

IDA

INSTITUTE FOR DEFENSE ANALYSES

**China and Ballistic Missile Defense:
1955 to 2002 and Beyond**

Brad Roberts

September 2003

Approved for public release;
distribution unlimited.

IDA Paper P-3826

Log: H 03-002053

This work was conducted under contract DASW01 98 C 0067, Task DG-6-2184, for the Defense Intelligence Agency. The publication of this IDA document does not indicate endorsement by the Department of Defense, nor should the contents be construed as reflecting the official position of that Agency.

© 2003 Institute for Defense Analyses, 4850 Mark Center Drive, Alexandria, Virginia 22311-1882 • (703) 845-2000.

This material may be reproduced by or for the U.S. Government pursuant to the copyright license under the clause at DFARS 252.227-7013 (NOV 95).

INSTITUTE FOR DEFENSE ANALYSES

IDA Paper P-3826

**China and Ballistic Missile Defense:
1955 to 2002 and Beyond**

Brad Roberts

PREFACE

This paper was prepared for a task order on China's Approach to Missile Defense for the Defense Intelligence Agency. The objective of the task is to inform thinking within the U.S. defense community about China's approach to missile defense issues and its implications for regional security and U.S. interests. In preparing this work, the author has benefited from excellent collaboration with Mr. Ronald Christman of DIA.

The author wishes to express his gratitude to the following individuals for their thoughtful comments on earlier drafts of this essay: Elaine Bunn of National Defense University, Ron Christman of DIA, Iain Johnston of Harvard University, Evan Medeiros of RAND, and Victor Utgoff of IDA. He also wishes to express his gratitude to Rafael Bonoan of IDA for his research support and assistance in drafting a subsection of the report. The author alone is responsible for the final contents of this essay and the views expressed here are his own.

CONTENTS

Preface	iii
Executive Summary	ES-1
A. Introduction	1
B. Strategic Infancy: 1955 to 1982	3
C. The Star Wars Era: 1983 to 1991	11
D. The Persian Gulf War and its Aftermath: 1992 to 1998	19
E. Full Court Press Against TMD and NMD	23
F. After U.S. ABM Withdrawal: 2002 and Beyond	32
G. Conclusions	47

EXECUTIVE SUMMARY

How will China respond to U.S. ballistic missile defenses (BMD)? The surprising silence from Beijing that followed U.S. withdrawal from the Anti-Ballistic Missile (ABM) Treaty has fueled the belief in Washington that China's political attack on BMD of recent years was mostly rhetorical and is unlikely to result in dramatic departures in its military posture and foreign policy. Where is the truth of the matter? Among the many potential Chinese responses to BMD, which are the likely ones? What adjustments to China's military posture can reasonably be expected? What other implications might there be?

In the effort to answer these questions, analysts in both the United States and China tend to work within the intellectual construct set out by the Chinese government in its harsh attacks on BMD between 1998 and 2001. This is an approach that offers some important insights, but is also by definition limited. This essay takes a different approach. It takes a longer-term view of the salient history in an effort to put the official Chinese arguments of recent vintage into a broader context. It begins with the premise that China's future response to BMD will reflect the culmination of decades of thinking about nuclear strategy, strategic stability, and the potential role in strategic defenses in the postures of numerous states of strategic interest to China.

Accordingly, this essay addresses the following primary questions. First, how has China's position on BMD evolved over the six decades of the nuclear era? Second, what factors informed its thinking and policy, and how have these shifted with time? Third, what does this historical perspective suggest about the future of Chinese policy? Satisfactory answers to these questions require also exploring two further questions. How much agreement exists among China's leaders and experts on these matters? What gaps are there in this picture and how important might they be?

The evolutionary development of Chinese thinking and policy on BMD can be demarcated into the following five basic eras:

1. Strategic Infancy: 1955 to 1982
2. The Star Wars Era: 1983 to 1991
3. The Persian Gulf War and its Aftermath: 1992 to 1998
4. Full Court Press Against TMD and NMD: 1999 to 2001
5. After U.S. ABM Withdrawal: 2002 and Beyond

From 1955 to 1980, China's strategic posture was developed with an eye on certain political, military, and operational objectives that changed little over the period, including particularly survivability and credible retaliation. Those objectives derived from the desire to enjoy freedom from outside interference and coercion. They are evident in a series of decisions taken by China's most senior leaders in the mid-1950s to pursue the kinds of operational capabilities that were in evidence by the beginning of the 1980s. There is some debate about the extent to which doctrinal views of nuclear war informed China's planning in this period and a strong body of opinion suggesting that minimum deterrence shaped those plans; but the force China built over this 25-year period is conspicuous for operational characteristics that enabled China to attack both the political and operational centers of gravity of potential adversaries. In this period, China apparently dabbled in BMD investigations of its own. Its interest in moving toward some operational capability might reasonably have been spurred by developments in the missile defense capabilities of both the United States and Soviet Union—though there is at best limited evidence on this possibility.

President Ronald Reagan's "star wars" initiative of March 1983 provided a sharp jolt to China's view of the emerging strategic environment. China's initial reaction was cautious, with some Chinese officials and experts arguing that the Strategic Defense Initiative (SDI) was an inevitable and appropriate counter to Soviet effort to gain strategic dominance. Over time, the Chinese government drew a distinction between research and deployment, opposing the latter but not the former. SDI proved to be a stimulus to Chinese thinking about its own international status as comparable with that of Britain and France; indeed, Beijing undertook a diplomatic effort to elaborate with them common positions on SDI. The unfolding arms control process between Washington and Moscow stimulated Beijing to enhance its capacity to engage in international arms control fora. In this period, some strong views took hold in China about the possible destabilizing consequences of the militarization of outer space. The debate about China's actual nuclear doctrine seemingly grew more intense in this period, with operational developments in its posture driven by some limited force modernization suggesting that China was moving away from "minimum deterrence" and toward something more robust, defined by many as "limited deterrence." The unexpected end of the Cold War, the collapse of the Soviet Union, the advent of the "golden era" of arms control, and the waning U.S. interest in SDI all brought this phase of Chinese concern about BMD to a close.

The Persian Gulf War and its aftermath brought another sharp readjustment. That war consolidated American opinion around the virtues of theater missile defense (TMD) and China's experts and policymakers began to worry about the potential consequences of U.S. TMD deployments in East Asia. It also came at a time when China was beginning a major build-up of its theater missile forces. China's central concern in this period was about TMD and Taiwan—both the operational consequences associated with blunting China's modernizing theater missile forces as well as the political consequences of closer U.S. support for the defense of Taiwan. Washington was often accused of “playing with fire.” In parallel with its build-up of theater missile forces, China also moved to rapidly improve the conventional warfighting capabilities of those forces, in addition to the nuclear mission. Again there was substantial debate in the academic community in the United States about the balance between “minimum” and “limited” concepts of deterrence in informing Chinese planning. Also during this period there was an acceleration and expansion of China's own efforts to build a missile defense system.

From 1999 to 2001, the Chinese government (and most Chinese analysts) undertook a full court press against U.S. ballistic missile defense plans. That effort was set in motion by the sudden reactions in Washington to North Korea's test of a long-range missile—and the decision to deploy a national missile defense at the earliest possible opportunity. China pursued an aggressive political campaign with Ambassador Sha Zukang apparently at the helm. Every conceivable argument against U.S. BMD was marshaled. BMD was criticized as a direct threat to the viability of China's nuclear deterrent (a term China had so far been unwilling to embrace); it was described as threatening also to strategic stability, not least by undermining the arms control regime. BMD was seen as likely to reverse the progress of the previous decade in deescalating the arms race and indeed could spark nuclear and missile proliferation and an arms race in outer space. It was criticized as contributing to the consolidation of American global hegemony. And there were a set of arguments about BMD and Asia-Pacific security: BMD would aggravate the Taiwan issue, transform Japan's role, and deepen U.S. engagement at a time that China wanted it to attenuate. Hence, Ambassador Sha joined his Russian counterparts in threatening dire consequences if and when the United States were to withdraw from the ABM Treaty to pursue BMD. During this period, China's modernization of its missile force brought significant new capabilities to the field. A shift in nuclear doctrine further away from the premises of “minimum deterrence” was also detected by some. And China again stepped up work on its own BMD.

Washington's withdrawal from the ABM Treaty in June 2002 was met with near silence by Beijing. It had accepted the inevitable, not least following Moscow's "betrayal" of the Sino-Russian effort to block the U.S. move. The absence of public criticism by the Chinese government has led many American experts to doubt that China's opposition to BMD was anything more than rhetorical posturing. The proof will be in the adjustments to China's military posture and foreign policy that may yet follow. What types of adjustments ought to be expected?

Based on six decades of Chinese thinking and talking about strategic stability, it is easy to predict that China's nuclear force posture will evolve in order to maintain a viable second-strike capability. That evolution will be both qualitative and quantitative. To be sure, qualitative and quantitative improvements to China's forces have long been under way and would likely occur in the absence of a U.S. BMD program. But this historical review suggests that those improvements will be tailored to meet the new requirements of survivable second strike posed by U.S. BMD. China's quantitative options are numerous: to increase missiles, to increase launchers (both land- and sea-based), to increase the number of warheads atop missiles. Its build-up will be constrained in part by the fear of being drawn into an arms race with the United States of the kind that helped destroy the Soviet Union, and in part by the desire not to increase the perception of China as a major military threat. Qualitative improvements include deployment of mobile intercontinental strike systems, enhanced protection of non-mobile systems, more efficient attack operations, enhanced command and control, and defense penetration aids. These quantitative and qualitative factors will combine in ways to give China's force new operational capabilities and may reinforce the move away from "minimum deterrence." The impact of factors beyond U.S. BMD, such as the New Triad and China's strategic relationships with Russia and India among others, is highly uncertain but seems likely to drive China's understanding of nuclear sufficiency away from its historical foundations in minimalism and small numbers.

A number of other uncertainties cast doubt on the ability to firmly predict how China will respond to BMD. One uncertainty relates to the status of China's own efforts to develop a ballistic missile defense system. This would seem to offer a simple fix to the problem of survivability, but after decades of work on this problem it is unclear whether China is close to an operational capability. A second uncertainty is the willingness of the Chinese political and military leadership to make the investments in strategic offensive and defensive forces necessary to keep pace with U.S. BMD deployments. Incremental increases to the Chinese nuclear force would be far more manageable than a robust

increase in the deployment of land- and sea-based intercontinental strike capabilities—and the associated infrastructure. A third uncertainty relates to the impact of the nuclear test moratorium on China’s ability to field new generation warheads. Whether or not it can proceed with the deployment of new generation light and thus MIRVable warheads remains an open question. A fourth uncertainty relates to the internal Chinese debate about the long-term requirements of its nuclear forces. If and as China comes to replace Russia as “the second major power” (an argument made by some Chinese), might it come also to desire a nuclear posture that signals its arrival there? A final uncertainty relates to the impact of the New Triad on China’s thinking about the dynamics of limited nuclear war with the United States over Taiwan. Will China’s vision of limited war remain viable in its own eyes, and, if not, how might its force posture then evolve? If it comes to be tempted to undertake a major build-up, will the United States be able to dissuade it from doing so in the manner envisioned in the Nuclear Posture Review?

China’s responses to BMD are unlikely to be limited to the realm of military-operational capabilities. Its arms control strategies will again reflect its changing views of the strategic environment, suggesting even stronger emphasis on, for example, prevention of an arms race in outer space. It seems likely to pursue an arms control-like discussion of its potential “red-lines” in U.S. BMD deployments, raising questions about what future operational capabilities Washington might choose to forswear in exchange for restraint in Chinese modernization. Another area of central focus in China’s political and diplomatic strategies suggested by the historical review is stability. The Bush administration has defended its BMD deployments as being in the service of strategic stability, and has offered Beijing a dialogue on stability toward that end. American and Chinese experts do not have the common vocabulary or experience of such a dialogue akin to that which evolved in the U.S.-Soviet/Russian relationship. Squaring the desire for strategic stability in the U.S.-PRC military relationship with a volatile offense/defense relationship, and a National Security Strategy rejecting a balance of power among the major powers, are core conceptual challenges for the administration and could conceivably be pursued to good effect in partnership with the Chinese.

A. INTRODUCTION

How will China respond to U.S. ballistic missile defenses (BMD)? As Americans and others have intensely debated the merits of BMD over the last dozen years, this question has attracted relatively little attention in a debate that has focused until recently on the potential responses of Russia and the so-called “rogue states.” The Chinese government has done its best to shift this debate, with an energetic diplomatic push to raise its concerns and engage in dialogue with interested Americans (and others). This push has included some very harsh criticism of U.S. BMD and repeated suggestions of some potentially dramatic departures in China’s strategic posture, of a kind that would have a ripple effect across Asia and potentially deny the United States the stability it seeks through BMD.¹ The Bush administration takes a different view, arguing in summer 2001 that “we do not believe that deployment of limited missile defenses should compel China to increase the pace and scale of its already ambitious effort to modernize its strategic nuclear forces.”² The surprising silence from Beijing that followed U.S. withdrawal from the Anti-Ballistic Missile (ABM) Treaty has fueled the belief in Washington that China’s attack on BMD was mostly rhetorical and is unlikely to result in the feared dramatic departures. Where is the truth of the matter? Among the many potential Chinese responses to BMD, which are the likely ones? What adjustments to China’s military posture can reasonably be expected? What other implications might there be?

In the effort to answer these questions, analysts in both the United States and China tend to work within the intellectual construct set out by the Chinese government in its harsh attacks on BMD between 1998 and 2001. This is an approach that offers some important insights, but is also by definition limited. This essay takes a different approach. Taking a longer-term view of the salient history, it attempts to put the official Chinese arguments of recent vintage into a broader context. It begins with the premise that China’s future response to BMD will reflect the culmination of decades of thinking about nuclear strategy, strategic stability, and the potential role in strategic defenses in the postures of various states of strategic interest to China.

Accordingly, this essay addresses the following primary questions. First, how has China’s position on BMD evolved over the six decades of the nuclear era? Second, what

¹ A catalogue of Chinese (and other Asian) statements on BMD has been compiled by the Center for Nonproliferation Studies at the Monterey Institute of International Studies, and is available at www.cns.miis.edu.

² White House papers on ballistic missile defense as briefed to the media July 11, 2001.

factors informed its thinking and policy, and how have these shifted with time? Third, what does this historical perspective suggest about the future of Chinese policy? Satisfactory answers to these questions require also exploring two further questions. How much agreement exists among China's leaders and experts on these matters? What gaps are there in this picture and how important might they be?

The evolutionary development of Chinese thinking and policy on BMD can be demarcated into the following five basic eras:

6. Strategic Infancy: 1955 to 1982
7. The Star Wars Era: 1983 to 1991
8. The Persian Gulf War and its Aftermath: 1992 to 1998
9. Full Court Press Against TMD and NMD: 1999 to 2001
10. After U.S. ABM Withdrawal: 2002 and Beyond

In some cases, the dividing line between one and another era is quite sharply defined, as events compelled a substantial rethinking in China of the BMD issue. In other cases, the shift in thinking is more subtle, although nonetheless important. A central theme that emerges from this review is that China's view of BMD has been informed by concerns other than those associated with ballistic missile protection of the United States. Indeed, China has explored its own BMD options while also worrying about Soviet/Russian BMD as well as the specter of BMD proliferation to Japan, India, and of course Taiwan, among others around its periphery. These other concerns are likely also to have an important impact on its responses to developments in the U.S. posture.

