

Watch Bunn video on Iran’s nuclear programs, history, and issues.

Gary Samore, lead author and editor, *The Iran Nuclear Deal: A Definitive Guide* (Cambridge, Mass.: Belfer Center for Science and International Affairs, Harvard Kennedy School, August 2015), http://belfercenter.ksg.harvard.edu/publication/25599/iran_nuclear_deal.html

Kenneth Katzman, “Iran Sanctions,” *Congressional Research Service*, August 7, 2018. <https://fas.org/sgp/crs/mideast/RS20871.pdf> (Summary, pp. 20-23, 28-33, 43-48). (Good account of the complexity of the U.S. laws imposing sanctions on Iran, and on companies abroad that do business with Iran.)

Barry R. Posen, “We Can Live With a Nuclear Iran,” *New York Times*, 27 February 2008 http://web.mit.edu/cis/pdf/Audit_03_06_Posen.pdf (Good crystallization of the argument that a nuclear-armed Iran would not be as big a disaster as many people believe.)

Matthew Kroenig, “Time to Attack Iran,” *Foreign Affairs*, 1 Jan. 2012. <http://www.lexisnexis.com.ezp-prod1.hul.harvard.edu/lnacui2api/api/version1/getDocCui?lni=54YS-7361-JCKT-T1XD&csi=7984&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true> (Summary of the case for the military option, as of 2012.)

Stephen Walt, “The Worst Case for War with Iran,” *Foreign Policy.com*, December 21, 2011, http://walt.foreignpolicy.com/posts/2011/12/21/the_worst_case_for_war_with_iran (A cogent reply to Kroenig’s argument.)

Recommended Reading

International Atomic Energy Agency, *Implementation of the NPT Safeguards Agreement and Relevant Provisions of Security Council Resolutions in the Islamic Republic of Iran*, (Vienna: IAEA, 8 November 2011), <http://www.iaea.org/Publications/Documents/Board/2011/gov2011-65.pdf> (Read the Annex on weaponization activities; though old, this is the most detailed version the IAEA has made publicly available.)

International Atomic Energy Agency, *Final Assessment on Past and Present Outstanding Issues Regarding Iran’s Nuclear Programme* GOV/2015/68 (Vienna: IAEA, December 2, 2015), <https://www.iaea.org/sites/default/files/gov-2015-68.pdf> (The IAEA’s “final” assessment of Iran’s weaponization-related work left many issues still unresolved.)

“Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010),” S/2014/394 (New York: United Nations, 11 June 2014), http://www.un.org/ga/search/view_doc.asp?symbol=S/2014/394 (This is the last UN report on Iran’s efforts to bust the sanctions against it that was prepared before the JCPOA went into force.)

Iranian Mission to the IAEA, “Explanatory Note by the Permanent Mission of the Islamic Republic of Iran to the IAEA on the Report of the Director General on the Implementation of Safeguards in the Islamic Republic of Iran (GOV/2013/40 dated 28 August 2013),” INFCIRC/854 (Vienna: IAEA, 12 September 2013), <http://www.iaea.org/Publications/Documents/Infcircs/2013/infcirc854.pdf> (especially par. 1-10; 44-73). (Gives a useful idea of Iran’s legalistic approach in replying to the IAEA.)

U.S. Institute of Peace, *The Iran Primer*, <http://iranprimer.usip.org/> (Very useful resource for a variety of aspects of the Iran issue; has both concise but well-informed analysis of key topics and recent news across the top.)

U.S. Office of the Director of National Intelligence, “National Intelligence Estimate: Iran: Nuclear Intentions and Capabilities” (Washington, D.C.: ODNI, November 2007) http://www.roa.org/site/DocServer/20071203_NIE_release.pdf?docID=5341 (This was the estimate that famously concluded that Iran had ended the part of its program about the actual design of nuclear weapons in 2003.)

Steven E. Miller, “Proliferation Gamesmanship: Iran and the Politics of Nuclear Confrontation,” *Syracuse Law Review*, Vol. 57, No. 3 (Spring 2007), pp. 551-599. [http://www.lexisnexis.com.ezp1.harvard.edu/us/lnacademic/api/version1/sr?shr=t&csi=139122&sr=CITE\(57+Syracuse+L.+Rev.+551\)](http://www.lexisnexis.com.ezp1.harvard.edu/us/lnacademic/api/version1/sr?shr=t&csi=139122&sr=CITE(57+Syracuse+L.+Rev.+551)) (An extremely useful account of how the negotiations over the 2002-2006 period looked from the Iranian point of view.)

Arms Control Association, “History of Official Proposals on the Iranian Nuclear Issue,” July 2015, http://www.armscontrol.org/factsheets/Iran_Nuclear_Proposals

David Albright, Paul Brannan, and Jacqueline Shire, “Can Military Strikes Destroy Iran’s Gas Centrifuge Program? Probably Not” (Washington, D.C.: Institute for Science and International

Security, 7 August 2008)

http://www.isis-online.org/publications/iran/Centrifuge_Manufacturing_7August2008.pdf

Paul Rogers, *Iran: Consequences of a War* (Oxford: Oxford Research Group, February 2006), 12 pp. <http://www.oxfordresearchgroup.org.uk/sites/default/files/IranConsequences.pdf>

Matthew Bunn and Abbas Maleki, "How to Avoid a War with Iran," *Foreign Policy*, 21 May 2012, http://www.foreignpolicy.com/articles/2012/05/21/how_to_avoid_a_war_with_iran%20

Robert D. Blackwill, ed. *Iran: The Nuclear Challenge*, (Washington DC: Council on Foreign Relations, June 2012), 90 pp.

