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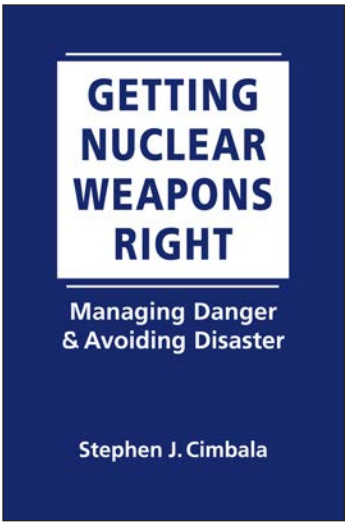
Getting Nuclear Weapons Right: Managing Danger and Avoiding Disaster



Stephen J. Cimbala

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LYNNE RIENNER PUBLISHERS

1800 30th Street, Suite 314
Boulder, CO 80301 USA
telephone 303.444.6684
fax 303.444.0824

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Getting Nuclear Weapons Right

This book is about managing nuclear danger, avoiding nuclear disaster, and accomplishing US foreign policy and national security objectives by balancing nuclear arms control, nonproliferation, and deterrence. Nuclear weapons did not go away with the end of the Cold War. The ultimate weapons of mass destruction have survived into the twenty-first century and are alive and well in at least nine countries that are de facto or acknowledged nuclear weapons states. There is a significant risk that additional countries, currently without nuclear arsenals, but feeling threatened by neighboring states or others, will want to acquire nuclear weapons. At the same time, those states that already have nuclear weapons and delivery systems (missiles and bombers) are modernizing and upgrading their capabilities. The "nuclear taboo"—no nuclear weapon has been fired in anger since the bombing of Nagasaki in 1945—has held thus far. But there is no guarantee that the threshold between nuclear abstention and first use will remain firm in the present century.

Developments in technology and in politics threaten to upset the stabilizing condition of nuclear deterrence that has prevailed until now. A number of these challenges to deterrence stability and to the avoidance of nuclear war are covered in the chapters that follow. These challenges must be mastered by political leaders, military planners, and other interested parties who wish to maintain durable

deterrence stability, nuclear crisis stability, and arms race stability in the twenty-first century.

In Chapter 1, I introduce the important themes and arguments to be discussed in more detail in later chapters. This introductory chapter highlights the challenges facing analysts and policymakers who are attempting to understand nuclear policy and strategy issues. Among these challenges are: the problem of nuclear proliferation; the importance of nuclear arms control; the question whether nuclear war could be controlled once having been unleashed; the place of missile defenses in US and allied military-strategic planning; and the US security relationship with allies (especially the North Atlantic Treaty Organization [NATO]) and security competitors (Russia and China). The transition from the first nuclear age (coinciding roughly with the duration of the Cold War) to the second nuclear age (after the end of the Cold War and the demise of the Soviet Union) is also noted and its consequences are explained.

In Chapter 2, I consider arguments as to what kind of international system is most conducive to international stability, including nuclear deterrence stability. This is the "topmost" level of analysis, and the future of the international system is nondeterministic. The future is "up for grabs" because it depends upon decisions taken by states, especially by the leading military and economic powers. In the case of the subgroup of nuclear weapons states, it is obvious that they have a special stake in the kind of larger international system that will evolve from the present. The discussion in this chapter considers alternative possibilities for system structure or "regimes" of norms and institutions within which state actors would have to operate, and their implications for states' nuclear weapons policies.

