Notes


5 Ibid., p. 198.


7 Ibid., pp. 158-159.

8 Ibid., p. 158.

9 Ibid. Nine months after the signature of the Treaty on the Non-proliferation of Nuclear Weapons, the Japanese government reiterated this legal position in the first post-World War II White Paper on Defense published in October 1970 under the direction of the Director General of the Defense Agency, Yasuhiro Nakasone. It stated: "... if small-size nuclear weapons are within the scale of real power needed for the minimum necessary limit for self-defense, and if they are such as will not be a threat of aggression toward other countries, it is possible to say that possession thereof is possible, in legal theory." See Japan, Defense Agency, Boei Hakusho: Showa 45 [White Paper on Defense: 1979] (Tokyo: Ministry of Finance Printing Bureau, 1970), p. 48.


11 Refer to the reports on the debate held in the Diet on December 11, 1967 in The Mainichi Shimbun, December 12, 1967.


13 Ibid.

14 Fred Greene, Stresses in U.S.-Japanese Security Relations

15 Ibid.

16 The Asahi Shimbun, June 17, 1975.


18 Refer to Article 2 of the Basic Law on Atomic Energy and Article X of the Agreement for Cooperation Between the Government of the United States of America and the Government of Japan Concerning Civil Uses of Atomic Energy.

19 The one and only legal stipulation that is interpreted to endorse the "non-introduction" clause is the prior consultation agreement reached by the U.S. and Japan in 1960, under the exchange of notes between U.S. Secretary of State and Japanese Premier. The provision for prior consultation stipulates:

Major changes in the deployment into Japan of United States armed forces, major changes in their equipment, and the use of facilities and areas in Japan as bases for military combat operations to be undertaken from Japan other than those conducted under Article V of the said Treaty, shall be the subjects of prior consultation with the Government of Japan.

However, the implementation arrangement for prior consultation was handled loosely so that no written understanding exists to define the detailed requirements for prior consultation. The Japanese government offered details which the U.S. only tacitly accepted. In the deployment of forces, a major change requiring prior consultation is the movement of one army division, one naval task force, or one air force division of seventy-five fighter-bombers. In equipment, major changes mean the introduction of nuclear weapons, intermediate and long-range missiles or the construction of missile sites or launchers.

20 There is a third notable case, a statement by retired Rear Admiral Gene La Rocque in September 1974, in testimony before the Joint Committee on Atomic Energy of the U.S. Congress. La Rocque, however, is under the indictment for his words and writing, and therefore it is better to withhold his statement here.

21 The Mainichi Shimbun, October 28, 1974 or The Asahi Shimbun, October 28, 1974. The English with the double quotation marks is cited in David C. Morrison, "Japanese principles, U.S. policies," in Bulletin of the Atomic Scientists, vol. 41, no. 6, June/July 1985, pp. 23-24. The Times report, however, was denied by Douglas MacArthur II and Aichiro Fujiyama, respectively the U.S. Ambassador to Japan and Japanese Foreign Minister at that time. See The Mainichi Shimbun, October 28, 1974. Richard Halloran, who wrote this article, reported a similar story in the


24 The most explicit statement that endorses this speculation is Reischauer's. He stated that "Right from the start I had been informed that the meaning of 'introduction' meant putting nuclear weapons ashore or storing them." The New York Times, May 19, 1981.


26 The initiative of prior consultation has been assumed to be an American prerogative. The Japanese government changed its position on whether Japan had a right to invoke prior consultation. In 1964, then Foreign Minister Masayoshi Ohira declared that Japan could propose prior consultation. However, since 1968 when the government said that it was reasonable to assume that the U.S. should first propose consultation, successive Japanese governments have taken the position that Japan does not have the right to invoke prior consultation. As a recent illustration, former Japanese Foreign Minister Shintaro Abe of the Nakasone Cabinet, in June 1984, declared in the Diet that Japan did not have the right to invoke prior consultation. See Japan, Defense Agency, Dai 101 Kokkai Gijiroku [The 101st Diet Record] (Tokyo: Defense Agency, 1985), p. 492.