Simon Henderson and Olli Heinonen, *Nuclear Iran: A Glossary of Terms*, Policy Focus 121 (Washington, D.C.: Washington Institute for Near East Policy and Belfer Center for Science and International Affairs, Harvard University, August 2012), http://belfercenter.ksg.harvard.edu/publication/22269/nuclear_iran.html (Much, much more than a glossary of terms – lots of interesting detail on Iran's programs.)

Patrick Clawson and Michael Eisenstadt, *The Last Resort: Consequences of Preventive Military Action Against Iran* (Washington, D.C.: Washington Institute for Near East Policy, June 2008) <http://www.theisraelproject.org/atf/cf/%7B84DC5887-741E-4056-8D91-A389164BC94E%7D/POLICYFOCUS84.PDF>

Matthew Bunn, "Placing Iran's Enrichment Activities in Standby" (Cambridge, Mass.: Project on Managing the Atom, Belfer Center for Science and International Affairs, June 2006), http://belfercenter.ksg.harvard.edu/files/bunn_2006_iran_standby.pdf

Trita Parsi, *Treacherous Alliance: The Secret Dealings of Israel, Iran, and the United States* (New Haven, Conn.: Yale, 2007)

Trita Parsi, *A Single Roll of the Dice: Obama's Diplomacy With Iran* (New Haven, Conn.: Yale, 2012).

Barbara Slavin, *Bitter Friends, Bosom Enemies: Iran, the U.S., and the Twisted Path to Confrontation* (New York: St. Martin's Press, 2007)

Thérèse Delpeche, *Iran and the Bomb: The Abdication of International Responsibility* (New York: Columbia, 2007), 148 pp. Translated by Roy Schwartz.

5 November: Iran's Nuclear Program: What Now?

Secretary of State Mike Pompeo, "Supporting Iranian Voices," July 22, 2018, <https://www.state.gov/secretary/remarks/2018/07/284292.htm> (Lays out the Trump Administration's demands for changes in Iran's behavior.)

Matthew Bunn, "Managing the Dangers of Iran's Nuclear Program," presentation, June 12, 2018, https://www.belfercenter.org/sites/default/files/files/publication/Managing%20dangers%20of%20Iran%20nuclear%20program_0.pdf (Outlines the coming game of chicken over U.S. "extraterritorial" sanctions – sanctions on entities in other countries that do not go along with U.S. sanctions on Iran.)

Ayatollah Ali Seyed Khamenei, "We Won't Negotiate, Nor Will the U.S. Dare to Launch a War Against Us," (speech with subtitles), August 16, 2018, <http://english.khamenei.ir/news/5885/We-won-t-negotiate-nor-will-U-S-dare-launch-a-war-against-us> (Useful for getting a feel for

Khamenei's perspective; this is the one where he criticizes President Rouhani for crossing the "red lines" Khamenei laid out for negotiations.)

William H. Tobey and Judith Miller, "Trump's Iran Deal Move Splits America From its European Allies – and That's a Problem," *Fox News*, May 9, 2018, <https://www.belfercenter.org/publication/trumps-iran-deal-move-splits-america-its-european-allies-thats-problem> (Makes the point that coercing Iran will be far more difficult if the effort is opposed by U.S. allies and others.)

Aaron Arnold, Matthew Bunn, Caitlin Chase, Steven E. Miller, Rolf Mowatt-Larssen, and William H. Tobey, *The Iran Nuclear Archive: Impressions and Implications* (Cambridge, Mass: Belfer Center for Science and International Affairs, Harvard Kennedy School, April 2019), pp. 1-13, https://www.belfercenter.org/sites/default/files/files/publication/The%20Iran%20Nuclear%20Archive_0.pdf

Recommended Reading

"Joint Comprehensive Plan of Action," Vienna, July 14, 2015, http://eeas.europa.eu/statements-eeas/docs/iran_agreement/iran_joint-comprehensive-plan-of-action_en.pdf (Worth actually reading the main provisions; the Belfer Center's "Definitive Guide" can help with understanding them.)

"Iran Matters," <http://iranmatters.belfercenter.org/> (the Belfer Center's blog on Iran issues).

International Atomic Energy Agency, "Verification and Monitoring in the Islamic Republic of Iran in light of United Nations Security Council Resolution 2231 (2015)" GOV/2018/24 (Vienna: IAEA, 24 May 2018). <https://www.iaea.org/sites/default/files/18/06/gov2018-24.pdf>

Mahsa Rouhi, "Iran Hawks Should be Careful What They Wish For," *Foreign Policy*, July 19, 2018, <https://foreignpolicy.com/2018/07/19/iran-hawks-should-be-careful-what-they-wish-for-regime-change-irgc-revolutionary-guards-qassem-suleimani/> (An argument that regime change could bring Gen. Qassem Suleimani to power.)