As discussed in Chapter 3, the preferred international system for a growing number of scientific and military experts, and some prominent politicians, is a world without nuclear weapons. President Barack Obama called for such a world in his Prague speech in 2009, although he acknowledged that complete nuclear disarmament might not be accomplished in his lifetime. The discussion in this chapter is open to the possibility of a nuclear-free world, but the transition from where we are now to "nuclear zero" involves many obstacles. For example, among the nine existing nuclear weapons states, none have shown any keen interest in eliminating their respective nuclear arsenals. It has been difficult enough to get the two largest nuclear weapons states, the United States and Russia, to move forward on marginal post–New START (Strategic

Arms Reduction Treaty) reductions in their respective strategic nuclear forces. Nuclear abolition also faces the "tragedy of the commons" or the reluctance of powers to sacrifice individual advantage for the sake of the common good. Finally, there is the paradox that the superiority of the United States in advanced technology conventional weapons and command-control systems invites aspiring peer competitors and other states to use nuclear deterrence as an "equalizer" against otherwise superior US systems.

As an alternative to nuclear abolition in controlling the risks of nuclear war, some experts have advocated a structure based on minimum or finite deterrence postures. Chapter 4 examines some of the reasons why minimum deterrence strategies have appealed to nuclear arms control experts and military analysts. Minimum deterrence starts from the recognition that it takes very few nuclear weapons to do a great deal of damage. Therefore, arsenals including thousands of weapons are superfluous and unnecessarily provocative. Several hundred weapons guaranteed to survive any first strike and to retaliate with damage unacceptable to a rational attacker should suffice. On the other hand, critics of minimum deterrence argue that it lacks flexibility and confines retaliation almost exclusively to population as opposed to military targets. Critics also argue that war is the eternal province of "friction" and uncertainty, and that minimum deterrent forces leave little or no margin for error, should deterrence fail. In any case, minimum deterrence (or finite deterrence, a more robust variant of minimum deterrence) falls within a spectrum of nuclear defense postures that US and other analysts have debated for decades.

In Chapter 5, I take up the question of controlling or limiting a nuclear war. The priority is on avoiding nuclear war, but political leaders and military planners must prepare for the possibility that eventually deterrence might fail. Once a nuclear war has broken out, it can be stopped in one of two ways. First, the combatants, having exchanged nuclear strikes and achieved their objectives (or having failed to do so, to their disappointment), might be ready to sue for peace. International mediation might be necessary to expedite this process of military stand-down or political reconciliation between the two sides. Second, if the combatants cannot agree on a way to end the war, a solution may be imposed by stronger outside powers. A war between two regional states in the Middle East or Asia might be ended, or at least the nuclear phase of it curtailed, by the unanimous agreement of the five permanent members (P-5) of the United Nations Security Council: the United States, Russia,

China, the United Kingdom, and France. The problem of controlling a nuclear war also involves the internal or domestic politics of nuclear weapons states. The onset of a nuclear war might lead to domestic political upheavals that increase the power of the armed forces relative to their nominal civilian superiors. A regime might even be overthrown for having blundered into a nuclear war, or civil war might develop with contending factions competing for control of nuclear weapons.

In Chapter 6, I consider the challenge of nuclear proliferation in the twenty-first century and policy options for the United States in this regard. Nuclear proliferation is of two kinds. Horizontal proliferation is the spread of nuclear weapons to additional countries (or, even worse, to terrorists or other nonstate actors). Vertical proliferation is the growth in size of existing nuclear arsenals. In the case of horizontal proliferation, the Iranian nuclear deal of 2015, reached between that country and the P-5 Plus One negotiating group (with United Nations [UN] and European Union [EU] support), presumably capped the Iranian nuclear program at least temporarily. In the case of vertical proliferation, North Korea represents an immediate challenge to the existing international order. North Korea continues to conduct nuclear and missile tests in overt defiance of UN restrictions and international sanctions. The beginning months of 2017 also witnessed repeated threats by North Korean leader Kim Jong-un to unleash nuclear attacks against the United States or its regional allies, or both, in Asia. North Korea is hiding its intentions in plain sight, although some optimists think that its rhetorical bombast is camouflage to compensate for a vulnerable position. Regardless of its intent, a nuclear North Korea requires a multilateral political engagement from the United States, China, Russia, South Korea, and Japan as immediately interested parties. It also requires strong messages of deterrence with respect to the consequences of initiating a nuclear attack or even a conventional war that might escalate into a nuclear one.

