Security Studies
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/fsst20

The Strategic Consequences of Nuclear Proliferation: A Review Essay

Peter R. Lavoy Ph.D. [a] [b]
[a] Naval Postgraduate School , Monterey, California
[b] University of California , Berkeley
Published online: 09 Jan 2008.

THE STRATEGIC CONSEQUENCES OF NUCLEAR PROLIFERATION

A REVIEW ESSAY

PETER R. LAVOY

Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: A Debate.* New York: Norton, 1995. x, 160 pages/$16.95 cloth

FROM THE MOMENT the United States conceived of becoming a nuclear power, American officials have tried to stop other countries from obtaining nuclear weapons. Between 1945 and 1949 the United States sought to keep nuclear weapons technology beyond the reach of the Soviet Union. Later the focus of nonproliferation shifted to China and the strong industrial states – Germany, Italy, Sweden, and Japan. Current countries of concern are located in Asia, the Middle East, and Latin America.[1] In each case, the United States has paid a large financial and diplomatic price to slow the pace of nuclear proliferation. Most people believe that the mission merits the cost. They reckon that a world of many nuclear-armed states would be

Peter R. Lavoy is assistant professor of national security affairs at the Naval Postgraduate School, Monterey, California. The author is completing his Ph.D. in political science at the University of California, Berkeley, under the supervision of Kenneth Waltz.

The views expressed in this paper are the author's and do not necessarily reflect those of the Naval Postgraduate School or the U.S. government. I wish to thank David Mussington, John Sislin, James Wirtz, and Benjamin Frankel for their thoughtful comments on earlier drafts of this article.

1. For a historical survey of U.S. (and Soviet) nonproliferation efforts, see Peter R. Lavoy, "Learning and the Evolution of Cooperation in U.S. and Soviet Nuclear Nonproliferation Activities," in *Learning in U.S. and Soviet Foreign Policy,* ed. George W. Breslauer and Philip E. Tetlock (Boulder: Westview, 1991), 735–83. For more general background, see David Fischer, *Towards 1995: The Prospects for Ending the Proliferation of Nuclear Weapons* (Aldershot: Dartmouth, 1993); and Bertrand Goldschmidt, "A Historical Survey of Nonproliferation Policies," *International Security* 2, no. 1 (summer 1977): 69–87.

SECURITY STUDIES 4, no 4 (summer 1995): 695–753
Published by Frank Cass, London.

dangerous and unstable. Some analysts disagree, contending that further proliferation would produce benign or even beneficial effects. They argue that the United States should not pay much to discourage what is believed to be an inevitable process. Debate over the strategic consequences of the spread of nuclear weapons is more than an academic exercise. It affects the price officials should be willing to pay for nonproliferation. This in turn influences the number and identity of states which might some day acquire nuclear weapons.[2]

Common wisdom holds that the United States opposes all instances of nuclear proliferation. This is not the case. After early hesitation, the United States supported the nuclear status of Great Britain and, later, France.[3] It treats Israel's nuclear program with benign neglect,[4] while various governmental agencies now seek to pursue business as usual

2. Many experts predicted that the world would have at least twice the number of nuclear weapons states than now exist. In 1956, for example, Harold Stassen, President Eisenhower's special assistant on disarmament, predicted that twenty states soon would possess nuclear arms. Herbert S. Parmet, *Eisenhower and the American Crusades* (New York: Macmillan, 1972), 450–51. In 1965 President Kennedy and his advisers predicted fifteen to twenty-five nuclear-armed states by the mid-1970s. *New York Times*, 23 March 1963. A decade later, the Arms Control and Disarmament Agency (ACDA) director, Fred C. Iklé, predicted that in 1985 about thirty-five nations each would be able to produce several dozen nuclear weapons. Statement before the Subcommittee on International Security and Scientific Affairs of the Committee on International Relations, U.S. House of Representatives, 5 November 1975. Although numerous countries have had the capability, and others the will to go nuclear, today there are less than a dozen nuclear-armed nations. The various policy components of the U.S.-backed nuclear nonproliferation regime merit much of the credit for the relatively slow pace of the global spread of the bomb. As the scientific and industrial capabilities of states improve, international policy will become even more consequential for curbing nuclear proliferation. For a concise description and assessment of the various policy arrangements forming the nonproliferation regime, see Kathleen Bailey, *Strengthening Nuclear Nonproliferation* (Boulder: Westview, 1993). For a detailed analysis of why some likely candidates have not entered the nuclear club, see Mitchell Reiss, *Bridled Ambition: Why Countries Constrain Their Nuclear Capabilities* (Baltimore: Johns Hopkins University Press, 1995).

3. On U.S. nuclear assistance to Great Britain, see Ian Clark, *Nuclear Diplomacy and the Special Relationship: Britain's Deterrent and America, 1957–1962* (Oxford: Clarendon Press, 1994); and Andrew Pierre, *Nuclear Politics: The British Experience with an Independent Strategic Force, 1939–1970* (Oxford: Oxford University Press, 1972). American support for French nuclear activities is discussed by former French president Valéry Giscard d'Estaing in his memoires, *Le Pouvoir et la Vie*, vol. 2, *L'affrontement* (Paris: Éditions Compagnie Douze, 1991): 17–18, 21. A concise discussion of this material is David Yost, "France," in *The Defense Policies of Nations: A Comparative Study*, 3rd ed., ed. Douglas J. Murray and Paul R. Viotti (Baltimore: Johns Hopkins University Press, 1994), 245.

4. For background on U.S. nonproliferation policy toward Israel, see Avner Cohen, "Stumbling into Opacity: The United States, Israel, and the Atom, 1960–63," *Security Studies* 4, no. 2 (winter 1994/95): 195–241; Cohen, "Most Favored Nation," *Bulletin of the Atomic Scientists* 51, no. 1 (January/February 1995): 44–53; and Seymour M. Hersh, *The Samson Option: Israel's Nuclear Arsenal and American Foreign Policy* (New York: Random House, 1991).

with India and Pakistan despite the possession by these two countries of military nuclear capabilities.[5] In these cases, the United States has calculated that the benefit of close political (and possibly military) relations outweighs the threat to the world of additional nuclear-armed states.[6] When it comes to checking the nuclear ambitions of Iran, Iraq, and North Korea, however, the United States seems willing to pay almost any price short of war.[7] Why is an Iranian bomb more alarming to U.S. policy makers than an Israeli one? Why is a North Korean nuclear weapon more vexing than a Pakistani one? Answers to these questions stem from largely unexamined beliefs about the military and political effects of nuclear proliferation. With U.S. leaders increasingly constrained – for political and economic reasons – to limit both the number of nonproliferation battles to fight and the amount to pay for these efforts, it behooves us to subject their beliefs about the effects of nuclear proliferation to a more rigorous scrutiny.

The new book by Scott Sagan and Kenneth Waltz, *The Spread of Nuclear Weapons: A Debate*, therefore arrives at an opportune time. Consisting of a pair of previously published articles and short responses by each scholar to the arguments of the other, this slim volume makes a valuable contribution to the theoretical literature on proliferation even if it paves little new ground. Many readers will be acquainted with Waltz's long-held claim that nuclear proliferation produces nuclear peace: if there are more states that can inflict or experience nuclear devastation, then there will be more cautious and less warlike countries in the world. Sagan's points are also well known: proliferation is dan-

5. The U.S. commerce and defense departments are particularly interested in this new policy approach to India and Pakistan. Reflecting on a recently-completed trip to South Asia, Secretary of Defense William Perry revealed his "pragmatic" bent in a January 1995 speech: "I recognized that the nuclear ambitions of India and Pakistan flow from a dynamic that we are unlikely to be able to influence in the near term. We might be able to (gain) influence over the long haul, but only if in the meantime we can prevent the tension from flaring into another conflict. So it's a matter of putting first things first." Address to the Foreign Policy Association, New York, 31 January 1995. For a more detailed expression of the defense department's position on the nuclear situation in South Asia, see the statement of Joseph S. Nye, assistant secretary of defense for international security affairs to the Senate Foreign Relations Subcommittee on Near Eastern and South Asian Affairs, 9 March 1995.

6. The United States does not stand alone here. The Soviet Union helped China build the bomb; China is reported to have aided Pakistan's nuclear weapon effort; France provided support to Israel; India's military potential derives from a vast civilian nuclear program that was aided by Canada and Great Britain; and Iraq obtained key components for its nuclear program in many Western countries.

7. One of the objectives of Desert Storm was to destroy Iraq's capacity to fabricate nuclear weapons. This was not the primary motivation for the coalition's military campaign, however, and it is doubtful that war would have occurred had Iraq not invaded Kuwait.

gerous because some new nuclear states will engage in preventive wars, fail to build survivable forces, or have serious nuclear accidents. Readers will be especially interested in the book's new material: a lively response by Waltz and Sagan to each other's original arguments.

The Spread of Nuclear Weapons is not the first word on the impact of nuclear proliferation; and it will not be the last. The Waltz-Sagan debate is inconclusive: the empirical evidence cited does not prove the validity of either argument. This is so for two reasons. The first is beyond the authors' control: the relevant evidentiary base is quite small. Only a few countries have acquired nuclear weapons, even fewer have developed operational doctrines for using them, and, of course, only one country has ever used them in war.[8] The second reason concerns the abstract level at which both authors pitch their arguments.[9] Waltz theorizes about the logical behavior of states operating within the constraints of nuclear "reality" and international politics. Sagan describes the "typical" behavior of professional military organizations and then surmises the behavioral effects were these organizations to oversee a nation's nuclear operations. Both writers draw on the nuclear history of the United States and the Soviet Union to make their points, but the evidence cited is arbitrary and incomplete. Furthermore, no thorough effort is made to test the power of either theory against the observed conduct of the actual leaders and organizations responsible for managing the nuclear forces of new nuclear states. Whether readers will find the authors' points convincing thus depends less on the evidence assembled and more on the persuasiveness of the deductions used to make them.

Despite the familiarity of the material and the inconclusive outcome of the Waltz-Sagan debate, *The Spread of Nuclear Weapons* does represent the clearest, most thorough scholarly discussion of nuclear prolif-

8. This is not a shortcoming of the authors. Although scientists know much about the physical effects of nuclear explosives (the destructiveness of the blast, dispersal of radioactive material, etc.), conclusive evidence about the political and military effects of nuclear weapons – nuclear deterrence in particular – simply does not exist. As Waltz puts it, "we all, happily, lack the benefit of experience." Waltz, "Nuclear Myths and Political Realities," *American Political Science Review* 84, no. 3 (September 1990): 736. On the difficulties the shortage of data poses for scientifically testing theories of nuclear deterrence, see Philip E. Tetlock, "Testing Deterrence Theory: Some Conceptual and Methodological Issues," *Journal of Social Issues* 43, no. 4 (1987): 85–91; and Paul C. Stern, Robert Axelrod, Robert Jervis, and Roy Radner, "Conclusion," in *Perspectives on Deterrence*, ed. Stern, Axelrod, Jervis, and Radner (New York: Oxford University Press, 1989), 294–325.

9. Waltz makes a good point when he writes: "just as deterrent logic is abstract and deductive, so too are the weaknesses attributed to it." "Nuclear Myths and Political Realities," 736.

eration's political and military effects. For this reason it provides a much-needed point of departure for further consideration of this timely and important subject. In the pages that follow I summarize the five-decade debate that preceded the Waltz-Sagan face-off. I then consider twelve political and military problems that might result from the spread of nuclear capabilities to additional states. In that section I identify the current authors' arguments about each possible problem, introduce relevant points that Sagan and Waltz do not make, and discuss which of these propositions could be tested with empirical evidence or refined through other theoretical prisms. I conclude with a close look at the relationship between scholarship and policy making on nuclear nonproliferation. Is it realistic to expect the unexamined assumptions that underpin nonproliferation practices to yield to theoretically derived and tested propositions? Is it even desirable?

THE HISTORICAL DEBATE ABOUT NUCLEAR PROLIFERATION

THE DEBATE about the strategic impact of nuclear proliferation has gone through three discernible phases. From the mid-1940s through the late 1950s, nuclear proliferation was assessed chiefly in terms of its direct consequences for U.S. national security. In this early phase of the nuclear era, policy analysts argued over the degree to which potential nuclear states would either threaten or enhance U.S. security. This focus changed as the condition of mutual nuclear deterrence became the principal security concern for each superpower. Nuclear proliferation was then relegated to the periphery of defense concerns and evaluated chiefly in terms of its indirect impact on U.S. (and Soviet) security – scholars of this period mainly debated the impact of proliferation on global stability. Today the emphasis covers both concerns: U.S. security and international stability. In the first instance, defense planners fear that the next time U.S. forces (or those of U.S. allies) fight overseas, opposing troops (be they Iraqi, North Korean, or those of another country) will fight back with weapons of mass destruction. The other prominent concern is that a conflict in which the United States is not directly involved – such as a fourth India-Pakistan war—might go nuclear, kill many people, and destroy remaining hopes of a "new world order."

For each historical period, intellectual opinion on the subject may be divided into three main categories: *deterrence optimism*, *proliferation pessimism*, and *political relativism*. Deterrence optimists such as Waltz,

argue that nuclear forces, once they are made secure against a disarming first strike, prevent attacks against the territory of the states that own them. The expectation is that deterrence will work irrespective of the countries or circumstances involved. Sagan and fellow proliferation pessimists agree that nuclear deterrence *should* operate effectively. Nuclear weapons states *should* behave cautiously; they *should* build secure second-strike forces; and they *should* ensure the safety of these forces.[10] In all likelihood, however, they will not. These writers are pessimistic about the consequences of proliferation because they can imagine many things going wrong with new nuclear weapons systems. The third perspective is not represented in *The Spread of Nuclear Weapons*; but political relativism has many proponents in academia and in official policy making. These observers emphasize the political character of the states acquiring nuclear arms – rather than the number, type, or technical properties of the weapon systems themselves – as the determining variable of the strategic consequences of nuclear proliferation. The logic of political relativism is simple: bad states do bad things; bad states armed with nuclear weapons will do dreadful things. In the following section I outline the intellectual histories of each perspective.[11]

DETERRENCE OPTIMISM

The idea that nuclear proliferation would make wars less frequent is not a new one. Six weeks after the bombing of Hiroshima, the University of Chicago held a seminar on Atomic Energy Control to consider the consequences of atomic weapons for world affairs. Participants included former vice president Henry Wallace, theologian Reinhold Neibuhr, Tennessee Valley Authority chairman (soon to become the first chairman of the Atomic Energy Commission) David Lilienthal, and distinguished scholars from various disciplines. Jacob Viner, a professor of economics at the University of Chicago, was the lone participant to suggest that it would be desirable if many countries possessed atom bombs. Viner reasoned that the international spread of nuclear forces would make wars less likely because even the apparent winner

10. "Sagan Responds to Waltz," *The Spread of Nuclear Weapons: A Debate* (New York: Norton, 1995), 116–17. "Sagan Responds" is chapter three of this book. Sagan's other chapter is "More Will Be Worse," which is a revised version of his "the Perils of Proliferation: Organization Theory, Deterrence Theory, and the Spread of Nuclear Weapons," *International Security* 18, no. 4 (spring 1994): 66–107.

11. There is a fourth perspective which is not described here: complete uncertainty. George Quester argues that "we cannot know, in any reliable way, the character of a world of (many) nuclear weapons states." Quester, "The Statistical 'n' of 'nth' Nuclear Weapons States," *Journal of Conflict Resolution* 27, no. 1 (March 1983): 178.

of a conflict would have to pay too high a price for military "victory." To use Charles de Gaulle's terminology, the weaker side could still "tear an arm off" the stronger state by targeting several of its cities, thereby deterring the aggression.[12] Arthur Lee Burns elaborated on Viner's argument in a 1957 article appearing in the journal *World Politics*: in the absence of a sudden technological breakthrough, the spread of nuclear weapons could stabilize international relations.[13]

In the 1960s more observers waxed optimistic about deterrence. In 1963 F. H. Hinsley argued that nuclear weapons "constitute for the first time a true deterrent, one that will never have to be relied upon so long as it exists – and this is likely to be forever."[14] While mainly interested in promoting an independent nuclear deterrent for France, General Pierre Gallois became the most prominent writer to assert that nuclear proliferation (starting with France) would result in greater peace and stability. "If every nuclear power held weapons truly invulnerable to the blows of the other," Gallois reasoned, "the resort to force by the one to the detriment of the other would be impossible."[15]

12. The proceedings of this conference are summarized by one of the participants, Glenn T. Seaborg, in his *Stemming the Tide: Arms Control in the Johnson Years* (Lexington, Mass.: D. C. Heath, 1987), 63. See Jacob Viner's subsequent article, "The Implications of the Atomic Bomb for International Relations," *Proceedings of the American Philosophical Society*, 90 (January 1946). This article is reprinted in *International Economics: Studies by Jacob Viner* (Glenco, Ill.: Free Press, 1951), 300–9. The earliest and most influential proponent of nuclear deterrence, Bernard Brodie, did not directly assess deterrence in the context of nuclear proliferation. Nevertheless, Brodie provided the intellectual inspiration for deterrence optimism. See Brodie, ed., *The Absolute Weapon* (New York: Harcourt, Brace, 1946).

13. Arthur Lee Burns, "From Balance to Deterrence: A Theoretical Analysis," *World Politics* 9, no. 4 (July 1957): 494–529. In the same year, Morton Kaplan predicted the potential peaceful nature of a world in which the means to inflict massive destruction were dispersed among a large number of states. As long as a "surprise knockout blow" was technically impossible – which Kaplan believed to be the case – countries in this "unit-veto" system would refrain from attacking one another. Despite his confidence in deterrence, Kaplan was not as optimistic as Viner or Burns about the peaceful prospects of a world of many nuclear states. Kaplan doubted that the technology to conduct successful "knockout blows" would ever exist; however, he did feel that a unit-veto system might prove to be "highly unstable" because of the tension created by the *feared* development of weapons capable of executing successful surprise attacks. See Morton A. Kaplan, *System and Process in International Politics* (New York: Wiley, 1957), 50–52.