B. STRATEGIC INFANCY: 1955 TO 1982

This period spans a great deal of turmoil in China's domestic situation and foreign relations, but a largely continuous view of the strategic nuclear issue among those in China concerned with such matters. Domestically, this period spans efforts to consolidate the control of the People's Republic of China and the domestic revolution more generally; the Great Leap Forward and the Cultural Revolution; Mao's death in 1976; and Deng Xiaoping's commitment to the Four Modernizations in 1978. In its foreign relations, this period encompassed the standoff with the United States in Korea; the Taiwan crises of 1955 and 1958; alliance with and then abandonment by the Soviet Union; war with India; military clashes with the Soviets on the Ussuri River in 1968; Nixon's opening to China in 1972; U.S. withdrawal from Vietnam; and then Deng's elaboration in 1982 of a pragmatic as opposed to a revolutionary foreign policy, one that explicitly set aside the expectation of an early major power war involving nuclear weapons.

In the strategic nuclear realm, there are also many milestones, but far fewer turning points as China moved fairly methodically through its program to field a first-generation strike force. 1955 is the year in which Mao inaugurated development of nuclear weapons with Project 02.³ Projects to develop ballistic missiles (Project 05) and ballistic missile submarines (Project 09) were launched in rapid succession.⁴ In 1980, China successfully tested its first ballistic missile capable of reaching the continental United States (the DF-5). In 1982, it successfully tested its first submarine-launched ballistic missile. In the interim there had been a steady accretion of deployed weapon systems such that China was able to credibly threaten to attack by nuclear means all of its potential adversaries—and, in addition, to threaten U.S. military bases in the Western Pacific and the allies that hosted them.⁵ This was the period of China's strategic infancy, as it moved to plan, create, and field its first-generation strategic force.⁶

³ John W. Lewis and Xue Litai, *China Builds the Bomb* (Stanford, Calif.: Stanford University Press, 1988), chapter 2.

⁴ Ibid. See also Lewis and Xue, *China's Strategic Seapower: The Politics of Force Modernization in the Nuclear Age* (Stanford, Calif.: Stanford University Press, 1994), pp. 211-214.

⁵ John Lewis Wilson and Hua Di, "China's Ballistic Missile Programs: Technologies, Strategies, Goals," *International Security*, Vol. 17, No. 2 (Fall 1992), pp. 5-40.

⁶ At a gathering of China's Central Military Commission reportedly convened in July 2000 to discuss "strategic nuclear weapons," the CMC vice chairman describes this initial period of development as spanning the period up to 1986, when the replacement of older generation weapons accelerated. See "Wen Jen, "Jiang Zemin Defines Position of China's Strategic Nuclear weapons," *Hong Kong Tai Yang Pao*, Hong Kong, July 17, 2000, FBIS CPP20000727000021.

The vision that informed Mao's decisions in the mid-1950s and the subsequent deployments was a simple one: freedom from coercion. Mao feared continued interference by the opponents of the communist revolution, a fear that echoed a deeper revulsion at decades of interference by outside powers in China's domestic affairs. Moreover, the Chinese civil war had raged for over two decades, from 1927 to 1949, and the war to expel Japan was conducted simultaneously from 1937 to 1945. Regaining national self-esteem following decades of turmoil was an essential component of this motivation.⁷ In the Korean, Indochina, and Taiwan crises, China was threatened with nuclear attack a number of times by the United States.⁸ Mao sought to weaken the coercive power of the U.S. nuclear force by repeatedly describing the U.S. as a paper tiger and also by gaining just a few nuclear weapons in order to "boost our courage and scare others."⁹ China's leaders apparently believed that possession of a credible means of retaliation would serve to deter any foreign power from making good on a nuclear threat; thus they pursued a strategic posture based on minimum retaliation. No first use was also central to their thinking, as the entire premise of China's nuclear posture was that its purpose was to secure the revolution and the safety of the modern Chinese state. A modern force was envisioned and pursued, one that would be technologically robust but quantitatively modest in comparison to the nuclear arsenals then being pursued by the other nuclear weapon states.

Among experts in the United States there is some considerable debate about how these general principles were translated into practice. That debate focuses on two questions. First, how did thinking in China on the use of nuclear weapons evolve during this period? Second, how have Chinese planners thought about nuclear sufficiency (how many weapons are enough)?

⁷ Chong-Pin Lin, *China's Nuclear Weapons Strategy: Tradition Within Evolution* (Lexington, Mass.: Lexington Books, 1998), chapter 6 on "Nuclear Strategy and Tradition," pp. 105-136.

⁸ By one count, the number of U.S. threats was seven: two during the Korean war (February and May 1953), three to deter Chinese intervention in Indochina (1952, 1953, and 1954), and two in the Quemoy and Matsu crises (1955 and 1958). See John Gittings, *The World and China* (London: Oxford University Press, 1967), p. 203. In considering U.S. nuclear strategy, the Eisenhower administration was concerned with the proper place of China in massive retaliation. Eisenhower in particular was concerned that China not be left unscathed in a major East-West conflict for fear that it might emerge as a Soviet-like enemy a few decades later. See Peter J. Roman, *Eisenhower and the Missile Gap* (Ithaca, N.Y.: Cornell University Press, 1995), p. 85. China was again threatened with nuclear attack in 1968—this time by the Soviets in the context of the military clashes on the Ussuri River. See Lyle J. Goldstein, "Do Nascent WMD Arsenals Deter? The Sino-Soviet Crisis of 1969," *Political Science Quarterly*, Vol. 118, No.1 (2003), pp. 53-79.

⁹ Lewis and Xue, *China Builds the Bomb*, p. 210.

In the debate on China's nuclear doctrine, a certain conventional wisdom has emerged. It holds that there was little effort during this period to develop anything like the elaborate and sophisticated nuclear doctrines of either the Soviet Union or the United States. In writing about the 1950s and 1960s, Lewis and Xue have argued, for example,

“Mao seems never to have entertained the notion that nuclear weapons had changed basic military and political realities or undermined his own preconceptions about war....China had no clearly articulated nuclear doctrine that would shape its early nuclear weapons procurement and deployment policies....One might say that the weapons, once deployed, spoke for themselves....For the moment, the vocabulary of accuracy, survivability, and reliability would do: the full exploration of nuclear doctrines would come later.”¹⁰

Iain Johnston echoes this finding: “Chinese writing on nuclear weapons doctrine was for a long time virtually non-existent, certainly at the public level, and probably also internally.”¹¹

It is useful to probe beyond this conventional wisdom, however. Even in the absence of a clearly defined or widely debated doctrine, there was an apparent evolution of thinking inside China about nuclear strategy over this period. The Taiwan crisis of 1958 was studied for what it would suggest about extended deterrence—specifically, about whether the emerging Soviet capability to threaten the United States with nuclear attack would impose restraint on the United States as it considered the possible use of tactical nuclear weapons to attack the forces of the People's Liberation Army across the strait.¹² The vision of People's War that took hold among the Chinese leadership in the late 1950s encompassed an expectation of “an early war, an all-out war, and a nuclear war.”¹³ Even during the turmoil of the Cultural Revolution (1966-71) there was some debate among engineers and scientists affiliated with the weapons program about the

¹⁰ Lewis and Xue, *China Builds the Bomb*, pp. 190, 210-11, 240. See also Lewis and Hua, “China's Ballistic Missile Programs,” pp. 5-6.

¹¹ Alastair Iain Johnston, “Prospects for Chinese Nuclear Force Modernization: Limited Deterrence Versus Multilateral Arms Control,” *China Quarterly*, No 146 (June 1996), p. 553. Johnston notes further that “from 1974 to 1987 there are very few articles on nuclear strategy—except for those on how China might deal with a Soviet blitzkrieg across the northern border—in *Junshi xueshu*, an authoritative journal published by the Academy of Military Sciences and restricted to officers at the regiment and above.” *Ibid.*, footnote 14, p. 553.

¹² Alice Langley Hsieh, “Communist China and Nuclear Warfare,” Paper No. P-1894 (Santa Monica, Calif.: RAND, 1960), p. 14.

¹³ Lewis and Xue, *China's Strategic Seapower*, p. 212.

meaning of security in the nuclear age, driven in part by the near-brush with nuclear war with the Soviet Union in 1968.¹⁴

Lewis and Xue elaborate seven principles from this period shaping China's nuclear strategy:

- no first use
- minimum retaliation
- small but better (meaning limited but reliable)
- small but inclusive (meaning an arsenal of many types of weapons)
- soft-target kill capability
- no tactical nuclear weapons
- quick recovery of Chinese society when attacked.¹⁵

Non-specialists on China tend to encapsulate all of this in the simple term “minimum deterrence.”

Some Chinese analysts have argued that an elaborate way of thinking about nuclear strategy did in fact emerge in this early period, although one more recognizable in terms of traditional Chinese strategic culture than in terms of the Western nuclear debate of the same period. As Chong-Pin Lin has argued:

“China's nuclear strategy is better characterized on the basis of Chinese tradition than on that of Western strategic terms....Chinese strategic tradition can be summarized under *integration* and *indirection*.China's nuclear strategy...may be termed an integrated deterrence that achieves deterrence by a multiplicity of instruments including but also transcending nuclear arms; and that is not merely countervalue, nor is it counterforce, or even countercontrol. It is ultimately counterstrategy, targeting the nuclear weapons at the mind of the enemy's strategy-maker.”¹⁶

Such analysis suggests that “minimum deterrence” is a misleading term because it implies incorrectly that Chinese planners were not concerned with building and deploying forces capable of surviving and fighting nuclear war. Already by 1963 the Chinese had formulated the plan to field missiles of different types and ranges in order to

¹⁴ Ibid., p. 211.

¹⁵ Ibid., chapters 9 and 10. See also Litai Xue, “Evolution of China's Nuclear Strategy,” in John C. Hopkins and Weixing Hu, eds., *Strategic Views from the Second Tier: The Nuclear Weapons Policies of France, Britain, and China* (San Diego, Calif.: University of California Institute on Global Conflict and Cooperation, 1994), pp. 167-191.

¹⁶ Chong-Pin, *China's Nuclear Weapons Strategy*, p. 139.

reach an increasing variety of targets.¹⁷ In the wake of the 1968 clash with the Soviets on the Ussuri river, Chinese targeting priorities were reformulated and deployment rapidly followed of a missile capable of reaching Moscow.¹⁸ In 1978, U.S. Secretary of Defense Harold Brown stated that “The Chinese are clearly sensitive to the importance of second strike capabilities and are making a considerable effort to minimize the vulnerability of their strategic offensive forces.”¹⁹ In 1981, China conducted a massive combined arms exercise aimed at demonstrating its preparedness for nuclear war.²⁰ Recall that 1982 also marked China’s first successful test of a submarine-launched ballistic missile.²¹

Given these interests in surviving and fighting nuclear war, one would expect to find a program on ballistic missile defense among the initiatives of the Mao era. None of the standard Western histories of China’s nuclear program touches on this important subject. Three American analysts with extensive familiarity with Chinese language sources and Chinese experts and officials confirm the existence of such a program, however. Iain Johnston of Harvard University reports that

“soon after the 1964 test, Mao ordered the start of a long-term ballistic missile defense research program. According to one of the engineers involved in this program, China spent around \$100 million on the program through to around 1977....So Mao apparently did not endorse a MAD version of minimum deterrence.”²²

Evan Medeiros of the RAND Corporation reports that

“a team of 8-10 scientists...conducted multiple feasibility studies on development of missile defense systems. This work roughly paralleled extensive U.S. and Soviet R&D efforts on missile defenses prior to the 1972 Anti-Ballistic Missile Treaty. Yet China’s program achieved few successes due to the high technological barriers and China’s relative backwardness. Deng Xiaoping cancelled the program in 1983.”²³

¹⁷ Lewis and Hua, “China’s Ballistic Missile Programs,” p. 6. See also Lewis and Xue, *China Builds the Bomb*, p. 212, footnote 61.

¹⁸ Ibid., p. 213.

¹⁹ Harold Brown, *U.S. Military Posture, FY 1978*, p. 106.

²⁰ Lewis and Xue, *China’s Strategic Seapower*, p. 213.

²¹ Ibid., pp. 196-200.

²² A.I. Johnston, “Some Thoughts on Chinese Nuclear Deterrence,” discussion paper prepared for a workshop on Chinese military doctrine at the CNA Corporation, February 2, 2000.

²³ Evan Medeiros, “Integrating A Rising Power Into Global Nonproliferation Regimes: US-China Negotiations and Interactions on Nonproliferation, 1980-2001,” unpublished dissertation manuscript, p. 245. Medeiros notes that “there is no published data on China’s ABM efforts in the 1970s. This information is based on several conversations with Wu Zhan, a missile engineer who participated in the program.” P. 245, footnote 4.

Mark Stokes of the U.S. Air Force reports that

“Under the 640 Program, the space and missile industry’s Second Academy, traditionally responsible for SAM [surface-to-air missile] development, set out to field a viable antimissile system, consisting of a kinetic kill vehicle, high powered laser, space early warning, and target discrimination system components.”²⁴

In confirming the existence of an early interest in BMD, these analysts suggest a dimension of Chinese strategic policy and strategy not generally appreciated.

In the 1960s there were a couple of important developments in the U.S. strategic posture that should have influenced Chinese thinking on BMD. One was the debate internal to the U.S. government in the Kennedy and Johnson administrations about whether to attempt to eliminate nascent Chinese nuclear weapons capabilities by preemptive military means.²⁵ Such a debate would surely have magnified Chinese concerns about the survivability of its forces, yet there is no evidence in the available literature to suggest Chinese familiarity with this debate.

The other important development was the decision of the Johnson administration to construct a ballistic missile defense explicitly postured to protect the United States from Chinese (although not Soviet) missile attack. In the current U.S. debate about whether to posture BMD to capture the Chinese deterrent (and whether it might be possible to do so and also to enjoy stable, cooperative relations among the major powers), it is often forgotten that the national leadership has previously debated precisely these questions. Through the 1960s, the Kennedy, Johnson, and Nixon administrations were directly concerned with them.²⁶ In 1965, Secretary of Defense Robert McNamara for the

²⁴ Mark A. Stokes, *China’s Strategic Modernization: Implications for the United States* (Carlisle Barracks, Pa.: Strategic Studies Institute of the U.S. Army War College, 1999), p. 118. See also Stokes, “China’s Ballistic Missiles and East Asian Reaction to U.S. Missile Defense Initiatives” in Andrew Scobell and Larry M. Wortzel, editors, *China’s Growing Military Power: Perspectives on Security, Ballistic Missiles, and Conventional Capabilities* (Carlisle Barracks, PA: U.S. Army War College, Strategic Studies Institute, 2002), pp. 105-172.

²⁵ William Burr and Jeffrey T. Richelson, “Whether to ‘Strangle the Baby in the Cradle:’ The United States and the Chinese Nuclear Program, 1960-64,” *International Security*, Vol. 25, No.3 (Winter 2000/01), pp. 54-99. See also Lyle J. Goldstein, “When China Was a ‘Rogue State’: the impact of China’s nuclear weapons program on US-China relations during the 1960s,” *Journal of Contemporary China*, Vol. 12, No. 37 (November 2003).