Chuck Freilich, "A Better Iran Deal Has to be Better for Iran, Too," *Jerusalem Post*, July 19, 2018, <https://www.jpost.com/Opinion/A-better-Iran-deal-has-to-be-better-for-Iran-too-562979>

Elizabeth Rosenberg, "Leaving the Iran Deal Will Have Unintended Consequences," *Foreign Policy: Shadow Government*, May 15, 2018, <https://foreignpolicy.com/2018/05/15/leaving-the-iran-nuclear-deal-will-have-unintended-consequences/>

Djavad Salehi-Isfahani, "With the U.S. Out, How Can Iran Benefit From the JCPOA?" (Washington, D.C.: Brookings, May 16, 2018), <https://www.brookings.edu/blog/future-development/2018/05/16/with-the-us-out-how-can-iran-benefit-from-the-jcpoa/>

Mark Fitzpatrick, "A Good Deal," *Survival*, Vol. 57, No. 5 (2015) <https://www.tandfonline.com/doi/full/10.1080/00396338.2015.1090123?scroll=top&needAccess=true>

Trita Parsi, *Losing an Enemy: Obama, Iran, and the Triumph of Diplomacy* (New Haven, Conn.: Yale University Press, 2017).

7 November: Nonproliferation successes: Libya, Ukraine, South Africa, and more

"Conclusion," pp. 321-334 in Mitchell Reiss, *Bridled Ambition: Why States Constrain Their Nuclear Capabilities* (Washington, D.C.: Wilson Center, 1995).

Libya:

William Tobey, "A Message From Tripoli: How Libya Gave Up Its WMD," Parts 1-5, *Bulletin of Atomic Scientists*, December 3, 2014 <http://thebulletin.org/message-tripoli-how-libya-gave-its-wmd7834>

Or

Bruce W. Jentleson and Christopher A. Whytock, "Who 'Won' Libya? The Force-Diplomacy Debate and Its Implications for Theory and Policy," *International Security*, Vol. 30, No. 3 (Winter 2005/2006), pp. 47-86 http://belfercenter.ksg.harvard.edu/files/is3003_pp047-086.pdf

(Note the "or" above: only ONE of these readings is required.)

Ukraine:

"The Decision to Denuclearize: How Ukraine Became a Non-Nuclear-Weapons State," Harvard Kennedy School Case C14-98-1425.0, 28 pp.

Or

William C. Potter, *The Politics of Nuclear Renunciation: The Cases of Belarus, Kazakhstan, and Ukraine* (Washington DC: Henry L. Stimson Center, Occasional Paper No. 22, April 1995), <https://www.stimson.org/sites/default/files/file-attachments/Occasional%20Paper%20No.%2022%20April%201995.pdf> Ukraine, pp. 8-9, 19-26, 42-49, and Conclusion, 50-52)

(Again, note the “or” above: only ONE of these readings is required, not both.)

South Africa:

Peter Liberman, “The Rise and Fall of the South African Bomb,” *International Security*, Fall 2001, 45-86;

Or

“Nuclear Rollback,” pp. 183-193, in David Albright with Andrea Stricker, *Revisiting South Africa’s Nuclear Weapons Program: Its History, Dismantlement, and Lessons for Today* (Washington, D.C.: Institute for Science and International Security, 2016), <http://isis-online.org/uploads/isis-reports/documents/RevisitingSouthAfricasNuclearWeaponsProgram.pdf>

Recommended Reading

Kurt M. Campbell, Robert J. Einhorn, and Mitchell B. Reiss, eds., *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices* (Washington, D.C.: Brookings, 2004), especially the introductory and concluding chapters.

William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century: A Comparative Perspective: Vol. 2* (Stanford: Stanford University Press, 2010). (This book includes detailed chapters on almost all of the key cases of nonproliferation success.)

Harald Müller and Andreas Schmidt, “The Little-Known Story of Deproliferation: Why States Give up Nuclear Weapons Activities,” in William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century: The Role of Theory: Vol. 1* (Stanford: Stanford University Press, 2010).

Japan:

Jacques E.C. Hymans, “Veto Players, Nuclear Energy, and Nonproliferation: Domestic Institutional Barriers to a Japanese Bomb,” *International Security*, Vol. 36, No. 2 (Fall 2011), pp. 154-189, http://belfercenter.ksg.harvard.edu/files/veto_players.pdf

Selig Harrison, “Japan and Nuclear Weapons,” Chapter 1 in Selig Harrison, ed., *Japan’s Nuclear Future: The Plutonium Debate and East Asian Security* (Washington, D.C.: Carnegie Endowment for International Peace, 1996), pp. 3-44.