14. F. H. Hinsley, *Power and the Pursuit of Peace* (Cambridge: Cambridge University Press, 1963), 354–55.

15. Pierre M. Gallois, "Nuclear Strategy: A French View," in *Détente: Cold War Strategies in Transition*, ed. Eleanor Lansing Dulles and Robert Dickson Crane (New York: Praeger, 1965), 215–20. For other relevant material written by Gallois, see "Nuclear Aggression and National Suicide," *The Reporter* 18 (November 1958): 22–26; and *The Balance of Terror: Strategy for the Nuclear Age* (Boston: Houghton-Mifflin, 1961). Winston Churchill might be viewed as an even more famous deterrence optimist considering the following statement he made before the House of Commons in November 1953: "When I was a schoolboy I was not good at arithmetic but I have since

Also in 1963, Richard Rosecrance claimed that fears about the strategic consequences of nuclear proliferation were exaggerated: "The nth country 'problem' may not turn out to be a major 'problem'."[16] At the close of the decade, Rosecrance identified what he considered might become another salutary feature of nuclear proliferation: "If each threat of minor war makes the two greatest states redouble their efforts in tandem to prevent major war, it is even conceivable that nuclear dispersion could have a net beneficial impact."[17] Several years later Robert Sandoval advanced what he called a "porcupine theory" of nuclear proliferation. According to this view, states with even modest nuclear capabilities would "walk like a porcupine through the forests of international affairs: no threat to its neighbors, too prickly for predators to swallow."[18]

It was here that Waltz entered the picture, first with a 1979 conference paper entitled, "What Will the Spread of Nuclear Weapons Do to the World?" and then with his famous monograph, *The Spread of Nuclear Weapons: More May Be Better* (an updated version of which appears in *The Spread of Nuclear Weapons: A Debate*).[19] The main argument in "More May Be Better" is straightforward: the mere possibility of nuclear use causes extreme caution all around, therefore the likelihood of

heard it said that certain mathematical quantities, when they pass through infinity, change their signs from plus to minus – or the other way round. It may be that this rule may have a novel application and that when the advance of destructive weapons enables everyone to kill everybody else nobody will want to kill anyone at all." Cited in John Herz, *International Politics in the Atomic Age* (New York: Columbia University Press, 1959), 212.

16. Richard N. Rosecrance, *Action and Reaction in World Politics* (Boston: Little, Brown, 1963), 288. In the same volume, Rosecrance also expressed doubts about the desirability of proliferation. Like many of his contemporaries, he worried that the possibility of "anonymous delivery" of nuclear weapons might enhance the risk of war.

17. Richard N. Rosecrance, "Diplomacy in Security Systems," in *International Security Systems: Concepts and Models of World Order*, ed. Richard B. Gray (Itasca, Ill.: F. E. Peacock, 1969), 103. Rosecrance earlier had written that nuclear proliferation could be beneficial provided that small nuclear capabilities are diffused slowly to different states. Rosecrance, *Problems of Nuclear Proliferation*, Security Studies Paper no. 7 (Los Angeles: University of California at Los Angeles, 1966), 45–48. Rosecrance later became more pessimistic about the impact of nuclear proliferation: "Fledgling nuclear states...may develop nuclear capacities which are vulnerable to attack. As nuclear weapons and capacities continue to spread, this will present a major threat to the stability of the international system." Rosecrance, *International Relations: Peace or War?* (New York: McGraw-Hill, 1973), 99.

18. R. Robert Sandoval, "Consider the Porcupine: Another View of Nuclear Proliferation," *Bulletin of the Atomic Scientists* 32, no. 4 (May 1976): 19.

19. Waltz, "What Will the Spread of Nuclear Weapons Do to the World?" in *The International Political Effects of the Spread of Nuclear Weapons*, ed. John Kerry King (Washington, D.C.: U.S. Government Printing Office, April 1979), 165–96; Waltz, *The Spread of Nuclear Weapons: More May Be Better*, Adelphi Paper no. 171 (London: International Institute for Strategic Studies [IISS], 1981).

war decreases as more countries acquire nuclear weapons.[20] Waltz develops this argument directly; the bulk of his article, and the entirety of his published response to Sagan, are used to address the various problems that proliferation pessimists say could jeopardize deterrence among new nuclear states.

Waltz makes many more assumptions about the world than is required of a simple deterrence theory.[21] He makes observations about the character of military officers and terrorists, to cite two examples, because deterrence theory has little to say about the propensity of soldiers to follow faulty nuclear safety procedures or the possibility of terrorist attacks using nuclear explosives. Because Waltz's convictions about nuclear proliferation reach so far beyond the realm of deterrence theory (and so far beyond the formulations of other proliferation proponents), he could be viewed as the quintessential deterrence optimist. The relative lack of parsimony in his arguments about proliferation, however, is significant. Compared to Waltz's other works, "More May Be Better" contains more assertions which can be subjected to empirical investigation and possibly to refutation.[22]

20. "More May Be Better" is the first chapter in *The Spread of Nuclear Weapons*. Unless otherwise indicated, all references to Waltz's views on proliferation pertain either to this version (not to the original Adelphi Paper) or to chapter four of *The Spread of Nuclear Weapons*, entitled "Waltz Responds to Sagan" (referred to here as "Waltz Responds").

21. At a basic level, models of deterrence require only three assumptions: (1) actors have exogenously given preferences and choice options and they seek to optimize these preferences in light of other actors' preferences and choices; (2) the difference in actors' opportunities explains the variation in outcomes; and (3) the state acts as if it were a unitary and rational (that is, expected-utility maximizing, or cost-benefit calculating) actor. Christopher H. Achen and Duncan Snidal, "Rational Deterrence Theory and the Comparative Case Studies," *World Politics* 41, no. 2 (January 1989): 143–69.

22. I am referring to *Theory of International Politics* (New York: Random House, 1979), and to "Nuclear Myths and Political Realities." Each of these works elaborates one cause of the "long peace" the great powers have enjoyed since 1945. The book uses a structural realist theory (or balance of power theory) to explain the benefits of bipolarity; the article uses deterrence theory to explain the positive impact of nuclear weapons. Therefore, "More May Be Better" can be viewed as a companion work that explains the diffusion of nuclear peace beyond the cold war milieu. In the post–cold war world, moreover, nuclear weapons reestablish a source of peace that expired with the disintegration of the Soviet Union: "Nuclear Weapons restore the clarity and simplicity lost as bipolar situations are replaced by multipolar ones." "More May Be Better," 14. Waltz's views about bipolarity derive from the main expectations of structural realism, which are: (1) the recurrence of balances of power in the international political system; (2) the tendency of states to balance, that is, to strengthen themselves in the face of external military threats; and (3) the inclination of states to imitate one another and to become socialized to the world political system. *Theory of International Politics*, 128.

Table 1

CORE ANALYTIC ASSUMPTIONS OF WALTZ'S ARGUMENTS ABOUT NUCLEAR PEACE

Subject	Assumptions
Structure of the international political system	-- Anarchy is the ordering principle of world politics[23] -- States are the constituent units of the system[24]
Character and objectives of states	-- States are unitary actors -- States are cost-benefit calculators -- States minimally seek to ensure their survival[25]

Table 1 lists the core analytic assumptions common to most of Waltz's theoretical analyses of international politics. Table 2 identifies the auxiliary empirical assumptions Waltz uses to support his arguments about the peaceful influences of nuclear proliferation.

After the original publication of *The Spread of Nuclear Weapons: More May Be Better*, several other scholars weighed in as deterrence optimists. John Weltman agrees with Waltz that "the spread of nuclear weapons and other weapons of mass destruction to new powers will tend over time to induce caution and to moderate conflict."[26] Bruce Bueno de Mesquita and William Riker contend that nuclear proliferation serves the interests of peace provided that adversarial states go nuclear at roughly the same time.[27] Bueno de Mesquita writes independently that

23. Waltz, *Theory of International Politics*, esp. 88–93.

24. Ibid., esp. 93–97.

25. A concise description of these three assumptions is found in Waltz, *Theory of International Politics*, esp. 118.

26. John J. Weltman, *World Politics and the Evolution of War* (Baltimore: Johns Hopkins University Press, 1995), 219. See also Weltman, "Managing Nuclear Multipolarity," *International Security* 6, no. 3 (winter 1981–82): 182–94; and Weltman, "Nuclear Devolution and World Order," *World Politics* 32, no. 2 (January 1980): 169–93.

27. Bruce Bueno de Mesquita and William H. Riker, "An Assessment of the Selective Merits of Nuclear Proliferation," *Journal of Conflict Resolution* 26, no. 2 (June 1982): 283–306.

Table 2

AUXILIARY ASSUMPTIONS OF WALTZ'S ARGUMENTS ABOUT NUCLEAR PEACE

Subject	Assumptions
Character of policymakers in Third World countries	Third World leaders are flexible thinkers and "hardy political survivors"[28]
War causation	Miscalculation and uncertainty about outcomes cause war[29]
Nuclear weapons	Nuclear weapons are revolutionary, absolute weapons[30]
Capacity of states to build secure second strike nuclear forces	Protecting small nuclear forces by hiding and moving them is quite easy[31]
Character and objectives of terrorist organizations	Terrorists prefer patient harassment (not great destruction). Terrorists prefer secrecy and organization in small groups. Terrorists prefer poison to nuclear weapons[32]
Character of military officers and organizations	Military officers and organizations are very cautious[33]

"the logic of deterrence indicates that beyond some point, each addition of a nuclear capability diminishes the threat of nuclear war, and

28. Waltz, "Waltz Responds," 97.

29. Waltz, "More May Be Better," 6–8.

30. Nuclear weapons are absolute because the relative number possessed by adversaries is not relevant; what matters is that neither side can launch a disarming attack with high confidence. They are revolutionary because they "reverse or negate many of the conventional causes of war." Waltz, "War in Neorealist Theory," *Journal of Interdisciplinary History* 18, no. 4 (spring 1988): 625, 627. For a detailed elaboration of the theory of the nuclear revolution, see Robert Jervis, *The Meaning of the Nuclear Revolution* (Ithaca: Cornell University Press, 1989), esp. 1–45.

31. Waltz, "More May Be Better," 19–22.

32. On all three assumptions about nuclear terror, see Waltz, "Waltz Responds," 94–96.

33. Ibid., 101–3.

does so at an increasing rate."[34] Michael Intriligator and Dagobert Brito argue that aside from a slight rise in the probability of nuclear accidents, the increased deterrent effects of nuclear proliferation lower the likelihood of war among nuclear-armed states.[35] Martin van Creveld agrees. He maintains that "nuclear weapons prevent the regional states that have them from fighting each other."[36] Therefore, "the effect of proliferation (is) to push war itself into the nooks and crannies of the international system."[37]

If these "global" deterrence optimists differ in their opinion of the scope and durability of the peace provided by nuclear proliferation, they all believe that the presence of nuclear weapons induces caution in military and political decisionmakers irrespective of the geographic location, the system of governance, or the political culture of the countries in question.[38] Other observers are optimistic about the operation of nuclear deterrence, but only in specific regional settings. For instance, Shai Feldman, Steven Rosen, and Paul Jabber believe that nuclear arsenals can promote peace in the Middle East through mutual deterrence.[39] Others estimate that the advent of military nuclear capa-

34. Bruce Bueno de Mesquita, "Nuclear Peace Through Selective Nuclear Proliferation" (undated manuscript), 30.

35. Dagobert L. Brito and Michael D. Intriligator, "Proliferation and the Probability of War: Global and Regional Issues," in *Strategies for Managing Nuclear Proliferation*, ed. Dagobert L. Brito, Michael D. Intriligator, and Adele E. Wick (Lexington, Mass.: D. C. Heath, 1983), 135–43. For critical comments on this argument, see Bruce Berkowitz, "Proliferation, Deterrence, and the Likelihood of Nuclear War," *Journal of Conflict Resolution* 29, no. 1 (March 1985): 112–36. It should be indicated that in their recent work, Brito and Intriligator conclude that "nuclear proliferation may be the greatest danger to world stability at this time." Brito and Intriligator, "The Economic and Political Incentives to Acquire Nuclear Weapons," in *The Proliferation Puzzle: Why Nuclear Weapons Spread and What Results*, ed. Zachary S. Davis and Benjamin Frankel (London: Frank Cass, 1993), 301.

36. Martin van Creveld, *Nuclear Proliferation and the Future of Conflict* (New York: Free Press, 1993), 92.

37. Martin van Creveld, "Military Strategy for an Era of Transition," in *Turning Point: The Gulf War and U.S. Military Strategy*, ed. L. Benjamin Ederington and Michael J. Mazarr (Boulder: Westview, 1994), 269.

38. McGeorge Bundy described this perspective as "existential deterrence" in "The Bishops and the Bomb," *New York Review of Books*, 16 June 1983; see also Lawrence Freedman, "I Exist; Therefore I Deter," *International Security* 13, no. 1 (summer 1988): 177–95.

39. Shai Feldman, "A Nuclear Middle East," *Survival* 23, no. 3 (May–June 1981): 111–15; Feldman, "Managing Nuclear Proliferation," in *Limiting Nuclear Proliferation*, ed. Jed C. Snyder and Samuel F. Wells, Jr. (Cambridge, Mass., Ballinger, 1985), 301–18; Feldman, *Israeli Nuclear Deterrence* (New York: Columbia University Press, 1982); Steven J. Rosen, "A Stable System of Mutual Nuclear Deterrence in the Middle East," *American Political Science Review* 71, no. 4 (December 1977): 1367–83; Rosen, "Nuclearization and Stability in the Middle East," *Jerusalem Journal of International Relations* 1, no. 3 (spring 1976): 1–32; and Paul Jabber, "A Nuclear Middle East: Infrastructure, Likely Military Postures and Prospects for Strategic Stability," ACIS Work-

bilities in South Asia makes India and Pakistan less likely to fight a fourth war. Regional analysts subscribing to this view include the former Indian and Pakistani army chiefs, K. Sundarji and Aslam Beg, respectively, Pakistani general K. M. Arif, and Indian defense analyst, K. Subrahmanyam.[40] American observers who are optimistic about deterrence stability in a nuclear South Asia include George Perkovich, Devin Hagerty, and myself.[41] Finally, John Mearsheimer, Stephen Van Evera, and Barry Posen suggest that the cause of peace would be served if Germany and Ukraine were to acquire nuclear forces as a deterrent against possible Russian aggression.[42]

ing Paper no. 6 (Center for Arms Control and International Security, University of California, Los Angeles, September 1977).

40. The Indian and Pakistani proponents of this argument are all advocates of their country's efforts to go nuclear. For instance, see General K. Sundarji, *Blind Men of Hindoostan: Indo-Pak Nuclear War* (New Delhi: UBS Publishers, 1993); Sundarji, "Proliferation of Weapons of Mass Destruction and the Security Dimensions in South Asia: An Indian View," in *Weapons of Mass Destruction: New Perspectives on Counterproliferation*, ed. William H. Lewis and Stuart E. Johnson (Washington, D.C.: National Defense University Press, 1995), 55–70; General Mirza Aslam Beg, *Development and Security: Thoughts and Reflections* (Rawalpindi: Foundation for Research on National Development and Security, 1994), esp. 137–62; General K. M. Arif, "Retaining the Nuclear Option," in *Pakistan's Security and the Nuclear Option* (Islamabad: Institute of Policy Studies, 1995), 121–29; and Krishnaswami Subrahmanyam, "The Emerging Environment: Regional Views on WMD Proliferation," in Lewis and Johnson, *Weapons of Mass Destruction*, 41–54; Subrahmanyam, ed., *India and the Nuclear Challenge* (New Delhi: Lancer International, 1986).

41. Peter R. Lavoy, "Arms Control in South Asia," in *Arms Control Toward the Twenty-First Century*, ed. Jeffrey A. Larsen and Gregory J. Rattray (Boulder: Lynne Rienner, forthcoming, 1995); Lavoy, "Civil-Military Relations, Strategic Conduct, and the Stability of Nuclear Deterrence in South Asia," in *Civil-Military Relations and Nuclear Weapons*, ed. Scott Sagan (Stanford, Calif.: Stanford Center for International Security and Arms Control, June 1994), 79–109; George Perkovich, "A Nuclear Third Way in South Asia," *Foreign Policy*, no. 91 (summer 1993): 85–104; and Devin Hagerty, "The Power of Suggestion: Opaque Proliferation, Existential Deterrence, and the South Asian Nuclear Arms Competition," in Davis and Frankel, *The Proliferation Puzzle*, 256–83. In addition to the individual analysts cited, several think tanks have come to embrace the nuclear status quo in South Asia, provided that India and Pakistan do not increase the size or sophistication of their current nuclear capabilities. See, for example, *Preventing Nuclear Proliferation in South Asia* (New York: Asia Society Study Report, 1995); and Selig S. Harrison and Geoffrey Kemp, *India and America after the Cold War*, report of the Carnegie Endowment Study Group on U.S.-India Relations in a Changing International Environment (Washington, D.C.: Carnegie Endowment for International Peace, 1993).

42. John J. Mearsheimer, "Back to the Future: Instability in Europe After the Cold War," *International Security* 15, no. 1 (summer 1990), 38–39; Mearsheimer, "The Case for a Ukrainian Nuclear Deterrent," *Foreign Affairs* 72, no. 3 (summer 1993): 50–66; Stephen Van Evera, "Primed for Peace: Europe After the Cold War," *International Security* 15, no. 3 (winter 1990/91), 14; and Barry R. Posen, "The Security Dilemma and Ethnic Conflict," *Survival* 35, no. 1 (spring 1993): 44–45.