²⁶ This and following data points are drawn from Morton H. Halperin, “The Decision to Deploy the ABM: Bureaucratic and Domestic Politics in the Johnson Administration,” *World Politics*, Vol. 25, No.1 (October 1972), pp. 62-95. See also John Newhouse, *Cold Dawn: The Story of SALT* (New York, N.Y.: Holt, Rinehart and Winston, 1973), p. 205 and Donald R. Braucom, *The Origins of SDI, 1944-1983* (Lawrence, Ks.: University Press of Kansas, 1992), pp. 25-50.

first time publicly raised the possibility of ABM protection against an attack from China. In 1967 he proposed such a system, although one that would explicitly be postured so as not to motivate even further build-ups by the Soviet Union.²⁷ In 1968, President Lyndon Johnson committed the United States to procure the Sentinel system as a follow-on to the outdated Nike-X. In 1969, President Richard Nixon opted first to proceed with a system designed against China and not the USSR but also in defense of Minuteman sites, a decision later reversed in the context of negotiation of the ABM Treaty.²⁸

There is only very limited evidence of Chinese interest in this American debate. Lewis and Hua report that, in reaction to media coverage of the McNamara proposal, “Beijing’s designers urgently concentrated on the penetration capability...of their ICBM, in addition to its range and accuracy.”²⁹ But there is no evidence to suggest that these concerns were widely felt among China’s leadership. It is important to recall, however, that this was the era of the Cultural Revolution, a likely distraction for the Chinese leadership from these other matters.

Lengthy research has also failed to turn up evidence of Chinese interest in Soviet ballistic missile defense deployments. These were first hinted at in the United States in 1966, by Secretary McNamara.³⁰ It would seem that such revelations would have attracted the attention of Chinese designers and planners then concerned with fielding both bombers and missiles capable of reaching Moscow with nuclear weapons. One would expect also that the Soviet BMD capability itself might have served as a model for Chinese deployment—a capability that placed a premium on deployment regardless of imperfections, with an eye toward follow-on upgrades.³¹ Again, the absence of evidence must be viewed with some considerable skepticism, given the on-going drama of the Cultural Revolution.

²⁷ “Text of McNamara Speech on Anti-China Missile Defense and U.S. Nuclear Strategy,” *New York Times*, September 19, 1967, p. 18. Asked two decades later why he had endorsed any BMD against China in a speech roundly critical of BMD generally, McNamara offered the following reply: “I would like to scrap and remove [it] from the records...The only reason that was in there was...to recognize the political pressure and the fact that the Congress had authorized such a system, appropriated funds for it, and was pushing unmercifully to deploy not the thin but a thick system.” Cited in Braucom, *The Origins of SDI*, p. 37.

²⁸ The Nixon administration studied four ABM options before concluding the ABM Treaty: a thick system designed to protect 25 U.S. cities, a thin system designed to protect 15 cities, a system designed solely to protect intercontinental ballistic missiles (called I-69), and an option to build no defenses. The Congress had its own list of options. *Ibid.*

²⁹ Lewis and Hua, “China’s Ballistic Missile Programs,” p. 21.

³⁰ Robert Semple, “McNamara Hints Soviet Deploys Antimissile Net,” *New York Times*, November 11, 1966, pp. 1, 19.

³¹ Braucom, *The Origins of SDI*, p. 30.

In sum, in its era of strategic infancy (1955 to 1982), China's strategic posture was developed with an eye on certain political, military, and operational objectives that changed little over the period, including particularly survivability and credible retaliation and penetration to targets of a militarily and politically meaningful kind. Those objectives derived from the desire to enjoy freedom from outside interference and coercion. China apparently dabbled in BMD investigations of its own; its interest in moving toward some operational capability might reasonably have been spurred by developments in the missile defense capabilities of both the United States and Soviet Union—although there is very little evidence on this.

C. THE STAR WARS ERA: 1983 TO 1991

The second phase of Chinese thinking about BMD began with President Ronald Reagan's "Star Wars" speech of March 23, 1983. This came at a time when China was fulfilling the strategic vision in its first-generation programs and as China's external security environment was improving to the point that Deng dropped the premise of early, major, and nuclear war. The phase concluded with the collapse of the Soviet Union and the apparent end of the star-wars ambition—and with the suppression of the democracy movement at Tiananmen Square. These factors had important but uncertain implications for China's future security environment.

China's initial reaction to Reagan's Strategic Defense Initiative (SDI) was cautious. As one analyst described it, "During the first 18 months following announcement of the project, Beijing rarely offered any authoritative comment on this issue... There were only occasional authoritative statements on space-based BMD systems during this period, but lower level media commentary routinely carried evenhanded criticism of both superpowers."³² The delay had to do in part with the simple fact that SDI had become the focal point of what was in some ways the first nuclear debate in China. Until that time, permission to think, publish, and write on matters nuclear was given to only a very small expert community, essentially all of it in the Chinese Communist Party, the People's Liberation Army (PLA), or especially the PLA's Commission of Science, Technology, and Industry for National Defense (COSTIND). But in the post-Mao era, matters were opening up a bit. One indication of this was the growing number of policy research institutes working on foreign affairs. In the wake of the Star Wars speech, they were directed by Premier Zhao Ziyang to evaluate SDI's implications, as was the Foreign Ministry.³³ The Chinese Academy of Social Sciences even produced an edited volume on the subject.³⁴ Various views were represented.³⁵

On the one hand, some analysts viewed SDI as an inevitable and appropriate response to the Soviet effort to gain strategic dominance with its massive build-up of

³² *China's Evolving Arms Control Policy*, an anonymously authored summary prepared for the Foreign Broadcast Information Service (FBIS), FB87-10018, September 30, 1987, pp. 9-11.

³³ Bonnie S. Glaser and Banning N. Garrett, "Chinese Perspectives on the Strategic Defense Initiative," *Problems of Communism*, Vol. 35 (March-April 1986), p. 30.

³⁴ *Star Wars—an Analysis of the U.S.-Soviet Contention for Space*, edited by the Chinese Academy of Social Sciences and the Institute of World Economics and Politics (Beijing: Liberation Publishing House, January 1986).

³⁵ For an overview, see Medeiros, "Integrating a Global Power into Nonproliferation Regimes," pp. 245-250 and Alastair Iain Johnston, "A Compendium of Potential Chinese Responses to U.S. Ballistic Missile Defense," draft essay of March 3, 2000, pp. 1-2.

theater and intercontinental missile capabilities.³⁶ Reportedly there were some in the Chinese military who “favorably referred to the subject as ‘the deterrent of deterrents’ and regarded it as ‘stabilizing’ in the international strategic balance.”³⁷

On the other hand, there were many reservations. There was a concern that the United States intended more with SDI than simply a restoration of strategic balance with the USSR—that it intended instead to regain the superiority it had enjoyed prior to the Soviet build-up.³⁸ Analysts from various institutions viewed the prospect of an arms race in outer space with alarm—a concern echoed at the very highest levels of the PRC.³⁹ A widely held view was that “SDI threatens to open the door to developments that could fatally undermine China’s nuclear retaliatory capability....In terms of nuclear deterrence, China would have been running very hard to stay where it was—or rather to find itself back where it had been in the 1960s.”⁴⁰ It is useful to note that at this time China had deployed no more than a half dozen missiles capable of reaching either Moscow or the United States. Among military specialists there was a specific concern about the potential offensive uses of SDI in the context of preemption strategies as a way to blunt the ragged retaliation of whatever forces might survive a U.S. preemptive attack.⁴¹ In the words of one Chinese analyst,

“The primary military significance of this [SDI] is the possibility of possessing the ability to launch a first strike...This is quite different from the mutually assured destruction strategy which aims primarily at launching the second strike...Therefore, the new strategy is an important escalation of the original nuclear strategy. It is absolutely not a strategy of defense as publicized by the U.S. administration, but is a

³⁶ Research Memorandum, “An Inside Chinese View of SDI,” Office of Research, United States Information Agency, Washington, D.C., December 12, 1986.

³⁷ Chong-Pin, *China’s Nuclear Weapons Strategy*, pp. 56-57.

³⁸ Glaser and Garrett, “Chinese Perspectives on the Strategic Defense Initiative.” The authors concluded that the interpretation of U.S. intentions as seeking superiority had gained the upper hand after two years of Chinese debate about SDI. Medeiros cites as definitive on this point an article by Zhuang Qubing, “Meiguo ‘Xingqiu Dazhan Jihua’ Poxi,” [An Analysis of the US Star Wars Program], *Guoji Wenti Yanjiu*, No. 4, 1984, available in translation in *Selected Articles of International Studies (2)* (Beijing: China Translation and Publishing Corporation, 1987). See also Zhuang Qubing, “Early Deployment Doubted,” *Beijing Review*, April 20, 1987, pp. 10-11.

³⁹ Deng wrote Nixon in September 1985 that “we are concerned about the escalation of the nature of the arms race and are opposed to any arms race in outer space. We are against whoever goes in for the development of outer space weapons.” As reported in *Xinhua*, September 6, 1985, FBIS China.

⁴⁰ John W. Garver, “China’s Response to the Strategic Defense Initiative,” *Asian Survey*, Vol. 26, No. 11 (November 1986), pp. 1223-24.

⁴¹ Bonnie Glaser and Banning Garrett, “Chinese Views of SDI and U.S.-Soviet BMD Competition,” trip report, Washington, D.C., December 1, 1985.

strategy which integrates attacks with defense, capable of dealing deadly blows to the enemy.”⁴²

SDI also proved a stimulus to Chinese thinking about how China’s international nuclear status compared with that of Britain and France. In fact, Beijing undertook a diplomatic effort to elaborate common positions with them on SDI. “China’s strategic position is quite similar to Europe’s in many aspects.”⁴³ One Chinese analyst argued that “the reason some medium-sized nuclear countries are taking part in the space race is also to maintain the effectiveness of their own limited nuclear deterrent and their positions as great nations.”⁴⁴ China encouraged EUREKA, the French-sponsored alternative to Western European participation in SDI, with another analyst arguing that EUREKA “revealed the degree to which Western Europe craves its military, economic, and technological independence from the United States.”⁴⁵

The position of the Chinese government appears to have evolved over time. “China began to draw a distinction between the deployment of such systems, to which it remained opposed, and research, to which it was no longer averse.”⁴⁶ Indeed, Chinese officials came to see the effort to master the technologies of SDI as essential to the effort to keep pace with developments in the strategic postures of the United States and Soviet Union—and as having desirable spin-off effects for the economy.⁴⁷

This raises the important question of what BMD research of its own China might have renewed or perhaps continued in this period. The existence of such work was acknowledged by Chinese officials,⁴⁸ even following Deng Xiaoping’s reported

⁴² Zhuang Qubing, “Meiguo...” as cited in Medeiros. This theme was echoed in Xi Runchang, “SDI yu Mei Su he caijun” [SDI and U.S.-Soviet Nuclear Disarmament], *Guoji caijun douzhen yu Zongguo [The International Disarmament Struggle and China]*, China Institute of Contemporary International Relations, 1987, p. 130, as cited in Johnston, “A Compendium of Potential Chinese Responses to U.S. Ballistic Missile Defense.”

⁴³ *Liaowang* Overseas Edition, July 21, 1986.

⁴⁴ Cai Wenyi, “Alternatives in the Space Race,” *Jiefangjun Bao*, October 23, 1987, p. 3, JRPS-CAR-88-006, February 19, 1988.

⁴⁵ Hu Jie, “Eureka Signals Shift in Western Alliance,” *Beijing Review*, No. 47, November 25, 1985, p. 15.

⁴⁶ *China’s Evolving Arms Control Policy*, p. 10.

⁴⁷ Bonnie S. Glaser and Banning N. Garrett, “SDI and China’s National Interests,” paper presented to a conference on SDI: Implications for the Asian Community, Seoul, Korea, July 29-31, 1986. See also Evan A. Feigenbaum, *China’s Techno-Warriors: National Security and Strategic Competition from the Nuclear to the Information Age* (Stanford, Calif.: Stanford University Press, 2003).

⁴⁸ “Presently our country, along with many others, is carrying out a great deal of research into defence against nuclear weapons” as cited in Alastair I. Johnston, “China and Arms Control: Emerging Issues and Interests in the 1980s,” Aurora Paper (Ottawa: Canadian Centre for Arms Control and Disarmament, 1986), p. 75.

cancellation of the program in 1983.⁴⁹ As one analyst argues, “With growing interest, especially since the mid-1980s, the Chinese have already begun conceiving the development and even the eventual deployment of their own space-based deterrent, or star wars systems. The Chinese defense specialists, unlike their Western counterparts, have consistently expressed a positive attitude toward the feasibility and desirability of acquiring such a system.”⁵⁰ Quoting from one American analysis,

“There is tentative evidence that the Chinese may be weighing the merits of undertaking their own space-based BMD system, in addition to contemplating a land-based BMD system....An analysis of international issues, appearing in the PLA organ *Jiefangjun Bao* on 2 January as part of a series of strategic studies on the development of China’s national defenses, recommended the creation of a Chinese space-based missile defense system. This is the first time Beijing is known to have publicized such an idea. Addressing the question of the feasibility of strategic missile defense systems in terms of the historical inevitability of progress, the article stressed that ‘the future of the world lies in outer space and the oceans’ and that space weapons would gradually become the ‘key link’ in international strategic relations....China ‘should break the monopolies of outer space...as early as possible, just as we broke the monopoly of nuclear weapons years ago.’”⁵¹

The shifting strategic landscape also had a significant impact on the evolution of China’s deployed nuclear arsenal and the posture in development. In 1984, China began round the clock alerts in response to rising concerns about the survivability of its nuclear forces.⁵² There was diversification of China’s nuclear arsenal to cover a broader spectrum of potential contingencies.⁵³ There was a push to develop and deploy tactical nuclear weapons⁵⁴ and allegedly also the neutron bomb.⁵⁵ The designers of next-generation forces were directed to ensure the effectiveness of those forces in surviving preemption and penetrating defenses.⁵⁶ But those designers were also told that they would have a decade or more to accomplish the shift to second-generation forces in light of the reduction of tensions in the international system.⁵⁷ And as suggested above, there was a push to begin

⁴⁹ As cited in Medeiros, “Integrating a Rising Power Into Global Nonproliferation Regimes,” p. 245.

⁵⁰ Chong-Pin, *China’s Nuclear Weapons Strategy*, p. 56.

⁵¹ *China’s Evolving Arms Control Policy*, FBIS, FB87-10018, September 30, 1987, pp. 14-15.

⁵² Lewis and Xue, *China’s Strategic Seapower*, p. 236.

⁵³ Chong-Pin, *China’s Nuclear Weapons Strategy*, p. 40-41.

⁵⁴ *Ibid.*, p. 90.

⁵⁵ You Ji, “Nuclear Power in the Post-Cold War Era: The Development of China’s Nuclear Strategy,” *Comparative Strategy*, Vol. 18 (1999), p. 247.

⁵⁶ Lewis and Xue, *China’s Strategic Seapower*, p. 236.

