Arms Control:
Cooperative Security in a
Changing Environment

edited by

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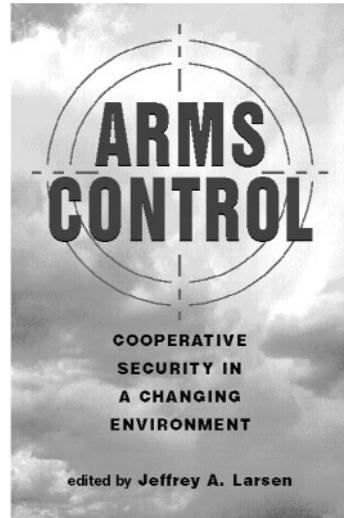
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An Introduction to Arms Control

Jeffrey A. Larsen

The field of arms control is in the midst of an intellectual and operational sea-change. After some 40 years as the centerpiece of U.S. national security policy, arms control seems to be losing its luster. Some claim that arms control is not living up to its promises despite considerable optimism immediately following the end of the Cold War. To survive as a viable international security policy, they argue, arms control must adapt itself to new arenas and new approaches. Suggestions abound for enhancing the role of cooperative security measures as a supplement or complement to more traditional attempts to control arms. Yet official Washington seems to have lost interest in thinking about new arms control issues or dealing with the operational and funding aspects of existing treaties and agreements. These feelings grew stronger with the arrival of the George W. Bush administration in 2001. Wrote one expert, "The traditional arms control process of negotiating legally binding treaties that both codify numerical parity and contain extensive verification measures has reached an impasse and outlived its utility."[1] But do these widespread beliefs reflect reality?

Arms control can be defined as any agreement among states to regulate some aspect of their military capability or potential. The agreement may apply to the location, amount, readiness, and types of military forces, weapons, and facilities. Whatever their scope and terms, however, all plans for arms control have one common factor: they presuppose some form of cooperation or joint action among the participants regarding their military programs. The authors in this book assess the role, value, and purpose of arms control and cooperative security in the twenty-first century. They explore arms control theory, arms control's successes and failures during the Cold War, changes to the international security environment in recent years, and the likelihood of future cooperative security arrangements or arms control agreements in various issue areas and geographic regions. This book

takes the position that even though the negotiating methods, regions of concern, and weapons involved may have changed, the underlying principles and objectives of arms control remain relevant today. Arms control may not be as centrally important as it was during the Cold War and its immediate aftermath, but it still has a role to play in a globalizing world that has ongoing security concerns.

What Is Arms Control and Why Is It Important?

Arms control is but one of a series of alternative approaches to achieving international security through military strategies. As one early writer on the topic explained, arms control belongs to a group of closely related views whose common theme is "peace through the manipulation of force." One could conceivably achieve such an end state in multiple ways: by placing force in the hands of a central authority; by creating a system of collective security; by accepting a balance of power between the key actors in the system; by establishing a system of mutual deterrence; by abolishing or reducing force; and through restraints and limits on forces. The latter choice reflects what we generally call "arms control."[2]

In a system of sovereign states with the capability to build and maintain sizable armed forces, states cannot ensure that rival states will not attempt to achieve influence by pursuing military superiority. Trust often does not exist. States, therefore, interpret incoming information about the military capabilities of rival states in the worst light. Evidence of a new military program or spending by one state requires other states to respond in kind to prevent the other side from achieving superiority. This security dilemma can produce an arms race, thereby increasing political tension among states, raising the probability and severity of crises, and possibly causing war. Arms control tries to address the negative effects of this security dilemma.[3]

Early theorists defined arms control in the broadest sense to refer to all forms of military cooperation between potential enemies in the interest of ensuring international stability. As Hedley Bull put it, arms control is "cooperation between antagonistic pairs of states in the military field, whether this cooperation is founded upon interests that are exclusively those of the cooperating states themselves or on interests that are more widely shared."[4]

Arms control analysts of the early 1960s were in agreement that the objectives of arms control were threefold. For Thomas Schelling and Morton Halperin, they were reducing the likelihood of war, reducing the political and economic costs of preparing for war, and minimizing the scope and violence of war if it occurred.[5] Hedley Bull visualized similar objectives for arms control: to contribute to international security and stop the drift to

war; to release economic resources otherwise squandered in armaments; and to preclude preparing for war, which is morally wrong.[6] Students and practitioners have debated which of these objectives should take priority, but most national security analysts agree that the prevention of war should be the foremost goal of arms control.