PROLIFERATION PESSIMISM

In contrast to the optimistic expectations of deterrence proponents, proliferation pessimists fear that the spread of nuclear weapons to new states or non-state actors (such as terrorist groups) will produce a more dangerous world. There are three kinds of proliferation pessimism. *Abolitionists* argue that nuclear weapons are too dangerous for any country to possess. From the atomic scientists, who originally developed nuclear weapons and later lobbied for their international control, to Jonathan Schell, Daniel Ellsberg, and contemporary disarmament supporters, abolitionists make little distinction between old and new nuclear states: all nuclear powers should dismantle their nuclear arsenals and put their stockpiles of military and civilian fissile materials into the control of an international agency.[43]

Absolute pessimists are less fearful about the nuclear arsenals of the major powers – which have ample resources, many years of experience, and proven records in relatively safe and secure nuclear operations. Their concern lies with the emerging nuclear states. In the late 1950s and early 1960s, Oscar Morgenstern, Fred Iklé, Paul Doty, Leonard Beaton, John Maddox and other scholars wrote about the dangers of a world of many nuclear-armed states – a situation then described as the "Nth country problem."[44] Soon, these scholars and like-minded government officials would devote their energies to the promotion of an international nuclear nonproliferation treaty – the crowning achievement of absolute proliferation pessimists.[45] Today,

43. This perspective originated with the scientists who had developed the world's first atom bombs. Niels Bohr, Robert Oppenheimer, and several other Manhattan project members worried that if some system of international control over atomic energy were not established soon after the bomb's use, the military services of all states would seek to acquire such weapons, thus creating a potentially catastrophic arms race. For a discussion of the views and activities of these scientists, see Robert Gilpin, *American Scientists and Nuclear Weapons Policy* (Princeton: Princeton University Press, 1962). For more recent discussion, see Jonathan Schell, *The Fate of the Earth* (New York: Knopf, 1982), Schell, *The Abolition* (New York: Knopf, 1984); Daniel Ellsberg, "Manhattan Project II," *Bulletin on the Atomic Scientists* (May 1992): 43–44; and Joseph Rotblat, Jack Steinberger, and Bhlachandra Udgaonkar, eds., *A Nuclear Weapons Free World: Desirable? Feasible?* (Boulder: Westview, 1993). Since abolitionists advocate nuclear weapons disarmament generally and do not treat nuclear proliferation as a specific concern, their views are not elaborated here.

44. Oscar Morgenstern, *The Question of National Defense* (New York: Random House, 1959); Morgenstern, "The N-Country Problem," *Fortune* (March 1961): 136; Fred C. Iklé, "Nth Countries and Disarmament," *Bulletin of the Atomic Scientists* 16 (1960): 391–94; Paul Doty, "The Role of the Smaller Powers," *Daedalus* 89 (1960): 818–30; Leonard Beaton and John Maddox, *The Spread of Nuclear Weapons* (New York: Praeger, 1962).

45. The leading proponents in the U.S. government for the Nuclear Nonproliferation Treaty (NPT) were William C. Foster, director of the Arms Control and Disarmament

Joseph Nye, Kathleen Bailey, Leonard Spector, Thomas Graham, David Fischer, Harald Müller, Henry Sokolski, and Zachary Davis – among many other government officials, policy analysts, and casual observers – are leading proponents of the view that nuclear proliferation is bad wherever and whenever it occurs.[46]

The third perspective can be called *conditional pessimism*. Conditional proliferation pessimists do not believe that all instances of nuclear proliferation are necessarily bad. Based on their understanding of the conditions that have enhanced (and also threatened) the successful operation of nuclear deterrence between the superpowers, these observers are concerned that new nuclear states will either repeat the mistakes the United States and the Soviet Union made or that they will fail to take the precautions the superpowers did to avert nuclear accidents, military escalation, preventive war, and other potentially disastrous problems.[47] Proponents of this perspective are generally skeptical about the ability of developing states to undertake safe and secure nuclear operations, but conditional proliferation pessimists do hold out the possibility – at least theoretically – that some new nuclear nations may manage to overcome the many technical, political, and military obstacles arrayed against them.

Scott Sagan is a conditional proliferation pessimist. He does not argue (as an abolitionist would) that it is dangerous for any state to possess nuclear weapons; nor does he contend that all new instances of nuclear proliferation are necessarily hazardous (as would an absolute proliferation pessimist). Sagan is fearful that most new nuclear states will not be able to fulfill the operational requirements for stable nuclear deterrence. He presumes that new nuclear states will not have sufficient ci-

Agency (ACDA), and other ACDA officials. For background on their views and efforts to achieve U.S. governmental and then international support for the treaty, see George Bunn, *Arms Control by Committee* (Stanford: Stanford University Press, 1992), 59–105.

46. Joseph S. Nye, "Sustaining Non-proliferation in the 1980s," *Survival* 23, no. 3 (May/June 1981): 98–107 (but see n. 5 of this article on Nye's recent "pragmatism" concerning nuclear proliferation in South Asia); Kathleen C. Bailey, *Doomsday Weapons in the Hands of Many* (Urbana and Chicago: University of Illinois Press, 1991); Bailey, *Strengthening Nuclear Nonproliferation*; Leonard S. Spector, "Neo-Nonproliferation," *Survival* 37, no. 1 (spring 1995): 66–85; Spector, *Nuclear Ambitions* (Boulder: Westview, 1990); Thomas W. Graham, "Winning the Nonproliferation Battle," *Arms Control Today* 21, no. 7 (September 1991): 8–13; Fischer, *Towards 1995*; Harald Müller, David Fischer, and Wolfgang Kötter, *Nuclear Non-Proliferation and Global Order* (New York: Oxford University Press, 1994); Henry Sokolski, "Fighting Proliferation with Intelligence," *Orbis* (spring 1994): 245–60; and Zachary S. Davis, "The Realist Nuclear Regime," in Davis and Frankel, *The Proliferation Puzzle*, 79–99.

47. Proliferation pessimists can point to many possible problems that could lead new nuclear states to disaster. A discussion of twelve such problems follows in the next section of this article.

vilian control to ensure that the country's military organizations are as competent in their role as deterrent force managers as they are in their capacity as war fighters.[48] Because of the organizational biases common to all professional militaries (mainly as observed in the United States) and the expected predominance of the military in new nuclear nations, Sagan believes that compared to the United States and the Soviet Union, future nuclear states will be more likely to fight preventive wars, build vulnerable second-strike nuclear forces, and construct nuclear arsenals that are prone to accidental or unauthorized use.[49]

Other conditional proliferation pessimists raise similar arguments. Lewis Dunn, Peter Feaver, Bruce Blair, Rodney Jones, Gregory Giles, Mark Mandeles, and Bradley Thayer argue that nuclear proliferation is dangerous because emergent nuclear states probably will lack the financial resources and technical capabilities needed to develop safe and secure nuclear forces, and because they will face greater foreign and domestic threats to the reliable operation of their nuclear arsenals.[50] Despite pessimism about the strategic consequences of nuclear proliferation, or perhaps because of it, many of these authors propose the selective provision of technical assistance by the advanced nuclear powers to new nuclear states in order to improve the coverage of warning systems, command and control reliability, force survivability, and weapons safety. Similar proposals were made by Albert Carnesale,

48. Sagan, "More Will Be Worse."

49. Ibid.. In "Sagan Responds to Waltz" (128–33), a fourth concern is presented: the escalation of a conventional war to the nuclear level. This concern is discussed later in this article.

50. Lewis A. Dunn, "Rethinking the Nuclear Equation: the United States and the New Nuclear Powers," *Washington Quarterly* 17, no. 1 (winter 1994): 5–25; Dunn, *Containing Nuclear Proliferation*, Adelphi Paper no. 263 (London: IISS, 1991); Dunn, *Controlling the Bomb* (New Haven: Yale University Press, 1982), 149–75; Dunn, "Military Politics, Nuclear Proliferation, and the 'Nuclear Coup d'Etat'," *Journal of Strategic Studies* 1, no. 1 (May 1978): 31–50; Dunn, "Nuclear Proliferation and World Politics," *Annals of the American Academy of Political Science Studies* no. 430 (March 1977): 96–109; Peter Feaver, "Proliferation Optimism and Theories of Nuclear Operations," in Davis and Frankel, *The Proliferation Puzzle*, 159–91; Feaver, "Command and Control in Emerging Nuclear Nations," *International Security* 17, no. 3 (winter 1992/93): 160–87; Feaver, *Guarding the Guardians: Civilian Control of Nuclear Weapons in the United States* (Ithaca: Cornell University Press, 1992); Bruce G. Blair, *The Logic of Accidental Nuclear War* (Washington, D.C.: Brookings, 1995); Rodney Jones, "Small Nuclear Forces and U.S. Security Policy," in *Small Nuclear Forces and U.S. Security Policy*, ed. Rodney Jones (Lexington, Mass.: D. C. Heath, 1984); Gregory Giles, "Safeguarding Undeclared Nuclear Arsenals," *Washington Quarterly* 16, no. 2 (spring 1993): 173–86; Lewis A. Dunn and Gregory F. Giles, *Nuclear Proliferation Contingency Planning: Defining the Issues* (McLean: Center for National Security Negotiations, 1991); Mark D. Mandeles, "Between a Rock and a Hard Place: Implications for the U.S. of Third World Nuclear Weapon and Ballistic Missile Proliferation," *Security Studies* 1, no. 2 (winter 1991): 235–69; and Bradley A. Thayer, "The Risk of Nuclear Inadvertence: A Review Essay," *Security Studies* 3, no. 3 (spring 1994): 428–93.

Robert Blackwill, Steven Miller, Joel Larus, Colin Gray (writing in 1977), Daniel Caldwell, Richard Haass, and Michael Klare.[51]

In the past, this has been called the "management" approach to nuclear proliferation (in contrast, absolute proliferation pessimists advocate "prevention"). Today, concern about the effective management of nuclear arsenals is most pronounced with regard to the former Soviet Union (FSU), whose sudden dissolution has made the status of over 27,000 nuclear weapons a pressing global security issue. Widespread fears that the Ukraine, Belarus, and Kazakhstan would join Russia as long-term inheritors of the Soviet nuclear arsenal, and that a portion of these nuclear weapons, weapon components, and weapon materials could fall into the possession of groups outside the FSU, have led to various governmental and unofficial measures to monitor the inventory of nuclear materials controlled by these states and to dismantle many of these weapons and safeguard the rest.[52]

POLITICAL RELATIVISM

Before becoming secretary of defense in the Nixon administration, James Schlesinger wrote an article in which he asserted that the strategic impact of nuclear proliferation would depend mainly on the char-

51. Robert D. Blackwill and Albert Carnesale, "Conclusions and Recommendations," in *New Nuclear Nations: Consequences for U.S. Policy*, ed. Robert D. Blackwill and Albert Carnesale (New York: Council on Foreign Relations Press, 1993), 253–60; Steven E. Miller, "Assistance to Newly Proliferating Nations," in Blackwill and Carnesale, *New Nuclear Nations*, 97–131; Joel Larus, *Nuclear Weapons Safety and the Common Defense* (Columbus: Ohio State University Press, 1967); Colin Gray, "Arms Control in a Nuclear Armed World?" *Annals of the American Academy of Political Science Studies*, no. 430 (March 1977); Daniel Caldwell, "Permissive Action Links: A Description and Proposal," *Survival* 29, no. 3 (May/June 1987): 224–38; Richard Haass, *Conflicts Unending: The United States and Regional Disputes* (New Haven: Yale University Press, 1990), 91; Michael T. Klare, "Can Third World Arms Control Work?" *Arms Control Today* 20, no. 3 (April 1990).

52. For background, see Frank von Hippel, "Fissile Material Security in the Post–Cold War World," *Physics Today* 48, no. 6 (June 1995): 26–31; U.S. Congress, Office of Technology Assessment, *Proliferation in the Former Soviet Union*, OTA-ISS-605 (Washington, D.C.: Government Printing Office, September 1994); *Nuclear Successor States of the Soviet Union* (Washington, D.C. and Monterey, Calif.: Carnegie Endowment for International Peace and the Monterey Institute for International Studies, 1994); William C. Potter, "Exports and Experts: Proliferation Risks From the New Commonwealth"; and the other articles in the special issue of *Arms Control Today*, "Nuclear Weapons in the Former Soviet Union," 22, no. 1 (January/February 1992); Kurt M. Campbell, Ashton B. Carter, Steven E. Miller, and Charles A. Zraket, *Soviet Nuclear Fission: Control of the Nuclear Arsenal in a Disintegrating Soviet Union*, (Cambridge: Center for Science and International Affairs [CSIA], Harvard University, 1991); and Graham Allison, Ashton B. Carter, Steven E. Miller, and Philip Zelikow, eds., *Cooperative Denuclearization: From Pledges to Deeds* (Cambridge: CSIA, Harvard University, 1993).

acter of the states concerned rather than on the quantity or quality of the weapons systems they possessed. During the period when the NPT was being discussed, Schlesinger observed that one category of countries might use nuclear weapons as instruments of threat or blackmail, but that it might not be so bad if other nations acquired these forces. Therefore, he "would be particularly reluctant to pay a very high price in terms of offending friendly nations merely to get paper acquiescence to a nonproliferation treaty."[53]

Schlesinger's comments are characteristic of the political relativist perspective on the military and political effects of nuclear proliferation. As I use the term, political relativism is an approach which stresses the internal structure of states, rather than the international political environment in which they operate, as the key to understanding war and peace. In other words, political relativists subscribe to the second image of international relations, as Waltz elucidated in 1959.[54]

When it comes to nuclear proliferation, proponents of this school of thought generally share four main beliefs. First, political relativists stress the presumed intentions of a state over the technical characteristics of its military weaponry as the primary determinant of its strategic behavior. As Paul Seabury and Angelo Codevilla put it, "the destructiveness of war depends on the intentions of the warriors rather than on the tools at their disposal."[55] Or to use Colin Gray's pointed terminology, "governments, not weapons, make war."[56]

Second, the character of states matters most in gleaning military intentions: "Some cultures are inherently more peaceable than others and particular types of polities (states) are more peaceable than others."[57] Whereas deterrence optimists emphasize the strategic situation facing states as the most important cause of international behavior, and conditional proliferation pessimists focus chiefly on the biases of military organizations and the character of nuclear operations in new nu-

53. James R. Schlesinger, "The Strategic Consequences of Nuclear Proliferation," in *Arms Control for the Late Sixties*, ed. James E. Dougherty and J. F. Lehman, Jr. (New York: D. Van Nostrand, 1967), 177, 175.

54. Kenneth N. Waltz, *Man, the State, and War* (New York: Columbia University Press, 1959). For a more recent discussion of second image approaches, see Jack S. Levy, "Domestic Politics and War," in *The Origin and Prevention of Major Wars*, ed. Robert I. Rotberg and Theodore K. Rabb (Cambridge: Cambridge University Press, 1989), 79–99.

55. Paul Seabury and Angelo Codevilla, *War: Ends and Means* (New York: Basic Books, 1989), 10.

56. Colin S. Gray, *House of Cards: Why Arms Control Must Fail* (Ithaca: Cornell University Press, 1992), 26. See also Gray, *Weapons Don't Make War* (Lawrence: University Press of Kansas, 1993).

57. Seabury and Codevilla, *War*, 39.

clear states, political relativists point to a country's system of governance, its political ideology, and its strategic culture as the surest indicators of its likely conduct as a nuclear power.[58]

Third, political relativists agree with proliferation pessimists that deterrence – even nuclear deterrence – is fallible. Seabury and Codevilla illustrate this point vividly: "Deterrence is like a cold shower on passion. A note of caution is in order, however. Some passions are unquenchable, and there is no guarantee that any given deterrent will quench the unquenchable ones."[59] While deterrence often works, political relativists fear that it could fail when it is needed the most.

Finally, political relativists diverge from most conditional proliferation pessimists (and agree with the absolute pessimists) when it comes to managing or controlling nuclear proliferation. Since the former group of observers believe that "bad" states should possess as little military weaponry as possible, they are not supportive of efforts to assist these states in making their nuclear forces safe, secure, or survivable. Moreover, political relativists doubt that arms control can serve any important military purpose even for less objectionable states. Nuclear arms control, whether in the form of nonproliferation or managed proliferation, is ineffective and potentially deceptive. Rogue states are roguish even if they participate in arms control regimes.[60]

Political relativism has long informed views about nuclear proliferation. The interest of the Eisenhower and Kennedy administrations in the sharing of nuclear information with Britain and France and in a multilateral nuclear force (MLF) – a scheme that would arm West European NATO members with American-owned nuclear warheads on American-made Polaris missiles – was (at least partially) inspired by the beliefs that U.S. allies could be trusted with their fingers on the nuclear

58. In this sense, proponents of the "democratic peace" theory could be considered political relativists. For a small sample of this increasingly voluminous literature, see Bruce Russett, *Grasping the Democratic Peace: Principles for a Post-Cold War World* (Princeton: Princeton University Press, 1993); Michael W. Doyle, "Kant, Liberal Legacies and Foreign Affairs," Part I, *Philosophy and Public Affairs* 12, no. 3 (summer 1983); Doyle, "Liberalism and World Politics," *American Political Science Review* 80, no. 4 (December 1986): 1151–69.

59. Seabury and Codevilla, *War*, 33.

60. Colin Gray writes: "That arms control can help mildly to discourage rogue behavior, can strengthen taboos against strongly undesirable international behavior, and can increase the political price paid by rogues for their antisocial activities is not really worth debating. Unfortunately, the scale of the positive contributions to international order which arms control can make, as just conceded, are very modest. It is only the really hard cases that are of concern here. It is a Nazi Germany, a terrorist-supporting Libya, and a great-power-intending Iraq which need strong discouragement from committing offenses against international norms of civility and tolerable neighborliness." *House of Cards*, 199.

trigger and that these allies ought to bear a larger share of the burdens of mutual defense.[61] In the same vein, Secretary of State Dean Rusk, who questioned the desirability of a nonproliferation treaty without the participation of China, said in a 16 June 1964 "Committee of Principals" meeting – when China was a few months away from building the bomb – that "he wasn't sure we might not want to give India and Japan nuclear weapons after China attained them."[62] When the same committee reconvened after China's first nuclear test in October 1964, Rusk again queried: "might we not want to be in a position where India or Japan would be able to respond with nuclear weapons to a Chinese threat?"[63]

Richard Nixon and Henry Kissinger were also political relativists. During the election campaign in 1968, Nixon had criticized the failure of the NPT to allow the transfer of "defensive nuclear weapons" to American allies.[64] On the very day that Nixon submitted the NPT to the Senate for ratification, Kissinger circulated within the government a secret National Security Decision Memorandum which stated:

> The president directed that, associated with the decision to proceed with the United States' ratification of the Nonproliferation Treaty, there should be no efforts by the United States government to pressure other nations, particularly the Federal Republic of Germany, to follow suit. The government in its public posture, should reflect a tone of optimism that other countries will sign or ratify, while clearly disassociating itself from any plan to bring pressure on these countries to sign or ratify.[65]

Nixon and Kissinger were not interested in wasting precious political clout trying to pressure friendly states such as Germany, Japan, or Israel to sign the NPT when these countries probably would go nuclear anyway – and when they did, their nuclear might probably would contribute to American security objectives.