⁵⁷ Lewis and Hua, “China’s Ballistic Missile Programs,” p. 26.

to think about space as a potential theater of military operations.⁵⁸ Mark Stokes argues further that “by 1986 Chinese experts generally agreed there were three potential responses: expansion of offensive forces; development of technical countermeasures, such as hardening and spinning of ballistic missiles, to penetrate missile defense systems; and deployment of anti-satellite (ASAT) weapons to destroy space-based systems.”⁵⁹

These programmatic activities occurred against the backdrop of some important changes in China’s strategic situation. In 1985, the Central Military Commission approved the phased reduction in the PLA standing force, a decision reflecting in part the belief that China no longer had to be centrally concerned about the possibility of an early and total war for national survival. In shifting to a peace-time strategy, there also was increasing interest in elaborating nuclear doctrines appropriate to the new era. The military began to think explicitly about nuclear campaign theory, with an exploration of “the character and form of a nuclear counter-attack, the command and control of nuclear weapons, and the defence and survivability of nuclear weapons.”⁶⁰ Stokes reports that COSTIND (the PLA commission overseeing China’s defense industries) initiated a long-term developmental program aimed at 18 critical technologies and that a parallel R&D program (referred to as Program 863) was created to focus on many of the same technologies being pursued by the Europeans in EUREKA.⁶¹

The precise impact of such work on Chinese nuclear doctrine cannot be known. But this is well recognized as the era when China’s leadership began to encourage thinking and limited debate about China’s nuclear doctrine and strategy. Western analysts now debate the degree to which China moved away from the foundational principles of “minimum deterrence” during this period. Some argue that the move may have been strongly in the direction of nuclear warfighting principles and capabilities.⁶² In the words of Johnston,

“out of these writings comes a more or less coherent concept of limited nuclear warfighting, subsumed under the term “limited deterrence” (*youxian weishe*). A number of Chinese strategists have explicitly differentiated limited deterrence from minimum deterrence (which entails the ability to drop a small number of nuclear warheads on a handful of countervalue targets in a second strike) and from maximum

⁵⁸ Chong-Pin, *China’s Nuclear Weapons Strategy*, p. 56.

⁵⁹ Stokes, “China’s Ballistic Missiles and East Asian Reaction to U.S. Missile Defense Initiatives,” p. 128.

⁶⁰ Johnston, “Prospects for Chinese Nuclear Force Modernization,” p. 554.

⁶¹ Stokes, “China’s Ballistic Missiles and East Asian Reaction to U.S. Missile Defense Initiatives,” pp. 128-129.

⁶² Chong-Pin, *China’s Nuclear Weapons Strategy*, p. 110-123.

deterrence (a term used to describe American and Soviet counterforce warfighting doctrines in the 1980s).”⁶³

Johnston also reports that

“a fascinating debate developed in the late 1980s and early 1990s among Chinese strategists over the relevance of Clausewitz’s axiom about war as an extension of politics in the nuclear age. The dominant strand of argument was, in essence that there had been no nuclear revolution to overturn the axiom.”⁶⁴

A shift in this direction implies, as Johnston observes, a targeting doctrine that goes well beyond population centers, along with the survivable capabilities suitable to striking those targets in an orchestrated campaign; it also raises questions about whether no-first-use might be reinterpreted to allow a posture of launch on warning.⁶⁵ An increasing Chinese concern with the operational requirements of limited deterrence would likely have reinforced concern about the impact of ballistic missile defense deployments by the United States and the Soviet Union on the effectiveness of the Chinese deterrent.

The Star Wars era also marks China’s emergence into the international arms control and disarmament process. The accession of the People’s Republic of China to China’s seat in the United Nations and at the Security Council in 1971 had brought with it a limited willingness to participate in treaties, such as the Biological and Toxin Weapons Convention then being concluded. China played a role in the first U.N. Special Session on Disarmament in 1978. But Soviet deployments of intermediate-range nuclear forces in Asia, and the threat of future deployment of improved ballistic missile defenses of Moscow and other sites, created an interest in Beijing in getting new arms control constraints on the USSR following a couple of decades of unfettered build-up.⁶⁶ Moreover, beginning in 1980, the United States sought to develop nuclear cooperation agreements with China that would inhibit its trade in technologies and materials sensitive from the point of view of nuclear weapons proliferation (China was not then a member of the International Atomic Energy Agency). Then the U.S. Strategic Defense Initiative and the (temporary) collapse of East-West arms control negotiations helped to generate heightened interest in Beijing in becoming an informed and effective player in the diplomacy of arms control and disarmament. It was particularly eager that the United

⁶³ Ibid. Lewis and Xue note the adopting in the mid-1980s of a “limited retaliation” strategy. Lewis and Xue, *China’s Strategic Seapower*, p. 216.

⁶⁴ Ibid., p. 555.

⁶⁵ Ibid., pp. 556-559.

⁶⁶ Glaser and Garrett, “Chinese Views of SDI and U.S.-Soviet BMD Competition.”

States not negotiate a deal with the Soviet Union that would leave large numbers of Soviet intermediate-range nuclear forces deployed around China's periphery.⁶⁷

Accordingly, in 1982 a disarmament division was created in the Ministry of Foreign Affairs.⁶⁸ China also appointed its first special ambassador for disarmament, thus formalizing its participation in the Geneva-based Conference on Disarmament (CD). The influential COSTIND created an arms control working group in 1983 under the auspices of its China Defense, Science, and Technology Information Center (CDSTIC), and this group provided technical experts to China's CD delegation. At the same time, there was a significant "expansion and pluralization" of the expert community both within government and in the external analytical community.⁶⁹ Publication and debate were encouraged by the government. The first "interagency" meeting of the new arms control experts in various government ministries occurred in 1986—on SDI.⁷⁰ One of its principal interests at the CD was creation of a mandate for negotiation of a ban on the weaponization of outer space.

The collapse of the Soviet Union in December 1991 seemed to portend the end of many of the big problems on China's strategic landscape. The collapse of Soviet military power signaled a substantial easing of threats along China's northern border. Deng Xiaoping's dictum that the risks of major power war were receding seemed to have been fully born out by developments. Moreover, China no longer faced the prospect of an unfolding U.S.-Soviet arms race with which it would have to compete to maintain the viability of its deterrent. Star Wars seemed to recede into history along with Ronald Reagan. In January 1991, the Bush administration formally abandoned the SDI vision of protection against a massive Soviet strike and shifted U.S. efforts to a more limited system, eventually offering global protection against limited strike (GPALS). President George W. Bush seemed to defer interest in missile defense, in explaining that the U.S. would continue its research "to help us understand how and when we might move in the direction of greater reliance on defenses."⁷¹

⁶⁷ *China's Evolving Arms Control Policy*.

⁶⁸ This summary is drawn from Medeiros, "Integrating a Rising Power Into Global Nonproliferation Regimes," chapter five, "A Cultural Evolution: The Development of China's Arms Control and Nonproliferation Community," pp. 293-344. For an historical overview of China's participation in the arms control and disarmament process, see Brad Roberts, "East Asia," in Jeffrey A. Larsen, ed., *Arms Control: Cooperative Security in a Changing Environment* (Boulder, Colo.: Lynne Rienner, 2002), pp. 253-267.

⁶⁹ Medeiros, "Integrating a Rising Power Into Global Nonproliferation Regimes," pp. 296-97.

⁷⁰ *Ibid.*, p. 322.

⁷¹ Wu Jin and Wei Guoqiang, "Bush on Sino-US Relations and World Issues," *Xinhua*, February 24, 1989.

But the collapse of communist rule in Moscow and Eastern Europe also left the communist leadership in Beijing isolated and nervous about its own fate. The suppression of the democracy movement at Tiananmen square signaled the deepening challenges of maintaining communist control in a society in profound transition. It also hinted at the possibility of renewed ideological confrontation with the United States—a state whose power would no longer be counter-balanced by the USSR.

D. THE PERSIAN GULF WAR AND ITS AFTERMATH: 1992 TO 1998

The Persian Gulf War recast the long-running American debate about ballistic missile defense in an entirely new light, leading quickly to the emergence of a new political consensus in Washington to move as quickly as possible to deployment of systems providing theater-level protection for U.S. military forces and U.S. allies. In 1993, Secretary of Defense Les Aspin announced a plan to rapidly improve and increase the ballistic missile protection of U.S. military forces deployed in theaters of conflict. This phase is marked then by rising Chinese concern about the political, military, and strategic consequences for its interests of U.S. theater missile defenses (TMD) in East Asia.

In this period, Chinese analysts focused largely on the implications of TMD for the U.S.-Taiwan security relationship. When Washington announced plans to sell the Patriot missile defense system to Taiwan, Chinese policymakers and analysts joined in a chorus of criticism. Washington was often accused of “playing with fire.” Chinese concerns were numerous. They feared that such defenses would blunt the PLA’s ability to punish and thus coerce Taipei in time of crisis; at this time, the PLA was beginning a substantial build-up of ballistic missiles across the strait for this very purpose, having concluded from the Iran-Iraq war of the 1980s and then the Persian Gulf War that such missiles can be used to good effect in regional wars under high-tech conditions, especially when armed with conventional warheads. This was part of a general strategy of increased reliance on the forces of the Second Artillery in China’s overall military posture. Chairman Jiang Zemin stated in 1993 that “With regard to our building up of national defense and with regard to our whole strategy, the Second Artillery is of considerable importance.”⁷² As You Ji has argued, “To the PLA, the need to enhance the Strategic Missile Force is based on the fact that the PLA’s conventional weaponry is too backward to serve as a meaningful deterrent to the major powers.”⁷³ Ballistic missile defense protection of Taiwan seemed to hold out the possibility of blunting China’s efforts to find solutions to the challenges of waging local wars under high-tech conditions—then the emerging problem for Chinese military planners. They feared also that such defenses might embolden independence forces in Taipei, thereby precipitating the very crises that all sides said they hoped to avoid.

⁷² Cited in *The Strategic Use and Development of the Second Artillery in the New Period*, translated and undated document provided by DIA. Unclassified.

⁷³ You, “Nuclear Power in the Post-Cold War Era,” p. 256.

This Chinese concern about the impact of TMD on the Taiwan situation was soon joined by myriad concerns about the impact of TMD in East Asia more generally. Officials and experts in China repeatedly expressed reservations about Japanese participation in the U.S. BMD program, largely on the argument that this would inevitably draw Japan more directly into the U.S. defense of Taiwan. They interpreted the 1997 revision of the U.S.-Japan Defense Guidelines as suggesting precisely this U.S. intent.⁷⁴ Such experts were also concerned that these theater defenses could provide protection of entire nations in the region and thus were a form of strategic defense in disguise. Some experts expressed the view that TMD would deepen the operational integration of the U.S. alliance system in East Asia, as deployment of an integrated architecture would require thorough integration of planning and operations. Studies were undertaken of U.S. theater systems then in design and/or testing, such as THAAD (Theater High Altitude Air Defense) and Navy Theater Wide (NTW), that led the Chinese to conclude that such systems might also threaten the viability of China's intercontinental missile force.⁷⁵ By 1996 there was rising concern in many circles in China that America's BMD strategy in Asia was being pursued as part of a covert containment policy toward China.

China used the "bully pulpit" of arms control to advance these criticisms of U.S. missile defense policy. It resumed bilateral arms control consultations with the United States on the occasion of Assistant Secretary of State John Holum's first visit to China in October 1994. In this period, Chinese diplomats at the CD in Geneva regularly attacked GPALS and NMD as destabilizing because it would place countries with small numbers of nuclear weapons at serious strategic disadvantage. And it engaged in a form of linkage politics, transferring —WMD-sensitive materials and technologies to states such as Pakistan and Iran of proliferation concern to the United States when it felt that doing so was helpful in eliciting Washington's interest or otherwise making its case on U.S. policy.

During this period China sought both assistance and technology from Russia useful to making rapid qualitative gains in its strategic forces. For example, it sought solid propellant technologies, transporter erector launchers, guidance technology, reentry

⁷⁴ Hong Yuan, "The Implications of TMD System in Japan to China's Security," paper delivered to the sixth ISODARCO Beijing Seminar on Arms Control, October 29-31, 1998, Shanghai, China.

⁷⁵ Johnston, "A Compendium of Potential Chinese Responses to U.S. Ballistic Missile Defense," p. 3. Johnston indicates that these studies were conducted under the auspices of the China Academy of Engineering Physics, the Institute of Applied Physics and Computation Mathematics, National Defense Science and Technology University, and the Academy of Launch Vehicle Technology.

vehicles, motor casings, nozzles, and wind tunnel technology, among others.⁷⁶ Espionage activities in the United States may also have been a part of this effort to reap technology gains wherever possible.⁷⁷ China's push to deploy an integrated sea-based nuclear deterrent continued as part of the broader effort to evolve a naval force with capabilities beyond those of sea-based coastal defense.⁷⁸ From 1994 to 1996 China conducted a series of tests of nuclear devices at a more rapid than usual pace, prior to agreeing to the Comprehensive Test Ban Treaty. Also in the mid-1990s Chinese officials and experts came to use the word "deterrence," previously eschewed as a term conveying coercive intent and inconsistent with China's own strategy of reacting to provocation. But they distinguished between an "offensive deterrent" and a defensive one based on the principle of no first use. Some evidence suggests that the move away from "minimum deterrence" and toward a more robust posture continued or even accelerated in this period, and discussion of nuclear use in retaliation became politically permissible.⁷⁹

It seems also to be the case that there was an acceleration and expansion of China's own efforts to build a missile defense system in this period.⁸⁰ From Russia it acquired 100 or more SA-300 missiles, capable of offering some limited protection from ballistic missiles and of being substantially upgraded with advanced command and

⁷⁶ This built on a May 1990 agreement between representatives of the Chinese and Soviet space industries to conduct 10 cooperative projects including satellite navigation, space surveillance, propulsion, satellite communications, joint design efforts, materials sciences, intelligence sharing, scientific personnel exchanges, and space system testing. Stokes states that "Chinese sources indicate cooperation also included counter U.S. missile defense programs." Stokes, "China's Ballistic Missiles and East Asian Reaction to U.S. Missile Defense Initiatives," p. 141.

⁷⁷ See the report of the House Select Committee on U.S. National Security and Military/Commercial Concerns with the People's Republic of China ["Cox Committee Report"], unclassified version of May 25, 1999. See also Jeremiah Commission, *The Intelligence Community Damage Assessment on the Implications of China's Acquisition of U.S. Nuclear Weapons Information on the Development of Future Chinese Weapons*, Key Findings, April 21, 1999.

⁷⁸ Lewis and Xue, *China's Strategic Seapower*, p. 224.

⁷⁹ See Alastair Iain Johnston, "China's New 'Old Thinking': The Concept of Limited Deterrence," *International Security*, Vol. 20, No. 3 (Winter 1995/96), pp. 5-42 and also Bates Gill and James Mulvenon, "Chinese Strategic Rocket Forces: Transition to Credible Deterrence," paper prepared for a conference on China and Weapons of Mass Destruction: Implications for the United States cosponsored by the National Intelligence Council and Federal Research Division, November 5, 1999, p. 7 (available at www.cia.gov/nic/pubs/conference_reports/weapons_mass_destruction.html). Some Chinese analysts vigorously dissent from this interpretation of events and documents. See for example Hongxun Hua, "China's Strategic Missile Programs: Limited Aims, Not 'Limited Deterrence'," *Nonproliferation Review* (Winter 1998), pp. 60-68.

⁸⁰ It is interesting to note reports that one driver of Chinese interest in BMD capability is the project to dam the Three Gorges—and the fear that the dams might be an object of war-time missile attack. See Wan Yung-Kui, "Can the Chinese Armed Forces Successfully Protect the Three-Gorges Dam?" *Hong Kong Tangai*, No. 31, October 15, 1993, pp. 72-80, FBIS 3769 3057 2710.

control systems.⁸¹ Its indigenous R&D efforts were expanded. Mark Stokes describes these efforts as encompassing counter-surveillance technologies (electronic countermeasures, stealthy decoys, and fast burn motors) and counter-intercept (multiple warheads, maneuvering reentry vehicles, hardening, and saturation).⁸² He reports that in the mid-1990s, the Central Military Commission

“approved funding for a 10-year development program for a missile defense system, to include satellites for missile launch warning. The PLA Air Force and the Chinese Aerospace Corporation advocate a 15-year, three-phase approach to missile defense. The first step is to field a “Patriot-like” system, such as the HQ-9, followed by research and development of an extended range interceptor modeled on the PAC-3 missile, and basic conceptual research on a THAAD-like mid-course intercept system.”⁸³

No information is available to indicate the actual progress China might have made in preparing to deploy such systems.