But as Chapter 7 explains, the United States and Russia surely have a responsibility to lead with regard to nuclear related issues: not only on account of their Cold War experience, but also because of the sizes of their nuclear arsenals. The United States and Russia agreed the New START treaty in 2010 (taking effect in 2011), which reduced their numbers of operationally deployed strategic nuclear weapons to a maximum of 1,550 each and their numbers of deployed launchers to a maximum of 700 each. Then political winds shifted.

Barack Obama's second term in the White House and Vladimir Putin's return to the Russian presidency in 2012 proved to be a collision course. Russia's annexation of Crimea and destabilization of eastern Ukraine, followed by Western economic sanctions against Russia, poisoned the political atmosphere and froze out the subject of nuclear arms control. Some expected that Obama's departure from the presidency and the inauguration of Donald Trump would change US-Russian political relations for the better, creating a more favorable climate for post–New START arms limitations. But turbulence in US domestic politics, including charges of Russian meddling in US presidential elections in 2016, left the future of arms reduction talks uncertain. The chapter also considers the role of US strategic missile defenses in relation to US-Russian nuclear arms control options. Although missile defense technologies are arguably improving in the twenty-first century, compared to the first nuclear age, missile defense technology remains short of the "game changing" proficiency that will supersede deterrence based on offensive retaliation.

In Chapter 8, I consider the opportunities and challenges involved in bringing China into the strategic nuclear arms reduction process. US-Russian engagement on nuclear arms control has followed the bilateral pattern established during the Cold War between the Soviet Union and the United States. China's status as an economic superpower and an emerging peer competitor for international influence with the United States suggests another look at the leadership structure of international arms control. Although China's long-range nuclear forces are small compared to those of Russia and the United States at present, there is no question that China has embarked on a significant modernization of its nuclear and conventional forces. China does not need to obtain exact strategic nuclear parity with the United States or Russia in order to maintain a credible nuclear deterrent. It is sufficient for China to maintain a diverse force of deliverable weapons based on a variety of survivable launchers, including land-based, sea-based, and air-delivered weapons. Bringing China into the Russian-US dialogue on strategic arms reductions would also provide additional thinking into Chinese views of the role of nuclear weapons in military strategy. On the other hand, China is cautious in providing information about its nuclear capabilities beyond what can be confirmed from US and other intelligence sources. For example: China is suspected of having many miles of underground tunnels for the concealment and storage of reserve missiles. And what we do know of China's crisis

and potential wartime command-control procedures is insufficient for drawing any important conclusions. Getting China to climb aboard the transparency requirements of a future nuclear arms agreement with the United States and Russia is, therefore, a political and military challenge requiring a considerable expenditure of diplomatic art. On the other hand, continuing a two-way dialogue between Washington and Moscow with China excluded leaves Russia and the United States with less awareness of China's priorities and capabilities.

In Chapter 9, I discuss the challenge to NATO in the post–Cold War world posed by its singular responsibilities for maintaining peace and security in Europe in the twenty-first century. The 2014 Crimean crisis reminded NATO of its original mission: the deterrence of Russian expansion by military and political means into free and democratic Europe. Russia's aggression in eastern Ukraine was more political than military and involved a substantial dose of information warfare.[1] Events in Europe from 2014 to 2017 not only reinforced the indispensability of NATO for guaranteeing peace and security in Europe, but also increased the pressure on fiscally delinquent alliance members to pay their fair shares of the military burdens imposed by European deterrence and defense. Another challenge for NATO is to decide what role nuclear weapons should play in its future military planning and decisionmaking. The military rationales for NATO's European-based tactical nuclear weapons have always been controversial. On one hand, it is argued that NATO's tactical nuclear weapons connect nuclear first use to the possibility of nuclear escalation, over which neither NATO nor Russia might be able to exercise predictable discipline. On the other hand, it is also argued that tactical nukes permit NATO or Russia to establish a clear threshold between a small employment of nuclear weapons, in order to demonstrate resolve, and a larger nuclear campaign with unforeseeable consequences. Both these arguments may have some plausibility in the abstract. A related issue is what political and military leaders will do when *preparations* for a nuclear first use by the other side are detected, but not yet put into operation.