Until recently, political leaders and the media seemed to have a more limited definition. They generally confined arms control to that set of activities dealing with specific steps to control related weapon systems, codified in formal agreements or treaties. Many analysts and much of the general public during the Cold War focused on the bilateral arms control negotiations between the United States and the Soviet Union. They came to expect that arms control required a formal treaty, a system of inspections to ensure compliance, and an enforcement mechanism to compel compliance. But those three elements are not always necessary for arms control. Arms control is a process involving specific, declared steps by a state to enhance security through cooperation with other states. These steps can be unilateral, bilateral, or multilateral. Cooperation can be implicit as well as explicit.

Arms Control Versus Disarmament

There is a difference between conceiving of arms control as a means to achieve a larger goal and seeing arms control as an end unto itself.[7] The arms control process is intended to serve as a means to enhance a state's national security. Arms control is but one approach to achieve that goal. Arms control can even lead states to agree to increases in certain categories of armaments if such increases would contribute to crisis stability and thereby reduce the chance of war. This conception of arms control should be distinguished from general and complete disarmament. Proponents of disarmament see the goal as simply reducing the size of military forces, budgets, explosive power, and other aggregate measures. Their rationale is that armaments have been the major cause of international instability and conflict; only through reductions in the weaponry of all nations can the world achieve peace.

Disarmament has a longer legacy than arms control and was a common theme in international relations literature during the 1950s. In the early 1960s international security specialists began using the term *arms control* in place of the term *disarmament,* which they believed lacked precision and smacked of utopianism. The seminal books on arms control published in that era all referred to this semantic problem. They preferred *arms control* as a more comprehensive term.[8]

Of course, advocacy of disarmament as part of a state's arms control policy can also be part of a means-to-an-end approach. For example, the United States and other countries have negotiated global conventions that

endeavor to rid the world of chemical and biological weapons. The United States decided in both cases that maintaining such weapons would not enhance its security, even if they were still possessed by other states. Efforts to rid the world of such weapons were perceived to enhance the security of all states. Similarly, the United States and Russia have agreed to eliminate certain classes of strategic arms.

Hedley Bull suggested that even though disarmament and arms control are not the same they nevertheless intersect. Disarmament is the reduction or abolition of armaments, whereas arms control is restraint internationally exercised upon armaments policy, addressing not only the number of weapons but also their character, development, and use.[9] Yet in the early 1960s many members of the prodisarmament crowd viewed Schelling and Halperin as traitors to the cause when they published *Strategy and Arms Control,* because their book abandoned the utopian goals of many disarmers. Those two authors believed that they were merely extending the breadth and reach of disarmament studies to make it more operationally relevant to military studies.[10]

Cooperative Security

This book places arms control under the rubric of cooperative security, a concept that has grown in popularity and use since the end of the Cold War. The term has been used to outline a more peaceful and idealistic approach to security. One commonly accepted definition of cooperative security is "a commitment to regulate the size, technical composition, investment patterns, and operational practices of all military forces by mutual consent for mutual benefit."[11] Thus the term *collective security* is slightly different in meaning than the terms *cooperative security* or *collective defense.* Collective security is "a political and legal obligation of member states to defend the integrity of individual states within a group of treaty signatories." Collective defense is more narrowly defined: "the commitment of all states to defend each other from outside aggression." By contrast, cooperative security can include the introduction of measures that reduce the risk of war, measures that are not necessarily directed against any specific state or coalition. International institutions such as the Organization of Security and Cooperation in Europe and the European Union (EU) certainly fall under the first definition, but groups such as the North Atlantic Treaty Organization (NATO) just as easily fall within the second. Such cooperation can take place among states that have little in common, but as the cases of NATO and the EU show, cooperative security can advance much farther when the states are like-minded liberal democratic market economies. In those cases the parties can use their shared liberal values to move beyond simple defense pacts, perhaps even achieving proactive efforts in the fields of collective diplomacy, economics, and military action outside their common space.[12]