28 In an Asahi Shimbun public opinion survey conducted from June 19 to 20 in 1985, seventy-three percent of the respondents stated that they did not think the non-introduction clause had been observed. Similarly, 78.9 percent of the respondents in a Nippon Yoron Chosa Kai [Japan Public Opinion Survey Association] poll of June 29 to 30 in 1985 did not believe that the non-introduction principle had been observed. Refer to Japan, Defense Agency, Boei Antenna [Defense Antenna], no. 325, August 1986, pp. 19-20.

29 Reischauer disclosed that during his ambassadorship to Japan, he raised an objection to the then Foreign Minister Masayoshi Ohira not to state in the Diet that the non-introduction clause prohibited nuclear-capable warships and aircraft from visiting Japanese ports on the ground that the Japanese statement was not consistent with the understanding of the U.S. government. The Mainichi Shimbun, May 8, 1981.
30 For example, one defense specialist notes that the total number of port calls by U.S. nuclear-powered submarines from 1968 to 1986 amounted to 285. See Hisao Maeda, "Waku-hazushi, Seiyaku-hazushi no Go-ren" [Lifting the Restrictions in the Last Five Years], in Sekai [The World], no. 500, April 1987, pp. 70-72. In addition to these, U.S. aircraft carriers and major warships have made occasional visits.


32 Ibid.


34 For instance, in an Asahi Shimbun public opinion poll conducted from June 19 to 20 in 1985, seventy-two percent of the respondents stated that Japan should reject any port calls or transit visits with bases in Japan by foreign nuclear-capable warships and aircraft. Refer to Japan, Defense Agency, Boei Antenna [Defense Antenna], no. 325, August 1986, p. 20.


36 Author's translation. For the original text, see Nakagawa, Gendai Kaku Senriyaku Ron [Contemporary Nuclear Strategy], p. 164 and p. 169.

37 For a long time in the United States, nuclear forces had been grouped into 1) strategic and tactical nuclear weapons, 2) strategic, theater, and tactical nuclear weapons, or 3) strategic and theater nuclear weapons. The Reagan Administration, however, probably to avoid the ambiguity of the aforementioned categorization, has grouped U.S. nuclear forces into strategic and non-strategic nuclear forces (NSNFs). This categorization first appeared in the Reagan Administration's first Annual Defense Department Report. See U.S. Secretary of Defense Caspar W. Weinberger, Annual Defense Department Report for FY 1983 (Washington, D.C.: USGPO, 1982), pp. III-57—III-75. NSNFs were further grouped into INFs and SNFs to support U.S.-Soviet arms control negotiations on theater nuclear forces, which was begun in Geneva on November 30, 1981. The INFs include 1) longer-range INF missiles
(between 1,800 km and 5,500 km), 2) shorter-range INF missiles (1,800 km down to SNFs), and 3) nuclear capable aircraft (aircraft with less than an intercontinental capability). The SNFs consist of missiles, rockets, and artillery capable of striking only those targets in the general region of the battlefield. For details, refer to U.S. Joint Chiefs of Staff, United States Military Posture for FY 1983 (Washington, D.C.: USGPO, 1982), p. 26.

38 U.S. Joint Chiefs of Staff, United States Military Posture for FY 1987 (Washington, D.C.: USGPO, 1986), p. 30. The NATO countries that have deployed U.S. NSNFs in peacetime are Belgium, Greece, Italy, the Netherlands, Turkey, West Germany, and the United Kingdom (Greece declared that it would force withdrawal of U.S. NSNFs by 1989). For an estimated national distribution of U.S. NSNFs among NATO countries before the deployments of Pershing IIs and GLCMs, see Paul Bracken, The Command and Control of Nuclear Forces (New Haven: Yale University Press, 1983), p. 139. On the other hand, the NATO nations that have not accepted U.S. NSNFs in peacetime are Canada, Denmark, (France), Iceland, Luxembourg, Norway, Portugal, and Spain. Refer to William M. Arkin and Richard W. Fieldhouse, "Focus on the nuclear infrastructure," in Bulletin of the Atomic Scientists, vol. 41, no. 6, June/July 1985, p. 13.