Today, political relativism underpins U.S. nonproliferation policy and certain scholarly discussions of the topic. American efforts to prevent, contain, or counter the efforts of "backlash states" – Cuba, North Ko-

61. However, MLF also was appealing as a way to discourage these European states from becoming independent nuclear powers. See Bunn, *Arms Control by Committee*, 61–72; Seaborg, *Stemming the Tide*, 71–130; and John D. Steinbruner, *The Cybernetic Theory of Decision* (Princeton: Princeton University Press, 1974).

62. This statement is recounted by Glenn Seaborg in *Stemming the Tide*, 132.

63. Ibid., 135.

64. Hersh, *The Samson Option*, 209.

65. Quoted in Seymour M. Hersh, *The Price of Power: Kissinger in the Nixon White House* (New York: Summit, 1983), 148.

rea, Iran, Iraq, and Libya—to obtain weapons of mass destruction must be seen in this light.[66] In fact, political relativism is evident in all analyses that first distinguish different categories of states according to the nature of their political systems or political leanings and then advocate different sets of policies to thwart their nuclear ambitions. Michael Mandelbaum, for example, argues that the United States should continue to provide security guarantees to perpetuate the non-nuclear status of *allies* (such as Germany and Japan), use diplomatic means to make nuclear weapons less appealing to *orphans* (such as Pakistan, Israel, and Ukraine), and prepare for the use of military force to destroy the nuclear programs of the *rogues* (such as Iraq and North Korea).[67]

John Arquilla makes a similar argument. He, too, classifies potential nuclear weapons states in three tiers, but suggests that nuclear acquisition by some of the "orphans" – such as Ukraine, or India and Pakistan – might be desirable as it could produce stable deterrent relationships in otherwise troubled regions.[68] Although Mandelbaum and Arquilla are both political relativists, under some circumstances Arquilla is more of a deterrence optimist while Mandelbaum leans closer to proliferation pessimism. Each author is an absolute pessimist when it comes to the rogue states. Robert Jervis, Jed Snyder, and William Martel and William Pendley hold similarly relativist views.[69] Jervis writes: "Contrary to Waltz's argument, proliferation among strongly dissatisfied countries would not necessarily recapitulate the Soviet-American pattern of stability."[70] In a similar vein, Snyder argues: "The Nth countries about whom we are most concerned today...are all more dangerous threshold proliferators than the larger industrialized powers that were of some concern two decades ago."[71]

66. For one articulation of this policy, see national security advisor Anthony Lake's article, "Confronting Backlash States," *Foreign Affairs* 73, no. 2 (March/April 1994): 45–55.

67. Michael Mandelbaum, "Lessons of the Next Nuclear War," *Foreign Affairs* 74, no. 2 (March/April 1995): 22–37.

68. John Arquilla, "Bound to Fail? Regional Deterrence after the Cold War," *Comparative Strategy* 14, no. 2 (spring 1995): 133.

69. Robert Jervis, "The Political Effects of Nuclear Weapons: A Comment," *International Security* 13, no. 2 (fall 1988): 80–90; Jed C. Snyder, "Weapons Proliferation and the New Security Agenda," in *On Not Confusing Ourselves: Essays on National Strategy in Honor of Albert and Roberta Wohlstetter*, ed. Andrew W. Marshall, J. J. Martin, and Henry S. Rowen (Boulder: Westview, 1991), 261–82; Snyder, "Is Nuclear Proliferation in the U.S. Interest?" *World & I*, no. 3 (January 1988); and William C. Martel and William T. Pendley, *Nuclear Coexistence*, Air War College Studies in National Security no. 1 (Montgomery, Ala.: Air War College, April 1994).

70. Jervis, "The Political Effects of Nuclear Weapons," 89.

71. Snyder, "Weapons Proliferation and the New Security Agenda," 272.

A table listing various proponents of deterrence optimism, proliferation pessimism, and political relativism follows. Note that the categories listed in this taxonomy are not mutually exclusive. The views of the regional optimists listed here, for instance, are often quite compatible with those of the conditional pessimists and the political relativists. Even the staunchest deterrence optimists would cringe if some countries acquired nuclear weapons; thus they, too, exhibit traces of political relativism. Further, many of the individuals listed could be placed in different categories depending on the specific work or argument that is considered. Table 3 thus should be seen as suggestive of the wide range of opinion on the strategic effects of nuclear proliferation.

Table 3

THREE PERSPECTIVES ON THE STRATEGIC EFFECTS OF NUCLEAR PROLIFERATION

	Deterrence Optimism	Proliferation Pessimism	Political Relativism
Phase I: mid-1940s to late 1950s	Viner Burns Kaplan	Atomic scientists Morgenstern Wohlstetter Iklé Doty	MLF proponents
Phase II: early 1960s to late 1970s	Hinsley Gallois Rosecrance Sandoval	*Absolute Pessimism* NPT proponents Beaton and Maddox Rowen *Conditional Pessimism* Dunn	MLF proponents Rusk Nixon Kissinger Schlesinger

	Deterrence Optimism	Proliferation Pessimism	Political Relativism
Phase III: early 1980s to present	*Global Optimism* Waltz Weltman Bueno de Mesquita Intriligator/Brito Van Creveld *Regional Optimism* *Middle East* Feldman Rosen *South Asia* Sundarji Arif Subrahmanyam Beg Hagerty Perkovich Lavoy *Europe* Mearsheimer Posen Van Evera	*Absolute Pessimism* Nye Spector Bailey Graham Fischer Müller Sokolski Davis *Conditional Pessimism* Sagan Dunn Feaver Blair Jones Berkowitz Giles Mandeles Thayer Carnesale Blackwill Miller Klare Caldwell	Jervis Gray Mandelbaum Snyder Seabury Codevilla Arquilla Martel/Pendley Cohen

Possible Strategic Consequences of Nuclear Proliferation

Most U.S. government officials and nearly all strategic arms control experts support strong measures to restrict the global spread of military nuclear capabilities. Deterrence optimism is by far the minority perspective on nuclear proliferation. Usually no *specific* reasons are given to justify nonproliferation. For instance, the UN Security Council declared in January 1992 that "the proliferation of all weapons of mass destruction constitutes a threat to international peace and secu-

rity," but did not elaborate.[72] The Waltz-Sagan debate is exceptional in that it provides a detailed examination of several specific arguments about the strategic impact of nuclear proliferation. It, too, is incomplete, however. Through close scrutiny of the scholarly literature and scores of official statements about nuclear proliferation, we can identify the precise concerns that underlie nonproliferation policies.

Twelve specific concerns cause consternation about the strategic and military consequences of nuclear proliferation. Experts fear that emerging nuclear weapons states may be led by internal or external circumstances to conduct preventive or preemptive military attacks; experience nuclear accidents, nuclear terrorism or the unauthorized use of nuclear weapons; engage in costly arms races; threaten or actually use nuclear arms for coercive purposes; escalate a conventional conflict to the nuclear level; help or induce other countries to go nuclear; draw the major powers into nuclear conflict; or limit the capacity of major powers (especially the United States) to intervene in political and military disputes around the world.

Table 4

SPECIFIC CONCERNS ABOUT NUCLEAR PROLIFERATION

1. Incomplete nuclear weapons systems invite preventive military attack
2. Vulnerable nuclear forces invite preemptive military attack
3. Primitive command and control raises the risk of nuclear accidents
4. Unstable command and control risks the loss of control over nuclear forces, raising the possibility of unauthorized nuclear use or nuclear terrorism
5. Nuclear arms racing is inevitable and raises the risk of war
6. Nuclear proliferation could increase the likelihood of conventional military conflict
7. Conventional conflict could escalate to nuclear war
8. Nuclear forces might be used for coercion and aggression
9. New nuclear states might assist proliferation elsewhere
10. Successful nuclear proliferation could induce further nuclear proliferation
11. Nuclear proliferation raises the risk of cataclysmic nuclear war
12. New nuclear states could limit the political and military influence of major powers

72. The Security Council declaration appears in *New York Times*, 1 February 1992.

Table 4 lists each of these twelve nonproliferation concerns.[73] In the following section of this study, I examine many of the points Waltz and Sagan make about each of the twelve possible proliferation effects. In order to more fully discuss these twelve concerns, I also introduce relevant observations about the behavior of new nuclear states which Sagan and Waltz do not make. In the process of developing these points, I cite new evidence about emerging nuclear relationships around the world. Many of the examples used to illustrate these observations draw on the nuclear experiences of Israel, India, and Pakistan – the three countries which are widely believed to have acquired nuclear weapon capabilities after the NPT was signed in 1968.

PREVENTIVE MILITARY ATTACK

Many analysts view the transition of a nation from the conventional to the nuclear world as the most dangerous phase in the proliferation process. The risk of preventive war is considered high from the moment a country begins construction of the facilities used to fabricate nuclear explosives. It remains high until the nation is capable of using several nuclear weapons in war. During this transition period – which usually spans over a decade – a country's neighbors might be tempted to try to destroy its nuclear program before it posed a genuine threat to their security. Once a state's nuclear arsenal is large and secure enough to ride out a possible knockout blow, adversaries are no longer able to prevent that country's emergence as a nuclear power. This does not ensure stability, however; concerns about prevention could give way to fears of military preemption, a subject to be discussed shortly.

Waltz contends that military prevention is unlikely even in the early stages of nuclear transition. Could the prospective attacker be absolutely certain that its enemy would not respond to preventive strikes with a nuclear counterattack? Or if the target country had not yet succeeded in building nuclear bombs, or had not been able to protect them from the preventive military attack, what would preclude this country from resuming its nuclear weapons program once the dust had settled, exacting its revenge at a latter date?[74] The debate over the likelihood of preventive nuclear war depends on the assumptions observers make about the certainty of success required for a national leader to authorize preventive military strikes, the number of weapons needed

73. The twelve problems of nuclear proliferation are listed in random order.
74. Waltz, "More May Be Better," 17–19.

to survive a first strike, the ability of the attacked state to revive its nuclear program, and, for Sagan, the biases of the military officers and organizations that presumably would clamor for preventive attacks.

Sagan argues that military training and logic predispose military officers to favor preventive war in the following ways. Military officers are likely to see war as inevitable; they usually distrust nonmilitary approaches to international conflict; they are likely to neglect the nonmilitary costs and consequences of preventive war; and they usually favor offensive doctrines and decisive operations over protracted or delayed conflicts.[75] Although Sagan provides only anecdotal evidence in support of these controversial generalizations about military thinking, let us suppose that he is correct – suppose that military officers do favor preventive war. It is quite another matter to expect these officers to favor preventive war against *nuclear* targets (where the cost of failure could be exorbitant), or to expect their civilian leaders to authorize such risky military conduct.

In anticipation of these points, Sagan relates several episodes in which U.S. military officers planned and seriously advocated preventive-war options to destroy the emergent nuclear arsenal of the Soviet Union during the first decade of the cold war. Although Truman and Eisenhower ultimately ruled against these measures, Sagan believes that these cases support his argument about the biases of military organizations in favor of preventive nuclear war. This leads him to expect that such attacks will be carried out in the future by states having weak civilian control over their militaries.

There are two problems with this argument. The first concerns Sagan's extrapolation of military roles from the U.S. experience to the context of new nuclear states. Even if we accept that U.S. military officers are biased in favor of preventive options, it does not follow that other militaries will share this bias. As Richard Betts relates, "statesmen and soldiers are partners in preventing war and fighting it." Since the primary job of civilian authorities in the United States is to ensure that deterrence does not fail, military officials plan ways to limit damage and win the war if deterrence does fail.[76] Not all countries around the world have the luxury of dividing these roles in this manner. In countries with weak civilian control – the countries with which Sagan is especially concerned – military officers assume many of the

75. Sagan, "More Will Be Worse," 56–57.

76. Richard K. Betts, *Soldiers, Statesmen, and Cold War Crises*, 2nd ed. (New York: Columbia University Press, 1991), 108.

duties that civilians perform in the United States and in other nations in which civilian control is strict.

Consider the case of Pakistan. Apart from the traditional military duties of recruitment, training, discipline, and strategic planning, Pakistan's military leadership plays an active part in deciding when, where, and how to use military force.[77] Because Pakistani military officers assume much of the responsibility for ensuring the country's national security and well-being, they display few of the biases Sagan observes among American officers. Pakistani officers do not see war with India as inevitable; they do not distrust nonmilitary approaches to international conflict; and they do not neglect the nonmilitary costs and consequences of preventive war.

The second problem with Sagan's argument about preventive war lies with his inductive analysis of the new nuclear states themselves. Sagan cites the pre-nuclear case of Pakistan to illustrate his concern about preventive war among new nuclear states.[78] He rightly observes that the 1965 war between Pakistan and India began as a Pakistani attempt to wrest control of Indian-held Kashmir before India's rearmament effort – which began after India's loss to China in the 1962 Himalayan border war – would forever shift the regional balance of power. A deal with the Soviet Union to build on Indian soil an assembly factory for MiG aircraft and the prospect that India might also receive American F-104s convinced President Ayub Khan and his young foreign minister, Zulfikar Ali Bhutto, to take preventive military action against India.[79] In the end, however, Pakistan's Operation Grand Slam was a failure. Pakistan never again attempted a preventive military campaign against India.[80] Why, then, does Sagan fear preventive military attacks by Pakistan against Indian nuclear facilities in the future?

77. For background, see Stephen P. Cohen, *The Pakistan Army* (Berkeley: University of California Press, 1984), esp. 105–33.

78. Sagan also considers the possibility of Russian preventive strikes against a nuclear-armed Ukraine. Because Ukraine and the other nuclear inheritors of the Soviet nuclear arsenal (Belarus and Kazakhstan) have since moved to honor their pledges to return or dismantle all of these forces, this case is not taken up here.

79. According to Bhutto, time was on India's side. Because of India's massive rearmament plans, within two or three years India's military might would be such that "Pakistan would be in no position to resist her." India's "ultimate objective" was nothing less than the "destruction" of Pakistan. Thus, the time to "hit back hard" was "now," to make it virtually impossible for India to embark on a total war against Pakistan for the next decade. Excerpts from a Bhutto memo to President Ayub Khan, 27 May 1965; for this citation and further background, see Stanley Wolpert, *Zulfi Bhutto of Pakistan* (New York: Oxford University Press, 1993), 83–89.

80. Sagan cites Pakistan's 1971 attack against India as further evidence of the Pakistan army's proclivity for preventive war. This is a peculiar reading of the 1971 war. Pakistan launched a preemptive (not preventive) attack against India only once Indian

Unfortunately, Sagan selects the wrong cases to support his arguments about prevention. Pakistan has never contemplated a preventive strike against Indian nuclear facilities – and it never will, considering India's conventional military superiority and its eminently larger nuclear infrastructure. Compared to Pakistan, the cases of Israel, India, and the United States are much more interesting. Recall that Israel carried out a successful preventive strike against Iraq's nuclear reactor at Osirak in June 1981.[81]

The well-known Osirak attack culminated a more extensive but less publicized covert operation by Israel's Mossad intelligence service to thwart Iraq's bid to produce nuclear arms.[82] This, in turn, occurred two decades after a covert Israeli campaign against German scientists working on an Egyptian nuclear bomb program.[83] Today, Israel remains poised to repeat this action against Iraq, possibly Iran, or some other nuclear aspirant in the region. Saddam Hussein reportedly feared that Israel was planning another Osirak-like strike in April 1990 (just

forces had entered East Pakistan, thereby threatening to turn the tide of Pakistan's ongoing civil war against the Ayub Khan government. India's escalation of the low-intensity conflict prompted Pakistan on 3 December 1971 to launch a surprise air attack against several military bases in northwestern India and to initiate ground operations in Kashmir and in the Punjab. Despite the surprise, the attack did little damage. India retaliated the following day with massive air strikes and naval bombardment against Pakistani targets. As was the case in the 1965 episode, moreover, a civilian official, Zulfikar Ali Bhutto, was the most influential proponent of early and decisive military action. For background, see ibid.; Richard Sisson and Leo E. Rose, *War and Secession: Pakistan, India, and the Creation of Bangladesh* (Berkeley and Los Angeles: University of California Press, 1990), 221–36; Siddiq Salik, *Witness to Surrender* (Karachi: Oxford University Press, 1977); and Robert Jackson, *South Asian Crisis: India, Pakistan and Bangla Desh* (New York: Praeger, 1975).

81. For background on the Osirak attack, see Jed Snyder, "The Road to Osiraq: Baghdad's Quest for the Bomb," *Middle East Journal* 37, no. 4 (autumn 1983): 565–93; Shai Feldman, "The Bombing of Osiraq – Revisited," *International Security* 7, no. 2 (fall 1982): 114–42; Hersh, *The Samson Option*, 8–16; Shlomo Nakdimon, *First Strike* (New York: Summit, 1987); and the most recent account, Avner Cohen, "The Lessons of Osirak and the American Counterproliferation Debate," in *International Perspectives on Counterproliferation*, ed. Mitchell Reiss and Harald Müller, Woodrow Wilson Center Working Paper no. 99 (Washington, D.C.: Woodrow Wilson International Center for Scholars, January 1995), 73–102.

82. Israel's military efforts to prevent Iraq from obtaining nuclear weapons preceded the Osirak raid by at least two years. In April 1979 Israeli saboteurs reportedly broke into a storage hanger at a small engineering firm near Toulon, France and destroyed the original Osirak reactor core only hours before it was to be shipped to Iraq. A year later, in a Paris hotel room, Israeli intelligence agents reportedly killed an Egyptian nuclear engineer who was working on the Osirak project. In August 1980 a series of bombings and death threats against French and Italian engineering firms were conducted to discourage foreign assistance to Iraq's nuclear effort. For discussion of these and similar Israeli efforts, see Steve Weissman and Herbert Krosney, *The Islamic Bomb* (New York: New York Times Books, 1981); and Cohen, "The Lessons of Osirak."