⁸¹ Johnston, “Prospects for Chinese Nuclear Force Modernization,” p. 560.

⁸² Stokes, “China’s Ballistic Missiles and East Asian Reaction to U.S. Missile Defense Initiatives,” p. 129.

⁸³ *Ibid.*, p. 137.

E. FULL COURT PRESS AGAINST TMD AND NMD: 1999 TO 2001

China's intense focus on TMD left it unprepared for the sudden shift in U.S. priorities set in motion by North Korea's successful launch of the Taepodong missile in August 1998. That launch created alarm in Washington about the prospect of further proliferation of long-range ballistic missile capabilities, and with it, a decision by the Congress, supported by President Bill Clinton, declaring that the United States would field a national missile defense (NMD) as soon as possible. In January 1999, Secretary of Defense Bill Cohen announced that the United States would pursue deployment of both TMD and NMD and called for amendment of the ABM Treaty to enable that process. Suddenly China was presented with a much larger set of BMD challenges.

This turn of events came at the same time as rising Chinese concern about the drift of world politics. The focus was a rising debate about whether the core tenets of Deng Xiaoping foreign policy, elaborated two decades earlier, remained valid—the premise that Mao's vision of “early war, major war, nuclear war” had given way to a new era in which the main trends were toward peace and development. By the mid- to late-1990s, an increasingly vocal group of critics were arguing that the trends toward peace and development were being threatened by the tendency toward power politics and hegemonism that was being driven by a United States apparently willing to use its military power to repeated effect in an era where that power was no longer counterbalanced by the Soviet Union.⁸⁴ The accidental May 1999 bombing of the Chinese embassy in Belgrade only inflamed this debate. Moreover, in Taiwan the independence movement was clearly gaining energy as President Lee Teng-hui repeatedly tested the limits of Beijing's tolerance. The dramatic worsening of bilateral U.S.-PRC relations only reinforced the tendency in China to read each of Washington's BMD decisions in the worst possible light.

As a result, China began a full court political attack on all elements of the U.S. BMD program. Ambassador Sha Zukang led the charge, from his roost as director general of the newly created department of arms control and disarmament in the Ministry of Foreign Affairs. He and his team elaborated every possible argument in defense of China's position. But there were four central arguments around which the rest of the assault was organized, as summarized below.⁸⁵

⁸⁴ David Finkelstein, *China's New Security Concept: Reading Between the Lines* (Alexandria, Va.: CNA Corporation, April 1999).

⁸⁵ This summary draws on an unclassified compendium of Chinese government statements prepared for this project by Rafael Bonoan of the IDA research staff. See also “Appendix A: China and BMD:

The first was that BMD poses a direct threat to the viability of China's nuclear deterrent. Chinese government officials, military analysts, and others remained unconvinced by U.S. assurances about the limited scope of national missile defense. Instead, they maintained that NMD, no matter how limited, would undermine China's retaliatory capability. Zhu Mingquan of Fudan University, for example, wrote that "with the deployment of an NMD system in the United States... China will lose the very limited capability to deter the U.S. from inflicting a first strike on it." Another Chinese academic, Li Bin of Tsinghua University, asserted that deterrence would be compromised once American policymakers *believed* that NMD could defend the United States against a Chinese nuclear attack, even if it could not actually do so."⁸⁶ Ambassador Sha echoed these sentiments at the official level with repeated statements that NMD would compromise Chinese national security.

The second main argument was that BMD would undermine the international arms control regime and strategic stability. As a start, the Chinese government rejected the claim that U.S. efforts to develop and deploy missile defense were permitted under the ABM Treaty. Ambassador Sha repeatedly stated that missile defense violated both the intent and core provisions of the Treaty.⁸⁷ These charges were echoed by President Jiang Zemin in a July 2000 joint statement with Russian President Vladimir Putin and by Premier Zhu Rhongji at a March 2001 press conference. Chinese officials argued further that the ABM Treaty was essential to maintaining strategic stability and that modifying the Treaty would be highly destabilizing. For example, in a June 1999 article President Jiang warned that

"...revision of, or even withdrawal from, the existing disarmament treaties, would inevitably exert a negative impact on international security and stability, triggering new arms races and obstructing disarmament and nonproliferation efforts."⁸⁸

Perspectives and Likely Reactions," in Brad Roberts, *China-U.S. Nuclear Relations: What Relationship Best Serves U.S. Interests?* IDA Paper P-3640 (Alexandria, Va.: Institute for Defense Analyses, 2001), available at the website of the Defense Threat Reduction Agency (www.dtra.mil).

⁸⁶ Zhu Mingquan, "U.S. Plans On National Missile Defense (NMD) And Theater Missile Defense (TMD): A Chinese Perspective," *The Monitor*, Center for International Trade and Security, Vol. 5, No. 1-2 (Winter-Spring 1999), pp. 21-23, <http://www.nti.org/db/china/engdocs/zhu1999.htm>.

⁸⁷ See, for example, Sha Zukang, "Can BMD Really Enhance Security?" Remarks at the Second US-China Conference on Arms Control, Disarmament and Nonproliferation, Monterey, California, April 28, 1999, <http://www.nti.org/db/china/engdocs/shabmd.htm>; and "Why Should the 'Anti-Ballistic Missile Treaty' be Maintained?" Beijing *Renmin Ribao*, November 19, 1999, <http://www.nti.org/db/china/engdocs/sha1199.htm>.

⁸⁸ Jiang Zemin, "The Way to Get On With Nuclear Disarmament," *International Herald Tribune*, June 16, 1999, <http://www.nti.org/db/china/engdocs/jzm0699.htm>.

Sha later reiterated this position, asserting that

“if individual countries insist on making substantive revision to the ‘Anti-Ballistic Missile Treaty’ in order to make deployment of an anti-missile system legal, then the precondition for strategic stability will be gone and [the] security environment will greatly change.”⁸⁹

By violating the ABM Treaty, missile defense would undermine the global arms control regime and threaten international security.

The third main argument was that missile defense would stall nuclear disarmament, fuel the proliferation of nuclear weapons and missiles, and spark an arms race in outer space. Chinese arms control experts argued that Russia and other nuclear powers would become reluctant to pursue further reductions in their arsenals and instead seek to expand their offensive capabilities.⁹⁰ The resulting lack of progress toward nuclear disarmament would in turn increase the danger of nuclear proliferation. As Ambassador Sha explained,

“Nuclear disarmament is the precondition for nuclear-free countries to honor their nuclear-free commitment. Revising the ‘Anti-Ballistic Missile Treaty’ will make development and deployment of an anti-missile system legal, hence, the precondition and foundation of nuclear disarmament will no longer exist. Under such circumstances, who can guarantee that no other countries will break their nuclear-free commitment?”⁹¹

Sha and others also claimed that missile defense would encourage missile proliferation as well as nuclear proliferation.⁹² Finally, missile defense would instigate an arms race in

⁸⁹ Sha, “Why Should the ‘Anti-Ballistic Missile Treaty’ be Maintained?”

⁹⁰ Shen Dingli, “Ballistic Missile Defense and China’s National Security,” *Jane’s Special Report*, April 17, 2000; Yan Xuetong, “Theater Missile Defense System and Security in Northeast Asia,” *Zhongguo Pinglun*, June 5, 2000, pp. 87-92, FBIS CPP20000609000040; Hu Xiaodi, Chinese Ambassador for Disarmament Affairs, speech to U.N. Disarmament Commission, April 10, 2001, available at <http://www.armscontrol.org/factsheets/chinesenmd.asp>; Zhu Mingquan, Fudan University, “U.S. Plans On National Missile Defense (NMD) And Theater Missile Defense (TMD): A Chinese Perspective,” *The Monitor*, Center for International Trade and Security, Vol. 5, No. 1-2 (Winter-Spring 1999), pp. 21-23, <http://www.nti.org/db/china/engdocs/zhu1999.htm>; and Li Bin, Zhou Baogen, and Liu Zhiwei, “Missile Defense: China will have to respond,” *Bulletin of the Atomic Scientists*, Vol. 57, No. 6 (November/December 2001), pp. 25-28, <http://www.thebulletin.org/issues/2001/nd01/nd01bin.html>.

⁹¹ Sha, “Why Should the ‘Anti-Ballistic Missile Treaty’ be Maintained?”

⁹² Sha Zukang, Ministry of Foreign Affairs, NMD Briefing, March 14, 2001, <http://www.fmprc.gov.cn/eng/9186.html>; Sha, “Why Should the ‘Anti-Ballistic Missile Treaty’ be Maintained?”; and Chinese Delegation to ASEAN Regional Forum Intersessional Support Group Meeting, March 3-5 1999, <http://www.nti.org/db/china/engdocs/ctmd0399.htm>.

outer space, an issue of longstanding concern in Chinese arms control policy. At the 1998 plenary meeting of the Conference on Disarmament (CD), for example, Ambassador Li Changhe asserted that the development of theater missile defense could lead to the introduction of weapons systems in outer space.⁹³ Li therefore proposed that the CD take immediate action to ban the “test, deployment and use of any weapon systems in outer space.”⁹⁴

The fourth main argument was that BMD would help to consolidate American hegemony, and this would not promote international peace and security, as some in the United States claimed, but rather lead to greater instability and conflict—and renewed coercion of Beijing. As one Chinese military analyst noted,

“The US, like any other country, is entitled to security. But its interfering nature makes it difficult to allow the US the absolute security it seeks. The more secure the US is, the more insecure the rest of the world feels... When the US threatens the security of other countries, then there is a need to challenge the US security system which has missile defence as a crucial component.”⁹⁵

Missile defense, according to Ambassador Sha and others, would only exacerbate the demonstrated U.S. proclivity toward unilateralism and the use of force and enable the United States to pursue a “preemptive strategy.”⁹⁶ By providing the United States with “absolute security,” missile defense would have a destabilizing effect on the international system.

Also during this period the previous arguments about the impact of TMD on East Asia grew even more vitriolic. Ambassador Sha and other Foreign Ministry officials declared that the transfer of TMD to Taiwan or inclusion of Taiwan in BMD would constitute a grave violation of Chinese sovereignty and gross interference in its internal affairs.⁹⁷ Such cooperation would amount to a *de facto* military alliance between the

⁹³ Ambassador for Disarmament Affairs Li Changhe, Statement on the Prevention of an Arms Race in Outer Space at the Plenary Meeting of the Conference on Disarmament, Geneva, Switzerland, August 13, 1998, <http://nti.org/db/china/engdocs/lich0898.htm>.

⁹⁴ Ibid.

⁹⁵ Shen, “Ballistic Missile Defence and China’s National Security.”

⁹⁶ Li et al, “Missile Defense: China will have to respond;” Sha, NMD Briefing, March 14, 2001; Hu Xiaodi, Chinese Ambassador to the U.N. Conference on Disarmament, *Reuters*, “China, U.S. Clash on Missile Shield at Arms Talks,” September 14, 2000, http://www.basicint.org/nuclear/NMD/quotes_china.htm; and Yan, “Theater Missile Defense System and Security in Northeast Asia.”

⁹⁷ Chinese Delegation to ASEAN Regional Forum Intersessional Support Group Meeting, March 3-5, 1999; Ministry of Foreign Affairs, <http://www.fmprc.gov.cn/eng/5049.html>; Taiwan Affairs

United States and Taiwan, it was argued,⁹⁸ and would enable Taiwan to “directly threaten the air-space security over the Taiwan Straits and China’s mainland.”⁹⁹ As the Chinese delegation stated at a meeting of the ASEAN Regional Forum in March 1999, TMD could also “give the separatist forces on the island a false sense of security, which may induce them into a reckless path.”¹⁰⁰ Theater missile defense, therefore, would substantially increase the likelihood of a military confrontation in the Taiwan Straits.

China also intensified its attacks on possible Japanese participation in BMD. Through joint development of theater missile defense with the United States, Japan would acquire significant offensive as well as defensive capabilities, argued some Chinese.¹⁰¹ Of particular concern to several Chinese military analysts was the potential for Japan to apply missile defense technology to the development of offensive ballistic missiles.¹⁰² Others warned that the development and deployment of TMD would lead to a resurgence of Japanese militarism.¹⁰³ Ambassador Sha, for example, asserted that

“US-Japan cooperation on TMD could become a stepping stone for Japan’s return to the track of militarism... Recently, some politicians in Japan again and again called for changes of Japan’s military strategy from “exclusive defense” to “preemptive strategy” in order to “contain aggression.” This

Office/Information Office of the State Council, *The One-China Principle and the Taiwan Issue*, 21 February 2000, <http://www.nti.org/db/china/engdocs/twnpapr.htm>; and Sha Zukang, Ministry of Foreign Affairs, Briefing on Missile Defense Issue, March 23, 2001, <http://www.fmprc.gov.cn/eng/9375.html>.

⁹⁸ Sha, Briefing on Missile Defense Issue, March 23, 2001.

⁹⁹ Sha, “Can BMD Really Enhance Security?”

¹⁰⁰ Chinese Delegation to ASEAN Regional Forum Intersessional Support Group Meeting, March 3-5, 1999. See also Sha, “Can BMD Really Enhance Security?” and Yan, “Theater Missile Defense System and Security in Northeast Asia.”

¹⁰¹ Meng Xiangqing, “A Strategic Measure With Ulterior Motives – Background and Attempt of Japan’s Participation in the TIMD System,” *Shijie Zhishi*, April 1, 1999, pp. 18-19, FBIS OW0305073299; Xu Xingci, “Theater Missile Defense Causes Trouble in East Asia (Part 2),” *Xiandai Bingqi*, January 2, 2000, pp. 13-15, FBIS CPP20000417000161; and Zhu, “U.S. Plans On National Missile Defense (NMD) and Theater Missile Defense (TMD): A Chinese Perspective.”

¹⁰² Yan, “Theater Missile Defense System and Security in Northeast Asia;” Zhang Zhaozhong, “Resurgence of the ‘Star Wars Program,’ United States and Japan Join Hands to Strengthen Air Defense Shield,” *Jiefangjun Bao* (Liberation Army Daily), February 12, 1999, p. 4, FBIS OW2502092299; and Li Bin, “Ballistics Missile Defense and the Missile Technology Control Regime,” *East Asian regional Security Futures: Theater Missile Defense Implications*, The United Nations University, Tokyo, Japan, 24-5 June 2000, <http://www.nautilus.org/nukepolicy/TMD-Conference/libinpaper.html>.

