
PAPERS

“Security in an Age of Anxiety”: What Can Verification Offer?

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INTRODUCTION

Arms control and disarmament agreements are, by their nature, permeated with distrust. This is as true now as it was during the Cold War. The would-be violator needs to be deterred. The complier needs reassurance in such a sensitive area as national security. Both objectives seemed achievable during the Cold War, although on a very limited basis. Verification supplied some measure of reassurance and deterrence at opposite ends of the spectrum for many years of arms control agreements. But neither reassurance nor deterrence are fully relied upon in the post–September 11 world, nor can they be. Therefore, the task of verification has become far more complex and

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demanding, throwing the entire notion of effectiveness of arms control and reduction regimes into question.

These functions—reassurance and deterrence—remain critical, but they function in very different ways since the end of the Cold War. The United States has not yet made the shift to a world that it dominates militarily, yet remains in a situation between war and peace with complex new security threats. Verification continues to rely on (1) technology, (2) intelligence, (3) cooperation, (4) the international law of treaties, and (5) politics, but these elements operate in a wholly different context today. One main difference is the question “who verifies”? As bilateral arms control agreements have diminished in number and importance, so has party verification. In a bilateral arrangement, each party was responsible for its own verification. In the shift to multilateral agreements, an external organization is likely to bear this responsibility—for example, the Organization for the Prohibition of Chemical Weapons (OPCW) of the Chemical Weapons Convention and the International Atomic Energy Agency (IAEA) that serves the Nuclear Proliferation Treaty. Reliance on an international organization has raised issues of objectivity and competence, and in fact has created a separate cause for concern and distrust among parties.

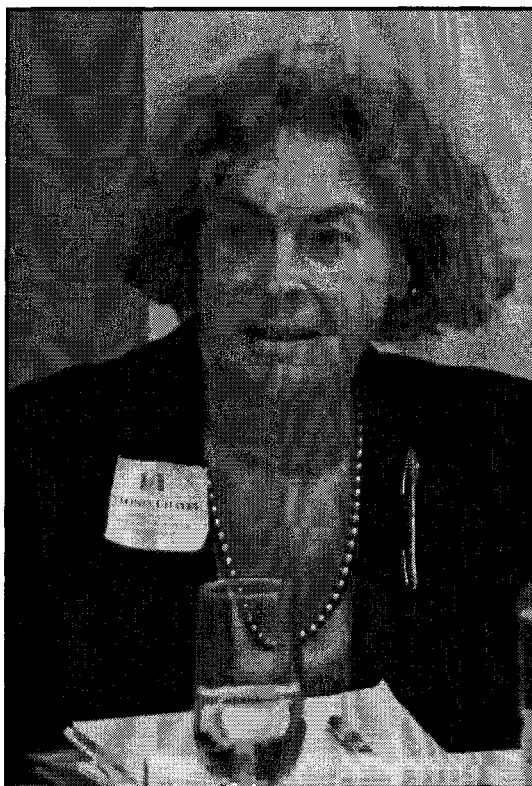
It is important to emphasize how the changed security landscape has caused adaptations in verification so that it might continue to provide both deterrence and reassurance in the new world order (or disorder). I will take these elements up one by one.

Reliance on Technology

During the Cold War, reliance on technology was paramount—and because nuclear systems were large and fixed, reliance on satellite technology gave an adequate approximation of the state of the systems that the United States and the Soviet Union had in place. For example, the parties cooperated by opening the silo roofs at the specific time a satellite passed over to facilitate verification that the declared missiles were still in storage and were not deployed elsewhere. Surveillance was costly and precise—constantly being improved. Yet both parties were unaware of how inadequate that technology alone was to deal with all the dimensions and the magnitude of the problem as it evolved over time.