Akira Kurosaki, “Nuclear Energy and Nuclear-Weapon Potential: A Historical Analysis of Japan in the 1960s,” *Nonproliferation Review*, Vol. 24, No. 1-2, pp. 47-65, <https://www.tandfonline.com/doi/abs/10.1080/10736700.2017.1367536>

Hajimi Izumi and Katsuhisa Furukawa, “Not Going Nuclear: Japan’s Response to North Korea’s Nuclear Test,” *Arms Control Today*, June 2007
http://www.armscontrol.org/act/2007_06/CoverStory

Argentina-Brazil:

“Argentina” and “Brazil,” pp. 382-406 in Joseph Cirincione, Jon B. Wolfsthal, and Miriam Rajkumar, *Deadly Arsenals: Nuclear, Biological, and Chemical Threats*, 2nd Ed. (Washington, D.C.: Carnegie Endowment for International Peace, 2005).

Togzhan Kassenova, *Brazil’s Nuclear Kaleidoscope: An Evolving Identity* (Washington, D.C.: Carnegie Endowment for International Peace, 2014),
http://carnegieendowment.org/files/brazil_nuclear_kaleidoscope_lo_res.pdf

Egypt:

Robert J. Einhorn, "Egypt: Frustrated, But Still on a Non-Nuclear Course," pp. 43-82 in Kurt M. Campbell, Robert J. Einhorn, and Mitchell B. Reiss, eds., *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices* (Washington, D.C.: Brookings, 2004)

Jim Walsh, "Will Egypt Seek Nuclear Weapons? An Assessment of Motivations, Constraints, Consequences, and Policy Options," pp. 13-41 in William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century: A Comparative Perspective: Vol. 2* (Stanford: Stanford University Press, 2010).

South Korea:

Scott Snyder, "South Korean Nuclear Decision-Making," pp. 158-181 in William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century: A Comparative Perspective: Vol. 2* (Stanford: Stanford University Press, 2010).

Jonathan D. Pollack and Mitchell B. Reiss, "South Korea: The Tyranny of Geography and the Vexations of History," pp. 254-292 in Kurt M. Campbell, Robert J. Einhorn, and Mitchell B. Reiss, eds., *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices* (Washington, D.C.: Brookings, 2004).

Taiwan:

Derek J. Mitchell, "Taiwan's Hsin-Chu Program: Deterrence, Abandonment, and Honor," pp. 293-313 in Kurt M. Campbell, Robert J. Einhorn, and Mitchell B. Reiss, eds., *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices* (Washington, D.C.: Brookings, 2004)

Monte Bullard and Jing-dong Yuan, "Taiwan and Nuclear Weaponization: Incentives and Disincentives," pp. 182-202 in William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century: A Comparative Perspective: Vol. 2* (Stanford: Stanford University Press, 2010).

Australia:

Jim Walsh, "Surprise Down Under: The Secret History of Australia's Nuclear Ambitions," *Nonproliferation Review*, Fall 1997, pp. 1-20 <http://cns.miis.edu/npr/pdfs/walsh51.pdf>

Further on South Africa:

Uri Friedman, "Why One President Gave Up His Country's Nukes," (interview with F.W. de Klerk), *The Atlantic*, September 9, 2017, <https://www.theatlantic.com/international/archive/2017/09/north-korea-south-africa/539265/>

David Albright with Andrea Stricker, *Revisiting South Africa's Nuclear Weapons Program: Its History, Dismantlement, and Lessons for Today* (Washington, D.C.: Institute for Science and

International Security, 2016), <http://isis-online.org/uploads/isis-reports/documents/RevisitingSouthAfricasNuclearWeaponsProgram.pdf>

Nic von Wielligh and Lydia von Wielligh-Steyn, *The Bomb: South Africa's Nuclear Weapons Programme* (Pretoria: Litera, 2015).

Jean du Preez and Thomas Maettig, "From Pariah to Poster Boy: How Plausible is a Reversal?" pp. 302-334 in William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century: A Comparative Perspective: Vol. 2* (Stanford: Stanford University Press, 2010).

12 November: Stopping black-market nuclear technology transfer

Matthew Bunn and William C. Potter, "Introduction: The Problem of Black-Market Nuclear Networks," in *Preventing-Black-Market Trade in Nuclear Technology* (Cambridge, U.K.: Cambridge University Press, 2018).

"A.Q. Khan and Onward Proliferation From Pakistan," in Mark Fitzpatrick, ed., *Nuclear Black Markets: Pakistan, A.Q. Khan, and the Rise of Proliferation Networks: A Net Assessment* (London: International Institute for Strategic Studies, 2007), pp. 65-91.

Martin Malin, Matthew Bunn, Leonard S. Spector, and William C. Potter, "Conclusions and Recommendations" in *Preventing-Black-Market Trade in Nuclear Technology* (Cambridge, U.K.: Cambridge University Press, 2018).

Recommended Reading

Matthew Bunn, "Corruption and Nuclear Proliferation," in Robert Rotberg, ed., *Corruption, Global Security, and World Order* (Washington, D.C.: Brookings, 2009), pp. 124-166.

Other chapters in Martin Malin, Matthew Bunn, Leonard S. Spector, and William C. Potter, eds., *Preventing-Black-Market Trade in Nuclear Technology* (Cambridge, U.K.: Cambridge University Press, 2018).