The Development of Arms Control Theory

U.S. national security objectives include protecting and preserving fundamental freedoms and institutions by deterring and preventing attacks on U.S. national interests at home and abroad.[13] New threats have necessitated reordering the priorities among traditional U.S. national security objectives. Deterring nuclear attack is now less urgent than preventing or countering proliferation of weapons of mass destruction and terrorism, for example. Yet the grand strategic objectives of arms control as an instrument of national security remain virtually unchanged, at least in general terms.

Nevertheless, the conceptual problems facing defense planners and arms control policymakers at the operational level are fundamentally different today from those that confronted the founders of traditional arms control theory in the late 1950s and early 1960s.

Arms Control and National Security

The founding premise of traditional arms control theory—that arms control can be an important adjunct to national security strategy—has, in practice, not always been obvious or consistently observed because arms control is inherently a counterintuitive approach to enhancing security. As Kerry Kartchner has written, arms control makes national security dependent to some degree on the cooperation of prospective adversaries. It often involves setting lower levels of arms than would otherwise appear prudent based on a strict threat assessment. It mandates establishing a more or less interactive relationship with potential opponents and, in the case of mutual intrusive verification and data exchanges, exposes sensitive national security information and facilities to scrutiny by foreign powers. It requires seeking and institutionalizing cooperation where the potential for conflicts of interest seemingly far outweigh common objectives. It is fundamentally a high-stakes gamble, mortgaging national survival against little more than the collateral of trust and anticipated reciprocal restraint, often in a geopolitical context fraught with political hostility and tension. It is, in fact, a voluntary (and not always reversible) delimitation of national sovereignty. Viewed from this perspective, arms control is not obviously better than its alternative—unilaterally providing for one's own security.[14]

What compels the United States and other nations, then, to structure so much of their national security posture on an approach that seemingly contradicts a country's natural instincts toward self-sufficiency and self-preservation? An answer to this apparent paradox is that arms control allows security to be established by negotiation at levels of weapons lower than would be the case if these levels were determined unilaterally. The mere act of negotiating arms control also may lead to better communication, deepened understanding, and reduced hostility among adversaries.

Arms Control Theory

Arms control theory refers to the assumptions and premises of strategic analysts who first developed arms control as an adjunct to national security in the 1958–1962 time frame. Traditional arms control theory was the product of a unique confluence of factors and reflected the assumptions, analyses, and policy priorities of defense analysts and policymakers of that era.[15] The rethinking of arms control at that time was part of a general reevaluation of U.S. defense and foreign policy that was precipitated by dissatisfaction with the postwar diplomatic and arms control stalemate. Negotiations over armaments policy with one's potential adversary was not a novel concept. The United States had sought to establish through diplomatic means a variety of disarmament arrangements since 1945 (e.g., the Baruch Plan, Open Skies, and the Atoms for Peace proposal). Nevertheless, long negotiations and multiple proposals had yielded no tangible results, primarily because of Soviet objections to those verification regimes deemed essential by the West. In the mid-1950s policymakers began rethinking an approach that had emphasized general and complete disarmament and to consider instead limited partial measures that would gradually enhance confidence in cooperative security arrangements. Thus, more modest goals under the rubric of arms control came to replace the propaganda-laden disarmament efforts of the late 1940s and early 1950s.