An obsessive focus on equality of systems to assure stability characterized all negotiations. Parity was enshrined in law,² despite the fact that both parties had so many systems that a slight imbalance could not threaten either security or deterrence. Even with such an obsession, both parties were willing

to move to mobile systems that would have been undetectable once perfected. The U.S. “Peacekeeper” (MX) missile now sits in a museum, while the Russians maintain their mobile missiles. These moves and countermoves were not rationally designed to reduce the threats—in many ways, they increased nuclear insecurity. In fact, despite the mutual mistrust, there was a continuing reliance on the rationality inherent in the doctrine of Mutual Assured Destruction.³ Yet the near catastrophe of the Cuban missile crisis underscored the



fragile basis of rationality in two highly politicized systems of government, when miscalculation would have meant disaster.

Remote technology, however, was known to be inadequate for verifying the existence of biological and chemical weapons. Any technology that might be sufficient to analyze the content of laboratories or sites containing chemical or biological materials that could be weaponized required a degree of cooperation that did not exist. On-site inspection could not be agreed upon between East and West. Since the Soviet Union resisted the U.S. demand for seven on-site inspections for a comprehensive test ban treaty, and the technology to detect underground nuclear tests was inadequate, negotiations to create chemical and biological verification systems floundered.⁴ The so-called “yellow rain” and the outbreak of an anthrax epidemic at Sverdlosk remained a mystery until the political climate had thawed, and information from the then Soviet Union was more freely available.⁵

Today technology continues to play an important role, but our concern encompasses different and smaller weapons systems only detectable by more sophisticated, closer-in technology such as environmental sampling. Closer-in technologies require even more site knowledge and cooperation. Remoteness of even 20km may be sufficient to defeat verification.

Satellite imagery is no longer enough, as the American government’s

embarrassment after labeling satellite images of trucks in Iraq as mobile weapons laboratories in order to persuade the UN Security Council to support an invasion of Iraq in 2002 demonstrates.⁶

But even where satellite imagery serves a limited purpose, the international organizations that increasingly conduct verification lack funding to buy satellites—they buy satellite time. For example, if they ascertain the time that the satellite passes above a questioned site, the “cheating” state may also know when the satellite passes and stop all outlawed activities for that time-period.

Even with the new technology that attends physical inspection, a higher level of cooperation is required, and we have not been able to attain it with the most worrisome states—North Korea and Pakistan. There had been a higher degree of cooperation with Iran, surprisingly, considering that it has not signed an Additional Protocol Agreement. But considerable doubt remains whether all Iran’s production facilities have been discovered and whether cooperation may have been selective. Moreover, further cooperation may be withdrawn.

Any formula for use of technology must include cooperation to be effective. This is particularly the case with chemical and biological weapons. It comes down to people + technology. Inspection, when permitted, must employ technologies that can penetrate the near-impenetrable and seek to detect what is most carefully concealed.

Intelligence: The ability to detect

Intelligence has always been relied on to detect “cheating” and to call the defecting party on it. In the era of hostility between the United States and the Soviet Union, intelligence was primarily national technical means (NTM), with cost no object. Now that the threats are multiple, smaller, and far more difficult to detect and reliance on satellites is accordingly reduced, reliance on human intelligence looms larger in importance. Judgment in interpretation is equally significant. Evidence of violation often means piecing together odd bits of information. This is particularly true of biological weapons (BW) and chemical weapons (CW) where dual-use technology could mislead in either direction—of false accusation or missed dangerous activity—for example the pharmaceutical plant in Sudan bombed by the United States under President Clinton.⁷ Unfortunately, the state of our “humint”, or human intelligence, has been justly criticized,⁸ and even though the intelligence services have undergone structural reform, there is little satisfaction with the access of human intelligence to the areas of greatest concern—North Korea and Iran.⁹

Cooperation

During the Cold War, cooperation between the two superpowers was limited and stylized—almost a minuet of relationships based on carefully developed theoretical underpinnings of mutually assured destruction (MAD). The parties agreed not to attack the NTM satellites of the other nor to engage in deliberate concealment measures.

