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**The Impact of the Presidential
Nuclear Initiative on Deterrence and
the United States Army**

Daniel S. Roper

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**The Institute of Land Warfare
ASSOCIATION OF THE UNITED STATES ARMY**

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LAND WARFARE PAPER NO. 16, SEPTEMBER 1993

The Impact of the Presidential Nuclear Initiative on Deterrence and the United States Army

by Daniel S. Roper

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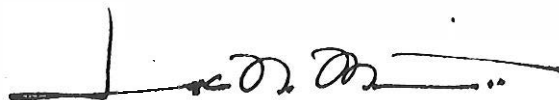
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FOREWORD

The Presidential Nuclear Initiative (PNI) of September 27, 1991, has profound implications for the strength of U.S. deterrence and the conduct of nonstrategic nuclear land warfare should deterrence fail. The increased gap in proportionate nuclear options has contributed to a discontinuity between deterrence and warfighting doctrine and has blurred the distinction between strategic and nonstrategic nuclear forces. This has resulted in a less flexible U.S. nuclear posture and has potentially weakened the future deterrent capability of U.S. forces.

Secretary of Defense Les Aspin has identified the proliferation of weapons of mass destruction as a principal danger faced by the United States. With the increased potential of facing a nuclear-armed adversary, and with no organic capability to respond in kind, the nation's ground forces are in a vulnerable position. The Army and the nation must examine the implications of these circumstances to ensure that U.S. ground forces will continue to be able to enhance deterrence by being capable of fighting and winning on any future battlefield.

A handwritten signature in black ink, appearing to read 'J. N. Merritt', written over a horizontal line.

JACK N. MERRITT
General, USA Ret.
President

September 1993

GLOSSARY OF FREQUENTLY USED ACRONYMS

ACM	advanced conventional munition
AFAP	artillery-fired atomic projectile
ATACMS	Army Tactical Missile System
CINC	commander in chief
C³	command, control and communications
C³I	command, control, communications and intelligence
DCA	dual-capable aircraft
ER	enhanced radiation
FAE	fuel air explosive
INF	Intermediate-Range Nuclear Forces
JSTARS	Joint Surveillance and Target Attack Radar System
kt	kiloton
LCC	land component commander
NCA	National Command Authority
NPT	Non-Proliferation Treaty
NSNF	nonstrategic nuclear forces
PNI	Presidential Nuclear Initiative
SNNF	strategic nonnuclear forces
SRAM	short-range attack missile
START	Strategic Arms Reduction Talks
TLAM/N	Tomahawk Land Attack Missile/Nuclear
TNF	tactical nuclear forces
WMD	weapons of mass destruction

THE IMPACT OF THE PRESIDENTIAL NUCLEAR INITIATIVE ON DETERRENCE AND THE UNITED STATES ARMY

INTRODUCTION

Recent significant changes to the geopolitical landscape have triggered equally significant changes in United States defense policy. The Presidential Nuclear Initiative (PNI) of September 27, 1991, to eliminate all nuclear weapons from ground forces and to restrict their deployment for naval and air forces, has obvious and significant implications for the Army and how it must prepare to fight the next war.¹ A critical aspect of this initiative is that it was a political maneuver intended to help the Soviet Union consolidate its tactical nuclear weapons after the coup attempt of August 1991;² it was not motivated by narrow military or operational considerations. Although this initiative may have helped to temporarily stabilize a volatile situation, it may have weakened the deterrent capability of U.S. forces at a time when it is most needed.

Worldwide proliferation of weapons of mass destruction (WMD) and the means of delivering them (including ballistic missiles as well as air-breathing systems) is at a dangerous and unprecedented level. President Bill Clinton has affirmed that "the biggest threat in the future ... is the proliferation of nuclear technology."³ There are currently 21 nations that have or are actively pursuing nuclear weapons technology⁴ and there is an abundant supply of technical expertise available to fuel these pursuits due to the ongoing "brain drain" from the former Soviet Union. How will the Army, with no organic nuclear capability, fight the next war should it involve weapons of mass destruction? The current nuclear fire support available from the Navy and Air Force consists primarily of weapons and delivery systems that are not intended to support the close-in land battle. These weapon systems may lack the responsiveness and the proportionality required to optimally support ground forces in contact with the enemy.