David Albright, Andrea Stricker, and Houston Wood, *The Future World of Illicit Nuclear Trade: Mitigating the Threat* (Washington, D.C.: Institute for Science and International Security, 2013), http://isis-online.org/uploads/isis-reports/documents/Full_Report_DTRA-PASCC_29July2013-FINAL.pdf

Ian J. Stewart, *Antiproliferation: Tackling Proliferation by Engaging the Private Sector* (Cambridge, Mass.: Project on Managing the Atom, Harvard Kennedy School, October 2012), <http://belfercenter.ksg.harvard.edu/files/Antiproliferation-Layout-final.pdf>

R. Scott Kemp, "The Nonproliferation Emperor Has No Clothes: The Gas Centrifuge, Supply-Side Controls, and the Future of Nuclear Proliferation," *International Security*, Vol. 38, No. 4., pp. 39-78. <http://dspace.mit.edu/handle/1721.1/89182>

David Albright, *Peddling Peril: How the Secret Nuclear Trade Arms America's Enemies* (New York: Free Press, 2010).

Aaron Arnold, "Blockchain: A New Aid to Nuclear Export Controls?" *Bulletin of the Atomic Scientists*, October 19, 2017, <https://thebulletin.org/2017/10/blockchain-a-new-aid-to-nuclear-export-controls/>

Aaron Arnold, "A Resilience Framework for Understanding Illicit Nuclear Procurement Networks," *Strategic Trade Review*, Vol. 3, No. 2. (Spring 2017), pp. 3-23,
<http://www.str.ulg.ac.be/wp-content/uploads/2017/04/A-Resilience-Framework-for-Understanding-Illicit-Nuclear-Procurement-Networks.pdf>

Douglas Frantz and Catherine Collins, *The Nuclear Jihadist: The True Story of the Man Who Sold the World's Most Dangerous Secrets...And How We Could Have Stopped Him* (New York: Twelve, 2007).

Catherine Collins and Douglas Frantz, *Fallout: The True Story of the CIA's Secret War on Nuclear Trafficking* (New York: Free Press, 2011).

Adrian Levy and Catherine Scott-Clark, *Deception: Pakistan, the United States, and the Secret Trade in Nuclear Weapons* (New York: Walker, 2010).

Gordon Corera, *Shopping for Bombs: Nuclear Proliferation, Global Insecurity, and the Rise and Fall of the Khan Network* (Oxford: Oxford University Press, 2006), 304 pp.

Carleton E. Thorne, "Nonproliferation Export Controls," in James E. Doyle, ed., *Nuclear Safeguards, Security, and Nonproliferation: Achieving Security With Technology and Policy* (Oxford, U.K.: Elsevier, 2008), pp. 531-548.

Todd E. Perry, "The Growing Role of Customs Organizations in International Strategic Trade Controls," in James E. Doyle, ed., *Nuclear Safeguards, Security, and Nonproliferation: Achieving Security With Technology and Policy* (Oxford, U.K.: Elsevier, 2008), pp. 549-560.

14 November: Preemptive and Preventive Attacks and Active Options Short of War

David Sanger, "Obama Order Sped Up Wave of Cyberattacks Against Iran," *New York Times*, p. A1, 1 June 2012, http://www.nytimes.com/2012/06/01/world/middleeast/obama-ordered-wave-of-cyberattacks-against-iran.html?pagewanted=all&_r=0

William Tobey, "Nuclear Scientists as Assassination Targets," *Bulletin of Atomic Scientists*, Vol. 68, No. 1 (January/February 2012), pp. 61-69.
http://live.belfercenter.org/publication/21663/nuclear_scientists_as_assassination_targets.html

Martin B. Malin, "The Effectiveness and Legitimacy of the Use of Force to Prevent Nuclear Proliferation," in Christopher Daase and Oliver Meier, eds., *Arms Control in the 21st Century*, (New York: Routledge, 2012), pp. 81-122.

Richard Follath and Holger Stark, "The Story of 'Operation Orchard': How Israel Destroyed Syria's Al Kibar Nuclear Reactor," *Der Spiegel*, 2 November 2009
<http://www.spiegel.de/international/world/0,1518,658663,00.html>

Recommended Reading

Dan Reiter, "Preventive Attacks Against Nuclear, Biological, and Chemical Weapons Programs: The Track Record," in William Keller and Gordon Mitchell, eds., *Hitting First* (Pittsburgh, Penn.: University of Pittsburgh Press, 2006), pp. 27-44.