¹⁰³ Ouyang Haisheng, “Negative Factor for World Security and Stability – Commenting on the US Theater Missile Defense Program,” *Jiefangjun Bao* (People’s Liberation Army Daily), March 22, 1999, p. 4, FBIS OW2703043399; Zhu, “U.S. Plans On National Missile Defense (NMD) and Theater Missile Defense (TMD): A Chinese Perspective;” and Yan, “Theater Missile Defense System and Security in Northeast Asia.”

reminds people of Japan's "preemptive activities" in 1931, 1937 and 1941, which cannot but alert many countries in Asia, including China."¹⁰⁴

There were further arguments. Missile defense also offered Japanese leaders a long-sought opportunity to break out of the constraints imposed by the constitution and pursue world power status, one that they would be quick to exploit.¹⁰⁵ Japanese participation in TMD would aggravate tensions on the Korean peninsula and increase the likelihood of Japanese intervention in time of crisis.¹⁰⁶ By strengthening Japanese military capabilities and fueling Japanese ambitions, BMD could thus have severe consequences for regional security. As one writer warned in *Jiefangjun Bao*, "in US-Japanese cooperation in developing TMD, the United States is under suspicion of rearing a tiger to court calamity."¹⁰⁷ Ambassador Sha argued predicted that U.S.-Japanese cooperation on BMD would upgrade the alliance in two ways: "1. The one-way provision of protection by the US to Japan will turn into two-way mutual assistance between the two countries. 2. The bilateral military arrangement will become [a] regional arrangement."¹⁰⁸

An enhanced U.S.-Japan alliance would provoke concern not only in China but also in Russia and other countries in the region, it was argued.¹⁰⁹ Presidents Jiang and Putin articulated such concern in their July 2000 joint statement on missile defense:

"Nonstrategic missile defense that is not prohibited by the ABM Treaty, and international cooperation in this field, should not harm the security interests of other countries, should not lead to the establishment or strengthening of closed-type military or political blocs, and should not undermine global or regional stability and security. Based on this position, China and Russia are seriously worried about, and firmly oppose, a certain country's plan to

¹⁰⁴ Sha, "Can BMD Really Enhance Security?"

¹⁰⁵ Xu, "Theater Missile Defense Causes Trouble in East Asia (Part 2)," Zhi Jian and Wang Qi, "Why is Japan 'Dancing a Minuet' with the United States," *Liaowang*, July 30, 2001, pp. 58-59, FBIS CPP20010806000074; and Meng, "A Strategic Measure With Ulterior Motives – Background and Attempt of Japan's Participation in the TMD System."

¹⁰⁶ Sha, "Can BMD Really Enhance Security?"; Fan Jishe, "Summary of Symposium on the Present Situation of Arms Control," *Beijing Meiguo Yanjiu*, December 5, 2000, FBIS CPP20010122000086; Yan, "Theater Missile Defense System and Security in Northeast Asia" and Zhang Qingmin, "What Influence Might the NMD and TMD Systems Bring to the Asia-Pacific Region?" *Liaowang*, July 17, 2000, p. 61, FBIS CPP20000725000070.

¹⁰⁷ Ouyang, "Negative Factor for World Security and Stability – Commenting on the US Theater Missile Defense Program."

¹⁰⁸ Sha, "Can BMD Really Enhance Security?"

¹⁰⁹ Ibid.

develop in the Asia-Pacific region a nonstrategic missile defense system that might have the aforesaid negative impacts.”¹¹⁰

According to Chinese analysts, cooperation between the United States and Japan and the enhanced alliance it seemed to promise would endanger regional security in several ways. The two countries, it was argued, would seek to establish military superiority in East Asia and launch preemptive wars against various countries in the region.¹¹¹ The United States would attempt to dominate Asia as it did Europe through NATO.¹¹² Finally, BMD and an upgraded alliance would fuel tension and precipitate a new arms race among countries in the region.¹¹³

Even as Ambassador Sha rang these alarms about the implications of U.S. BMD deployments so loudly, there was a rising body of opinion in China that BMD was all a ruse—aimed at motivating China to misdirect resources to cope with those defenses. This view was informed by a certain interpretation of the Star Wars experience—that SDI had been brilliantly employed as part of a U.S. strategy to dupe the Soviet leadership into spending itself into collapse, in the great Chinese tradition of defeating an enemy without delivering a single blow.

And what if the United States rejected these arguments and revised or withdrew from the ABM Treaty and proceeded with national missile defense? Ambassador Sha alluded to potential Chinese responses in a series of statements during this period. In 1999 and again in 2000, he explicitly warned that China would reexamine its policies on

¹¹⁰ Jiang Zemin and Vladimir Putin, “Joint Statement by the Presidents of the People’s Republic of China and the Russian Federation on Anti-Missile Defense,” 18 July 2000, <http://www.ceip.org/files/projects/npp/resources/russiachinamissiledefstatement.htm>.

¹¹¹ Xu Xingci, “Theater Missile Defense Causes Trouble in East Asia (Part 3),” *Xiandai Bingqi*, February 2, 2000, pp. 10-12, FBIS CPP20000417000162; Gu Ping, “Self-Justification to No Avail,” *Renmin Ribao* (People’s Daily Online), August 18, 1999, p. 6, FBIS OW1908073199; and Liang Ming, “The United States, Japan Eager to Annul ‘Anti-Ballistic Missile Treaty,’” *Jiefangjun Bao* (People’s Liberation Army Daily), November 14, 1999, p. 5, FBIS OW2311034699.

¹¹² Zhang Jian, “How Can TMD Serve as a Protective Umbrella for Splitting the Motherland?” *Jiefangjun Bao* (People’s Liberation Army Daily), September 8, 1999, p. 5, FBIS OW1609003799; and Ouyang, “Negative Factor for World Security and Stability – Commenting on the US Theater Missile Defense Program.”

¹¹³ Ouyang, “Negative Factor for World Security and Stability – Commenting on the US Theater Missile Defense Program”; “The TMD System is Stirring Up Trouble in East Asia,” *Renmin Ribao* (Guangzhou South China News Supplement), August 27, 1999, FBIS OW0309040499; Fu Yansong and Fin Yang, “The US TMD and NMD – Offensive Systems with a ‘Defensive’ Label – and Replying to a Reader’s Letter,” *Jiefangjun Bao* (People’s Liberation Army Daily), May 17, 2000, p. 8, FBIS CPP20000517000054; and Yan, “Theater Missile Defense System and Security in Northeast Asia.”

arms control, disarmament, and nonproliferation.¹¹⁴ However, Sha was more ambiguous at two Foreign Ministry briefings on missile defense in March 2001. On March 14, he stated only that “of course China will not allow its legitimate means of self-defense to be weakened or even taken away by anyone.”¹¹⁵ Then on March 23 he was asked whether China would link its participation in the Comprehensive Test Ban Treaty (CTBT) to U.S. ABM withdrawal. In response, Sha indicated that he opposed drawing such a linkage, that the Chinese government had never connected its adherence to the CTBT to missile defense, and that it was premature to make such a connection.¹¹⁶ This modest shift in rhetoric suggests that the Chinese position on missile defense may have softened slightly over time.

As China pressed these arguments on the international community, it continued to invest in military counters to U.S. BMD. Broad-based modernization of the short-, medium-, and long-range missile forces continued during this period, with significant new capabilities reaching the field, including especially the first successful tests of the new ICBM, the DF-31.¹¹⁷ The U.S. Department of Defense noted also that “China has made significant efforts to modernize and improve its command, control, communications, computers, and intelligence infrastructure.”¹¹⁸ Evidence of a shift in the doctrine of the Second Artillery also began to emerge, with Mark Stokes arguing that there was “a doctrinal shift toward offensive preemption, surprise, and deep strikes against strategic and operational targets.”¹¹⁹ This seemed to be driven in large measure by the growing emphasis on conventional (i.e., non-nuclear) missiles and efforts to integrate them into regional war plans. Another analyst argues that during this period China’s leadership made a decision to dramatically increase the percentage of its deployed nuclear force capable of reaching the United States (from 14 to 70 percent).¹²⁰ There also was a notable increase in the unclassified discussion in China of countermeasures to

¹¹⁴ Sha, “Can BMD Really Enhance Security?” and “U.S. Missile Defence Plans: China’s View,” *Disarmament Diplomacy*, January/February 2000, p. 5.

¹¹⁵ Sha, NMD Briefing, March 14, 2001

¹¹⁶ Sha, Briefing on Missile Defense Issue, March 23, 2001.

¹¹⁷ Gill and Mulvenon, “The Chinese Strategic Rocket Forces: Transition to Credible Deterrence.”

¹¹⁸ Department of Defense, *Selected Military Capabilities of the People’s Republic of China*, report to the Congress, April 1997.

¹¹⁹ Stokes, “Weapons of Precise Destruction: PLA Space and Theater Missile Development,” as prepared for a conference on China and Weapons of Mass Destruction: Implications for the United States, cosponsored by the National Intelligence Council and the Federal Research Division, November 5, 1999, p. 101. See also Paul H.B. Godwin, “Potential Chinese Responses to U.S. Ballistic Missile Defense,” in Alan D. Romberg and Michael McDevitt, eds., *China and Missile Defense: Managing U.S.-PRC Strategic Relations* (Washington, D.C.: Henry L. Stimson Center, 2003), pp. 67-69.

¹²⁰ You Ji, “Nuclear Power in the Post-Cold War Era,” p. 255.

ballistic missile defense,¹²¹ and apparently a close monitoring of the U.S. BMD test program.¹²² In August 1999, the Central Committee of the Chinese Communist Party reportedly approved a Project 998 aimed at stepping up research and manufacture of capabilities necessary to cope with BMD.¹²³

¹²¹ See for example Li Bin, "The Impact of U.S. NMD on Chinese Nuclear Modernization," *Pugwash Online*, April 2001 and Jian Ye, "How to Deal with NMD," *Beijing Hangkong Zhishi*, May 1, 2002, pp. 14-17, FBIS CPP200205010000156.

¹²² Wei Ming, "In What Direction Will US TMD Move?" *Beijing Jiefangjun Bao*, April 3, 2000, BIX CP00040300077.

¹²³ Wen Jen, "Revealing Secrets of Beijing's 998 State Security Project," *Tai Yang Pao*, June 13, 2000, FBIS CPP20000613000011.

F. AFTER U.S. ABM WITHDRAWAL: 2002 AND BEYOND

Somewhere between the arrival of the new Bush administration in January 2001 and formal U.S. withdrawal from the ABM Treaty 18 months later, the Chinese government gave up on its effort to persuade Washington not to proceed with BMD. Actual U.S. withdrawal on June 18, 2002 was noted only by a spokesman of the Ministry of Foreign Affairs with a statement expressing regret at the demise of the treaty and a hope that the United States would act “prudently” on the issue.¹²⁴ Beijing’s quiet acquiescence to the act of withdrawal itself was a striking contrast to the energetic criticism of Ambassador Sha and others in the preceding years. What accounts for this shift in Chinese policy and strategy? Various factors appear to have been at work.

One was the sense of growing crisis that gripped China’s America watchers in the early months of the Bush administration. Some of their worst fears seemed to be coming true, as President Bush offered an unconditional promise of protection to Taipei and Pentagon planners deemed a certain unnamed rising power in Asia to be the next peer competitor of the United States.¹²⁵ It is useful to recall that the 2000 presidential election featured in part a debate about whether the Clinton administration had been too deferential toward Russia and China.¹²⁶ The EP-3 crisis signaled to them the potential for a sudden deterioration of bilateral relations into confrontation and even, potentially, war.

President Bush’s call in the wake of the September 11 attacks to “choose sides” provided an opportunity for President Jiang Zemin to try to move bilateral relations onto a new footing. Since then, steady progress has been made in restoring or initiating bilateral dialogues on strategic stability, nonproliferation, regional security issues, and of course the war on terrorism. China has also received a steady stream of visitors from the Bush administration, including the president himself, carrying the message embodied in the summer 2001 White House statement on BMD: that BMD is not about China and should not result in major alterations to China’s ongoing modernization of its nuclear forces.¹²⁷

¹²⁴ “GM Spokesman: China ‘Regretful’ at Expiration of ABM Treaty,” *Xinhua*, June 18, 2002, FBIS CPP20020618000166.

¹²⁵ The *Quadrennial Defense Review* makes reference to “a rising peer adversary in Asia” without mentioning China by name.

¹²⁶ See for example Peter Rodman, “The World’s Resentment: Anti-Americanism as a Global Phenomenon,” *National Interest* (Summer 2000), pp. 33-41.

¹²⁷ Administration emissaries included Assistant Secretary of State James Kelly in May 2001 immediately following the President’s May 1 BMD speech and again in October 2001; Assistant Secretary of State Avis Bohlen in December 2001 immediately prior to the formal notification of intent to withdraw from

Also during this period, the informal Track Two dialogues involving Chinese and American experts and officials participating in their private capacities contained ever fewer of the harsh exchanges on BMD that had become frequent in the 1990s. The following Chinese commentary is illustrative of this shift in tone:

“With the dawning of the 21st century, especially considering the 9/11 attack, the world entered a new post-post cold war age. International relations in this age will perhaps be featured by the mixture of cooperation and confrontation but with cooperation as the main theme. Although missile defense will affect the strategic balance among the big powers, they can try to find a way out and make various compromises and reach a new balance for they need cooperation more than they need confrontation. So the problems caused by missile defense can be solved more easily than at any other time under the new international circumstances....Another important factor is that there does exist the threat of missile proliferation and one cannot exclude the possibility of future nuclear weapon attack by terrorists. So the U.S. is justified in inventing and deploying limited missile defense. The world perhaps will come to the new terms and consensus with the U.S. on this over time.”¹²⁸

Another factor in China’s calculus must have been growing acceptance of the fact that Sino-Russian partnership in confronting the United States would not prove effective in preventing U.S. deployments. Throughout the second half of the 1990s, Beijing and Moscow had found increasingly common cause in preventing U.S. pursuit of national missile defenses and also withdrawal from the ABM Treaty. Sino-Russian strategic consultations intensified with the arrival in Washington of the Bush administration. But in Banning Garrett’s assessment, many Chinese had come to see “NMD as inevitable and believe that the opposition of Russia and China will at best delay the U.S. deployment decision.”¹²⁹ Some Chinese experts spoke informally of the failure of a decade’s effort “to stiffen the Russian spine” and of “the inevitable sell-out” by Moscow as it tilted toward Washington and away from Beijing. Russian proposals for a joint Russian-American anti-missile system and Russian suggestions that its experts were prepared to

the treaty; and Assistant Secretary of Defense Peter Rodman in September 2002. President Jiang then visited President Bush in Crawford, Texas.

¹²⁸ Zhuang Jianzhong, “Missile Defense and Big Power Relations,” conference paper, Shanghai Center for PacRim Strategic Studies, Shanghai, January 2002.

¹²⁹ Banning Garrett, “Chinese Perspectives on the U.S., Taiwan, NMD, and Sino-Russian Relations,” trip report, January 7-13, 2001.

cooperate with the United States to develop nuclear interceptors for American BMD systems only aggravated these Chinese sentiments.¹³⁰

Ambassador Sha was replaced as director general of the department of arms control and disarmament by man of a more traditional diplomatic style, Ambassador Liu Jieye. In autumn 2002, the 16th Congress of the Chinese Communist Party formalized a wide-ranging turnover in Chinese leadership and the emergence of a new generation, evidently committed to the maintenance of positive relations with the United States as a top priority.¹³¹

But political acquiescence by Beijing to the inevitability of U.S. ballistic missile defense does not necessarily equate with passivity in its response. Indeed, adjustments to China's military posture and foreign policy were often threatened in the period of full court press under Ambassador Sha. But which ones seem likely? And to what extent might gaps in our knowledge mislead our thinking on this matter? This historical review suggests a number of answers to these questions.

First and most obviously, there will be responses in China's posture of strategic forces. This prediction follows directly from the decades of concern among China's leaders about building and maintaining a viable deterrent as a way to protect itself from the coercion of other major powers. It also follows from the apparently central role of ballistic missiles in China's emerging concepts of how to fight and win regional wars under high-tech conditions.¹³² There is no gap on these matters—Chinese views have been clear and consistent. But what responses specifically should be expected? And how might they differ from what might have occurred regardless of U.S. BMD and as a result of ongoing Chinese modernization? It is useful to distinguish between quantitative and qualitative adjustments.