42 As quoted in U.S. Joint Chiefs of Staff, United States Military Posture for FY 1983, p. 27.


45 The U.S. at that time did not deploy land-based long-range theater nuclear forces in Europe that could reach Soviet territory. Although the U.S. had once deployed this category of weapons in Europe in the late 1950s and the 1960s, the Thor intermediate-range ballistic missiles (IRBMs) in the United Kingdom, the Jupiter IRBMs in Italy and Turkey, and the Mace and Matador cruise missiles in West Germany, these
had all been withdrawn by the late 1960s, largely because of their vulnerability. See Bracken, The Command and Control of Nuclear Forces, p. 154.

46 It is reported that 400 U.S. Poseidon SIBM warheads are administratively assigned to the Supreme Allied Commander in Europe and would come under his operational control in a state of war. The International Institute for Strategic Studies, The Military Balance 1986-1987, p. 208. For a U.S. government publication that referred to a possible theater use of the Poseidon SIBMs in Europe, see U.S. Secretary of Defense Caspar W. Weinberger, Annual Defense Department Report for FY 1983, p. III-71.


49 Ibid.

50 The breakdown of the deployments is as follows: 108 Pershing II launchers (with 108 missiles) and 24 GLCM launchers (with 4 missiles each) in West Germany, 40 GLCM launchers in the United Kingdom, 28 GLCM launchers in Italy, and 12 GLCM launchers each in Belgium and the Netherlands. The International Institute for Strategic Studies, Strategic Survey 1979, p. 101.


52 Leon V. Sigal notes that the choices of Pershing II and GLCM and the decision on the number to be deployed were matters of symbol and politics rather than military arithmetic. For the details, see Sigal, Nuclear Forces in Europe, pp. 51-52. For reference, the guidelines for the choices and the particular number of these missiles, which were prepared by the High-Level Group of NATO, are as follows: 1) INF modernization should not entail any increase in the role of nuclear weapons in allied defense or any change in the strategy of flexible response; 2) There should be no change in the overall total of nuclear
weapons in Western Europe; 3) There was no need for a direct matching capability to the SS-20; instead, the alliance should create an offsetting capability that provided a 'credible response;' 4) The weapon systems themselves should have as much visibility as possible, to enhance the force's deterrent value (thus a preference for land-based systems); 5) The weapon systems should strive for survivability (e.g., mobility), penetrability and accuracy; and 6) There should be a mix of systems, for a 'synergistic' effect (e.g., to complicate Soviet defense planning and increase NATO targeting options). Quoted in Jeffrey D. Boutwell, "NATO Theater Nuclear Forces: The Third Phase, 1975-85," in The Nuclear Confrontation in Europe, ed. Jeffrey D. Boutwell, Paul Doty, and Gregory F. Treverton (Dover, MA: Auburn House Publishing Company, 1985), p. 73.

53 For example, Steven Canby and Ingemer Dorfer, "More Troops, Fewer Missiles," Foreign Policy, no. 53, Winter 1983-84, p. 8.

54 President Reagan's careless comment on the possibility of a limited nuclear war in October 1981 caused serious repercussions in Europe. He told newspaper editors, in Washington, that "... I could see where you could have the exchange of tactical weapons against troops in the field without it bringing either one of the major powers to pushing the button." Five days later, he withdrew his remarks. The New York Times, October 21 and 22, 1981. For an analysis of the magnitude of popular anti-nuclear protest and political disputes over nuclear issues in Western Europe, see The International Institute for Strategic Studies, Strategic Survey 1982-1983, pp. 48-50.


58 Doubts about the survivability of Pershing IIs and GLCMs have been raised because of their deployment mode. During peacetime, they are stored at a limited number of bases, theoretically making them vulnerable to a Soviet preemptive strike or even sabotage. In the case of GLCMs, although 464 GLCMs are planned to be deployed, they are, in time of crisis and after dispersion, to be grouped into "flights" of four launchers (Transporter-Erector Launchers: TELs), with each TEL containing four GLCMs. Thus this operating procedure may in fact offer only 29 aim points to the Soviets. The Staff of the Carnegie Panel, Challenges for U.S. National Security, A Third Report, p. 151.