Basic Tenets of Traditional Arms Control

The period that began with the 1958 Surprise Attack Conference and lasted through the 1962 publication of the proceedings of a Woods Hole Summer Study and the parallel studies at Oxford University produced the canons of modern arms control theory.[16] Out of the literature of this golden era of arms control emerged a virtual consensus on several key assumptions, which may be considered to be the basic tenets of traditional arms control theory.

First, arms control was conceived as a way to enhance national security. As Hedley Bull explained: "arms control or disarmament was not an end in itself but a means to an end and that end was first and foremost the enhancement of security, especially security against nuclear war."[17] Or as Schelling and Halperin stated near the end of their book: "the aims of arms control and the aims of a national military strategy should be substantially the same."[18] This principle established national security as the dominant goal of arms control, not the reduction of arms per se. In fact it was understood that not all reductions were necessarily useful. There was an explicit recognition that arms control could be harmful if not properly guided by overall national security strategy.

Second, the superpowers shared a common interest in avoiding nuclear war; this common interest could and should be the basis for effective arms control agreements. According to Bull, "The fact that the United States and the Soviet Union were locked in a political and ideological conflict, one moreover that sometimes took a military form, did not mean that they could not recognize common interests in avoiding a ruinous nuclear war, or co-operate to advance these common interests."[19] This assumption was one of the most important and controversial conceptual departures from past thinking promulgated by the new arms control theory. Previously, it was assumed that relaxation of political tensions had to precede the achievement of substantive arms control agreements. The founders of traditional arms control theory, in contrast, believed that the threat of global nuclear annihilation was so paramount that it transcended political and ideological differences. It was not necessary to fully resolve political conflicts before proceeding to negotiate arms control agreements; solutions to both could be advanced simultaneously.

Third, arms control and military strategy should work together to promote national security. The unity of strategy and arms control was a central tenet of traditional arms control theory. Such unity was essential if arms control and defense policy were to avoid working at cross-purposes. For example, if the implementation of U.S. defense strategy required deploying certain types of weapons that were restricted by arms control agreements, this could defeat the overall purpose of our national security posture and erode the legitimacy of both the arms control process and U.S. defense policy.

Finally, it was understood from the beginning that arms control regimes need not be limited to formal agreements but could also include informal, unilateral, and verbal agreements. The U.S.-Soviet presidential nuclear initiatives of 1991–1992 are among the most well known of these efforts.

The Objectives of Arms Control Theory

For arms control to be an effective instrument of national security, its objectives must be determined by, and be in close harmony with, the broader objectives of national security strategy.[20] At the most basic level of abstraction, three grand conceptual dilemmas dominated strategic thinking and the formulation of U.S. national security objectives during the Cold War: *What deters? How much is enough? What if deterrence fails?* Arms control was developed in an attempt to deal with these three questions.[21]

Traditional arms control theory was based on the premise that the superpowers inherently shared an area of common ground (avoiding nuclear war) and that this element of mutual interest could serve as the basis for limited cooperative arrangements involving reciprocal restraint in the acquisition of

weapons of mass destruction. In defining the scope and application of arms control, they set forth three general objectives:

> We believe that arms control is a promising, but still only dimly perceived, enlargement of the scope of our military strategy. It rests essentially on the recognition that our military relation with potential enemies is not one of pure conflict and opposition, but involves strong elements of mutual interest in *the avoidance of a war that neither side wants, in minimizing the costs and risks of the arms competition,* and in *curtailing the scope and violence of war in the event it occurs.*[22]

Clearly, then, establishing the requirements of deterrence must precede and form the basis for creating policies that reduce the risk of nuclear war, while the goal of reducing defense spending must be informed by some notion of what constitutes sufficient levels of weapons. And any scheme for limiting damage should war occur presupposes at least some thought as to the nature of warfare and how forces are to be employed in combat. Thus, the primary objectives of traditional arms control theory—reducing the risk of war, reducing the costs of preparing for war, and reducing the damage should war occur—are necessarily determined by the three great dilemmas of military policy.