The 48 years of "nonuse" since they were first used in 1945 are no guarantor of the continued nonuse of nuclear weapons. In spite of the heretofore unprecedented denuclearization measures (INF, START-I, START-II and recent United States-Russia agreements), one of the paradoxes of the future may be that "even as the overall importance of nuclear weapons in world politics is declining, the probability of an actual nuclear conflict somewhere in the world may actually be rising."⁵ Secretary of Defense Les Aspin stated in *The Bottom-Up Review* that the dangers posed by nuclear weapons and other weapons of mass destruction constitute one of the four dangers to U.S. interests in the 1990s.⁶

Nuclear doctrine attempts to find the best means with which to employ nuclear weapons to achieve operational and strategic victory on the battlefield. A viable nuclear doctrine serves an equally important function. If perceived as effective and credible by potential aggressors, it may deter their hostile ambitions. Although the only country ever to use them in anger, the United States has long held the opinion that

the only acceptable use of nuclear weapons is their “nonuse.” This focus on nonuse has contributed to a discontinuity between deterrence and warfighting doctrine. This situation presents a challenge to U.S. armed forces because if deterrence fails, the single objective of the U.S. military is to fight and win the nation’s wars.⁷ The focus of this essay is to diagnose this challenge in order that the Army, and the nation’s nuclear forces, may better support their roles in pursuit of national security.

ISSUE

With the increased potential of facing a nuclear-armed adversary, with no organic capability to respond in kind, the nation’s ground forces are in a vulnerable position. Totally dependent on its sister services for nuclear support, the Army may receive less effective and responsive support from the Navy and Air Force than it could have provided for itself when it still had its organic nuclear capability. The Army, and the nation, must rigorously examine the implications of these circumstances to ensure that U.S. ground forces will continue to be able to enhance deterrence by being capable of fighting and winning on any future battlefield.

METHODOLOGY

Political, economic, strategic, operational, tactical, technical and societal considerations affect U.S. warfighting doctrine. As A. W. Marshall has said, “Most discussion of strategy and defense programs is, if anything, too focused on technology and not enough on the other factors that often dominate actual warfare.”⁸ This essay will refer to these considerations to evaluate important aspects of the Army’s past plans for nuclear weapons employment and contrast them with current military and political conditions. Deterrent and doctrinal shortcomings will be identified and some warnings and concerns for the Army of the future highlighted.

The purpose of this broad look at doctrine, as opposed to a narrower “ends versus means” approach, is best explained by Michael Howard in his essay, “The Forgotten Dimensions of Strategy”:

Works about nuclear war and deterrence normally treat their topic as an activity taking place almost entirely in the technological dimension. From their writings not only the sociopolitical but the operational elements have quite disappeared. The technological capabilities of nuclear arsenals are treated as being decisive in themselves, involving a calculation of outcome so complete and discrete that neither the political motivation for the conflict nor the social factors involved in its conduct — nor indeed the military activity of fighting — are taken into account at all.⁹

BACKGROUND

American View of War: Public Attitudes and Political Policies

Christened with the charter of avoiding “foreign entanglements” by its first president and protected by vast oceans to the east and west, the United States has come to view war as a distant and anomalous undertaking. From the American perspective, war is “abnormal”; it is an interruption of an otherwise peaceful existence.¹⁰ This is manifested by the traditional U.S. “absolute” view of war which seeks either “unconditional surrender” or noninvolvement. Deviations from this policy in the past, such as in Korea and Vietnam, proved to be both painful and unsuccessful and have reinforced the traditional attitude. This differs with past U.S. adversaries (the Soviet Union, Germany and Iraq), and perhaps those in the future (Russia, China, Iran or North Korea), who are more Clausewitzian in their outlook; they tend to see war as a natural and unavoidable aspect of their ongoing national struggle. These contrasting philosophies will play an important role as the United States attempts to deter future nuclear aggression.