In Chapter 10, I explore how the challenge of nuclear crisis management could be made even more complicated by the information age. Past experience in nuclear crisis management suggests that success in this endeavor requires a number of key attributes: transparency between the contending parties; fidelity of communication between heads of state and government; sufficient time to weight

alternative courses of action and their consequences; a willingness to see the other side as it sees itself instead of "mirror imaging" the intentions of others; and the ability to think "outside the box" in the creation of crisis decisionmaking processes and structures. The last point was illustrated during the Cuban missile crisis of 1962 when President John F. Kennedy created the ExComm, an ad hoc group of high-level advisers drawn from various departments and agencies, and with special presidential authority to generate options for resolving the crisis. Unfortunately, it appears that information operations have the potential to complicate the resolution of a nuclear crisis. Cyber strikes could reduce transparency in communication, create a false sense of urgency that compresses decision time, reduce the search for alternative courses of action, and increase the appeal of alternatives based upon simplified models of the other side. Moreover, even if no real cyber attacks take place during a crisis, leaders might expect one and interpret any autonomous computer glitch as part of an enemy strike against information systems.

The march of technology into military affairs is also the subject of Chapter 11. Some contend that "third offset" technologies have the potential to create a new revolution in military affairs, with possible by-products impacting upon nuclear deterrence. "Third offset" technologies include, but are not limited to: artificial intelligence; robotics and autonomous learning systems; nanotechnologies; 3-D manufacturing; and cyber war. The assumption of enthusiasts for "third offset" technologies is that their application to military affairs will eventually change the nature of warfare. What this might mean for nuclear weapons is not entirely clear, but some possibilities already suggest themselves. First, increasingly precise and long-range conventional weapons might take over some of the missions previously assigned to nuclear forces. So, for example, US conventional precision global strike (PGS) forces might include long-range ballistic missiles and hypersonic glide systems to strike at targets anywhere on Earth with sufficient accuracy to destroy weapons or other targets located there. If long-range conventional systems become predictably smart and reliable, they might cast doubt on the ability of nuclear retaliatory forces to survive a conventional, instead of a nuclear, armed strategic strike.[2] Second, new technologies might empower preemptive defenses against missile attack. For example: US "left of launch" cyber attacks have the potential to disrupt enemy missile launch command and control before the missiles reach their launch pads, or even during the launch itself.

Finally, in Chapter 12, I summarize major findings of this study and offer some additional thoughts about pertinent subject matter. The conclusion is followed by an appendix, an exercise of the kind that military strategists and civilian government officials often use to sharpen their thinking about "what if" scenarios. The US Army War College conducted, in the spring of 2017, a decisionmaking exercise on conflict termination and postconflict stability operations in North Korea. The exercise assumes that a war has taken place and the international community, including a prominent role for the United States, must now come together to establish a viable postwar political, economic, and legal system. Even those who do not share some of the assumptions made by the expert participants in this study will nevertheless derive substantial benefit from reading through it, and perhaps using it as a teaching tool.

Notes

1. For additional perspective, see Mark Galeotti, "Russian Intelligence Is at (Political) War," *NATO Review,* 2017, http://www.nato.int/docu/review/2017/html.

2. New technologies for improved accuracy and remote sensing might also reduce the survivability of nuclear weapons and launchers against nuclear first strikes. See Keir A. Lieber and Daryl Press, "Nuclear Deterrence in the Computer Age: The Erosion of Stalemate," *Russia Matters,* policy brief (Cambridge, Mass.: Belfer Center, Harvard Kennedy School, May 16, 2017), https://www.belfercenter.org/publication/nuclear-deterrence-computer-age-erosion-stalemate.