Reducing the risk of war.   Arms control was seen as a prime means of setting limits on and restraining strategic arms race behavior. For early arms control theorists, restraining certain types of technology was practically synonymous with reducing the risk of war. The underlying premise was that war was most likely to begin with a surprise nuclear attack made possible by unrestrained competition in ballistic missile, guidance and control, and nuclear weapon technology. Therefore, those weapon systems employing technologies that in theory most contributed to the ability to execute a surprise nuclear attack against the nuclear retaliatory forces of the other side, or that undermined the ability of either side to hold deterrent targets at risk, became principal candidates for arms limitation agreements.

Reducing the cost of preparing for war.   Arms control theorists believed that controls would release economic resources otherwise squandered on military spending. They believed that arms races were economically ruinous and that disarmament or arms control would make possible the diversion of resources toward worthier objectives.[23] If arms control succeeded in providing the same degree of security at lower levels of weapons than would otherwise be the case, it could lead to fielding fewer weapons and thus lower overall defense spending. Further, if certain types of technology were mutually outlawed, there would be fewer costs associated with defense research and development, weapons production, force deployment,

operations, and maintenance. The savings thereby realized could be diverted to domestic economic priorities and promote overall prosperity.

Reducing the damage should war occur.   If fewer weapons were fielded as a result of arms limitation agreements, and should war nevertheless occur, overall damage would be less than it would otherwise have been. But fielding fewer weapons is not the only way to reduce damage in the event of war. Damage also could be limited by developing certain types of active defense strategies and technologies, such as ballistic missile defenses.

In practice, the first of the three main objectives proposed by traditional arms control theory—reducing the risk of war or, more specifically, reducing the risk of surprise nuclear attack—came to eclipse and overshadow the other two. Achieving the first objective would also indirectly satisfy the other two. The process grew in complexity over the next four decades. It usually involved negotiations but was sometimes accomplished through unilateral decisions or reciprocated arrangements.

Arms control during the Cold War assumed a high priority on the national security agenda as a way of managing the superpower nuclear rivalry. The new importance of arms control was a reaction to the bipolar structure of the international system and the revolutionary nature of nuclear weapons. Generally, these negotiations were limited in scope and focused on increased strategic nuclear stability between the superpowers. The conduct of bilateral negotiations became very formal; agreements took years to reach. Every possible implication for the strategic balance was scrutinized, and increasingly complex provisions for verification became part of the process to guard against cheating. Even after a treaty was concluded, the benefits and pitfalls of arms control continued to be hotly debated.

Arms Control in the Post–Cold War Era

As the Cold War ended, the conception and execution of arms control began to change. The changes began with an increase in the number and types of bilateral arrangements between the superpowers. As *rapprochement* between the superpowers deepened, the forums and scope for other negotiations began to broaden. Regions beyond Europe also began to turn to arms control as a means to build security.

In the immediate aftermath of the Cold War, the West experienced a flush of optimism and activity regarding arms control. The early 1990s was truly the high-water mark for arms control, as formal agreements and cooperative measures were signed and entered into force with astounding speed. Many of these, in fact, were agreements reached years before but only now ratified. Arms control found a place in dealing with the new concerns of

advanced weapons proliferation, regional instability, and economic and environmental security. The value of arms control appeared to be growing in the new world, as states attempted to implement treaties already in place, stem the illegal proliferation of weapons of mass destruction to rogue nations and groups, and meet their security needs in a more multipolar, interdependent world. In the 1996 edition of this book the editors expressed their belief that because of the broadening scope and complexity of negotiations and agreements, arms control might affect national security more than it had in the past. Like it or not, we argued, arms control was here to stay.