This view of war has naturally affected American nuclear warfare policy. U.S. doctrine for nuclear weapons employment has been burdened with tenuous assumptions and some profound contradictions. War is distasteful, unnatural and, in the case of nuclear war, almost unthinkable. This has contributed to the prevailing, almost myopic, attitude that nuclear weapons can serve the nation only if they are never actually used. While few sane people would hope otherwise, this outlook fails to consider the optimal use of nuclear weapons if someone else chooses to use them first. In his essay, “The Delegitimization of Nuclear Deterrence?”, David Yost observes that “most Americans have long had ‘grave doubts’ about nuclear weapons and do not wish to contemplate actually using them, but see them as necessary for deterrence and war prevention.”¹¹ This highlights the cause of past and present U.S. shortcomings in nuclear doctrine.

This “war avoidance” focus is at the core of the deterrence philosophy that has dominated U.S. strategic thought for many years. In 1992, Secretary of Defense Dick Cheney said of U.S. Cold War strategy that “fundamentally our goal was to deter rather than to win.”¹² Secretary of Defense Les Aspin (then chairman of the House Armed Services Committee) observed in his white paper, “From Deterrence to Denuking: Dealing With Proliferation in the 1990s,” that “during the Cold War, the overriding U.S. concern was the deterrence of nuclear war with the Soviet Union.”¹³ The United States opted for a strategy that placed more effort on preventing conflict than on actually waging it should deterrence fail. The record of the past 48 years highlights shortcomings of this strategy in deterring, and waging, conventional conflicts. Fortunately, thus far, nuclear deterrence has not failed and nuclear warfighting doctrine has not been tested. It is not unreasonable to speculate that, if it were to be tested, it would be no more successful than its conventional counterpart, and perhaps much less so due to the total lack of experience in fighting nuclear war.

As articulated in a 1991 presidential report, “Today and for the future, *we cannot rely solely on deterrence* {emphasis in original}. The use of Iraqi Scuds in the Persian Gulf War illustrates the risks of a deterrence strategy based solely on the threat of retaliation.”¹⁴

Deterrence

The August 1991 *National Security Strategy of the United States* emphasized that deterrence of nuclear attack remains the number one defensive priority of the United States.¹⁵ The purpose of U.S. nuclear weapons is primarily to ensure strategic deterrence, a “negative” aim. Should deterrence fail, they are to be used to quickly restore deterrence.

For deterrence to be effective, the enemy to be deterred must rationally conclude that the deterring power possesses both the capability and the intent to retaliate to unacceptable actions on his part. It requires visible and believable evidence of national resolve. Deterrence can fail due to a variety of reasons including lack of capability and credibility, irrational behavior, miscalculation, excessive provocation (either military or diplomatic), unauthorized actions or poor communications.¹⁶

Throughout the Cold War, the United States provided ample visible evidence of its capabilities to its rival by expanding and improving its nuclear forces. In addition to declared policies, e.g., “Massive Retaliation” and “Flexible Response,” the United States also transmitted its intentions by committing its ground forces, in advance and armed with nuclear weapons, to the probable battlefields in Europe and Korea. The combination of these factors, coupled with rationality on the part of communist leaders, contributed to the absence of nuclear conflict during this period.

Today, the ability of the United States to effectively deter adversaries may be reduced due to the elimination of all Army nuclear weapons. Deterrence may also be weakened by the “pulling back” of a large number of forward-deployed forces which may signal to some a weakening of national resolve. Although the United States retains a large nuclear arsenal, it appears increasingly unlikely that it plans to use it. While desirable from a humanitarian perspective, this may not fully take into consideration the increasing threat of rogue nations determined to attain, and perhaps use, nuclear weapons.