Malfrid Braut-Hegghammer, "Revisiting Osirak: Preventive Attacks and Nuclear Proliferation Risks," *International Security*, Vol. 36, No.1 (Summer 2011), pp.101-132.
http://www.mitpressjournals.org/doi/abs/10.1162/ISEC_a_00046

James J. Wirtz and James A. Russell, "U.S. Policy on Preventive War and Preemption," *The Nonproliferation Review*, Spring 2003, pp. 113-123. <https://www.nonproliferation.org/wp-content/uploads/npr/101wirtz.pdf>

"Preemption," pp. 74-81 in George Perkovich, Jessica T. Matthews, Joseph Cirincione, Rose Gottemoeller, Jon B. Wolfsthal, *Universal Compliance: A Strategy for Nuclear Security* (Washington, D.C.: Carnegie Endowment for International Peace, March 2005), <http://www.angelfire.com/jazz/sugimoto/nuclear.pdf>

Ivo Daalder and James Steinberg, "The Future of Preemption," *The American Interest*, Vol. 1, No. 2 (Winter 2005), <https://www.the-american-interest.com/2005/12/01/the-future-of-preemption/>

Harald Müller, "WMD Crisis: Law Instead of Lawless Self-Help," No. 37 (Stockholm: Weapons of Mass Destruction Commission, 2005), 16 pp. <https://web.archive.org/web/20160610161859/http://www.blixassociates.com/wp-content/uploads/2011/03/No37.pdf>

John C. Yoo and Robert J. Delahunty. "The 'Bush Doctrine': Can Preventive War Be Justified?" *Harvard Journal of Law & Public Policy*, Vol. 32 (2009), pp. 843-865. <http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1774&context=facpubs>

Anthony Clark Arend, "International Law and the Preemptive Use of Military Force," *The Washington Quarterly*, Vol. 26, No. 2 (Spring 2003), pp. 89-103. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwiAvL7X1rPdAhWrmuAKHW0mD_kQFjAAegQIABAC&url=https%3A%2F%2Fwww.cfr.org%2Fcontent%2Fpublications%2Fattachments%2Fhighlight%2F03spring_arend.pdf&usg=AOvVaw3SHnFpAGzmFRiXYx-w732m

Robert S. Litwak, "Nonproliferation and the Use of Force," in Janne E. Nolan, Bernard I. Finel, and Brian D. Finlay, eds., *Ultimate Security: Combating Weapons of Mass Destruction* (New York: Century Foundation Press, 2003) pp. 75-106.

Richard Betts, "The Osirak Fallacy," *The National Interest*, Vol. 83 (Spring 2006), pp. 22-25 <https://nationalinterest.org/article/the-osirak-fallacy-1093>

Jeremy Tamsett, "The Israeli Bombing of Osiraq Reconsidered: Successful Counterproliferation?" *Nonproliferation Review* vol. 11 (Fall-Winter 2004), pp. 70-85. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1080/10736700408436979>

19 November: Preventing nuclear terrorism

Matthew Bunn, Martin Malin, Nicholas Roth, and William Tobey, *Preventing Nuclear Terrorism: Continuous Improvement or Dangerous Decline?* (Cambridge, Mass.: Project on Managing the Atom, Harvard Kennedy School, March 2016), Executive Summary, pp. i-ix; 96-132. <http://belfercenter.ksg.harvard.edu/files/PreventingNuclearTerrorism-Web.pdf>

William H. Tobey and Pavel Zolotarev, "The Nuclear Terrorism Threat," presentation for the 2014 Nuclear Security Summit Sherpas, Pattaya, Thailand. January 13, 2014, <http://belfercenter.ksg.harvard.edu/files/nuclearterrorismthreatthailand2014.pdf>

John Mueller, "The Atomic Terrorist: Assessing the Likelihood," January 2008 <https://politicalscience.osu.edu/faculty/jmueller/APSACHGO.pdf>

Recommended Reading

Matthew Bunn, Nickolas Roth, and William H. Tobey, *Revitalizing Nuclear Security in an Era of Uncertainty* (Cambridge, Mass.: Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard Kennedy School, January 2019), https://www.belfercenter.org/sites/default/files/2019-03/RevitalizingNuclearSecurity_Mar19.pdf

Matthew Bunn, Yuri Morozov, Rolf Mowatt-Larssen, Simon Saradzhyan, William Tobey, Victor Yesin, Pavel Zolotarev, *The U.S.-Russia Joint Threat Assessment on Nuclear Terrorism*, (Cambridge, Mass.: May 2011). <http://belfercenter.ksg.harvard.edu/files/Joint-Threat-Assessment%20ENG%2027%20May%202011.pdf>

Graham Allison, *Nuclear Terrorism: The Ultimate Preventable Catastrophe* (New York, N.Y.: Henry Holt & Company, 2004).

Lyudmila Zaitseva and Friedrich Steinhausler, *Nuclear Trafficking Issues in the Black Sea Region*, Non-Proliferation Papers No. 39 (Paris: EU Non-Proliferation Consortium, 2014), <http://www.sipri.org/research/disarmament/eu-consortium/publications/non-proliferation-paper-39>.

Michael Levi, *On Nuclear Terrorism* (Cambridge, MA: Harvard University Press, 2007).

Matthew Bunn and Scott D. Sagan, *Insider Threats* (Ithaca, N.Y.: Cornell, 2017).