That may no longer be true. The early post–Cold War years now appear to have been an era of excessive optimism about new opportunities for arms control. In fact there is considerable debate over its future value—even with respect to existing treaties and agreements. The traditional role for arms control in the Cold War—to enhance stability and forego potentially devastating misunderstandings between the two superpowers—may no longer be of central concern within the international community or even achievable in some new fields. The United States must seriously consider what role arms control can play in enhancing its future national security considerations. These new roles might be different than in the past. Indeed, as one of our book's contributors put it in a recent article, "The place of arms control in U.S. national security strategy and its continued relevance to the evolving global strategic landscape cannot be taken for granted."[24] Two generations ago Hedley Bull wrote of strikingly familiar concerns: "The events of the last few years . . . raise the question . . . whether, if arms control is to remain relevant in the less polarized, more multilaterally ordered world into which we now appear to be moving, some fundamental rethinking of the subject must not take place."[25]

Arms control has changed to accommodate the new international security agenda. The very formal, structured approach to reaching agreement has been broadened to include more informal modes of cooperation. In particular the use of unilateral and reciprocal declarations has resulted in dramatic steps outside formally established negotiating procedures. Security negotiations between states have also developed an increasingly operational focus; they no longer simply pursue agreements to limit types and numbers of weapons. The growing interest in transparency is highlighted by the strict verification provisions written into treaties, as well as new agreements to share data. New international organizations have evolved to implement agreements.

New Approaches to Arms Control

Concern about the future of arms control may be misplaced; there still remains a vital role for this process to play. One way to consider how things

have changed is to review the themes from the conclusion in the 1996 edition of this book. One would expect much of that conclusion to have been overcome by events. The surprise for many readers may be how much has *not* changed. Many of those earlier themes are still relevant today.[26]

Many in the United States no longer view Russia as much of a strategic threat, but it is still a spoiler in terms of arms control. This raises multiple questions: Should arms control be geared toward different problems? Should Russia now take a backseat to new concerns, such as an emerging China, troublesome relationships in South Asia, or the threat posed by global terrorism? Can Cold War arms control institutions work in terms of the new strategic relationship between the United States, Russia, China, and other nations? Are existing arms control institutions and treaties obsolete? Perhaps a new combination of unilateral approaches, nontraditional incentives, joint activities, and other imaginative collective security measures can supplant the reliance on classic treaty-based negotiations.

At the same time, the threat of the proliferation of weapons of mass destruction continues, particularly given the heightened threat from emboldened terrorist organizations (as was quite literally brought home to the United States on 11 September 2001). In the face of that threat, how can arms control address emerging security relationships and regional arms races?

As bipolarity fades, what new multilateral institutions are needed for arms control? What new kinds of arms control are necessary or possible? Since the mid-1990s attention has increasingly focused on several new topics of interest in the security realm that call out for means of control, including information war, landmines, space, and chemical and biological weapons. Will agreements to manage these areas call for new types of provisions, such as requiring states to criminalize certain activities, or requiring cooperation in the face of nonstate threats?

Efforts to reach agreement in many of these areas face great challenges if the traditional arms control focus on force structure levels and strict verification is the basis for evaluation. Nonstate actors have also become players by raising issues to the international agenda and creating momentum for agreements, such as the 1997 Mine Ban Treaty. We need to broaden the definition of the term *arms control* to encompass nonstate as well as state actors.

Overview of the Book

The book is divided into four sections, each successively addressing the conceptual and historical background of arms control, weapons-specific concerns and issues, regional considerations, and new topical areas in which arms control may have a role to play. Each chapter includes a list of

suggested readings for the student who wishes to dig deeper into the best works on the subject.

Part 1, "Arms Control in Context," relates arms control to national security objectives. It also examines efforts by the Cold War superpowers and their allies to use arms control during that conflict to enhance their security, as well as the legacy of these efforts on the post–Cold War environment. These chapters establish the underlying concepts and principles that guide the conduct of arms control by reviewing the history of arms control efforts, the international and domestic contexts in which the process takes place, and the fundamental requirement for effective transparency, verification, and compliance measures.

In Part 2, "Preventing the Spread of Weapons," our authors discuss specific weapons types and efforts to control their proliferation and use. These include strategic nuclear systems, chemical and biological weapons, conventional forces, and the fissile components of nuclear weapons.