59 Pershing II's accuracy (CEP: 40 m) and short flight time (5 to 7 minutes) poses a worrisome new time-urgent counterforce threat to C3I


61 The term "intermediate-range missile" means a ground-launched ballistic missile (GLBM) or a GLCM having a range capability in excess of 1,000 km but not in excess of 5,500 km. The term "shorter-range missile" means a GLBM or a GLCM having a range capability equal to or in excess of 500 km but not in excess of 1,000 km. See Article II of the U.S.-Soviet INF Treaty in Arms Control Today, vol. 18, no.1, January/February 1988, p. INF Supplement 2.


63 As quoted in Helga Haftendorn, "Europe after Double-Zero," TS., Cambridge, the Center for International Affairs, Harvard University, March 1988, fol. 2.

64 Arkin and Fieldhouse, Nuclear Battlefields, pp. 120-121. Another source estimates the total number to be about 600-700 warheads. The Far Eastern Economic Review, September 24, 1987, p. 38.


66 Arkin and Fieldhouse, Nuclear Battlefields, p. 121.


The U.S. and Japan have been deploying dual-capable F-16 fighter-bombers at Misawa in northern Honshu since April 1985, but the Japanese side assumes these fighter-bombers are not equipped with nuclear weapons. The Soviet Union, on the other hand, tends to treat the F-16s as nuclear-armed. For instance, Mikhail Gorbachev cited this F-16 deployment at the 1985 U.S.-Soviet summit in Geneva as a regional nuclear threat to the Soviet Union.


The prospect of the controllability of nuclear war, or a limited nuclear war, is hindered by many factors including: 1) the unavailability of highly accurate and low-yield weapons capable of limiting collateral damage to civilians, 2) inadequate and vulnerable C3I systems that do not ensure controlled weapons use, 3) uncertainties over whether an adversary maintains excellent information-gathering and processing capacities for differentiating whether limited nuclear use was occurring, and 4) uncertainty that the adversary really would limit its response to such limited nuclear use. See Russett, "Stabilizing Extended Deterrence," fol. 29.


According to Arkin and Fieldhouse, the U.S. has a plan for producing ultimately as many as 3,994 SLCMs, and out of which 758 will be for nuclear land-attack missions, 593 will be for conventional
antiship missions, and 2,643 will be for conventional land-attack missions. Arkin and Fieldhouse, Nuclear Battlefields, p. 125. Also see Rubin, "U.S. and Soviet SLCM Programs," p. 4.

The U.S. warships that now carry nuclear-capable SLCMs are attack submarines, some cruisers, some destroyers, and reactivated battleships. Refer to Secretary of the U.S. Navy John F. Lehman, Jr., Posture Statements by the Secretary of the Navy (Arlington: Navy Internal Relations Activity, 1987), p. 30. In wartime, the Reagan Administration has a plan to deploy five carrier battle groups, two battleship battle groups, and four underway replenishment groups to the Seventh Fleet, about two-thirds of which are transferred from the Third Fleet. See Ibid., p. 10. For an estimate of SLCM-capable, either nuclear or conventional, U.S. Pacific Fleet warships, see Hayes, Zarsky, and Bello, American Lake, p.437.

For a strong advocate of this merit, Stansfield Turner, "The Right Questions About Cruise Missiles," in Arms Control Today, vol. 16, no. 3, April 1986, p. 11. The cruise missile is a pilotless, self-guiding jet bomber and will take two to three hours to cover its maximum range—unsuitable for a time-urgent destruction mission although highly reliable and accurate.


For the difficulties of communications with submarine forces, see, for example, The Harvard Nuclear Study Group, Living With Nuclear Weapons, p. 174 and Ball, "Nuclear War at Sea," p. 18.

Hayes, Zarsky, and Bello, American Lake, p. 256.


The Reagan Administration once rejected putting SLCMs on arms control agenda on the ground that limitations on the system could not be verified and therefore should not be included.