The various SALT and START agreements, beginning in 1972, provided reductions that were later overseen by periodic meetings of negotiators or the ongoing Standing Consultative Committee (SCC) in which it was hoped that ambiguities would be clarified. The most conspicuous example was whether the Krasnoyarsk radar was a violation of the ABM Treaty. To some observers, it seemed to form the basis of a nationwide detection system outlawed by that Treaty. Access to the classified minutes of the SCC has convinced me that during the Reagan administration, little cooperation and much finger pointing characterized those meetings.¹⁰ Noncompliance reports to Congress during the Reagan era focused on minor technical issues. The SCC was used to express "gotchas" as a deterrent to cheating. In fact, the greatest value of the SCC was probably the ongoing dialogue, as stilted as it was. The "hot line" was another effort at cooperation to avoid disaster.

These limited mechanisms for cooperation were probably not adequate to the situation. In fact, deterrence was provided by the systems themselves, far more than the verification process. Neither party fully appreciated the magnitude of a miscalculation. Both continued to assume automaticity of the restraints in place. Actual risk was no doubt higher than anyone realized. Nevertheless, from time to time there were some fairly honest, frank discussions and even negotiation breakthroughs based on a degree of trust. But the famous "Walk in the Woods" in 1982, between the nuclear negotiators, Paul Nitze and Soviet Ambassador Yuli Kvitsinsky, though memorialized in theatre, was rejected by higher levels of both governments.¹¹

On-site inspection did not take place until close to the end of the Cold War. As indicated, the United States had insisted on extensive on-site inspection for many years, but the Soviets resisted. In 1986, General Secretary Gorbachev indicated a change of position and went further towards challenge inspections than the United States was prepared to accept. The Intermediate-Range Nuclear Forces Treaty (INF) provided on-site inspection provisions, including baseline data, perimeter, closed-out facilities, and short-notice inspections. START I continued this trend. As

the political climate warmed, the obstacles and stalling devices on both sides diminished considerably.

The awareness of the need for deep cooperation that the climate of suspicion made impossible is not new. In fact, it was the belief that no technical surveillance could possibly overcome Soviet cheating that led arms control opponents to reject new treaties and attempt to terminate existing ones.¹² Reliance on new and more sophisticated weapons systems was believed to be safer, despite the arms spiral they caused. Those who favored some degree of arms control pushed for more intrusive arrangements to increase reassurance. As the climate began to thaw, they succeeded. Nevertheless, nuclear deterrence has remained a major factor in the balance between the two superpowers.

In the post-September 11 world, both reassurance and deterrence have been eroded. The kind of deterrence that existed between the United States and the USSR is not replicable. While further reduction of large nuclear weapons between the United States and Russia has been accomplished almost with a handshake,¹³ nuclear issues remain a matter of serious concern mostly because of existing and feared proliferation to irresponsible states and nonstate actors.

Nuclear deterrence barely exists between the P-5 and smaller nations that might gain access to nuclear weapons. Nonstate actors, particularly suicidal ones, are certainly not deterrable. We return to Dr. Fred C. Ikle's famous question—"After Detection . . . What?"¹⁴

Moreover, a state with few military or industrial facilities, such as Afghanistan or North Korea, does not offer suitable targets for nuclear weapons. Thus the verification function of deterrence has a far smaller role today than it did in the midst of the Cold War. It may work between India and Pakistan, but with regard to the rest of the world, it more likely operates against the great powers than in their favor.

It is even hard to argue that other forms of deterrence, including trade isolation, will be very effective, although they are often tried. Economic sanctions sound more effective than they turn out to be. The sanctions against Iraq penalized the populace but did they alter the policies of Saddam Hussein's regime? Unilateral sanctions are not likely to be effective. But even universal sanctions, as in the Iraq case tend to be porous. Moreover, even if scrupulously honored, they are hard to sustain over a long period of time. While targeted sanctions may be perfected over time, it is doubtful that they could provide a sufficient deterrent to a leadership determined to build nuclear weapons. Conventional military sanctions may be more believable after the U.S. invasion of Iraq, but they are

not a deterrent that can be used often, even by the world's sole superpower. In fact, such a threat may provide an incentive for clandestine development of nuclear and other weapons of mass destruction as a deterrent to the United States and its most stalwart allies. Nor will there be much appetite in the West for such a course given the possibility of terrorist reprisals against invasions such as Iraq.