Quantitatively, the possibility exists that China could respond to U.S. BMD with a very dramatic increase in its deployed forces. The CIA predicts an increase over the next decade to between 75 and 100 nuclear warheads deployed atop missiles able to reach the

¹³⁰ John M. Donnelly, "Russia Wants to Work with US on Nuclear-Tipped Missile Defenses," *Defense Week*, July 8, 2002, p. 2. Yan Guoqun, "Analyzing US 'Nuclear Explosion Interception' Plan," *Jiefangjun Bao*, June 5, 2002, p. 9, FBIS CPP20020605000060.

¹³¹ Thomas Christensen, "The Party Transition: Will it Bring a New Maturity in Chinese Security Policy?" *China Leadership Monitor*, No. 5 (Winter 2003). See also Virginia Monken, *China's New Leadership and A Taiwan Confrontation: Implications for Deterrence*, IDA Document D-2869 (Alexandria, Va.: Institute for Defense Analyses, 2003).

¹³² On this topic see for example Linchen Wang, "The Use of Ballistic Missiles and its Influence on Local Warfare," translated document.

United States.¹³³ China is also able to increase the number of warheads deployed on individual missiles (for many years it has had the capability to deploy multiple reentry vehicles (MRVs) atop its larger missiles). Its ability to deploy multiple lighter warheads that are also independently targetable (MIRVs) is somewhat contested, given uncertainty about the impact of the nuclear test moratorium and Chinese adherence to the Comprehensive Test Ban Treaty on its warhead development and certification effort. A quantitative build-up of deployed forces could rely on an increase in missiles and/or of launchers and/or of warheads.

Such a robust build-up might possibly be accomplished within an overall doctrine that continues to eschew nuclear counterforce war-fighting strategies. Indeed, the debate between the adherents of minimalism and limited deterrence does not seem to foreshadow a dramatic shift in Chinese nuclear strategy. On the other hand, it is conceivable that a debate has been going on behind closed doors, although there has been no hint of one in the doctrinal debates well and thoroughly revealed in the Chinese military journals.¹³⁴

The bulk of Chinese commentary has suggested a prudent modernization effort, largely on two arguments. The first is that a dramatic build-up could consolidate an image of China in the minds of Americans and others that it is an enemy state bent on confrontation and hegemony. One Asian expert has described an “asymmetrical security dilemma,” deriving an argument from the academic literature analyzing the ways in which states’ efforts to make themselves more secure by increasing their military strength ends up making them less secure because of the responses their new military power engender. He argues:

“As China’s strategic nuclear posture has become a sensitive litmus test for China’s strategic intentions concerning the U.S., the structural requirement for Beijing to minimize the security dilemma effect may have served as an added factor causing the delay of China’s strategic force modernization and its significant expansion.”¹³⁵

¹³³ National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015*.

¹³⁴ Michael Pillsbury, *China Debates the Future Security Environment* (Washington, D.C.: National Defense University Press, 2000).

¹³⁵ Zhen Huang, “China’s Strategic Nuclear Posture by 2010: Minimum or Limited Deterrence? Likely Impact of U.S. Missile Defense,” paper prepared for the 8th ISODARCO-Beijing Seminar on Arms Control, Beijing, China, October 14-18, 2002.

The other relevant argument is that such a build-up could be playing right into the hands of Americans who might hope that missile defense can be used on China the way Star Wars was used on the Soviet Union—as a ruse to cause excessive military spending that threatens the regime. In the words of Chinese analyst Xia Liping,

“China will not participate in a nuclear arms race with the United States. Firstly, it is unnecessary for China, because China only wants to maintain its minimum capability of retaliatory counterattack. Secondly, China still remembers the lessons of the former Soviet Union. Thirdly, China will be focused on its internal economic development for a long time.”¹³⁶

China’s thinking about how many weapons are “enough” seems likely to be scaled to the emerging U.S. defensive system. The exact architecture of that system remains of course a matter of intense debate in Washington and indeed, given the current commitment to an open-ended pursuit of defenses in a multilayered system, it may well be that China will not readily have a benchmark against which to plan its force deployments. Moreover, it remains possible that Washington might choose to so construct its missile defense as to explicitly blunt the Chinese force, at a time when the technology to do so seems promising or political circumstances dictate this choice. This could generate a competitive deployment of defensive and offensive forces by the two sides that could lead to far higher numbers of weapons.¹³⁷ Indeed, China seems already to have anticipated future deployment of ballistic missile defenses for the protection of Taiwan.

But China also faces a dilemma as the number of deployed intercontinental systems increases, as recently articulated by one Chinese academic, Zhen Huang:

“Most likely, [China’s] program will involve responses to U.S. missile defenses by increasing force levels so as to restore China’s minimum deterrence. The problem is, this would still make the Chinese nuclear force develop into an embryonic limited deterrent at the strategic level... For the purpose of reconstructing minimum deterrence, China is not only required to keep improving the survivability of its nuclear forces through measures such as camouflage of deployment sites,

¹³⁶ Xia Liping, “China’s Nuclear Policy and Nuclear Disarmament,” unpublished research paper of autumn 2002, p. 11. Xia is director and professor of the Center for International Strategic Studies at the Shanghai Institute for International Studies. Hongxuan Hua echoes these conclusions in the previously cited work. See also Li Bin, Zhao Baogen, and Liu Zhiwei, “China Will Have to Respond,” *Bulletin of Atomic Scientists*, Vol. 57, No. 6, pp. 25-28.

¹³⁷ For more on the strategic options available to the United States in responding to PRC force modernization, see Brad Roberts, *China-U.S. Nuclear Relations: What Relationship Best Serves U.S. Interests?* IDA Paper No. P-3640 (Alexandria, Va.: Institute for Defense Analyses, 2001).

development of solid propellant and acquisition of mobile delivery systems as well as improvements in C4ISR (command, control, communication, computer, intelligence, surveillance, and reconnaissance) capabilities. More critically, it is required to develop effective means to penetrate U.S. missile defense structure so as to strike at least some major cities. It is in this connection that China's nuclear force is likely to move to an initial limited deterrence capability at the strategic level."¹³⁸

Thus the deployment of modernized systems could help to precipitate changes in military doctrine and in threat perception that themselves could lead to a further evolution of the PRC-U.S. strategic balance.

This analysis already foreshadows some insights into the qualitative as opposed to the quantitative considerations likely to drive Chinese force modernization. The availability of more advanced technologies to China's strategic designers and engineers has fueled a general push for higher quality in replacement systems. This in itself will mean some important changes to the operational characteristics of the force. For example, the deployment of road-mobile DF-31 missiles means that warheads will have to be mated to missiles in a way not currently understood to be the case with the silo-based ICBMs, and thus will increase their alert level. Improved C4ISR capabilities would also permit China to move away from a posture premised on absorbing the first blow and to launch on warning or launch under attack, or something analogous. As Paul Godwin has argued, "this option would be especially attractive if the SSBN progress was unsuccessful or was cancelled because of costs."¹³⁹ The need to penetrate ballistic missile defenses suggests in addition increased reliance on penetration aids such as decoys, chaff, and maneuverable warheads. That need points also to the potential utility for China of systems designed to attack the ballistic missile defense system itself—whether direct attack with ASAT on space-based infrastructure, or direct attack on ground-based radars and/or indirect electronic attack on elements of the C4ISR structure.

This emphasis on qualitative factors is reinforced by the fact that Chinese modernization is driven in significant measure by the aging of deployed systems and the availability of improved technologies both domestically and from Russia. According to one Chinese analysis, the modernization plan of the Second Artillery aims at various qualitative improvements in force operational characteristics. One is to reduce the

¹³⁸ Zhen, "China's Strategic Nuclear Posture in 2010."

¹³⁹ Godwin, "Potential Chinese Responses to U.S. Ballistic Missile Defense," p. 69. His analysis draws extensively on a set of five options for China's future strategic force as sketched out in Robert Manning, Ronald Montaperto, and Brad Roberts, *China, Nuclear Weapons, and Arms Control: A Preliminary Assessment* (New York: Council on Foreign Relations, 1999).

vulnerability of strategic missiles to first strike by reducing their size and shifting to solid fueled systems. Another is to increase the mobility of the overall force, “while also adding to their stealthiness during launch and flight. Other planned improvements include methods for hardening missiles to survive a nuclear attack and to reduce the pre-launch and mid-course vulnerability. Another key task for China’s missile forces is to increase their accuracy, as well as their ability to penetrate strategic defenses.”¹⁴⁰

The balance between quantitative and qualitative factors in the PRC force structure seems likely to be driven by factors in the evolving U.S. strategic posture other than just the emerging defense capability. The emphasis in the New Triad on non-nuclear strategic strike suggests increased emphasis by the Second Artillery on designing and deploying systems that would be difficult to identify, track, and strike preemptively or in follow-on attack. As one recent Chinese analysis notes,

“conventional weapons do possess a capacity of attacking nuclear forces. Therefore, nuclear retaliation capability is threatened not only by nuclear forces but also by conventional forces. Since the rapid development of conventional technology is primarily available only to some states (US, for instance) because of their technological lead and wealth, it may impair the strategic stability and induce a new round of the nuclear arms race.”¹⁴¹

This emphasis on survivability seems likely to be reinforced by the emphasis in the Nuclear Posture Review on fielding improved U.S. capabilities to reach especially hard and deeply buried targets.

What then will be the effect of U.S. ballistic missile defenses on Chinese force modernization? It is important to bear in mind that China would certainly be modernizing its forces even in the absence of U.S. BMD, just as it has been modernizing them all along. But the simple shorthand that BMD is unlikely to have little or no effect on that modernization effort is not substantiated by this analysis. As China modernizes its force, its operational characteristics will evolve in the light of improving technical options. Those characteristics are likely to be influenced in significant ways by the requirement to maintain a credible deterrent force as the U.S. deploys defenses. Because uncertainty remains about the future operational characteristics of the eventual defense force,

¹⁴⁰ Hua, “China’s Strategic Missile Programs,” p. 65.

¹⁴¹ Qiu Yong, “Preliminary Study on the Threat of Precision Strike Conventional Weapons to Nuclear Weapons,” prepared for the 11th Summer Symposium in Shanghai, July 28-August 8, 1999, as updated and available at the website of the International Network of Engineers and Scientists Against Proliferation, <http://www.inesap.org>.

uncertainty undoubtedly remains about specific Chinese responses. But both quantitative and qualitative parameters will be influenced. “A middle way” has been openly promoted by some Chinese experts that balances efforts to increase the survivability of China’s ICBM force with the deployment of penetration aids.¹⁴² A robust build-up to a parity-based force that is quantitatively and qualitatively capable of an extended competitive campaign of counterforce strategic warfare seems highly unlikely in the foreseeable future. In the words of one recent authoritative Chinese text, “the basis of the nuclear strategy of China is the containment of nuclear war, not on winning a nuclear war.”¹⁴³

One influential Chinese analyst, Li Bin, has elaborated a set of principles that should guide China’s future operational and political responses to U.S. BMD. These are:

- “The approaches China takes should be feasible in helping defeat the U.S. NMD.”
- “Some of the approaches should be visible to the United States.”
- “The approaches should be affordable and not constitute a financial burden on China.”
- “The approaches should be moderate and not increase perceptions of a “China threat” in other countries.”
- “Decisionmakers will prefer approaches that are compatible with each other.”
- “Some precautionary approaches are needed.”
- Approaches based on challenging technology could obtain more support.”¹⁴⁴

To what extent might this effort to calibrate likely Chinese responses be undermined by gaps in current U.S. understanding of these problems? There are a number of important uncertainties.

One is the willingness of the Chinese political and military leadership to make the investment in major build-ups of the intercontinental missile force (and also potentially BMD deployment). It seems likely that there is a certain category of responses to U.S. BMD that can be made without substantial new investments, and another class that would require additional large outlays of funds. Uploading a few warheads onto existing delivery systems or roughly doubling the existing force of ICBMs would obviously involve a far smaller expenditure than a build-up entailing the production of large numbers of new nuclear warheads, new fissile material, new long-range delivery systems in large numbers, new command and control infrastructures, and the associated bases and

¹⁴² Li Bin et al, “China Will Have to Respond.”

¹⁴³ From “The Strategic Use and Development of the Second Artillery in the New Period,” translated document.

¹⁴⁴ Li Bin, “The Impact of U.S. NMD on Chinese Nuclear Modernization.”

personnel. China has spent additional funds on strategic force modernization in recent years, but its continued macroeconomic difficulties and the competing demands generated by the intended modernization of conventional forces may impair the ability of strategic planners to win the resources they require. Moreover, that leadership must weigh costs beyond the purely fiscal; a major build-up would damage Beijing's efforts to construct more cooperative relations with its neighbors, not least by reinforcing their fears of an emerging China threat.

A second uncertainty is the state of China's own efforts to develop a ballistic missile defense system. Chinese deployment of BMD around its own missile forces would seem to offer a conceptually straightforward remedy to the problems of survivability that seem to face its forces. Such deployment would follow the Soviet/Russian strategy and the intended U.S. strategy of the 1960s. As noted above, there is evidence of long-running Chinese interest in such a system and of research and development efforts. Potentially, 10-15 year programs begun in the early to mid-1990s can be expected to pay dividends in the next few years. On the other hand, development programs for the modernized follow-on systems to missiles originally deployed in the Chinese force have typically run at least a decade or two before deployment actually commenced. Moreover, China's defense industrial establishment has encountered many difficulties translating the ambition for advanced technology military systems into deployed operational capability.¹⁴⁵ One ready fix to the challenges of deploying conventionally tipped ballistic missile defenses would be interim (or permanent) deployment of nuclear-tipped interceptors. Again, this would follow the model of the Soviet and American approaches of the 1960s (and the current Russian BMD system). There is nothing in the literature surveyed for this essay to suggest actual Chinese preparations in this regard.

A third uncertainty relates to the impact of the nuclear test moratorium and the Comprehensive Test Ban Treaty on China's ability to field new-generation warheads. Those warheads would be lighter, and thus more readily lend themselves to deployment in multiple numbers atop current and future delivery systems. The test moratorium seems likely to have prevented certification of this new warhead.¹⁴⁶ If this understanding is false, or if the Chinese have been otherwise able to satisfy themselves as to the efficacy of the new design, then China will have a ready ability to field large numbers of new warheads. An end to the test moratorium would presumably have a similar result.

¹⁴⁵ Feigenbaum, *China's Techno-Warriors*.

¹⁴⁶ Zhen, "China's Strategic Nuclear Posture by 2010," p. 8.

A fourth uncertainty relates to the internal Chinese debate about the long-term requirements of its nuclear forces. As argued above, most Chinese authors and experts whose work is available to outside analysts seem to believe that China will continue to pursue a strategic force that is essentially small but modern. But the experience of many visitors to China is that there is a wider-ranging debate about what nuclear posture best serves China's interests a decade or two hence. In private conversations, some Chinese have expressed the view that the steep decline in Russian nuclear capabilities has stimulated a debate about whether or when it might be in China's interest to replace Russia as "the second nuclear power." Chinese experts also frequently remind American counterparts that they face a multidimensional nuclear security environment, encompassing not just the United States and Russia but also India, as well as the latent nuclear capabilities of Japan, the Koreas, and even Taiwan which, they argue, could lead to a decision at some future time to field a much more substantial and diverse nuclear force. Some speculate that the proliferation of ballistic missile defenses in Asia could have the effect of catalyzing such a decision in Beijing.