The Soviet Union once argued for a complete ban on long-range SLCMs. However, because of the failure to secure significant and lasting constraints on the U.S. programs on modern SLCMs, Moscow seems to have decided to deploy its own long-range SLCMs. It is estimated that the Soviets will soon deploy (or have already deployed) modern SLCMs, the SS-NX-21, on any of five types of Soviet attack submarines. The SS-NX-21 maintains roughly comparable operational capabilities to its American counterparts. Furthermore, the U.S. government is reported to declare that the SS-NX-24, capable of flying at supersonic speeds, could be ready for deployment in the next couple of years. See Rubin, *U.S. and Soviet SLCM Programs*, p. 4 and The International Institute for Strategic Studies, *Cruise Missiles: Slow But Deadly*, pp. 19-20.

Shimizu, *Nippon yo Kokka tare: Kaku no Sentaku* [Japan, Being a State: Nuclear Option], p. 147. Shimizu, however, does not present detailed examinations concerning a strategic feasibility of Japan's nuclear forces and political consequences that might be produced in such a course. The other prominent scholar of this school is Tetsuya Kataoka, a professor of Saitama University. Nonetheless he sees little chance of acceptance for such a policy in the absence of some cataclysmic event capable of shocking the Japanese out of their current self-satisfied pacifism. See Tetsuya Kataoka, *Waiting for a "Pearl Harbor"*: Japan Debates Defense (Stanford: Hoover Institution Press, 1980). Kurisu also lists Japan's independent nuclear forces among his four policy options. See Kurisu, *Kaku-senso no Ronri* [Logic of Nuclear War], pp. 284-285.

Nakagawa, *Gendai Kaku Senryaku Ron* [Contemporary Nuclear Strategy], pp. 172-176 and p. 188.


Kurisu, *Kaku-senso no Ronri* [Logic of Nuclear War], p. 307.

For a U.S.-Soviet comparison of overall strategic defense capabilities, see Ibid., p. 45. For breakdown of defensive measures against ballistic missiles, see Ibid., p. 41.

Author's translation. For the original text, see Nakagawa, *Gendai Kaku Senryaku Ron* [Contemporary Nuclear Strategy], pp. 184-185.

94 Ibid., p. 187.

95 Ibid., p. 174.

96 Article I of the NPT stipulates: "Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices." Article II: "Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices." For the essence of the 1978 Nuclear Non-Proliferation Act of the United States, refer to *International Arms Control: Issues and Agreements*, ed. Coit D. Blacker and Gloria Duffy, 2nd edition, (Stanford: Stanford University Press, 1984), pp. 166-167.


The United States, in order to find a survivable MX basing mode, examined about thirty alternatives including the Carter Administration's "multiple protective shelters" and the Reagan Administration's "closely spaced basing." But it is reported that none of them satisfied both strategic and political needs. As a result, some of the planned fifty MXs are now stationed in existing but more hardened ICBM silos.


By the end of the 1960s, the era of MAD had arrived. The Harvard Nuclear Study Group, Living With Nuclear Weapons, p. 89.


For other elements, both international and domestic, that cause arms race, see Russett, The Prisoners of Insecurity, pp. 69-96.


112 In the United States, a group that calls for this policy orientation is called the "nuclear-war-fighting" school. A leading advocate of this school is Colin S. Gray. See, among his articles, Colin S. Gray and Keith Payne, "Victory is Possible," in Foreign Policy, no. 39, Summer 1980, pp. 14-27. Since the late 1970s the nuclear-war-fighting school has vehemently challenged dominant U.S. thinking of nuclear strategy that places importance on nuclear stability and emphasizes the condition of MAD and has influenced considerably the Reagan Administration's nuclear policy. Critics of this school and the Reagan Administration's inclination toward war-fighting strategy are abundant. Refer, for instance, to Michael E. Howard, "On Fighting a Nuclear War," in International Security, vol. 5, no. 4, Spring 1981, pp. 3-17 and Robert Scheer, With Enough Shovels: Reagan, Bush and Nuclear War (New York: Random House, 1982).


114 Japanese affiliates of the Pugwash movement constitute the mainstream of this school.


116 Author's translation. For the original text, see Toshiyuki Toyoda, Shin Kaku Senriyaku Hihan [New Critique of Nuclear Strategy] (Tokyo: Iwanami, 1983), pp. 75-78.