83. Cohen, "The Lessons of Osirak," 74–77.

prior to Iraq's invasion of Kuwait).[84] Subsequently, Israeli military and political officials have warned that they could attack any country – often singling out Iran – which introduced nuclear weapons into the Middle East.[85] Israel clearly has a penchant for military prevention; but is the cause rooted in civil-military relations as Sagan would suspect? Further investigation of the Israeli case could help analysts assess and possibly refine Sagan's contentions about military biases, new nuclear states, and military prevention.

Turning to another relevant case, in the mid-1980s India reportedly contemplated preventive military action against Pakistan's nuclear weapons facilities. In September 1984 an Indian reporter wrote that "military advisers had suggested to (Indian prime minister) Mrs. Indira Gandhi that to prevent Pakistan from making the bomb, India should launch a (preventive) strike on the Pakistani nuclear facility at Kahuta."[86] Other sources carried the story that India had considered launching air strikes against the uranium enrichment plant at Kahuta, but they too provide little information as to which Indian officials lobbied for military prevention and which officials, other than Indira Gandhi, ruled it out.[87] Once again, further investigation of this episode is required to help evaluate the claims Sagan makes about military prevention among the emerging nuclear states.

Fears of nuclear prevention in South Asia have abated because Indian and Pakistani officials each believe that the other country is capable of using at least several nuclear weapons on short notice.[88] These officials

84. See Sharam Chubin, "The Middle East," in *Nuclear Proliferation after the Cold War*, ed. Mitchell Reiss and Robert S. Litwak (Baltimore: Johns Hopkins University Press, 1994), 43.

85. For two examples, see "MP Warns Israel Could Act Against Nuclear Iran," Reuter, 2 May 1993; and Lally Weymouth, "Rabin's Warning: 'Boost-Phase' Defense," *Washington Post*, 29 March 1993.

86. J. N. Parimoo, "U.S. False Alarm to Pak of Indian Pre-emptive Attack," *Times of India*, 18 September 1984.

87. All of these accounts evidently were based on a U.S. intelligence briefing to a congressional committee. See Don Oberdorfer, "U.S. Sees India-Pakistan Rifts Not As Signals of Imminent War," *Washington Post*, 15 September 1984; "Report on Kahuta Denied," Karachi Domestic Service, 30 September 1985, reprinted in *Joint Publications Research Service (JPRS)-Nuclear Development and Proliferation*, 21 October 1985, p. 37; Don Oberdorfer, "Pakistan Concerned about Attack on Atomic Plants," *Washington Post*, 12 October 1984; "Plans to Attack Pakistan Nuclear Complex Denied," Delhi Domestic Service, 6 November 1985, reprinted in *Foreign Broadcast Information Service (FBIS)-South Asia*, 6 November 1985, p. E-1.

88. Moreover, India and Pakistan have negotiated, signed, and implemented a formal pact essentially outlawing this form of military prevention. The Agreement on the Prohibition of Attack against Nuclear Installations and Facilities between Pakistan and India was signed by Benazir Bhutto and Rajiv Gandhi on 31 December 1988 and ratified on 27 January 1991. K. Subrahmanyam, then Director of the Institute for Defence Studies and Analyses, floated the idea in July 1985 as part of a broad proposal for nu-

would subscribe to Waltz's main argument about prevention: it is too late to arrest the development of nuclear capabilities in this region because military attack now carries a high risk of nuclear retaliation.[89] Further, the case of India and Pakistan suggests that Waltz's argument about nuclear prevention could be put even more strongly. It is rumored that Pakistan's president Zia ul-Haq responded to reports that India was planning to attack Kahuta with a military threat of his own. If India attacked Kahuta, Pakistan would bombard the civilian nuclear power plants located just outside of Bombay, India's largest city.[90]

For similar reasons today, South Korea probably is deterred from attempting a preventive military strike against North Korea's nuclear weapons facilities at Yongbyon.[91] Pyongyang probably could inflict unacceptable damage against South Korea even without resort to the nuclear weapons it might or might not possess.[92] As more and more nations acquire advanced conventional arms, missiles, and chemical and biological weapons capabilities, their ability to punish aggression increases dramatically.[93] Quite apart from concerns about nuclear retaliation, therefore, many countries would be deterred from launching preventive military strikes. Fears about the *non-nuclear* devastation that the attacked state could inflict in retaliation suffice to deter aggression in most cases. Deterrence rests on the fear of punishment; nuclear weapons are sufficient but not necessary instruments of deterrence.

---

clear confidence building between India and Pakistan. K. Subrahmanyam, "Building Trust on the Bomb: What India and Pakistan Can Do," *Times of India*, 30 July 1985, p. 8.

89. As George Quester puts it, "the worst may indeed be over, as the prospect of a 'splendid first strike' eliminating every possible Pakistani nuclear weapon becomes more difficult with each year that the Pakistanis have been enriching uranium." *Nuclear Pakistan and Nuclear India: Stable Deterrent or Proliferation Challenge?* (Carlisle Barracks, Pa.: U.S. Army War College, November 1992).

90. This information is based on the author's discussions with Indian and Pakistani defense experts who wish to remain anonyomous.

91. For similar reasons, the North is uninterested in conducting preventive war against South Korea. For discussion of this point, see David C. Kang, "Preventive War and North Korea," *Security Studies* 4, no. 2 (winter 1994/95): 330–63; and Stuart K. Masaki, "The Korean Question: Assessing the Military Balance," *Security Studies* 4, no. 2 (winter 1994/95): 365–425.

92. This had been the central element in North Korea's defense strategy even before it began working on nuclear weapons. For discussion, see Paul Bracken, "Risks and Promises in the Two Koreas," *Orbis* 39, no. 1 (winter 1995): 55–64; and Bracken, "Nuclear Weapons and State Survival in North Korea," *Survival* 35, no. 3 (autumn 1993): 137–53

93. For background on the proliferation of non-nuclear weapons of high destruction, see Brad Roberts, "From Nonproliferation to Antiproliferation," *International Security* 18, no. 1 (summer 1993): 139–73; Kathleen C. Bailey, *Doomsday Weapons in the Hands of Many* (Urbana and Chicago: University of Illinois Press, 1991), and Henry D. Sokolski, "Nonapocalyptic Proliferation: A New Strategic Threat?" *Washington Quarterly* 17, no. 2 (spring 1994): 115–27.

Because the United States is now the world's strongest military power, it probably is the most likely candidate to engage in future preventive attacks against some emerging nuclear state. Desert Storm, which was, in effect, a preventive war against Iraq, might herald a new preventive war spirit in the United States. Washington has a long experience of planning military preventive strikes. During the Second World War, the Manhattan Project, in addition to the mission of producing nuclear weapons, had the task of monitoring and, if possible, militarily preventing Germany (and, to a lesser extent, Japan) from obtaining nuclear weapons. This preventive intelligence and sabotage campaign ran from the fall of 1943 until October 1945. In one instance, saboteurs bombed the heavy water production plant at Vermonk, Norway, in February 1943, temporarily halting Germany's only heavy water supply. After the facility returned to operation, it was destroyed in a massive air raid in November 1943.[94] Whether the United States will regain the taste for preventive attacks against emerging nuclear powers remains to be seen. It is a subject I turn to later.

PREEMPTIVE MILITARY ATTACK

Perhaps the most common fear about nuclear proliferation is that the inherent vulnerability of nascent nuclear weapons systems will invite military preemption.[95] Whereas a *preventive* military attack would be launched in order to stop a country from obtaining nuclear weapons, a *preemptive* attack is designed to destroy existing nuclear forces before they can be used in war. Just as Waltz discounts the likelihood of preventive war among new nuclear states, he argues that preemption is not probable. This is so because it is easy for any country – big or small, rich or poor – to build invulnerable second-strike nuclear forces. "To have second-strike forces," Waltz reasons, "states do not need large numbers of weapons. Small numbers do quite nicely."[96]

94. For further discussion, see Leslie R. Groves, *Now It Can Be Told: The Story of the Manhattan Project* (New York: Harper and Brothers, 1962), 185–252. On the issue of preventive war in U.S. policy during the cold war, see Marc Trachtenberg, *History and Strategy* (Princeton: Princeton University Press, 1991), 103–7; David Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy," *International Security* 7, no. 4 (spring 1993): 33; and Richard K. Betts, *Nuclear Blackmail and Nuclear Balance* (Washington, D.C.: Brookings Institution, 1987), 161–64.

95. The problem of preemptive attack was first elaborated by Albert Wohlstetter, "The Delicate Balance of Terror," *Foreign Affairs* 37, no. 2 (January 1959): 230; and later by Thomas C. Schelling, "Surprise Attack and Disarmament," *Bulletin of the Atomic Scientists* 15, no. 10 (December 1959): 413–18.

96. Waltz, "Waltz Responds," 110.

Sagan does not quibble about the number of nuclear weapons needed to assure a retaliatory, or deterrent, second strike. His fear is that the nuclear forces of nascent nuclear states will not have the protection or mobility required to ride out a preemptive blow. Whereas Waltz suggests that nuclear powers are likely to have sturdy nuclear forces "because no state wants delicate forces,"[97] Sagan again draws on organization theory to demonstrate that professional militaries, if left to their own devices, are not likely to construct invulnerable forces. He cites four reasons for this expectation.[98]

First, he argues that military bureaucracies prefer to use their precious budgets to buy more weapons or put more men under arms, not to build concrete shelters or mobile launching platforms. Second, military organizations like to pursue familiar missions; decreasing the vulnerability of nuclear forces would require a new mission. Third, if military officers expect to engage in preventive or preemptive attacks – recall that Sagan believes they will – then arrangements to ensure survivability probably would seem unnecessary to them. Finally, even if a military organization wishes to build invulnerable nuclear forces, it may fail to accomplish this task due to inappropriate bureaucratic routines and inflexible organizational procedures.

Sagan offers some empirical evidence to support his claims. Probing the early history of the U.S. and Chinese nuclear weapons programs, for instance, Sagan compiles several cases in which military officers failed to pursue the survivability measures needed to protect their nuclear weapons from preemptive attack. Of course, neither country's nuclear forces ever were attacked – a fact Waltz raises to his own advantage. Could the Soviet decision *not* to attack China's "threatening" nuclear bases at the height of the 1969 border crisis suggest a lack of confidence in Moscow that all of the Chinese weapons would be completely destroyed?[99] We have no definitive answer to this important question, but Richard Betts provides a possible explanation: researchers looking back at nuclear crises often find that nuclear forces were less survivable than opposing states had believed at the time, and that preemptive strikes should have been more appealing than they actually had seemed at the time.[100]

97. Waltz, "More May Be Better," 19.

98. Sagan, "More Will Be Worse," 67–68.

99. For background, see Igor Sutyagin, "The Use of Force, Nuclear Weapons, and Civil-Military Relations in the Soviet Union and Russia," in Sagan, *Civil-Military Relations and Nuclear Weapons*, 123–26.

100. Betts, *Nuclear Blackmail and the Nuclear Balance.*

Consider also the case of South Asia. The easiest solution to the problem of preemption is the protection and dispersal of nuclear forces. Force dispersal is not a major difficulty for New Delhi considering the vast size of Indian territory and the large distances of many Indian military bases and airfields from Pakistan. Islamabad is faced with a bigger challenge considering that all of Pakistan lies within easy striking range of Indian aircraft and India's new Prithvi missiles. U.S. supplied F-16s – the aircraft Pakistan designates as nuclear delivery vehicles – would have to be dispersed without attracting Indian attention. Rodney Jones argues that this task is easily accomplished: "Since Pakistan has already adopted techniques of dispersal for air bases and aircraft for reasons of conventional survivability, dispersal itself would not disclose the existence of the nuclear force."[101] There is little reason to doubt the ability of Pakistan and India to achieve effective measures to reduce the vulnerability of their nuclear forces.[102] Why should we doubt the desire of their militaries to do so?[103]

While Sagan's claims are intriguing, the evidence cited certainly does not disprove Waltz's argument. In fact, recent developments in international military affairs would seem to make preemption even more difficult. As more and more countries acquire ballistic missiles capable of delivering nuclear weapons, and obtain other "high-leverage" weapons designed to inflict massive damage, it becomes increasingly difficult for their adversaries to contemplate comprehensive knockout blows because of the high cost that even partial failure would imply.[104]

101. Rodney Jones, "Pakistan's Defense in a Nuclear Environment" (unpublished manuscript, no date).

102. Waltz appears to be correct: "protecting small forces by hiding and moving them is quite easy." "More May Be Better," 19.

103. Based on personal interviews with numerous Indian and Pakistani defense officials, I believe that military officers on each side of the border are interested in protecting their precious nuclear capabilities from preemption. However, there are grounds for caution on this matter. For instance, Lt. General Hamid Gul, former director of Pakistan's Inter-Services Intelligence Agency, told an American arms control specialist that nuclear force survivability "is not our issue. It is your concern." See Perkovich, "A Nuclear Third Way in South Asia," 89.

104. For background on the proliferation of ballistic missiles and "high-leverage" conventional weapons, see Roberts, "From Nonproliferation to Antiproliferation"; Bailey, *Doomsday Weapons in the Hands of Many;* Sokolski, "Nonapocalyptic Proliferation"; Seth Carus, *Ballistic Missiles in Modern Conflict* (New York: Praeger, 1991); Janne E. Nolan, *Trappings of Power: Ballistic Missiles in the Third World* (Washington, D.C.: Brookings, 1991); John R. Harvey, "Regional Ballistic Missiles and Advanced Strike Aircraft: Comparing Military Effectiveness," *International Security* 17, no. 2 (fall 1992): 41–83; and David Mussington, *Arms Unbound: The Globalization of Defense Production*, CSIA Studies in International Security no. 4 (McLean, Virginia: Brassey's, 1994).

Consider the inability of the United States to detect, much less destroy with conventional armaments, the bulk of Iraq's SCUD missile force and the majority of Iraq's nuclear weapons facilities.[105] As the official U.S. *Gulf War Air Power Survey* revealed, "the air campaign no more than inconvenienced" Iraqi efforts to develop nuclear weapons; key Iraqi nuclear facilities remained undisturbed after 1,000 hours of coalition air strikes.[106] A lesson of Desert Storm is that even when air superiority is secured, intelligence limitations can confound the success of preemptive or preventive military strategies.[107]

Why should we expect emerging nuclear states, or their non-nuclear adversaries, to enjoy better success at military preemption? After all, developing states are not likely to possess advanced intelligence and reconnaissance-strike capabilities. As Desert Storm demonstrated, even today's state-of-the-art equipment is imperfect. For these reasons, nuclear preemption is unlikely to succeed. Therefore, preemption is unlikely to be attempted except in instances of exceptional desperation.[108]

NUCLEAR ACCIDENTS

Nuclear weapons systems, like nuclear power plants and many other modern, highly sophisticated technological systems, are inherently dangerous.[109] A serious concern about nuclear proliferation is that new nuclear states, which usually have scarce resources and limited experience with nuclear safety, could meet with catastrophic nuclear acci-

105. On difficulties the allies experienced in attacking Iraq's SCUD missile batterics, see Theodore A. Postol, "Lessons of the Gulf War Experience with Patriot," *International Security* 16, no. 3 (winter 1991/92):119–71; James J. Wirtz, *Counterforce and Theater Missile Defense* (Carlisle Barracks, Pa.: U.S. Army War College, March 1995); and United States Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, D.C.: Government Printing Office, 1992), 226.

106. According to the survey, Desert Storm planners vastly underestimated the dimensions of Iraq's nuclear weapons development program: "The target list of 16 January 1991 contained two nuclear targets, but after the war, inspectors operating under the United Nations Special Commission eventually uncovered more than twenty sites in the Iraqi nuclear weapons program; sixteen of the sites were described as 'main facilities'." Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey: A Summary Report* (Maxwell Air Force Base: Air University, Air War College for the U.S. Air Force, 1992), 82.

107. See Barry R. Schneider, "Nuclear Proliferation and Counter-Proliferation: Policy Issues and Debates," *Mershon International Studies Review* 38, supplement 2 (October 1994): 226.

108. This situation could occur, for example, when leaders have reason to believe that the other side is preparing to launch a nuclear attack, and there is no possibility to end the crisis with diplomatic or other non-military means.

109. According to Charles Perrow, two characteristics of these systems – *interactive complexity* and *tight coupling* – make accidents inevitable. Charles Perrow, *Normal Accidents: Living With High-Risk Technologies* (New York: Basic Books, 1984).

dents. Waltz contends that nuclear safety mishaps are less likely with the new nuclear nations than with the older nuclear powers. He believes that the small size of nascent nuclear forces – which number anywhere from one to a few dozen weapons – makes their care and maintenance easier than the bloated arsenals of the great powers.[110] Sagan disagrees. In fact, the strongest arguments Sagan makes in *The Spread of Nuclear Weapons* deal with the problem of nuclear safety and related concerns about inadvertent nuclear use.

Sagan's assertion that all nuclear weapons powers must worry about nuclear accidents follows from his application of Charles Perrow's "normal accidents theory" and from his own highly-acclaimed study of the U.S. experience with nuclear weapons safety.[111] Compared to the big nuclear powers, all of whom have experienced serious safety problems, Sagan argues that new nuclear nations will face even greater risks of nuclear accidents. He cites several reasons. First, many nascent nuclear states will lack the organizational and financial resources to produce sound mechanical safety devices and safe weapons designs. Second, the secrecy surrounding many new nuclear forces limits the extent of official oversight and prohibits full-scale nuclear testing, thus hindering the development of effective safety designs.[112] Third, nuclear accidents will be more likely in states with unstable civil-military relations because military officers are generally more interested in readiness than safety. Finally, even some civilian-controlled nuclear countries will choose readiness over safety because they will have little warning time for incoming attacks since they exist in closer proximity to their expected adversaries than was the case between the United States and the Soviet Union.[113]

These are strong points. Although no new nuclear country has experienced a catastrophic nuclear weapons accident, Sagan provides sound reasons to be concerned about future mishaps. Fortunately, this is an area where U.S. policy can be helpful. As Sagan suggests, the United States and other experienced nuclear powers can share their knowledge

110. Waltz, "Waltz Responds," 96–97.

111. Perrow, *Normal Accidents*; Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton: Princeton University Press, 1993).