A final uncertainty bearing on the future evolution of China's strategic forces is how BMD and the New Triad more generally will shape Chinese thinking about the potential dynamics of crisis and war with the United States—in short, its deterrence calculus. To the extent China's leaders perceive the risks of war as low and the operational capabilities of U.S. forces to be unimpressive in time of war, then changes to the U.S. strategic posture seem likely to have little impact on China's deterrence calculus. But if they believe that the risks of war are rising or high, and that the U.S. seeks and will gain meaningful strategic dominance at all escalation levels in conflict, then the impact seems likely to be much more significant. There is a good argument that Chinese leaders see a rising risk of war in the Taiwan strait up to 2007 when, some argue, Taipei is likely to be strongly tempted to move to formal independence on the expectation that Beijing would not squander the opportunity to host the 2008 Olympics by responding with military force. And there is a good argument that Chinese leaders remain unpersuaded by the professed U.S. commitment not to field defensive systems explicitly aimed at denying China credible second strike.

The following Chinese commentary on the U.S. Nuclear Posture Review is suggestive of the possible departures in China's thinking about deterrence:

"the result of the US nuclear strategy adjustment will increase the possibility of the use of nuclear weapons and enable the United States to use nuclear weapons in a

flexible and selective manner in a real war, thereby lower[ing] the ‘nuclear threshold.’ ...Due to the US’s deployment of an anti-missile system, refusal to ratify the CTBT, unilateral development of a ‘metal shield’ (sic) for itself and pursuit of an absolute security of itself, it will inevitably make countries in the world lose the sense of relative security, lead to an even grimmer world security situation, and could further worsen nuclear proliferation.”¹⁴⁷

As Evan Medeiros has argued, “China is arriving at MAD just as America is departing.”¹⁴⁸ If and as China comes to terms with this strategic mismatch, major departures in Chinese thinking about the requirements of nuclear security may emerge. The deep and widely held conviction that the United States is a rogue superpower committed to the full, unilateral exploitation of its power advantages to pursue its values and interests un-balanced by another major power or coalition of powers seems likely to fuel such departures.

There is also some uncertainty about how China would respond to the introduction of theater missile defense in the Asia-Pacific region, despite all of the many official Chinese statements suggesting that the transfer of TMD to Taiwan would precipitate a major crisis. Actual Chinese responses are difficult to predict. Although there has been some discussion of possible countermeasures to U.S. NMD, there seems to be far less in the open Chinese literature about the development of military capabilities to defeat TMD. Instead, articles in Chinese military publications tend to discount the effects of TMD on the military situation in the Taiwan Straits, arguing that it will not substantially improve Taiwanese defensive capabilities.¹⁴⁹ Nevertheless, as noted earlier, the Chinese military has already undertaken a substantial build-up of its theater ballistic missile force.

Even as China pursues military-operational responses to U.S. BMD, it is unlikely to abandon political efforts to shape U.S. actions and the international environment. This historical analysis suggests two areas of primary interest and focus.

¹⁴⁷ Wang Guosheng and Li Wei, “US Comprehensively Adjusts Nuclear Strategy,” *Jiefangjun Bao*, January 30, 2002, FBIS CPP2002013000076.

¹⁴⁸ Evan Medeiros, RAND Corporation, commenting in a symposium at SAIC on China’s nuclear future, McLean, Va., March 4, 2003.

¹⁴⁹ See, for example, “Interview with Xiao Longxu, senior engineer, Second Artillery Corps Research Institution,” originally appearing in *Jiefangjun Bao*, *Zhongguo Xinwen She*, August 26, 1999, FBIS OW2608153999; Zhang Jian, “How can TMD Serve as a Protective Umbrella for Splitting the Motherland?”; Li Nien-t’ing, “The Inadequate Warning System Makes it Difficult for Taiwan to Counter Mainland China’s Missiles,” *Sing Tao Jih Pao*, June 21, 2001, p. A32, FBIS CPP20010621000041; and “Military Expert believes TMD Cannot Save Li Teng-hui,” *Zhongguo Xinwen She*, September 10, 1999, FBIS OW2209045699.

The first relates to arms control. For much of its history the PRC has seen disarmament as a political tool for building support for China in its campaign to build an international order based on the principles of peaceful coexistence. And for at least two decades China has seen arms control as a tool for shaping its security environment. From its original keen interest in the negotiations between Washington and Moscow on intermediate-range nuclear forces through its membership of the global NBC control regimes and into the ABM Treaty endgame, China has shown a commitment to pragmatic arms control measures beyond its rhetorical commitment to eventual nuclear disarmament. Moreover, over the last decade China has invested to create a large community of expertise in government and in the think tanks on arms control theory and practice.

One possibility is that China will abandon forms of restraint accepted in recent years. As Ambassador Sha argued in 1999:

“China will not sit idly by and watch its strategic interests being jeopardized without taking necessary countermeasures. China will be forced to take some steps which it is reluctant to take. It is quite possible for China to review its policies on various arms control, disarmament, and nonproliferation issues, including the FMCT [Fissile Material Control Treaty] negotiations. Moreover, years of sound coordination and cooperation between the two countries [U.S. and China] in relevant fields will be severely affected. I firmly believe that any policies aimed at harming others will end up hurting oneself.”¹⁵⁰

One argument in support of such a strategy would be that the United States has found it convenient to withdraw from its obligations to the ABM Treaty, among other international agreements, so China too has a right to exercise such flexibility.¹⁵¹

Another possibility is that China will put increased emphasis on the multilateral treaty regimes while also downplaying bilateral cooperation with the United States. Chinese experts voice considerable alarm about the further proliferation of weapons of mass destruction around China’s periphery and also share the concerns of many American experts about the potential diversion of WMD capabilities from state to non-state actors—especially to the violent Islamic separatist movement in China’s western states. Some Chinese analysts predict increased Chinese interest in nuclear nonproliferation and nuclear transparency in the coming decade.¹⁵²

¹⁵⁰ Sha Zukang, “Can BMD Really Enhance Security?”

¹⁵¹ Medeiros, “Integrating A Rising Power Into Global Nonproliferation Regimes,” p. 244.

¹⁵² See for example Xia Liping, “China’s Nuclear Policy and Nuclear Disarmament Policy,” pp. 19-21.

There is one virtual certainty in China's arms control strategy: continued pursuit of restraints on the militarization of outer space. This is a theme that cuts across all phases of China's strategic evolution. The conviction that such militarization would be harmful to global stability and detrimental to China's national security appears widely and deeply held. China's desire for a treaty regime entailing obligations beyond those in the current ban on the permanent deployment of nuclear weapons in space seems to have deeper roots than just the desire to attack U.S. BMD from another rhetorical position.

There is another possibility for China's arms control strategy: that it will become directly concerned with establishing "red lines" in the U.S. BMD deployment strategies. Chinese experts and policymakers have sometimes suggested that if BMD is inevitable, then the United States should go about it in a way that minimizes its destabilizing implications. For example, the deployment by Japan of sea-based systems is seen in China as more destabilizing than the deployment of ground-based systems, as this suggests the possibility that those systems would be deployed to protect Taiwan in time of crisis or war. As another example, the deployment by the United States of space-based boost-phase interceptors is seen in China as more destabilizing than the deployment of ground-based interceptors in the continental United States, as the latter can more easily be overwhelmed by Chinese responses. More generally, Chinese experts are keenly aware of the assurances provided Moscow on the limited nature of the defenses that the U.S. will seek to deploy over the period of the Treaty of Moscow (i.e., to 2012) and wonder what assurances Washington is prepared to offer Beijing on a similar score.

Formal arms control measures codifying forms of restraint by the United States and/or its East Asian allies seem rather unlikely, not least because it also seems unlikely that Beijing would be willing to codify any parallel restraints on its missile forces. But informal measures may come to be seen as useful, perhaps by providing transparency of a kind that reassures China that certain red lines have not been crossed.¹⁵³

The other area of primary Chinese diplomatic interest and focus suggested by this historical review is stability. Chinese analysts appear to have spent a good deal of time and energy worrying about stability in the nuclear era, although their terms of reference are somewhat different from those of their Western counterparts. For Westerners, concerns about stability have focused on the particular dynamics of crises and arms races between nuclear competitors. Chinese analysts appear to have been much less concerned about crisis stability, with the single but important exception of their commitment to

¹⁵³ For more on this, see Manning et al., *China, Nuclear Weapons, and Arms Control*, pp. 64-91.

preserving a credible second-strike capability. They appear to have been concerned about arms race stability largely in terms of its spin-off effects on the international system more generally, with the argument that the U.S.-Soviet arms race became one of the generators of international tension in the Cold War. In general, Chinese analysts appear to have taken a broader view of stability and its requirements than have American analysts, a view that encompasses not just nuclear relations but political-military relationships more generally. These different perceptions have proven a barrier to the strategic dialogue promised to President Bush in his notification to President Jiang that the United States intended to withdraw from the ABM Treaty. This experience stands in sharp contrast to the experience of the strategic dialogue between Washington and Moscow, which was able to pick up quickly given the legacy of shared vocabulary and concepts from decades of prior dialogue.¹⁵⁴

Thinking in the Second Artillery about the requirements of stability apparently begins with the following core premises:

- “The actions of the United States and Russia to reduce strategic nuclear weapons were aggressive. They were also beneficial to world peace and stability. However, we must see that while the United State and Russia are reducing the number of their strategic nuclear arms, a comprehensive contest for nuclear superiority is, in fact, still going on.”
- “Nuclear proliferation has been restrained, but it is difficult to stop the rise of near-nuclear states and areas. The so-called ‘near-nuclear states’ refer to those countries that possess nuclear technology and can become countries with nuclear weapons if necessary.”
- “Although the danger of the breakout of a large-scale nuclear war is reduced, the possibility of the use of nuclear weapons still exists.”
- “When ground-to-ground missiles first appeared on the battlefield, they were used as conventional weapons....Later on, as nuclear weapons with supernormal power came into being, ground-to-ground missiles...served as an important component of the nuclear force. Nevertheless, due to the restriction on the use of nuclear weapons, ground-to-ground missiles are now being developed in the direction of nuclear-conventional dual-use.”¹⁵⁵

¹⁵⁴ For more on the U.S.-PRC strategic dialogue and the different perceptions of stability, see *Building a Global Strategic Framework for the 21st Century, Report of the Fourth U.S.-China Conference on Arms Control, Disarmament and Nonproliferation* (Monterey, Calif.: Center for Nonproliferation Studies, 2002), conference of March 4-5, 2002. The report summarizes a Track Two discussion of the strategic stability dialogue. See also Xia Liping, “U.S. National Security Strategy and China-US Strategic Stability Framework,” *SIIS Journal*, Vol. 10, No. 1 (February 2003), Shanghai Institute for International Studies, pp. 12-24.

¹⁵⁵ Selections from PLA text, “The Strategic Use and Development of the Second Artillery in the New Period,” translated document.

These premises may provide the starting points for a bilateral discussion about the impact of U.S. BMD on the global security environment and the emergence of some agreement among Chinese and American experts and policymakers on the global WMD proliferation challenge and the necessary counters.

China's current interest in stability comes at a time of waning U.S. interest in the concept, owing in part to the fatigue that has come with the use of the stability concept by critics of U.S. policies, arguing that any and all U.S. policies with which they disagree (especially BMD) are destabilizing. The Bush administration's National Security Strategy has relatively little to say about stability, and rather more to say about the bold use of power to create a Just Peace. To the extent it describes a vision of strategic stability among the nuclear weapon states, it relies on the second-to-none principle, meaning that the United States will dispose its strategic capabilities so as to ensure that no other state contemplates the possibility of competing with the United States to gain advantage. The relationship between Just Peace and stability and the requirements of stability in the absence of a balance of power are ripe topics for discussion in the U.S.-PRC strategic dialogue, given the long-running interest among Chinese experts on related questions.¹⁵⁶ A related question is how the bilateral dialogues among Washington, Beijing, and Moscow, as well as the different strategic relationships among them, can best be shaped to promote common interests in stability.¹⁵⁷

¹⁵⁶ For more on these matters see Brad Roberts, *American Primacy and Major Power Concert: A Critique of the 2002 National Security Strategy*, Paper No. P-3751 (Alexandria, Va.: Institute for Defense Analyses, 2002).

¹⁵⁷ For more on this question see Brad Roberts, *Tripolar Stability: The Future of Nuclear Relations Among the United States, Russia, and China*, Paper No. P-3727 (Alexandria, Va.: Institute for Defense Analyses, 2002).

G. CONCLUSIONS

China's interest in ballistic missile defense did not commence in the 1990s and its likely responses to U.S. deployments seem certain to be rooted in decades of investment in intellectual capital and military-industrial stock. Seen in historical terms, China's interests have evolved as the international context has changed. At times there has been a good deal of debate among Chinese experts and institutions about what strategic choices best serve China's interests, as for example over the latter half of the 1990s. But there are a number of constants in Chinese thinking and policy. One is the need to maintain a credible second-strike capability, a need that has only grown more pronounced the more concerned China has become about the American "unipolar moment." A second is the interest in stability, again, an interest grown more pronounced as the dramatic changes in global power distribution have unfolded over the last decade or two. The third is the preparation of military-technical counters to BMD and to shifts in the U.S.-PRC strategic relationship beyond those driven by BMD alone. As China modernizes its strategic forces, quantitative and qualitative choices bearing on the future operational characteristics of those forces are certain to reflect thinking about the requirements of strategic sufficiency in the face of shifting U.S. capabilities. For the moment at least, dramatic departures in Chinese doctrine, strategy, and capability seem unlikely. But there are some important uncertainties about the longer term.

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188		
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YY) September 2003		2. REPORT TYPE Final		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE China and Ballistic Missile Defense: 1955 to 2002 and Beyond			5a. CONTRACT NO. DASW01-98-C-0067		
			5b. GRANT NO.		
			5c. PROGRAM ELEMENT NO(S).		
6. AUTHOR(S) Brad Roberts			5d. PROJECT NO.		
			5e. TASK NO. DG-6-2184		
			5f. WORK UNIT NO.		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Institute for Defense Analyses 4850 Mark Center Drive Alexandria, VA 22311-1882			8. PERFORMING ORGANIZATION REPORT NO. IDA Paper P-3826		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Defense Intelligence Agency Washington, DC 20340			10. SPONSOR'S / MONITOR'S ACRONYM(S) DIA		
			11. SPONSOR'S / MONITOR'S REPORT NO(S).		
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT China's opposition to U.S. ballistic missile defense was forcefully articulated officially and unofficially between 1991 and 2001. Vociferous opposition gave way to near silence following U.S. ABM Treaty withdrawal, raising a question about precisely whether and how China will respond to future U.S. deployments in both the political and military-operational realms. To gauge likely future responses, it is useful to put the experience of the 1991-2001 period into historical context. China's attitudes toward BMD have passed through a series of distinct phases since the beginning of the nuclear era, as China has been concerned alternately with the problems of strategic defense by both the Soviet Union and United States (and others) around its periphery. Throughout this era it has also pursued its own strategic defense capabilities. There are important elements of continuity in China's attitudes—concerns about the viability of its own force and about strategic stability. These suggest the likelihood of significant responses to U.S. BMD even in the absence of sharp rhetoric.					
15. SUBJECT TERMS Ballistic missile defense, BMD, China, deterrence, minimum deterrence, nuclear weapons, Second Artillery, strategic stability					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NO. OF PAGES 62	19a. NAME OF RESPONSIBLE PERSON Mr. Matt McInnis
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (Include Area Code) (202) 231-2518