117 Ibid., pp. 94-95. For reference, Article IV stipulates: "If at any time relations between the Parties or between either Party and other countries appear to involve the risk of a nuclear conflict, or if relations between countries not party to this Agreement appear to involve the risk of nuclear war between the United States of America and the Union of Soviet Socialist Republic or between either Party and other countries, the United States and the Soviet Union, acting in accordance with the provisions of this Agreement, shall immediately enter into urgent consultations with each other and make every effort to avert this risk." U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements, 1982 edition, p. 160.

118 Toyoda, Shin Kaku Senriyaku Hihan [New Critique of Nuclear Strategy], p. 160.

120 Professor Bruce M. Russett of Yale University has advocated "countercombatant" deterrent strategy that aims to satisfy both moral standards and necessary requirements for effective deterrence. For details, see Russett, "Stabilizing Extended Deterrence," fol. 30-35 and Russett, The Prisoners of Insecurity, pp. 148-153.

121 The Harvard Nuclear Study Group, Living With Nuclear Weapons, p. 5.

122 Article VI reads: "Nothing in this Agreement shall affect or impair: (a) the inherent right of individual or collective self-defense as envisaged by Article 51 of the Charter of the United Nations, (b) the provisions of the Charter of the United Nations, including those relating to the maintenance or restoration of international peace and security, and (c) the obligations undertaken by either party towards its allies or other countries in treaties, agreements, and other appropriate documents." U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements, 1982 edition, p. 160.

123 For an exemplary U.S. government document that reveals this change, see The President's Strategic Defense Initiative issued in January 1985. This pamphlet, although it addresses the President's ultimate goal of escaping from reliance on deterrence based on the threat of retaliation, lays more stress on the interim or alternative goal of enhancing retaliatory deterrence.

124 The Reagan Administration declares that the defense shield planned by SDI need not be leak-proof. Ibid., p. 2.


126 The President's Strategic Defense Initiative, p. 3.

127 President Reagan has repeatedly declared that SDI is aimed at finding a way of protecting people, not missiles. For example, see U.S. President Ronald Reagan, "SDI: Progress and Promise," U.S. Department of State, Bureau of Public Affairs, Current Policy, no. 858, (Washington, D.C.: USGPO, August 1986), p. 2.

128 Although hypothetical, it is estimated that the cost ratio between defense and offense is now on the order of three to one, and that it is very difficult to overcome this adverse cost ratio. See Schlesinger, "Rhetoric and Realities in the Star Wars Debate," p. 8.

129 Paul H. Nitze, President Reagan's special adviser on arms

130 For the sample of Soviet threats and countermeasures that could degrade the effectiveness or affect the survivability of space-based defense systems, see Douglas Waller, James Bruce, and Douglas Cook, SDI: Progress and Challenges, Staff Report Submitted to Senators William Proxmire, J. Bennett Johnston, and Lawton Chiles, March 17, 1986, p. 37.