Ashton Carter, Michael May and William Perry, *The Day After: Action in the 24 Hours Following a Nuclear Blast in an American City* (Cambridge, Mass., and Palo Alto, Calif.: Preventive Defense Project, Harvard and Stanford Universities, May 2007) http://belfercenter.ksg.harvard.edu/files/dayafterworkshopreport_may2007.pdf

Thomas B. Cochran and Matthew G. McKinzie, “Detecting Nuclear Smuggling,” *Scientific American*, April 2008, <https://www.nature.com/scientificamerican/journal/v298/n4/pdf/scientificamerican0408-98.pdf>

Graham Allison, ed., “Confronting the Spector of Nuclear Terrorism,” special issue of *The Annals of the American Academy of Political and Social Science*, Vol. 607, September 2006.

Charles D. Ferguson and William C. Potter with Amy Sands, Leonard S. Spector, and Fred L. Wehling, *The Four Faces of Nuclear Terrorism* (New York, N.Y.: Routledge, 2005).

Michael Bronner, “100 Grams (and Counting): Notes from the Nuclear Underworld” (Cambridge, Mass.: Project on Managing the Atom, Harvard University, June 2008) <https://www.belfercenter.org/sites/default/files/files/publication/100-Grams-Final-Color.pdf>

21 November: Chemical and biological weapons and their control (guest lecture)

“Understanding Biological Threats: Overview” (Washington, D.C.: Nuclear Threat Initiative, no date), <http://www.nti.org/threats/biological/>

“Understanding Chemical Threats: Overview” (Washington, D.C.: Nuclear Threat Initiative, no date), <http://www.nti.org/threats/chemical/>

“Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction”

<http://www.opbw.org/convention/documents/btwctext.pdf>

Arms Control Association, “The Chemical Weapons Convention at a Glance” (Washington, D.C.: ACA, June 2018) <http://www.armscontrol.org/factsheets/cwcglance>

John Hart, “Confrontation at the OPCW: How Will the International Community Handle Syria and Skripal?” *War on the Rocks*, June 18, 2018,

<https://warontherocks.com/2018/06/confrontation-at-the-opcw-how-will-the-international-community-handle-syria-and-skripal/> (Useful overview of the international chemical regime and the politics surrounding Syria’s use of chemical weapons and Russia’s attempted assassination of Sergei Skripal and his daughter in the United Kingdom.)

Daniel M. Gerstein, “How Genetic Editing Became a National Security Threat,” *Bulletin of the Atomic Scientists*, 25 April 2016, <http://thebulletin.org/how-genetic-editing-became-national-security-threat9362>

Richard Danzig, *Preparing for Catastrophic Bioterrorism: Toward a Long-Term Strategy for Limiting the Risk* (Washington, D.C.: Center for Technology and National Security Policy, National Defense University, May 2008) <http://ctnsp.dodlive.mil/files/2014/10/Preparing-for-Catastrophic-Bioterrorism.pdf>, pp. 1-21, 30-34. (Lays out a set of potential biological terrorism scenarios that the author argues should be used for planning biodefenses.)

Milton Leitenberg, “Bioterrorism: Hyped,” *Los Angeles Times*, 17 February 2006.

<http://articles.latimes.com/2006/feb/17/opinion/oe-leitenberg17> (Argues the bioterrorist threat is modest, and U.S. biodefense spending may be counterproductive.)

Ian Lipkin, “The Real Threat of ‘Contagion’” *New York Times*, 11 September 2011,

http://www.nytimes.com/2011/09/12/opinion/the-real-threat-of-contagion.html?_r=0

Recommended Reading

Arms Control Association, “Chemical Weapons: Frequently Asked Questions” (Washington, D.C.: ACA, June 2018), <https://www.armscontrol.org/factsheets/Chemical-Weapons-Frequently-Asked-Questions>

Richard Danzig, Marc Sageman, Terrance Leighton, Lloyd Hough, Hidemi Yuki, Rui Kotani, and Zachary M. Hosford, *Aum Shinrikyo: Insights into How Terrorists Develop Biological and Chemical Weapons*, 2nd ed (Washington, D.C.: Center for a New American Security, 2012). https://s3.amazonaws.com/files.cnas.org/documents/CNAS_AumShinrikyo_Danzig_1.pdf?mtime=20160906080509 (A remarkable study exploring how Aum Shinrikyo made their nerve gas, and the organizational oddities and mistakes that limited its impact – based on interviews with jailed participants in Aum’s program.)

Paul Walker, “Abolishing Chemical Weapons: Progress, Challenges, and Opportunities,” *Arms Control Today*, November 2010, https://www.armscontrol.org/act/2010_11/Walker (A useful overview -- but as it was written before the Syrian civil war, the issues surrounding the chemical use by the Syrian government and the Islamic State are not addressed.)

Milton Leitenberg, *Assessing the Biological Weapons and Biological Terrorism Threat* (Carlisle, Penn: Strategic Studies Institute, U.S. Army War College, December 2005)

<http://ssi.armywarcollege.edu/pdf/files/pub639.pdf> (A more detailed version of the argument that the bioterrorism threat is modest.)