The reassurance function of verification may still hold some promise, however. But a great deal more cooperation than presently attainable is necessary to verify small weapons systems and especially dual use precursors. The irony is that with the most worrisome of systems such as biological weapons, greater intrusiveness is needed to accomplish far less reassurance than existed in the bipolar world. That trade-off has been particularly unattractive to the United States, as shown both in its actions during the early phase of implementing the Chemical Weapons Convention and in its rejection of the biological Weapons Protocol, discussed below.

The United States, having pushed for intrusive verification, now rejects the degree of cooperation that would increase its effectiveness, based in part on jeopardy to trade secrets, and in some instances on national security grounds. This is, of course, echoed by other states, especially Russia and China, even though the claims made do not always stand up to careful analysis.

The question then becomes whether the adequacy of verification is worth the risk of openness in a world where so much cheating is possible. The most frightening new element is the existence of nonstate actors who mean to do harm, who seek access to WMD, who are not constrained by norms, and with whom cooperation is impossible.

If treaties cannot provide adequate reassurance through verification, is the answer to avoid treaties altogether and rely on intelligence? That has certainly not proven effective with regard to states as different from each other as Sudan and Iraq. Is it better to deepen cooperation within treaties and aim for universality among states? That is not a course that the United States has been following. Are there other techniques of interstate cooperation that can begin to tackle the problem of nonstate actors? Verification will never provide fully adequate reassurance, but the question that must be asked is whether national security is enhanced or decreased by arrangements that require intrusive verification, even if such arrangements cannot provide total reassurance. There are many approaches to cooperation, including cooperative verification that can be developed even in a world where mutual suspicion and lack of trust is the norm. But none of these involve scrapping international agreements, although the form and approach of such agreements may require alteration and innovation.

What can the International Law of Treaties offer?

It has become fashionable to denigrate treaty effectiveness in general, even as a scholarly echo of the Bush administration policy since 2001.¹⁵ But there may be a baby/bathwater phenomenon when it comes to the value of arms limitation treaties. Despite the seeming simplicity and shallow commitments of the Cold War U.S.-USSR bilateral agreements, there were few violations of the provisions. And, as noted above, in the Gorbachev era, on-site inspection became a reality. Moreover, had the United States agreed to fewer inspections, the world might have had a comprehensive test ban treaty.¹⁶

During this period there also seemed to be a strong norm against proliferation, and in general, a widely-shared, though not universal support for arms control treaties. Norm creation led to the Treaty of Tlatelolco, declaring Latin America and the Caribbean to be a nuclear free zone,¹⁷ the South Pacific Nuclear Free Zone Treaty,¹⁸ and renunciations by South Africa, Brazil, and Argentina.

Nor did the inherent inequities in the NPT seem to disturb the norm, even though this inequality was the reason cited by India, Brazil, and Argentina for not joining the NPT. But the fear of U.S. or Soviet use of nuclear weapons loomed largest, and the promise of reductions, cessation of testing, and even ultimate elimination gave hope to other nations.

The normative base of restraints that underpin arms control negotiations seems to be eroding. The legitimacy of Nuclear Proliferation Treaty (NPT) looms as a much larger question since the end of the Cold War. Its discrimination against non-nuclear states (NNWS) seems less tolerable, particularly with the existence of undeclared nuclear states (Israel) and three de facto nuclear but not de jure states (India, Pakistan, and North Korea). The disclosure of the unbridled proliferation facilitated by Pakistan has not increased world confidence in the NPT.

Moreover, the effectiveness of NPT verification is deeply questioned. The credibility of the IAEA was damaged when it was learned that Iraq had eluded the pre-1991 inspection process and had started to divert nuclear material in the Tuwaitha facility. Questions about North Korean compliance before its withdrawal further eroded confidence. Ease of withdrawal itself lessens the value of the NPT.