112. Covert, or "opaque," nuclear postures have many interesting political and military consequences – a subject large enough to warrant a separate article or book. For background on opaque nuclear proliferation, see Avner Cohen and Benjamin Frankel, "Opaque Nuclear Proliferation," in *Opaque Nuclear Proliferation: Methodological and Political Implications*, ed. Benjamin Frankel (London: Frank Cass, 1991), 14–44.

113. Sagan, "More Will Be Worse," 80–85. In addition to these four reasons, Sagan also believes that nuclear safety will suffer in those countries that inherit full-scale arsenals or those that undergo serious political and social unrest.

of effective organizational structures, their technology, and their safety experiences to help reduce nuclear safety dangers for other countries.[114] New nuclear powers can also improve matters on their own. They can learn to avoid the mistakes the original nuclear weapons powers made in the handling of nuclear weapons. Here the nuclear relationship between India and Pakistan might provide a model worth emulating.

To date, neither India nor Pakistan is understood to have deployed or even assembled nuclear weapons. The presumed ease with which these forces could be deployed, however, combined with the mutual view that each side is prepared to use them in war, leads to the peculiar condition of "nonweaponized deterrence."[115] As Sagan and Blair explain, the further nuclear weapons are placed away from high-alert status, the lower the risk of accidents. If during peacetime countries store their nuclear explosive materials apart from triggering devices and other nuclear weapons components, and if they separate all of these weapon elements far away from their delivery systems, then safety becomes a relatively easy matter. This level of safety, however, comes at a price.

If a country's nuclear forces exist in an unassembled condition, it will take a long time to assemble, deploy, and use them – especially compared to the ease of use when nuclear forces are kept in a high state of readiness. A militarily threatened state might feel that it could ill afford the safety benefits of unassembled weapons. Instead, it may choose to configure its nuclear forces to "fail-deadly" rather than to "fail-safe."[116] A pertinent concern regarding India and Pakistan is that each country might soon deploy nuclear-capable ballistic missiles. This event could induce the assembly of South Asia's nuclear weapons capabilities, their mating to missiles, and possibly the inception of launch-on-warning strategies.[117] Such a development surely would heighten the risks for

114. Ibid., 89. This is one of the chief motivations behind Washington's extensive assistance to the nuclear industries of Russia and the other Soviet nuclear inheritor states. For background, see the items listed in n. 52.

115. The term "nonweaponized deterrence" was used first by George Perkovich in "A Nuclear Third Way in South Asia." See also *Preventing Nuclear Proliferation in South Asia*; Lavoy, "Arms Control in South Asia"; and Devin Hagerty, "The Power of Suggestion: Opaque Proliferation, Existential Deterrence, and the South Asian Nuclear Arms Competition."

116. For a discussion of this important tradeoff and the conditions that lead states to choose one position over the other, see Feaver, *Guarding the Guardians*. See also Sagan, *The Limits of Safety*; Feaver, "Proliferation Optimism and Theories of Nuclear Operations"; Feaver, "Command and Control in Emerging Nuclear Nations"; Blair, *The Logic of Accidental Nuclear War*; and John D. Steinbruner, "Choices and Trade-offs," in *Managing Nuclear Operations*, ed. Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket (Washington, D.C.: Brookings Institution, 1987), 535–54.

117. Mitchell Reiss calls the deployment of ballistic missiles "the single greatest near-term threat to strategic stability in South Asia." See his statement to the Senate Foreign

India and Pakistan of both nuclear accidents and the loss of control over nuclear weapons, the subject we turn to next.

The risk of nuclear accidents is most closely related to the choices new nuclear states make about weapons readiness, command and control systems, and launch doctrines. Sagan summarizes the matter well: "States that develop complex arsenals and command systems, and operate their weapons on high-alert levels in order to permit rapid launches, will be more accident-prone than states that do not adopt such force structures."[118] The question that new nuclear states (and the nonproliferation community) will have to answer, therefore, is whether the risks of nuclear accidents are more serious than the military risks that might result from the lack of force readiness.

LOSS OF CONTROL: UNAUTHORIZED NUCLEAR USE AND NUCLEAR TERRORISM

A growing concern about new nuclear states is the possibility that one or more of them will experience a serious loss of control over a portion of their nuclear forces, possibly resulting in the accidental or unauthorized use of these weapons, or nuclear terrorism. The first generation of nuclear powers successfully avoided these problems, but recent research suggests that the United States and the Soviet Union came much closer than previously imagined to inadvertent war.[119] These studies also conclude that the loss of nuclear control is even more likely for the emerging nuclear states. In contrast, Waltz argues that unauthorized nuclear use is less of a problem for nascent nuclear nations and that nuclear terrorism is a very remote possibility.

Unauthorized nuclear use. Just as Waltz believes that new nuclear states will make their nuclear forces safe from accidents, he expects these countries also to devise effective command and control structures and build secure nuclear arsenals. If the United States, the Soviet Union, and China were able to control their nuclear forces, he reasons, why should we anticipate that new nuclear states will experience greater

Relations Subcommittee on Near Eastern and South Asian Affairs, 9 March 1995. See also Reiss, *Bridled Ambition*, 194–97.

118. Sagan, "Sagan Responds," 120.

119. Joseph F. Bouchard, *Command in Crisis* (New York: Columbia University Press, 1991); Sagan, *The Limits of Safety*; Feaver, *Guarding the Guardians*, and Blair, *The Logic of Accidental Nuclear War*. For a thorough summary of this research, see Thayer, "The Risk of Nuclear Inadvertence."

difficulties?[120] Waltz provides a direct answer to this rhetorical question: any state capable of producing or procuring nuclear weapons will have the ingenuity and technical skill to control them.[121] Moreover, nuclear-armed countries "will have every incentive to do so. They will not want to risk retaliation because one or more of their warheads accidentally struck another country."[122] Sagan is less sanguine. For the very reasons he cites to raise concern about nuclear safety, he expects new nuclear states to have trouble guarding against the inadvertent or unauthorized use of their nuclear forces.

Once again, Waltz and Sagan are both right; but neither provides an analysis which is sufficiently nuanced to help observers understand either the risks of any particular state losing control over its nuclear arsenal, or the circumstances which would lead to this problem. Controlling nuclear forces is a difficult task, but it is one that most countries can accomplish. Rather than merely emphasizing the things that can go wrong, as Sagan does, or the things that can go right, as Waltz does, it may be beneficial to examine the effects of specific choices new nuclear states make about the readiness of their forces, their command and control systems, and their launch doctrines.

As we observe in the context of nuclear safety, many states will choose to err in the direction of tight control and institute highly centralized, or "assertive," command systems. Other nations, which perceive immediate security threats, or distrust their intelligence and warning capabilities, will prefer postures of rapid reaction. These states are likely to establish decentralized, or "delegative," command over nuclear operations.[123] The second category of states would face the greater risks of inadvertent and unauthorized use of nuclear weapons. More empirical research could help determine what choices countries in the past had made and the ensuing strategic consequences.[124]

120. Waltz, "More May Be Better," 22.

121. Ibid., 21.

122. Ibid..

123. On the tradeoff between assertive and delegative command systems, see Feaver *Guarding the Guardians*. More generally, see Feaver, "Proliferation Optimism and Theories of Nuclear Operations"; Feaver, "Command and Control in Emerging Nuclear Nations"; and Blair, *The Logic of Accidental Nuclear War*.

124. One possible research strategy is to examine the command and control decisions emerging nuclear states have made for their conventional military operations, and then to extrapolate about their likely nuclear command and control choices. For an example of this kind of research about the United States, see C. Kenneth Allard, *Command, Control, and the Common Defense* (New Haven: Yale University Press, 1990). Crisis simulations, or "war games," offer another possible research technique. For a suggestive example, see Bruce G. Blair, David S. Cohen, and Kurt Gottfried, "Command in Crisis: A Middle East Scenario," *Bulletin of Peace Proposals* 17, no. 2 (1986): 113–20

These issues are understood more clearly in the context of an actual case. Unlike the superpowers, India and Pakistan need not place their nuclear weapons under delegative command during peacetime; nor need they deploy large arsenals world-wide on land, sea, or underwater. As crises evolve, each country should have ample time to prepare for a nuclear exchange – that is, unless ballistic missiles are deployed on the subcontinent. In the absence of missiles, India and Pakistan could continue to keep their nuclear weapons components (nuclear explosive material, conventional high explosives, triggering devices, etc.,) stored in a disassembled condition at civilian laboratories and separate from their delivery systems.

Non-assembly of nuclear capabilities is a condition that effectively precludes the theft or unauthorized use of operational nuclear weapons. According to former Indian army chief General K. Sundarji:

> Very strong centralised negative controls can be exercised, if you are looking at it purely as a deterrent. If you're thinking of first use, on the other hand, then you have to decentralise. But if you see it purely as deterrence, there is no harm done if it is totally centralised, tightly held, because the response time is no longer critical.[125]

The current risk in South Asia is that the introduction of ballistic missiles, and the attendant lessening of warning times for attack, could impel India and Pakistan to move toward launch-on-warning postures. Such a development almost certainly would necessitate the delegation of nuclear control to military officers in the field. The result would be a steep rise in the risk of inadvertent and unauthorized nuclear use, and an increased likelihood of nuclear terrorism on the subcontinent or spilling from it. As is true in the realm of nuclear safety, the success new nuclear states experience in controlling their nuclear forces depends primarily on the specific choices they make about nuclear force postures, controls, and strategies.

Nuclear terrorism. A relatively new security concern is the prospect that non-state actors – terrorist groups – might manage to steal nuclear weapons, or at least bomb-grade materials, from new nuclear states, and use these explosives to blackmail governments and possibly to kill thousands of people. Nuclear terrorism was a minor concern during the cold war, especially compared to the threat of superpower nuclear

125. Michael O'Rourke, "Nuclear Stand-off: Interview with General K. Sundarji," *Far Eastern Economic Review*, 13 September 1990, p. 26.

conflict.[126] Perhaps the earliest expression of concern about this problem was in a memo Henry Stimson wrote to President Truman three months before Hiroshima:

> the future may see a time when such a weapon may be constructed in secret and used suddenly and effectively by a willful nation or group of much greater size and material power. With its aid a very powerful and unsuspecting nation might be conquered within a few days.[127]

Soon, this fear gave way to the urgent concerns of deterring Soviet nuclear attacks against the United States and conventional invasion of Western Europe.

There are no reported instances of nuclear terrorism, but there have been threats which later turned out to be hoaxes. The FBI, for example, acknowledged that it had investigated seven letters threatening the explosion of nuclear bombs in Boston, Des Moines, San Francisco, and Lincoln, Nebraska. Ultimately, none of these threats was substantiated.[128] With the demise of the Soviet Union and breakdown of accounting and controls over former Soviet nuclear facilities and material stockpiles in Russia, Ukraine, Kazakhstan, and Belarus, nuclear terrorism is now a very serious concern.[129]

Waltz does not dispute the ability of terrorists to gain control of a few nuclear explosives. He does doubt, however, that terrorists ever would use them. This sanguine view derives from three assumptions Waltz makes about the nature and aims of terrorist organizations. First, because "secrecy is safety" for terrorists, Waltz believes that they

126. The treatments of the issue during that era are: Roberta Wohlstetter, "Terror on a Grand Scale," *Survival* (May–June 1976); Brian M. Jenkins, *The Potential for Nuclear Terrorism* (Santa Monica, Calif.: RAND, 1977); Jenkins, "Will Terrorists Go Nuclear?" *Orbis* 29, no. 3 (fall 1985); David M. Rosenbaum, "Nuclear Terror," *International Security* 1, no. 3 (winter 1977); Bruce G. Blair and Garry D. Brewer, "The Terrorist Threat to World Nuclear Programs," *Journal of Conflict Resolution* 21, no. 3 (September 1977); Louis René Beres, *Terrorism and Global Security: The Nuclear Threat* (Boulder: Westview, 1979); Beres, *Apocalypse: Nuclear Catastrophe in World Politics* (Chicago: University of Chicago Press, 1980); Paul Leventhal and Yonah Alexander, eds., *Nuclear Terrorism: Defining the Threat* (McLean: Pergamon-Brassey's, 1986); Leventhal and Alexander, eds., *Preventing Nuclear Terrorism: The Report of the International Task Force on the Prevention of Nuclear Terrorism* (Lexington, Mass.: Lexington Books, 1987); and Thomas C. Schelling, "Thinking about Nuclear Terrorism." *International Security* 6, no. 4 (spring 1982): 61–77.

127. Stimson's 25 April 1945 memo is cited in J. Bowyer Bell, *A Time of Terror: How Democratic Societies Respond to Revolutionary Violence* (New York: Basic Books, 1979), 116–17; See also Dunn, *Controlling the Bomb*, 88–92.

128. See Christopher Dobson and Robert Payne, *The Terrorists: Their Weapons, Leaders, and Tactics* (New York: Facts on File, 1979), 135.

129. John R. Powers and Joseph E. Muckerman, "Rethink the Nuclear Threat," *Orbis* 38, no. 1 (winter 1994): 99–108.

would not wish suddenly to enlarge their ranks through the multiplication of "suppliers, transporters, technicians, and guardians" required to obtain and maintain nuclear weapons.[130] Second, terrorists are not well suited to carrying out the time-consuming negotiations needed to obtain the compliance of a state placed under a terrorist nuclear threat.[131] Third, terrorists favor tactics of disruption and harassment to threats of wholesale death and destruction; nuclear weapons do not help terrorists reach their long-term goals. If terrorists did seek to take many lives, Waltz reasons that poison would be a better weapon.[132]

Waltz may be right. Terrorists might shun nuclear weapons, but then again, they might actually want to use them. To evaluate more rigorously the likelihood of nuclear terrorism, we would need to examine operational profiles of actual terrorist groups; determine whether any of the reported diversions of nuclear materials from Russia and the other nuclear inheritor states were destined for non-state actors; and take a closer look at numerous reports of nuclear threats around the world. Without this kind of empirical information, arguments about nuclear terrorism amount to little more than enlightened guesswork.

NUCLEAR ARMS RACING AND NUCLEAR WAR

Another concern about the global spread of nuclear weapons is that costly nuclear arms race will occur, and that these, in turn, may increase the likelihood that rival nations will go to war over existing or new disputes. Sagan does not raise this fear, but other observers do.[133] The cold war nuclear competition provides a basis for this concern. What would discourage new nuclear nations from repeating the superpower practice of building larger and larger nuclear arsenals while at the same time continuing to improve their conventional forces? In developing countries, where hunger and illiteracy remain serious problems, would not a nuclear arms race be lamentable even if it did not lead to a catastrophic military crisis?

Ever the optimist, Waltz provides three reasons why new nuclear states are likely to decrease, rather than to increase, their military spending. First, because nuclear weapons make it difficult for any state to launch a disarming first-strike with high confidence, the relative

130. Waltz, "Waltz Responds," 95.
131. Ibid..
132. Ibid., 95–96.
133. For a concise survey of the literature, see George W. Downs, "Arms Races and War," in *Behavior, Society and Nuclear War*, vol. 2, ed. Philip E. Tetlock et. al. (New York: Oxford University Press, 1991), 73–109.

military capabilities of adversaries lose their significance. William T. R. Fox summarizes the point well: "When dealing with the absolute weapon, arguments based on relative advantage lose their point."[134] Moreover, nuclear weapons are war-deterring, not war-fighting instruments. While war-fighting forces, because they threaten the forces of others, have to be compared, forces designated for deterrence need not be compared.[135]

Second, the logic of deterrence eliminates the incentives for arms racing. The United States and the Soviet Union failed to understand this point during the cold war, but Waltz expects that new nuclear states will be more sensible and "aim for a modest sufficiency rather than vie with one another for a meaningless superiority."[136] After all, emerging nuclear nations can reflect on the superpower experience and learn to do better. Because "large conventional forces neither add to nor subtract from the credibility of second-strike nuclear forces," Waltz's third point is that nations armed with nuclear weapons also will be able to forego costly conventional arms races. Again, we turn to the current case of India and Pakistan to see how Waltz's expectations fare.

As stated earlier, India and Pakistan are each believed to possess the fissile materials and warhead components required for several nuclear weapons. Why do they not have many more weapons? Perhaps these countries are limited in their ability to increase the size of their nuclear arsenals by technical and financial constraints. Another possible explanation is that Islamabad and New Delhi have made firm policy decisions that their shared security objective – deterrence of foreign aggression – requires only a small number of nuclear weapons. Perhaps these countries fear that building larger forces would invite further sanctions from the United States or other staunch nonproliferation proponents.

Because there is no definitive explanation for Indian and Pakistani nuclear restraint, and because we have even less information about the size and motivations behind the suspected nuclear forces of Israel and North Korea, it is impossible to make a conclusive evaluation of the risks and implications of nuclear arms racing among new nuclear states. This said, a final point Waltz makes is worth considering. "For some countries," Waltz writes, "the alternative to nuclear weapons is to run ever more expensive conventional arms races, with increased

134. William T. R. Fox, "International Control of Atomic Weapons," in Brodie, *The Absolute Weapon*, 181. Waltz quotes Fox and discusses this point in "More May Be Better," 29–30.

135. Waltz, "More May Be Better," 30.

136. Ibid., 31–32.

risk of fighting highly destructive wars."[137] During the four-year period from 1990 to 1993, India imported approximately $3.5 billion in arms; Pakistan bought $1.7 billion worth of foreign weaponry.[138] Would India or Pakistan have spent more of their precious foreign exchange on conventional weapons if they did not possess nuclear weapons capabilities? Waltz's plausible counterfactual expectation deserves more attention and detailed empirical investigation.