Part 3, "Regional Perspectives," looks at five global regions of particular interest to the United States and examines their perspectives on arms control, past and future. Each chapter—on Europe, Africa, the Middle East, South Asia, and East Asia—focuses on the perspectives regarding arms control in regions associated with potential major military contingencies of concern to the United States. The chapters address the strategic culture, geography, history, arms control experience, and the prospect for future success in each area.

Part 4, "Future Challenges for Arms Control," examines how arms control might prove useful in improving U.S. security in new, nontraditional areas of particular importance to the United States. We consider the asymmetries and vulnerabilities that face the international system and, in particular, the United States in the years ahead, including the new fields of strategic defenses as well as the offense-defense balance, information operations, and space arms control. We also project the long-term future for arms control. We are clearly in a period of transition: Where does arms control go from here?

Conclusion

Some of our Cold War institutions and agreements are showing signs of wear. The arms control momentum from the Cold War that infused our 1996 book has waned. With new arenas for arms control consideration, and new partners to deal with, the whole concept of arms control must be reconsidered—in much the same way as it must have appeared to the founders of this theory in the early 1960s.

We are at a crossroads today, with the future direction of arms control uncertain, but its past value indisputable. As Schelling and Halperin wrote in 1961,

> Adjustments in military postures and doctrines that induce reciprocal adjustments by a potential opponent can be of mutual benefit if they reduce the danger of a war that neither side wants, or contain its violence, or otherwise serve the security of the nation. That is what we mean by arms control.[27]

Forty years later, those perspectives on the role and value of arms control as a tool of national security remain valid. As our authors show in the chapters that follow, these can be extrapolated to new fields of interest in international relations.

Notes

1. Richard D. Sokolsky, "Renovating U.S. Strategic Arms Control Policy," *Strategic Forum*, no. 178 (Washington, DC: National Defense University Institute for National Strategic Studies, February 2001), p. 1.

2. Hedley Bull, *The Control of the Arms Race: Disarmament and Arms Control in the Missile Age* (New York: Frederick A. Praeger Publishers, 1961), pp. 4–5.

3. Two classic works dealing with arms races are Samuel P. Huntington, "Arms Races Prerequisites and Results," in *Public Policy: Yearbook of the Graduate School of Public Administration* (Cambridge: Harvard University Press, 1958), and Colin Gray, "The Arms Race Phenomenon," *World Politics* (October 1971).

4. Bull, *The Control of the Arms Race*, p. xxxv.

5. Thomas C. Schelling and Morton H. Halperin, *Strategy and Arms Control* (Washington, DC: Pergamon-Brassey's, 1985 [orig. publ. 1961]), p. 3.

6. Bull, *The Control of the Arms Race,* pp. 3–4.

7. Some of the concepts in the following sections are expansions of ideas from the Introduction to the 1996 edition. See Gregory J. Rattray, "Introduction," in Jeffrey A. Larsen and Gregory J. Rattray, eds., *Arms Control Toward the 21st Century* (Boulder: Lynne Rienner Publishers, 1996), pp. 1–15.

8. For more on the background of these terms, see Richard Dean Burns, *Encyclopedia of Arms Control and Disarmament* (New York: Charles Scribner's Sons, 1993), pp. 2–3.

9. Bull, *The Control of the Arms Race,* p. vii.

10. Thomas Schelling, comments at the authors' conference for this book, McLean, VA, 12 July 2001; also remarks made by Schelling in a "Roundtable in Honor of Thomas Schelling" at the 97th annual meeting of the American Political Science Association, San Francisco, 31 August 2001.

11. Ashton B. Carter, William J. Perry, and John D. Steinbruner, *A New Concept of Cooperative Security* (Washington, DC: Brookings Institution, 1992), p. 6. Other good works on this subject include Janne Nolan, ed., *Global Engagement: Cooperation and Security in the 21st Century* (Washington, DC: Brookings Institution, 1994); Ashton B. Carter and William J. Perry, *Preventive Defense: A New Security Strategy for America* (Washington, DC: Brookings Institution, 1999); John D. Steinbruner, *Principles of Global Security* (Washington, DC: Brookings Institution, 2000); and Dan Caldwell, "Cooperative Security and Terrorism," paper presented to the annual meeting of the International Security Studies Section of the International Studies Association, Whittier, CA, 27 October 2001.