Nevertheless, the special UN inspection team, UNMOVIC, was more correct in its findings than U.S. intelligence in Iraq immediately preceding the invasion of 2003. While special inspection powers were greater than those of regular IAEA inspectors at the time, it can be argued that the

very presence of inspectors until 1998 contributed to Saddam Hussein's decision to rid Iraq of all WMD.

The IAEA has developed a far more aggressive Additional Protocol and may go further yet. The safeguards do not go all the way toward finding undeclared activities in declared sites and in undeclared sites. Resistance to no-notice inspections remains. It is an important start, but much more should be done to empower the IAEA.

The test should be whether an imperfect verification system weakens or strengthens national security. What is lost by submitting to increasingly intrusive verification measures? What is gained by refusal to engage in negotiations that will result in imperfect reassurance? For the United States, with its overwhelming military power, the benefits to be gained far outweigh the loss. Moreover, the support of measures that require cooperation in verification may encourage cooperation in other national security areas—as it has done with the Nunn-Lugar cooperative threat reduction program. It may encourage new thinking about ways in which nations, perhaps in regional groupings can work together to improve security. At the very least, such efforts may expose and even shame non-cooperative states. The result can be a net gain as, for example, the Chemical Weapons Convention (CWC) has been.

Early U.S. behavior under CWC was obstructive, abrasive, and not very cooperative. That has changed considerably in the last two years, but there is a lingering question whether the United States, by not setting a very good example, created a pathway for others to follow in resisting cooperation. Ironically, it was the United States that sponsored a groundbreaking approach to intrusive verifications in the mid-1980s—pushed by then Vice President George H.W. Bush and continued when he was President. However, it was not until the second Clinton term, in 1997, that the CWC was ratified.

Senator Jesse Helms insisted on 28 “conditions,” which were in effect reservations, although the treaty did not permit reservations. These conditions undermined the very robust verification scheme that the first President Bush had advocated. These included: 1) the right to refuse a challenge inspection on national security grounds; 2) the insistence that no samples collected could leave the U.S. soil; and 3) narrowing the types of industries that require declarations. These strictures could have caused many problems, and indeed the second condition has been a major problem. Fortunately the “no challenge inspection” provision has not been invoked—but the United States set a bad example early on. If we thought we could have a two tier system, we were mistaken. All we did was create opportunities for others to

follow suit. The United States has to be aware that when it creates precedents, there will be followers. There were many examples of uncooperative behavior in a situation where a high degree of cooperation was required—late reports, acting combatively with inspectors—fussing about tagging and weighing munitions. Russia and South Korea followed suit.¹⁹

Despite early obstructionism, there were and are now many successes in the CWC. First, the chemical industry, through its trade association the Chemical Manufacturers Association (CMA), had been very supportive with both technical advice and political support. As of February 28, 2006, 71,332 thousand metric tonnes of chemicals have been declared, of which 13,049 thousand metric tonnes have been destroyed.²⁰ The environmental problems are so great that it is necessarily slow.

The informal dispute settlement mechanism has been working. Despite U.S. concerns about past leadership, the OPCW has become more effective. However, it must be acknowledged that the CWC does not provide perfect security. The United States remains vulnerable to non-signatories, nonstate actors, and possible cheaters. But the list of possible miscreants is narrowed by virtue of the cooperative verification process that the treaty created.

The U.S. refusal to sign and ratify the Biological Weapons Protocol, which would have added intrusive inspection to the declaratory regime of 1972, leaves the United States more vulnerable because any cooperation is informal, bilateral, and purely voluntary. The opportunity to create and strengthen an international organization that might become effective, as the IAEA and OPCW have become, was nullified by the dramatic American exit from negotiations in July 2001.²¹ According to Professor Matthew Meselson, the issue of exposure of trade secrets that persuaded the pharmaceutical industry to lobby against the treaty was far less of a problem than it seemed, as research facilities would have been exempt and by the time a drug is in production, it is commercially protected.²²

President Reagan's "trust but verify" statement should have led to greater cooperation, but it has not done so. Closing down in the name of national security not only forecloses opportunities for cooperation with respect to security, but also has a negative effect on the potential for solving problems that are truly global in nature. If the United States is perceived as arrogant and dismissive of international treaties, we can expect a lack of cooperation and help when we ask for it, as has been the case in Iraq. Diffuse reciprocity and mimetic (or copycat) behavior is a result.