Jeanne Guillemin, *Biological Weapons: From the Invention of State-Sponsored Programs to Contemporary Bioterrorism* (New York: Columbia University Press, 2006)

Gregory Koblentz, *Living Weapons: Biological Warfare and International Security* (Ithaca, N.Y.: Cornell University Press, 2009)

Gregory Koblentz, "Pathogens as Weapons," *International Security*, Vol. 28, No. 3 (Winter 2003/2004), pp. 84-122, <https://www.belfercenter.org/sites/default/files/legacy/files/koblentz.pdf>

Matthew Meselson and Julian Perry Robinson, "A Draft Convention to Prohibit Biological and Chemical Weapons Under International Criminal Law," *Fletcher Forum of World Affairs*, Vol. 28, No. 1, Winter 2004, pp. 57-72, <https://sites.fas.harvard.edu/~hsp/crim01.pdf>

"Technical Aspects of Chemical Weapons Proliferation," (pp. 15-69) and "Technical Aspects of Biological Weapons Proliferation," (pp. 71-117) in Office of Technology Assessment, *Technologies Underlying Weapons of Mass Destruction* (Washington, DC: OTA, December 1993) <http://ota.fas.org/reports/9344.pdf>

The Bi-Partisan WMD Terrorism Research Center, *Bio-Response Report Card* (Washington D.C.: WMD Center, 2011) <http://www.documentcloud.org/documents/256006-bio-response-report-card-2011.html> (Argues that U.S. biodefenses are still much too weak.)

John Steinbruner, Elisa D. Harris, Nancy Gallagher, Stacy M. Okutani, *Controlling Dangerous Pathogens: A Prototype Protective Oversight System* (College Park, Md: Center for International and Security Studies at Maryland, University of Maryland, March 2007) https://drum.lib.umd.edu/bitstream/handle/1903/7949/pathogens_project_monograph.pdf?sequence=1&isAllowed=y (Makes the case for broad transparency as a central element of responding to the biological warfare threat.)

Jonathan B. Tucker and Raymond A. Zalinskas, "The Promise and Perils of Synthetic Biology," *The New Atlantis*, No. 12, Spring 2006, pp. 25-45, <http://www.thenewatlantis.com/publications/the-promise-and-perils-of-synthetic-biology>

26 November: Nonproliferation policy processes

Review the HKS case study and the Perry-Carter reading from the North Korea 1994 case we covered in class. They provide a good discussion of how some of those decisions were made in the mid-1990s, and the importance of particular personalities in determining outcomes (such as the focus by Ash Carter and John Deutch on constraining North Korean *capabilities*, rather than focusing only on *compliance*).

Gabriel Marcella, "National Security and the Interagency Process," in J. Boone Bartholomees, Jr., *U.S. Army War College Guide to National Security Policy and Strategy* (Carlisle, Penn.: U.S. Army War College, July 2004), pp. 239-260 http://www.au.af.mil/au/awc/awcgate/ssi/policy_strategy2004.pdf.

Bob Graham and Jim Talent, "Government Organization and Culture" in *World At Risk*, Vintage Books, 2008, pp. 82-106, <http://www.dtic.mil/dtic/tr/fulltext/u2/a510559.pdf> (skim)

Will Tobey's memo on responsibilities of a U.S. National Security Staff officer.

Recommended:

Karl F. Inderfurth and Loch K. Johnson, eds., *Fateful Decisions: Inside the National Security Council* (Oxford: Oxford University Press, 2004).

David Rothkopf, *Running the World: The Inside Story of the National Security Council* (Cambridge, Mass.: PublicAffairs, 2005).

Gabriel Marcela, ed., *Affairs of State: The Interagency and National Security* (Carlisle, Penn.: U.S. Army War College Strategic Studies Institute, December 2008).

https://www.globalsecurity.org/military/library/report/2009/ssi_marcella.pdf

Joel S. Wit, Daniel B. Poneman, and Robert L. Gallucci, "An Extremely Peculiar Nation," in *Going Critical: The First North Korean Nuclear Crisis* (Brookings Institution Press, August 2005).

Morton Halperin, "The Decision to Deploy the ABM: Bureaucratic and Domestic Politics in the Johnson Administration," *World Politics*, Vol. 25, No. 1, October 1972, pp. 62-95.

<http://www.jstor.org/stable/2010431> (Though old, this article provides a brilliant, though depressing, insider's view on how national security decision-making actually works – with key players trading off seemingly unrelated issues in their bargaining with each other. For a broader look, see Morton H. Halperin, Priscilla A. Clapp, and Arnold Kanter, *Bureaucratic Politics and Foreign Policy*, 2nd ed. (Washington, D.C.: Brookings, 2006).)

Frank von Hippel, "Big Government and Little Analysts," *Physics Today*, June 1995, <http://ezp-prod1.hul.harvard.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=9506161731&site=ehost-live&scope=site> (Explores how busy government officials, running from meeting to meeting, have little time to draw back and analyze the big picture.)

"Combatting Proliferation of Weapons of Mass Destruction," Report of the Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction, 14 July 1999, Ch 2 & 3, <http://web.mit.edu/chemistry/deutch/policy/1998-ComWMDReport.pdf>

3 December: Simulation: National Security Council Meeting on Emerging Proliferation Issue

[Readings to be provided.]

5 December: Semester overview; careers in nuclear risk reduction

[No readings.]