NUCLEAR PROLIFERATION AND THE INITIATION OF CONVENTIONAL CONFLICT

Some observers fear that nuclear weapons make the use of conventional military force more probable.[139] Early in his career, Waltz himself suggested that a "mutual fear of big weapons may produce, instead of peace, a spate of smaller wars."[140] There are at least two possible paths to conventional war in the nuclear world. First, states armed with nuclear weapons might bully or attack their non-nuclear neighbors and then use their nuclear arsenals to intimidate foreign powers from intervening. Second, in a situation in which two states possess nuclear weapons, if one country is confident in its ability to manipulate the risk of nuclear war and control the pace of military escalation, it might attempt to use military force against the other state in an effort to alter the territorial or political status quo. In *The Spread of Nuclear Weapons*, Sagan has little to say about these possibilities, but Waltz is adamant that they will not occur.

Nuclear force as an aid to conquest. The fear of nuclear-aided conquest is called forth by a much discussed scenario. What would have happened had Iraq waited a few years before invading Kuwait – that is, until Iraq had manufactured and hidden in the desert a half dozen or so nuclear weapons? Would the United States and its coalition partners have dared to intervene on Kuwait's behalf? Although Waltz expects that the United States "would have had to manage the Iraq-Kuwait crisis

137. Waltz, "Waltz Responds," 112.

138. These figures are in constant 1993 dollars, The source is U.S. Arms Control and Disarmament Agency, *World Military Expenditures and Arms Transfers, 1993–1994* (Washington, D.C.: Government Printing Office, February 1995), 115, 125.

139. These concerns are discussed thoroughly in Richard K. Betts, "Nuclear Peace and Conventional War," *Journal of Strategic Studies* 2, no. 1 (March 1988): 79–95. See also van Creveld, *Nuclear Proliferation and the Future of Conflict*.

140. Waltz, *Man, the State and War*, 236.

differently, say by employing only an embargo,"[141] he gives two reasons to doubt that the United States would be confronted with such a situation in the Persian Gulf or anywhere else.

First, Waltz argues that a nuclear-armed state probably would not need to – and thus would not want to – invade its neighbors: "the deterrent deployment of nuclear weapons contributes more to a country's security than does conquest of territory. A country with a deterrent strategy does not need the extent of territory required by a country relying on conventional defense."[142] Second, Waltz believes that nuclear-armed countries would not dare to engage in territorial aggression because they would fear a punishing military blow from some other nuclear power. "Far from lowering the expected cost of aggression," Waltz asserts, "a nuclear offense even against a nonnuclear state raises the possible costs of aggression to incalculable heights because the aggressor cannot be sure of the reaction of other states."[143]

These explanations are not nearly as strong as Waltz's arguments about the stability of deterrence between two or more nuclear-armed rivals. Even if we accept that the effectiveness of nuclear deterrent strategies do not rest on territorial expansion, can we be sure that all new nuclear states will share this assessment? What of the possible domestic political compulsions for aggression? In what conceivable way would the possession of nuclear forces dampen a country's desire to "liberate" a repressed ethnic minority in a neighboring state, a state that is not armed with nuclear weapons? Territorial expansion is not the objective of all offensive attacks. Waltz's point about the certainty of foreign military response is also dubious. Saddam Hussein evidently miscalculated the probable American reaction before he ordered his troops into Kuwait. Armed with several powerful nuclear weapons hidden in the desert, Hussein might have been even more confident that the United States would acquiesce in Iraq's annexation of Kuwait.[144] My point is not that Waltz is wrong, but that we cannot know how a person placed in Saddam Hussein's shoes would behave.

141. Waltz, "Waltz Responds," 110–11. For a thorough presentation of Waltz's views on the Gulf war, see Kenneth N. Waltz, "A Necessary War?" *Confrontation in the Gulf* (Berkeley: Institute of International Studies, 1992), 59–65.

142. Waltz, "More May Be Better," 5.

143. Ibid., 16.

144. John Arquilla argues that a situation in which Iraq or other rogue states acquired nuclear weapons would "look much like Europe in the 1970s and early 1980s, when it began to grow clear that the U.S. threat to use nuclear weapons to defend against conventional Soviet aggression was hollow." "Regional Deterrence after the Cold War," 133.

The stability-instability paradox. The other manner in which nuclear weapons might increase the likelihood of conventional conflict is described as the stability-instability paradox.[145] If one (or both) of two nuclear-armed rivals believes that nuclear war cannot be fought to a meaningful victory, and if it deems that the other side would dare not risk nuclear retaliation over a relatively minor bilateral dispute, then it might be tempted to apply a small measure of military force in the hope of altering the territorial or political status quo. Waltz acknowledges that "war can be fought in the face of deterrent threats."[146] He goes on to say, however: "the higher the stakes and the closer a country moves toward winning them, the more surely that country invites retaliation and risks its own destruction."[147]

In the case of South Asia, Waltz's observation appears to be correct. Although India and Pakistan regularly engage in low-intensity warfare and frequently find themselves caught up in tense circumstances, neither side appears willing to risk nuclear war to settle any of their many political and territorial disputes. A decade ago there was a concern that Pakistan would take advantage of the stability-instability paradox to wrest control of Kashmir from India. As Stephen Cohen explained,

> Some Pakistani and many Indian strategists argue that a Pakistani bomb, besides neutralizing an assumed Indian nuclear force, would provide the umbrella under which Pakistan could reopen the Kashmir issue. A Pakistani nuclear capability would paralyze not only the Indian nuclear decision but also Indian conventional forces, and a bold Pakistani strike to liberate Kashmir might go unchallenged if Indian leadership was indecisive.[148]

Although Pakistan is now accused of fomenting insurrection in Indian-held Kashmir, Islamabad has shown no sign of risking more serious military escalation to acquire Indian-held Kashmir. At the same time, Pakistan might feel safe in conducting irregular warfare against its adversary. A senior general of the Indian army explains why: "What the nuclear capability does is to make sure that the old scenarios of Indian

145. The stability-instability paradox was articulated first by Glenn Snyder, "The Balance of Power and the Balance of Terror," in *The Balance of Power*, ed. Paul Seabury (San Francisco: Chandler, 1965). See also Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca: Cornell University Press, 1984), 29–34.

146. Waltz, "More May Be Better," 5.

147. Ibid..

148. Cohen, *The Pakistan Army*, 153.

armour crossing the Sukkur barrage over the Indus (river) and slicing Pakistan into two are a thing of the past."[149]

In South Asia, therefore, the advent of military nuclear capabilities does not prevent low-level armed clashes between India and Pakistan, but it has provided a powerful incentive for these countries to abandon notions of military victory and to run smaller risks. Waltz's reasoning seems correct: "We cannot expect countries to risk more in the presence of nuclear weapons than they did in their absence."[150]

CONVENTIONAL CONFLICT AND ESCALATION TO NUCLEAR WAR

Whereas the previous section considered the role of nuclear weapons in the escalation of a crisis *to* conventional war, a separate concern is escalation *in* war – escalation from the use of conventional forces to the employment of nuclear weapons. Suppose that a pair of nuclear-armed states somehow work themselves into a conventional military conflict – through the stability-instability paradox or some other chain of events – what would prevent the rapid escalation of the conflict to the exchange of nuclear blows? If a few nuclear weapons are used, what would inhibit further escalation? Sagan considers the problem in a particular light: the scenario he develops is rapid escalation of a conventional war between a large nuclear power and a very small nuclear power.[151] In this event, he doubts the capacity of the larger power to exercise precise control over its military forces. Sagan also questions the ability of new nuclear states to restrain their military operations once war erupts.[152]

In contrast, Waltz again is optimistic about the stability of deterrence, even if war erupts between nuclear-armed countries. Two of his arguments are relevant here. The first point already has been discussed: since nuclear escalation is a constant possibility looming over the competition between nuclear-armed rivals, these countries are almost certain not to start a conventional war. Waltz writes: "Because no one can be sure that a major conventional attack on a nuclear country's vital

149. Quoted in Shekhar Gupta and W. P. S. Sidhu, "The End Game Option," *India Today*, 30 April, 1993, p. 28.

150. Waltz, "More May Be Better," 13. To be more certain about this proposition, however, it would be useful to revisit the cases of conventional aggression against nuclear-armed states: the 1973 attack on Israel by Egypt and Syria; the 1982 Argentine invasion of the British-owned Falkland Islands; and the 1991 Iraqi SCUD missile attack against a presumably nuclear-armed Israel.

151. Sagan, "Sagan Responds," 131–33.

152. Ibid., 133.

interests will not escalate to the nuclear level, it is deterred. Uncertainty about controlling escalation is at the heart of deterrence."[153]

The second point is that nuclear deterrence is so powerful, it is likely to reestablish itself even if there is a momentary break-down and conventional conflict erupts. "Should deterrence fail," Waltz argues, "a few judiciously delivered warheads are likely to produce sobriety in the leaders of all the countries involved and thus bring rapid de-escalation."[154] Fortunately, direct armed conflict between nuclear powers has not occurred (except in the Sino-Soviet border clash on 1969). We thus have narrow empirical grounds to assess Waltz's prediction of the restoration of deterrence after the outbreak of nuclear conflict. The possible escalation of a conventional military conflict to the level of nuclear exchange, however, is a more accessible problem. It can be examined in the cases of the 1973 Arab-Israeli war and the 1990 Kashmir crisis between India and Pakistan.

The 1973 Arab-Israeli crisis. On 6 October 1973 Egypt and Syria launched a surprise military attack against Israel even though Israel reportedly possessed nuclear weapons at this time. Presumably, President Hafez al-Assad of Syria and President Anwar el-Sadat of Egypt believed that their foe was armed with nuclear weapons.[155] The interesting questions, therefore, are why Assad and Sadat chose to attack a nuclear-armed power and how Israel's nuclear capability influenced the conduct of the Egyptian and Syrian military campaigns. Unfortunately, there is not yet scholarly consensus on either of these points.

Yair Evron contends that even if Egypt and Syria has assumed that Israel possessed operational nuclear weapons, they did not take the nuclear factor into account before they planned their attack.[156] Desperation might have motivated Assad and Sadat to engage in wishful thinking – to neglect Israel's nuclear potential and to focus only on Israel's conventional military capabilities.[157] Alternatively, the Arabs might have reasoned that since the objectives of their offensive were limited

153. Waltz, "Waltz Responds," 110.

154. Waltz, "More May Be Better," 37.

155. This remains a controversial point. Yair Evron suspects that before 1973 Egyptian and Syrian leaders doubted that Israel actually possessed nuclear weapons. See Yair Evron, *Israel's Nuclear Dilemma* (Ithaca: Cornell University Press, 1994), esp. 66.

156. Evron, *Israel's Nuclear Dilemma*, 73–75.

157. Ibid. On the general subject of motivated biases, such as wishful thinking in war, see Robert Jervis, *Perception and Misperception in International Politics* (Princeton: Princeton University Press, 1976), 356–81.

and primarily political, Israel would realize that its survival was not at stake and thus would not respond with a nuclear counter-attack.[158]

Shlomo Aronson provides a different interpretation of events in 1973. He argues that Assad and Sadat were aware of Israel's nuclear capability and intentionally limited the objectives of their offensive in order not to provoke Israel into to activating its nuclear arsenal.[159] After the fighting had begun, the nuclear factor cast an even greater shadow over events. According to Aronson, Assad ordered his military forces not to "fan out into Israeli territory proper," out of fear that such a move would trigger an Israeli nuclear response[160] Sadat similarly limited the movement of his troops in the Sinai and asked Henry Kissinger to communicate to Israel that Egypt was pursuing only limited military goals.[161] As more evidence about the 1973 war is made available, researchers will be in a better position to assess the claims Sagan, Waltz, and other scholars make about the risks of conventional war escalating to the nuclear level.

The 1990 Kashmir crisis. Concerns about the escalation of a conventional conflict to the nuclear level abound when the owners of nuclear weapons have a long history of violent warfare. India and Pakistan have fought three bloody wars. An upsurge of political unrest and violence in Kashmir brought New Delhi and Islamabad to the brink of a fourth war in the spring of 1990.[162] In order to head off an India-Pakistan war, President Bush directed Robert Gates, assistant national security adviser, and other influential officials, to deliver five messages to Islamabad and New Delhi. These messages reportedly were: (1) to urge the Indians and Pakistanis to avoid war; (2) to emphasize that if war does break out, the United States and the Soviet would be neutral but not indifferent;[163] (3) to threaten that the superpowers might move against the aggressor; (4) to offer superpower assistance – for example, satellite imagery to aid in monitoring the disposition of troops on ei-

158. Evron, *Israel's Nuclear Dilemma*, 74–75.

159. Shlomo Aronson with Oded Brosh, *The Politics and Strategy of Nuclear Weapons in the Middle East* (Albany: State University of New York Press, 1992), esp. 131–49.

160. Ibid., 143.

161. Ibid., 145–46.

162. For background on the 1990 India-Pakistan crisis, see Seymour M. Hersh, "On the Nuclear Edge," *New Yorker*, 29 March 1993; K. Subrahmanyam, "Down Memory Lane," *Economic Times* (New Delhi), 24 March 1993; Reiss, *Bridled Ambition*, 189–92; and Michael Krepon and Mishi Faruqee, eds., *Conflict Prevention and Confidence-Building Measures in South Asia: The 1990 Crisis*, Occasional Paper no. 17 (Washington, D.C.: Henry L. Stimson Center, April 1994).

163. The Gates mission visited Moscow before heading to South Asia in order to assure superpower consensus and cooperation on the handling of this crisis.

ther side of the border – to prevent firing of the first shot; and (5) to encourage the Indian and Pakistani political leaders and military commanders to meet together.[164]

As a senior U.S. official later stated: "The concern was that they were inadvertently lurching toward a conflict neither one of them wanted. Each side was worst-casing the other's reactions or intentions. Each modest military move was looked upon by the other as requiring a response by the other side. Also, there was a ratcheting up of military developments on both sides that was very worrisome."[165] The chief objective of the Gates mission was not to resolve the Kashmir dispute but to head off war. "Clearly one of the reasons we put the time and effort behind the Gates mission was the concern that a conflict could escalate to nuclear weapons," a State Department official said.[166]

The issue of how close India and Pakistan actually came to conventional war in the spring of 1990 remains clouded in controversy. If conventional conflict would have broken out, would the war then have escalated to the nuclear level? There is even less agreement on this question. What is known is that the two rivals did manage to escape military conflict and the possibility of escalation to nuclear war in 1990. Will they be as fortunate in the future? South Asia is a crisis-prone region even if it is not necessarily war-prone. With crises come the risk of war. The pertinent question therefore is whether the advent of nuclear capabilities in the region lowers the likelihood of conventional war sufficiently to warrant the risk of nuclear escalation should conventional fighting occur.

NUCLEAR COERCION AND AGGRESSION

A suspicion that the political and military leaders of new nuclear states might not operate with the same degree of rationality and restraint as the leaders of industrialized countries underlies the fear that emergent nuclear forces may be used for coercive or offensive military purposes. Waltz rejects this fear. He asserts that the possession of nuclear weapons alters the psychology of their owners by making them more prudent.[167] Even states that are radical at home may not be radical abroad,

164. *India Today*, 15 June 1990.

165. Michael R. Gordon, "U.S., Wary of War over Kashmir, Urges India and Pakistan to Yield," *New York Times*, 17 June 1990.

166. Ibid..

167. Waltz, "More May Be Better," 12.

he reasons.[168] It is in this context that Waltz most clearly displays his opposition to political relativism: "Whatever the identity of rulers, and whatever the characteristics of their states, the national behaviors they produce are strongly conditioned by the world outside."[169] Obviously, this is a contention that can be investigated in the cases of Libya, Iraq, North Korea, and so forth. What about the case of South Asia?

Observers worry that a desperate or ambitious ruler of either state might try to use nuclear weapons to coerce or even to attack the other country in order to conquer territory or force political concessions. Even if Islamabad and New Delhi currently exercise caution in their mutual dealings, the fear is that a tyrannical figure could come to power during a governmental crisis and recklessly wield nuclear weapons against the foreign enemy. Because leaders of countries such as India and Pakistan perceive the stakes of competition to be so high, some Western observers fear that they "may be ready to risk nuclear confrontation, if not even to accept a surprisingly high level of nuclear damage, in pursuit of their objectives."[170]

These concerns are overstated in the case of South Asia. Neither India nor Pakistan developed nuclear weapons with offensive or coercive military action in mind. As Stephen Cohen remarked fifteen years ago, nuclear weapons "are seen as defensive in character in the context of Indian or Pakistani possession. Those who advocate the acquisition of an Indian or Pakistani bomb view this step as protective insurance, the legitimate response of a relatively weak power to the threatening moves of neighbors or superpowers."[171]

Further, there is no cult of the offensive in South Asia; that is, the perception that the offense has a major advantage over the defense currently does not prevail in either country.[172] This is so for four main reasons. Neither state has exposed allies or vulnerable foreign posses-

168. Ibid., 11.

169. Waltz, "Waltz Responds," 98.

170. Dunn, *Controlling the Bomb*, 70. See also Bailey, *Doomsday Weapons in the Hands of Many*, 2.

171. *Perception, Influence and Weapons Proliferation in South Asia*, report prepared for the State Department, Bureau of Intelligence and Research (#1722-920184, August 1978), 24.

172. By implication, this means that Indian and Pakistani military officers are generally more cautious, or defense-minded, than Sagan would expect. For elaboration on the concept of the cult of the offensive, see Jack Snyder, *Myths of Empire: Domestic Politics and International Ambition* (Ithaca: Cornell University Press, 1991); Snyder, *The Ideology of the Offensive* (Ithaca: Cornell University Press, 1984); Scott D. Sagan, "1914 Revisited: Allies, Offense, and Instability," *International Security* 11, no. 2 (fall 1986); and Stephen Van Evera, "The Cult of the Offensive and the Origins of the First World War," *International Security* 9, no. 1 (summer 1984): 58–107.

sions whose defense could require immediate aggressive action. Neither country has significant territorial ambitions (except in the case of Kashmir, though the sources of this dispute are more political and ideological than territorial).[173] Neither nation has expansionist political aims. Finally, offensive military strategies rarely have been pursued in South Asia. Even though they have long faced a much weaker adversary in Pakistan, Indian leaders from Jawaharlal Nehru, Lal Bahadur Shastri, and Indira Gandhi to Rajiv Gandhi and the current prime minister, Narasimha Rao, have been reluctant to support offensive military action. These leaders have never underestimated the high human, political, and economic costs any war with Pakistan would entail. Although, as we have seen, Pakistan launched a preventive military strike against India in 1965, the obvious failure of this action and the subsequent increase in India's military power relative to that of Pakistan has given pause to any thought of further offensive or coercive campaigns.