Moreover, domestic concerns will not permit the United States to become a much less open society. While some checks and balances have

been weakened, the nation still rests on the Constitution. An open society, in the age of terrorism, remains vulnerable. American contempt for treaties and its contempt for international law have clear political consequences, as well as legal implications.

POLITICS OF A PEACE/WAR CONTINUUM

The politics of the Cold War were certainly unpleasant, and not as predictable as they sometimes seemed at the time, as noted above. The accounts of near nuclear confrontation over Cuba and even Korea remain hair-raising today. And yet this political situation had the virtue of clarifying the widely varying positions of the two antagonists. It had the virtue of simplicity in retrospect. The Cold War security "system", though imperfect, was developed over many years, which enabled to each side to learn in depth about the other side, to assess where the red-line was, and to create communication channels between the head of states to avoid World War III. Both sides realized to some extent, as Einstein famously said, "I know not with what weapons World War III will be fought, but World War IV will be fought with sticks and stones."

All that has changed now. The issues and the players are multiple and wholly unpredictable. There is enormous political fluidity. Alliance shifts are often issue based and may be temporary. As we have seen, the nuclear stalemate still exists in theory, but in practice seems irrelevant to the issues that face us today. The stakes may be lower than nuclear war but because of that, it is harder to maintain stability. The actors are unequal and elusive. There seems to be a lack of awareness that security is not a single game that is being played, but simultaneous games on many tables.

The United States is failing to act in its own self interest by its inconsistency across many international areas. For example, the Nethercutt Amendment²³ provided withdrawal of aid from nations that would not sign bilateral agreements with the U.S. promising not to join the International Criminal Court. If the United States is disappointed because Europeans are not supporting the rebuilding of Iraq, we should look to their reasons. We ignored European disappointment expressed over our refusal to participate further in a number of treaty areas—"unsigned" the ICC and undermining it, walking away from Kyoto and the troublesome area of climate change, refusing to sign the land mine treaty—not to mention opting out of the world court and refusal to ratify UNCLOS. American refusal to sign the Comprehensive Test Ban Treaty (CTBT) has eroded the potential of arms control treaties and further separated the

nuclear “haves” from the “have nots”, thus increasing the skepticism about the value of the NPT. In all of these areas, vigorous participation and well-thought out and constructive positions would increase cooperation where we need it. Such participation would not leave us open to “diffuse reciprocity” or subtle forms of retaliation across treaty areas. The problem of proliferation of WMD is not only an American problem, even though we often act as if it were. It is far too global and far too difficult and intricate a problem to be left to the politics of a single nation—even the world’s only superpower.

It may seem a very weak solution now to suggest that we retrace our steps and try to bolster the international legal regimes that have proven so fragile and so imperfect. But I do not see any alternative in an era of multiple players, where widespread cooperation and overlapping and contradictory perceptions must somehow be reconciled to get cooperative action.

Cooperation in verification is an interesting place to start because we have little security to lose and much to gain in the way of political reciprocity. Such an effort may foster new forms of cooperation that address current and emerging security concerns. Reducing proliferation of WMD requires a depth of cooperation and the slow and careful development of trust among multiple nations. But reducing the threat of proliferation will take more than cooperation. It will require imagination, diplomacy, and a willingness to make expenditures, particularly on behalf of nations that offer fertile soil to the development of terrorism. Cutting aid to them as the Nethercutt Amendment does is simply foolhardy. Vigilance is important, but we should not fool ourselves that we can create new technical means or new weapons systems that will solve the problems of proliferation or protect the United States against attack. ■