134 Waller, Bruce, and Cook, SDI: Progress and Challenges, p. 38 and p. 40.


136 Ibid.

137 For an identical view, see Richard K. Betts, "Conventional Deterrence: Predictive Uncertainty and Policy Confidence," in World Politics, vol. XXXVII, no. 2, January 1985, p. 177. However, Paul H. Nitze, an advocate of SDI, maintains that deterrence by denial can function as effectively as deterrence by punishment. He says: "... SDI is not designed to produce a regime that would replace deterrence but rather to shift its means. Deterrence requires that a potential opponent be convinced that the problems, risks, and costs of aggression far outweigh the gains he might hope to achieve.... [Thus] deterrence can also function effectively if one has the ability to deny the attacker the gains he might otherwise hope to realize." Paul H. Nitze, "SDI: Its Nature and Rationale," U.S. Department of State, Bureau of Public Affairs, Current Policy, no. 751 (Washington, D.C.: USGPO, October 1985), p. 3.
The Strategic Defense Initiative Organization within the U.S. Department of Defense estimates that SDI research program will cost about $26 billion between fiscal years 1985 and 1989. According to the Organization, this amount represents less than two percent of the defense budget, and less than fifteen percent of the total defense research budget for this period, and is less than is proposed for strategic offensive R & D. (James Abrahamson, SDI Has Already Made Substantial Progress, Testimony by Lieutenant General James Abrahamson, Director, Strategic Defense Initiative Research Program before the Senate Subcommittee on Strategic and Theater Nuclear Forces, February 21, 1985, p. 12, document provided by the American Center, Tokyo, U.S. Information Service.) If, however, the SDI research activities were extended for another five years, John Pike of the Federation of American Scientists estimates that the 10-year SDI research bill alone could reach $90 billion by 1994, a figure which exceeds the research and production costs of the MX and the B-1 bomber. (See Hartung, "Star Wars pork barrel," p. 20.) As to additional costs of the production, deployment, operations, and maintenance of SDI defense shield, the SDI office has been unwilling to try to estimate. Nevertheless, former Secretary of Defense James R. Schlesinger has argued, based on his knowledge of earlier efforts to develop ABM in the 1960s, that costs of producing and deploying the multi-layered defense could cost as much as $1 trillion. Quoted in Hartung, "Star Wars pork barrel," p. 20.

The Aspen Strategy Group, The Strategic Defense Initiative and American Security, p. 32. For a more comprehensive analysis of the SDI’s implication for the security of Western Europe, see Bertram, "Strategic Defense Initiative and the Western Alliance," pp. 279-296.

The Soviet Union is reported to have invested as much resources in its strategic defense as in its offensive forces. Nitze, "SDI: Its Nature and Rationale," p. 1.

However, there is an opinion that in the foreseeable future the Soviet Union is unlikely to abrogate the ABM Treaty for the purpose of deploying general BMD defense. This is because, despite the strong and continuing efforts on R & D in the Soviet Union, the Soviet leaders seem to see no prospect of improving their relative military position by launching a competition against the U.S. in BMD deployments. See, for instance, Raymond L. Garthoff, "BMD and East-West Relations," in Ballistic Missile Defense, ed. Ashton B. Carter and David N. Schwartz (Washington, D.C.: The Brookings Institution, 1984), pp. 278-279.


147 For an example of calculations about the theoretical effectiveness of a layered defense of ICIMs, see Ashton B. Carter, "BMD Applications: Performance and Limitations," in Ballistic Missile Defense, ed. Carter and Schwartz, pp. 128-137. But if the Soviet Union deployed the comparable BMD in defense of its ICIMs, the story would be different. The stabilizing benefit would depend largely on perceptions of the capabilities of the BMD and ICIM forces. For the details, see Ibid., pp. 177-178. An alternative for keeping U.S. ICIMs survivable is to deploy small mobile ICIMs. The mobile "Midgetman" concept currently under consideration in the United States, if limited to a single-warhead version, would have the stabilizing quality of being a low-value target as well as being hard to target. Some defense analysts prefer this option to the ICIM defense because the small and mobile single-warhead ICIM plan does not necessitate the U.S. to amend or abandon the ABM Treaty. For instance, see Deborah Nutter Miner and Alan H. Rutan, "What Role for Limited BMD?", in Survival, vol. XXIX, no. 2, March/April 1987, pp. 125-128.


151 For comprehensive actions and principles for avoiding nuclear war, see Albert Carnesale, Joseph S. Nye, Jr., and Graham T. Allison, "An Agenda for Action," in Hawks, Doves, and Owls: An Agenda for Avoiding Nuclear War, ed. Graham T. Allison, Albert Carnesale, and


153 Russett, "Stabilizing Extended Deterrence," fol. 14-15. Professor Russett defines the immediate military balance as consisting of force present in the immediate area of the conflict, typically the vicinity of the state being threatened. For the short-term military balance, it consists of all active-duty forces and readily mobilizable reserves. See Ibid., p. 14.

154 For the similarity and difference between a deterrent threat and compellent threat, see William H. Kincade, "Arms Control or Arms Coercion?," in Foreign Policy, no. 62, Spring 1986, pp. 24-45.


157 Ibid., p. 497.

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