Despite frequent protestations to the contrary, India and Pakistan accept the political and territorial status quo in South Asia – except in Kashmir. In regard to the ongoing turmoil in Kashmir, and the intense Indian and Pakistani competition for control over this region, there is no reliable evidence that either side ever has issued a nuclear threat to influence the actions of its adversary. South Asia's nuclear bombs are viewed by the political and military leadership of both countries as weapons of last resort. As one of India's leading defense experts, K. Subrahmanyam, puts it, "The main purpose of a third world nuclear arsenal is deterrence against blackmail," not blackmail itself.[174]

NEW NUCLEAR STATES AND NUCLEAR PROLIFERATION: DIRECT ASSISTANCE

The provision of military nuclear technology by an established nuclear weapons power to an aspiring nuclear nation is not an unprecedented phenomenon. The special American relationship with Britain committed the United States to help London acquire and maintain independent nuclear forces.[175] After initially opposing French nuclear activities,

173. This point is developed in many of the essays contained in *Perspectives on Kashmir: The Roots of Conflict in South Asia*, ed. Raju G. C. Thomas (Boulder: Westview, 1992). See especially the editor's informative introductory chapter, "Reflections on the Kashmir Problem," 3–43.

174. K. Subrahmanyam, "Nuclear Policy, Arms Control and Military Cooperation" (paper presented at the conference on India and the United States after the Cold War, sponsored by the Carnegie Endowment for International Peace and the India International Centre, New Delhi, 7–9 March 1993), 7.

175. For background, see the items listed in n. 3.

the U.S. government secretly extended weapons assistance to Paris as well.[176] The Soviet Union helped the Chinese develop their original nuclear forces.[177] France aided the Israeli program to a great degree.[178] China reportedly has assisted Pakistan with its efforts to manufacture and test nuclear weapons components and delivery systems.[179]

Perhaps due to this checkered past, the nonproliferation community fears that new nuclear states may assist proliferation elsewhere. Today, this concern is especially acute regarding the Islamic world. A recurrent fear is that if one Islamic nation acquires a sophisticated nuclear weapons capability, it will not hesitate to transfer nuclear weapons technology, material, and expertise to fellow Islamic nuclear weapons aspirants.[180] The fear of an "Islamic bomb" dates back to the provocative rhetoric of Zulfikar Ali Bhutto. Bhutto believed that a Pakistani nuclear capability would raise Islamabad to the leadership of the Islamic world. There is no evidence, however, that Bhutto or subsequent Pakistani leaders ever considered assisting other Islamic states with nuclear arms. Why would they? If additional Islamic nations managed to obtain nuclear weapons, Pakistan's relative status would drop. Pakistan, India, and many other developing states contend that the fear of the major powers that new nuclear states might export nuclear weapons technology and components so that other developing countries can have bombs of their own is patently absurd – and ethnocentric.

Waltz is anything but ethnocentric. He presumes that no reasonable national leader in this self-help international system would want to help other countries get the bomb. As any realist would explain, today's friends can become tomorrow's enemies. Waltz clearly does not expect the generous nuclear assistance pattern of the original nuclear states to be replicated by the new nuclear nations. If this were the case, the pace of nuclear proliferation would increase exponentially. Instead, Waltz expects that nuclear weapons will continue to spread slowly around the world. "A fifty percent growth of membership in the next decade would be surprising," he writes.[181]

176. Ibid..

177. For background, see John Wilson Lewis and Xue Litai, *China Builds the Bomb* (Stanford: Stanford University Press, 1988).

178. See Hersh, *The Samson Option*, as well as the literature listed in n. 4.

179. See Gary Milhollin and Gerard White, *Bombs From Beijing* (Washington, D.C.: Wisconsin Arms Control Project, May 1991).

180. See Weissman and Krosney, *The Islamic Bomb*.

181. Waltz, "More May Be Better," 1–2.

NEW NUCLEAR STATES AND NUCLEAR PROLIFERATION: RESPONSE AND IMITATION

Related to the previous problem is the concern that with the acquisition of nuclear weapons by each additional state, a chain reaction will be created leading to larger and larger numbers of nuclear-capable countries. The mechanism responsible for this effect is either the simple imitation of one country's nuclear achievement by highly motivated, envious states or the resultant weakening of the nonproliferation regime to a point whereby it is no longer able to prevent additional instances of proliferation. As the U.S. Arms Control and Disarmament Agency director Fred Iklé observed in 1975, "The right way to look at this next step in proliferation, the Indian explosion, is not that India is number six in a so-called nuclear club, but in a way it is number one among a great many countries to come."[182]

Iklé's fears have not been borne out by developments subsequent to India's nuclear explosion in 1974. Nor have other alarmist predictions about the pace of nuclear proliferation.[183] As Waltz appropriately observes, "the gradual spread of nuclear weapons has not opened the nuclear floodgates."[184] Why not? What accounts for the relatively slow pace of proliferation to date?

The answer to this question is not simple.[185] One is tempted not to take it up here – after all, the subject of *The Spread of Nuclear Weapons* is the likely impact, not the cause, of nuclear proliferation. Behind the arguments Sagan and Waltz make about the former topic, however, are unstated assumptions about the latter. Both authors agree that many more countries could have nuclear weapons than presently do. They believe that since there is abundant *supply* of nuclear weapons technology and materials, what constrains proliferation is the limited *demand* for nuclear weapons.[186] If either author were convinced that we are

182. Interview with the *Washington Post*, 12 March 1975.

183. See the discussion in n. 2.

184. Waltz, "More May Be Better," 43–44.

185. For a discussion of this point, see Peter R. Lavoy, "Nuclear Myths and the Causes of Nuclear Proliferation," in Davis and Frankel, *The Proliferation Puzzle*, 192–212. Waltz himself notes that nations may want nuclear weapons for one or more of seven reasons: (1) for great powers to counter the weapons of other great powers; (2) for weaker states that doubt great-power security guarantees; (3) for nonaligned states to match the nuclear weapons of adversaries; (4) for nations that face conventionally superior adversaries; (5) for countries that wish to avoid costly conventional arms races; (6) for nations that want nuclear arms for offensive purposes; and (7) for states that hope to improve their international standing. *The Spread of Nuclear Weapons: More May Be Better*, 7–8.

186. Ibid., and Sagan, "Sagan Responds," 134.

entering an era in which the demand for nuclear weapons will increase dramatically, as some observers think,[187] how would they change their views about the effects of rapid and wide-scale nuclear proliferation?

CATACLYSMIC NUCLEAR WAR

The fear that the United States and the Soviet Union could be drawn into a regional nuclear war was a serious concern that guided vigorous nonproliferation activities during the cold war. With the demise of the Soviet Union, and the restriction of American security commitments around the world, worries about cataclysmic nuclear war rightly have abated. Given the uncertain future of the international political system, however, it is useful to touch on what was once a grave concern about the possible impact of nuclear proliferation.

Over three decades ago Henry Kissinger described two possible paths to cataclysmic nuclear war. First, "a country allied with a major nuclear power may force the latter into an all-out conflict by launching an attack on another major nuclear power."[188] Second, "the unchecked diffusion of nuclear weapons is said also to raise the specter of what has been called 'cataclysmic' war – a conflict started by an irresponsible smaller country with a nuclear attack on a major nuclear power. Since in the missile age the direction from which the blow comes may be difficult to determine, the attacked nation may react by an all-out blow against its chief opponent."[189] The concerns Kissinger described existed even at the close of the cold war.[190] How realistic were these fears in the first place?

Sagan does not take up this question, but Waltz does. In fact, Waltz is unambiguous on the issue: "If (weak) states use nuclear weapons, the world will not end. The use of nuclear weapons by lesser powers

187. For examples, see Benjamin Frankel, "The Brooding Shadow: Systemic Incentives and Nuclear Weapons Proliferation," in Davis and Frankel, *The Proliferation Puzzle*, 37–78; Seth Cropsey, "The Only Credible Deterrent," *Foreign Affairs* 73, no. 2 (March–April 1994): 14–20; Ted Galen Carpenter, "Closing the Nuclear Umbrella," *Foreign Affairs* 73, no. 2 (March–April 1994): 8–13; and Marc Dean Millot, Roger Mollander, and Peter A. Wilson, *The Day After...Study: Nuclear Proliferation in the Post–Cold War World*, vol. 1 (Santa Monica: RAND, 1993), 3.

188. Henry A. Kissinger, *The Necessity for Choice: Prospects of American Foreign Policy* (Garden City: Doubleday, 1962), 250.

189. Ibid..

190. See *Crisis Stability and Nuclear War* (a report published under the auspices of the American Academy of Arts and Sciences and the Cornell University Peace Studies Program, January 1987), which argues that: "Wars involving minor nuclear powers allied to the superpowers may carry even greater risks to global security than direct confrontations between the superpowers. Therefore the international effort to impede nuclear proliferation should be pursued with the utmost vigor (p. 5)."

would hardly trigger them elsewhere."[191] Today, U.S. security is less closely coupled to the security of other nations than it was during the cold war, therefore, there is no reason to doubt Waltz on this point. What, however, would be the result of a major strategic shift in the international political landscape? Ought we be concerned about cataclysmic nuclear war in the future? Once again, we have a specific concern that could do with closer examination. And once again, *The Spread of Nuclear Weapons* provides a useful point of departure.

NUCLEAR THREATS TO THE POLITICAL AND MILITARY INFLUENCE OF MAJOR POWERS

The final concern that drives wide-spread interest in nuclear nonproliferation relates directly to the political and military self-interest of the major powers. The spread of secure nuclear weapons systems to developing states could threaten the ability of the major global powers to intervene in regional security disputes around the world. This problem has concerned American defense planners from the outset of the nuclear age, but the 1991 Gulf War and the prospect of facing Iraqi forces armed with chemical (and possibly nuclear) weapons brought the problem into sharper focus than ever before.

Three decades ago, James Schlesinger reasoned: "It is possible that the spread of nuclear weapons will increasingly inhibit the use of power by the United States or the Soviet Union in regions of less than vital concern."[192] Schlesinger expected that in areas of vital interest to the superpowers, the vast difference in military capabilities between the United States and the Soviet Union and those of regional contenders – including states armed with small nuclear forces – would enable the former to dominate the latter in any significant strategic contest—even a "nuclear confrontation."[193] The degree of superpower inhibition would depend on the risks that the United States or the Soviet Union would be willing to run.

Schlesinger raises an important point. The United States would have been able to destroy Iraq's SCUD missiles and any nuclear weapons that Iraq eventually might have acquired, but at what level of effort and at what cost? Would the resort to American nuclear weapons have been

191. Waltz, "More May Be Better," 17. Robert W. Tucker concurs in *A New Isolationism: Threat or Promise?* (New York: Universe Books, 1972), 39–54.

192. Schlesinger, "The Strategic Consequences of Nuclear Proliferation," 174–84.

193. Schlesinger also predicted that "the penalties for proliferation would be paid, not by the United States or the Soviet Union, but by third countries." Ibid., 179, 182, 180.

required?[194] The concern that the effort and cost would be excessive given current U.S. military capabilities led to the enactment of the defense counterproliferation initiative in 1993.[195]

Waltz is correct that "a big reason for America's resistance to the spread of nuclear weapons is that if weak countries have some they will cramp our style."[196] The new counterproliferation initiative aims to give the United States plenty of elbow room even in a world in which many potential adversaries possess nuclear arms and other weapons of mass destruction. If the United States succeeds in this endeavor, what would be the strategic implication if only a single country (or a few, if counterproliferation technologies were to be shared with or developed by other great powers) possessed invulnerable nuclear forces? If one country were to gain confidence in its ability to detect, destroy, and defend against the nuclear weapons of all but a handful of the world's nuclear powers, would that country then be tempted to engage in preventive or preemptive military attacks against the nuclear facilities of threshold nuclear powers? Would it feel free to intervene aggressively around the globe? Although the answers to these questions will not be known for a long time, if ever, they do suggest an important point: it is distinctly possible that the political and military effects of nuclear weapons will not be experienced evenly throughout the international system.

SCHOLARSHIP AND NUCLEAR NONPROLIFERATION

In *The Spread of Nuclear Weapons*, Waltz and Sagan use powerful theories to explain the likely strategic implications of nuclear proliferation. In the end, however, neither author wins the debate. From this essay's examination of the twelve dominant concerns about the likely political and military effects of nuclear proliferation, it appears that neither Sagan nor Waltz is completely correct. Sagan's claims about the likelihood of nuclear accidents and the loss of national control over nuclear forces are persuasive. Waltz's arguments about the

194. Robert Jervis has written that "U.S. nuclear weapons can help deter even nuclear-armed adversaries from moving against U.S. interests." Would the United States want to do this? Robert Jervis, "What Do We Want to Deter and How Do We Want to Deter It?" in Ederington and Mazarr, *Turning Point*, 132.

195. The initiative was announced by former Secretary of Defense Les Aspin in a 7 December 1993 speech entitled, "The Defense Counterproliferation Created." See *Defense Issues* 8, no. 68.

196. Waltz, Waltz Responds," 111.

improbability of preventive or preemptive attacks against nuclear facilities are also convincing. On several of the other concerns, however, the arguments Waltz and Sagan make are not sufficiently developed or there simply is not enough empirical evidence to suggest whether we ought to be pessimistic or optimistic about nuclear proliferation.

Also, because both authors reason abstractly, we are at a loss to anticipate the specific effects of any particular country's acquisition of nuclear weapons. As the discussion of nuclear proliferation in South Asia suggests, the outcome of the strategic competition between India and Pakistan is not at all certain. Much depends on the specific choices each country makes about its nuclear forces and its strategic conduct. A list of some of the most important choices that new nuclear states will have to make is presented in Table 5.

Two points need to be emphasized here. First, because emerging nuclear states are likely to face different kinds of military threats and experience different domestic political compulsions, not all nuclear countries will make the same choices about nuclear force. As a result, nuclear proliferation is likely to have different strategic effects in different areas of the world. The second point goes to a fundamental weakness in the sweeping arguments of both Sagan and Waltz. Because many of the choices nuclear states have to make entail substantial trade-offs, there will always be a risk of something going wrong. Similarly, some dangers will be reduced by the choices made. A decision by a country to put its nuclear forces on high alert, for example, would reduce the risk that its enemy would contemplate a preemptive military strike; but the risk of nuclear accidents or a serious loss of control would go up. In other words, neither Sagan nor Waltz can be right always. There will always be sound reasons to be both optimistic and pessimistic about the strategic effects of nuclear proliferation.

Waltz and Sagan claim that political scientists can play a role in improving governmental policy. Do Waltz and Sagan provide this service? Sagan provides useful suggestions to help new nuclear states improve their nuclear safety and security procedures, but there is no discussion of what kind of countries we ought to help and what kind we out to neglect or combat. Waltz similarly says: "We should suit our policy to individual cases, sometimes bringing pressure against a country moving toward nuclear weapons capability and sometimes quietly acquiescing. No one policy is right in all cases."[197] Where, however, is the discussion of the individual cases?

197. Waltz, "More May Be Better," 44.

Table 5

NUCLEAR FORCE-BUILDING CHOICES FOR NEW NUCLEAR STATES

1. Acknowledge nuclear capability, deny it, or cultivate an ambiguous posture
2. Assemble and deploy weapons or simply develop the capability (fissile material or bomb cores)
3. Test nuclear explosive devices or not (or seek foreign testing information)
4. Means of delivery: aircraft, missiles, or unconventional means
5. Warhead design: low-yield, boosted, or thermonuclear
6. Type of nuclear command organization: ad hoc, separate command, joint service command
7. Safety: technical features to prevent detonation in fire, flood or shock; safe arming devices to prevent accidental detonation; safe storage and handling procedures
8. Security: design and construction of secure facilities for fissile material and weapons storage; personnel reliability; secure weapons release authority (permissive action links), etc.
9. Survivability: size, redundancy, dispersal, mobility, hardened sites, covert basing, air and missile defenses, launch on warning, etc.
10. Doctrine: first use (or no-first use), early use, second use, last resort
11. Targeting: cities, defense industry, airfields, concentrated military forces, nuclear forces
12. Strategy: military use in battlefield; coercive strategy to advance political or military aims; threatened use to deter conventional, nuclear or chemical attacks, or foreign intervention

In the end, *The Spread of Nuclear Weapons* provides us with two powerful theoretical perspectives. These theories have exceptions, but then all theories have excpetions; the intellectual value of the theories is not therefore reduced. Policymakers, however, must worry about exceptions to the rule. Conventional war could lead to nuclear devastation, and proliferation could lead to catastrophic accidents and promote nuclear terrorism and nuclear coercion; one exception would thus dwarf the significance of the theory. Bruce Bueno de Mesquita writes that "Historical analysis suggests that for every one war opportunity in which cost-benefit calculations favored attack there were forty such calculations in which deterrence operated to discourage attack. Thus

proliferation could decrease the threat of war by a factor of forty."[198] Even if this observation is correct, and nuclear weapons do lower the likelihood of war by a considerable margin, can policymakers afford to allow the one or two exceptions?

For this reason, political relativism is the dominant perspective among policymakers. Even if Waltz is correct 99 percent of the time, the 1 percent of exceptional cases of nuclear proliferation is what U.S. policymakers must worry about. They must ensure such an exception occurs where it is less threatening to U.S. vital interests – say, a nuclear crisis between India and Pakistan – and not in an area where it does threaten U.S. interests. Other nonproliferation proponents would work to prevent the outbreak of a nuclear crisis in an area of vital concern to them. Nonproliferation policy, however, must be nearly universal to be effective; policymakers thus cannot overlook nuclear weapons proliferation even in cases in which this proliferation does not directly or immediately threaten the interests of their states. For these reasons, *The Spread of Nuclear Weapons*, regardless of its high intellectual authority, probably will have little impact on official nonproliferation policy making.

198. de Mesquita, "Nuclear Peace Through Selective Nuclear Proliferation," 38.