ENDNOTES

- 1 John Lord O’Brian, First Godkin Lecture, in *National Security and Individual Freedom* (Cambridge: Harvard University Press, 1955).
- 2 The concept of “parity” emerged from the SALT I ratification debate. During the debate on Senate Joint Resolution 214, which endorsed the Interim Agreement, Senator Henry M. Jackson (D – WA) proposed several versions of an amendment to define the concept of parity more precisely. According to Jackson, parity relied primarily on numerical balance. He believed the Interim Agreement did not serve U.S. national interests because it allowed the Soviet Union a numerical advantage in missile launchers and nuclear powered submarines. Opponents of the Jackson Amendment stressed the qualitative superiority of U.S. weaponry. They argued that the negotiated SALT limits more than adequately provided for a reputable deterrent force. Despite opposition, Amendment 1516 passed 56-35. See Footnote 5 of Antonia Handler Chayes and Abram Chayes, “Policy Focus: Arms Control Verification Reconsidered,” *International Security*, 14, no. 4 (Spring 1990).

- 3 University of California, Security Studies Project, *The Future of Deterrence in U.S. Strategy*, ed. Bernard Brodie, (Los Angeles: University of California, 1968). Robert Jervis, *The Illogic of American Nuclear Strategy*, Cornell Studies in Security Affairs (Ithaca, NY: Cornell University Press, 1984).
- 4 Antonia Handler Chayes and Abram Chayes, “Policy Focus: Arms Control Verification Reconsidered,” *International Security*, 14(4) (Spring 1990), 156.
- 5 “Yellow Rain” turned out to be a natural phenomenon, but Sverdlosk indeed was a bio weapons site. See Julian Robinson, Jeanne Harley Guillemin, and Matthew Meselson, “Yellow Rain: The Story Collapses,” *Foreign Policy* 68 (Fall 1987).
- 6 UNMOVIC, “Oral Introduction of the 12th Quarterly Report of UNMOVIC,” Briefing of the Security Council by Executive Chairman Dr. Hans Blix, March 7, 2003, <www.unmovic.org> (accessed March 15, 2006); Evan Thomas, “Where are Iraq’s WMDs?” Truthout Issues, June 1, 2003, <www.truthout.org/docs_03/060203A.shtml> (accessed March 15, 2006).
- 7 In response to the 1998 bombings of U.S. embassies in Kenya and Tanzania, President Clinton authorized Operation Infinite Reach, a U.S. cruise missile strike on alleged terrorist bases in Afghanistan and Sudan. Missiles launched from the Red Sea struck the Al-Shifa pharmaceutical factory, a facility that the U.S. claimed to have assisted Osama bin Laden with the embassy attacks, as well as help build chemical weapons.
- 8 National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report* (New York: W.W. Norton & Company, 2004), 407–418.
- 9 National Commission on Terrorist Attacks upon the United States, *Monograph on Terrorist Financing and Monograph on 9/11 and Terrorist Travel*, August 21, 2004, <www.9-11commission.gov>. The House Permanent Select Committee on Intelligence and the Senate Select Committee on Intelligence, *Report of the Joint Inquiry into the Terrorist Attacks of September 11, 2001*, 107th Congress, 2d Session, S. REPT. NO. 107-351, H. REPT. NO. 107-792, December 2002, <www.gpoaccess.gov/serialset/creports/911.html>.
- 10 Antonia Handler Chayes and Abram Chayes, “Policy Focus: Arms Control Verification Reconsidered,” *International Security* 14(4) (Spring 1990).
- 11 In order to break the stalemate during the 1982 intermediate nuclear missiles negotiations in Geneva, Paul Nitze took Soviet Ambassador Yuli Kvitsinsky aside for a “walk in the woods” outside Geneva to negotiate arms reductions.
- 12 Abram Chayes and Antonia Handler Chayes, “Testing and Development of ‘Exotic’ Systems under the ABM Treaty: The Great Reinterpretation Caper,” *Harvard Law Review* 99(8) (June 1986).
- 13 In May 2002, President George W. Bush and Russian President Vladimir Putin signed the Moscow Treaty on Strategic Offensive Reductions. Under the terms of the agreement, both parties will reduce their strategic nuclear warheads to a level of 1,700-2,200 (nearly two-thirds below current levels) by December 31, 2012. The White House, News & Policies, *Fact Sheet: Treaty on Strategic Offensive Reductions*, May 24, 2002, <www.whitehouse.gov/news/releases/2002/05/20020524-23.html>.
- 14 In a 1961 article in *Foreign Affairs* entitled “After Detection...What?” Dr. Fred C. Ikle, former Director of the U.S. Arms Control and Disarmament Agency, argued that the verification task of detecting noncompliance with arms control was not sufficient. The only assurance to deter would-be-violators is an agreement on what the consequences would be if a violation was detected.
- 15 See also Michael J. Glennon, “UN Reform: Platonism, Adaptivism, and Illusion in UN Reform,” 6 *Chi. J. Int’l L.* 613 (Winter 2006); Michael J. Glennon, “How International Rules Die,” 93 *Geo. L.J.* 939 (March 2005); Jack Goldsmith and Curtis Bradley, “Customary International Law as Federal Common Law: A Critique of the Modern Position,” 110 *Harvard Law Review* 815 (1997); and Peter Spiro, “The New Sovereignists: American Exceptionalism and Its False Prophets,” *Foreign Affairs* 79(6) (Nov/Dec. 2000).