12. One can envision four rings of security that make up collective security writ large: individual security, collective security, collective defense, and promoting stability. For more on this argument, see Richard Cohen and Michael Mihalka, *Cooperative Security: New Horizons for International Order,* Marshall Center Papers No. 3 (Garmisch, Germany: George C. Marshall European Center for Security Studies, April 2001).

13. My thanks to Kerry Kartchner for providing much of the material in this section from his chapter in the 1996 edition of this book. See Kerry Kartchner, "The Objectives of Arms Control," in Larsen and Rattray, *Arms Control Toward the 21st Century*, pp. 19–34.

14. Kartchner, "The Objectives of Arms Control."

15. The term *traditional* is used here to denote something of historical origin that retains its vitality and relevance and captures the connotation that the objectives of traditional arms control theory remain cogent and compelling in the current era. See Hedley Bull, "The Traditional Approach to Arms Control Twenty Years After," in Uwe Nerlich, ed., *Soviet Power and Western Negotiating Policies,* vol. 2 (Cambridge, MA: Ballinger, 1983), pp. 21–30.

16. The three basic works on traditional arms control theory were all published in 1961: Schelling and Halperin, *Strategy and Arms Control;* Bull, *The Control of the Arms Race;* and Donald G. Brennan, ed*., Arms Control, Disarmament, and National Security* (New York: George Braziller), earlier published as a special issue devoted to arms control in *Daedalus: Proceedings of the American Academy of Arts and Sciences* (Fall 1960).

17. Bull, "The Traditional Approach to Arms Control Twenty Years After," p. 21.

18. Schelling and Halperin, *Strategy and Arms Control,* p. 142.

19. Bull, "The Traditional Approach to Arms Control Twenty Years After," p. 22.

20. In the introduction to their seminal book, Schelling and Halperin state: "There is hardly an objective of arms control to be described in this study that is not equally a continuing urgent objective of national military strategy—of our unilateral military plans and policies." *Strategy and Arms Control,* p. 3.

21. Throughout much of the Cold War these three dilemmas were elaborated mostly in nuclear terms: What deters nuclear war? How many nuclear weapons are enough? What if nuclear deterrence fails? But they are equally applicable to the full range of defense scenarios, including policies and threats involving conventional, chemical, biological, and other weapons.

22. Schelling and Halperin, *Strategy and Arms Control,* p. 1.

23. Bull, *The Control of the Arms Race,* p. 3.

24. Brad Roberts, "The Road Ahead for Arms Control," *Washington Quarterly* (Spring 2000): 231.

25. Bull, *The Control of the Arms Race,* p. xiv.

26. See "The Evolving Nature of Arms Control in the Post–Cold War World," in Larsen and Rattray, *Arms Control Toward the 21st Century,* pp. 285–292.

27. Schelling and Halperin, *Strategy and Arms Control,* p. 143.

Suggested Readings

"Arms Control: Thirty Years On." Special Edition of *Daedalus: Journal of the American Academy of Arts and Sciences* (Winter 1991).

Arms Control Association. *Arms Control and National Security: An Introduction*. Washington, DC: Arms Control Association, 1989.

Bull, Hedley. *The Control of the Arms Race: Disarmament and Arms Control in the Missile Age*. New York: Frederick A. Praeger, 1961.

Burns, Richard Dean, ed. *Encyclopedia of Arms Control and Disarmament*. 3 vols. New York: Charles Scribner's Sons, 1993.

Carter, Ashton B., William J. Perry, and John D. Steinbruner. *A New Concept of Cooperative Security*. Washington, DC: Brookings Institution, 1992.

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