- 16 The Chemical Test Ban Treaty (CTBT), which prohibits all nuclear test explosions, was signed by 71 States, including all five nuclear-weapon States on September 24, 1996. To enter into force, the CTBT must be ratified by the 44 states that in 1996 possessed nuclear research or power reactors. To date, China, Colombia, Egypt, Indonesia, Iran, Israel, and the United States, whose ratification is necessary for the Treaty to enter into force, have not ratified the CTBT. Non-signatories include India, Pakistan, and North Korea. In 1999, the U.S. Senate voted not to give consent to ratify due to concerns with the adequacy of the treaty's verification provisions to detect low-yield tests (of less than one kiloton). Opponents argued that advanced nuclear weapon states, such as China, could conduct militarily significant tests or develop new weapons without being detected, therefore gaining a military advantage over the United States. The Bush administration has stated that it will not seek Senate reconsideration of the Treaty. Nuclear Threat Initiative (NTI), *Issue Brief: Comprehensive Test Ban Treaty*, <www.nti.org/e_research/e3_9a.html>. For more information on the CTBT and the status of signature and ratification, visit the website of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization at <<http://pws.ctbto.org/>>.
- 17 The complete text of the Treaty of Tlatelolco (1967) and the status of signature and ratification is available online at <www.opanal.org/opanal/Tlatelolco/P-Tlatelolco-i.htm>.
- 18 The South Pacific Nuclear Free Zone (SPNFZ) Treaty, or Treaty of Rarotonga (1985), bans the manufacture, possession, stationing, and testing of any nuclear explosive device in Treaty territories, as well as the dumping of radioactive waste at sea. The complete text of the Treaty and the status of signature and ratification is available online at <www.fas.org/nuke/control/spnfz/text/index.html>.
- 19 Much of this analysis is based on an excellent unpublished 2004 MALD thesis by Danielle Tarin, titled, "The United States and the Chemical Weapons Convention: Exemplifying American Exceptionalism in Treaty Behavior."
- 20 For more information see the website of the Organization for the Prohibition of Chemical Weapons at <www.opcw.org>.
- 21 After over six years of negotiations to develop a legally binding inspection protocol for the BWC, the United States rejected the draft protocol and walked away from the negotiations. For more information, see Ambassador Donald Mahley, U.S. Special Negotiator for Chemical and Biological Arms Control Issues, *Statement by the United States to the Ad Hoc Group of the Biological Weapons Convention States Parties, Geneva, Switzerland, July 25, 2001* (accessed March 15, 2006); available from <www.state.gov/t/ac/rls/rm/2001/5497.htm>.
- 22 Discussion with Professor Matthew Meselson on October 20, 2004.
- 23 President Bush signed the Nethercutt Amendment into law on November 14, 2005.