Gap in Capability. The Intermediate Range Nuclear Forces (INF) Treaty of December 1987 eliminated an entire class of weapons available to the theater combatant commander in chief (CINC).¹⁷ The PNI cut deeper, and closer, into the assets available to the land component commander (LCC). In spite of the marked increase in effectiveness of advanced conventional munitions (ACMs), a gap still exists between U.S. conventional strength and the availability and responsiveness of its current low-yield nuclear options. Although the effects of some ACMs and fuel air

explosives (FAEs) may be comparable with those of very low-yield nuclear warheads, it is not known how these new weapons factor into the calculus of WMD deterrence. Paul Nitze underscores a significant problem with this posture. "Any significant level of deterrence left largely uncovered constitutes an invitation to one's opponent to exploit the gap."¹⁸ While a wide nuclear-conventional gap may be politically desirable, since it apparently makes the nuclear threshold more difficult to cross, it leaves the United States in a profound predicament should any hostile nation initiate attacks with WMD.

Lack of Intent. NATO leaders recently called for "a reduced reliance on nuclear weapons,"¹⁹ and have emphasized that "the fundamental purpose of the nuclear forces of the Allies is political: to preserve peace and prevent coercion and any kind of war."²⁰ While this has long been the primary purpose of American and NATO nuclear forces, to emphasize this aspect without simultaneously emphasizing a realistic combat focus may send mixed signals to potential aggressors. "Although some interest in the 'war-fighting' utility of specific TNF (tactical nuclear forces) capabilities (from enhanced radiation warheads or 'neutron bombs' to intermediate-range nuclear missiles) has persisted in some military, political, and analytical circles, crisis management and war-termination have been the dominant purposes in NATO policy since the late 1960s."²¹ De-emphasis of declaratory intent simplifies planning for future enemies by eliminating the nuclear option from most strategic calculations and contributes to a less stable war prevention capability.

The Army and Tactical Nuclear Weapons

The Army had nuclear weapons for two purposes: to enhance deterrence and to fight a nuclear war if necessary. It was the latter of these functions that lent credibility to the former. As then Representative Les Aspin observed, "Tactical nuclear weapons have always been aimed at making our threat of nuclear first use more credible."²² In his essay, "Tactical Nuclear Weapons: Are They a Real Option?", A. S. Collins Jr. recalled that the Army got into the nuclear business in the 1950s "when the atomic bomb seemed to be the answer to every doctrinal problem."²³ Henry S. Rowen stated in "The Evolution of Strategic Nuclear Doctrine" that this was due to the Eisenhower administration's policy of placing primary emphasis on nuclear capabilities and also as a hedge against the possibility that battlefield use might actually occur.²⁴ A key facet of the nuclear role given to the Army was that the possession of nuclear weapons by U.S. ground forces on the potential field of battle was an unmistakable symbol of national resolve. The warfighting aspect of this dual purpose, as recently explained by the chairman of the Joint Chiefs of Staff, General Colin Powell, "was to do something about a massive Red Army assault coming west through the Fulda Gap."²⁵ The deterrent aspect, linking U.S. conventional and strategic nuclear forces, was explained by Paul Nitze, who said that "one of the principal functions of U.S. tactical nuclear weapons in Europe was to close the gap in the chain of deterrence."²⁶

The Army lost its nuclear capability when President Bush decided that the elimination of this capability could provide a political incentive to encourage the Soviet Union to consolidate its ground-launched nonstrategic nuclear weapons²⁷ after the coup attempt of August 1991.²⁸ Does the Army still need an organic nuclear capability? Does it require the same degree of fire support to ground troops formerly provided by ground-based tactical nuclear weapons? Can the Navy and Air Force provide the needed support? If not, then what is to be done?

PRESENT SITUATION

Changes

As a result of the PNI, little distinction remains between U.S. strategic and nonstrategic nuclear forces. Nonstrategic weapons (lower-yield warheads) are designed for battlefield use and are often deployed on dual-capable systems (artillery or aircraft) in the theater of operations; strategic weapons are generally for use against the enemy's homeland and are designed to compel him to cease hostilities by threatening either his nuclear arsenal or key elements of his society. Strategic platforms are generally not in the theater of operations and are considered to be projected from the continental United States. They are far less visible to the enemy than nonstrategic systems and therefore may be less credible in a deterrent capacity. Their use is considered to be more escalatory than their nonstrategic counterparts, even if the yield of the weapons is comparable.²⁹ Regardless of the category, however, the first nuclear weapon used in a future conflict will be strategic in its political ramifications, if not in its military effects.

A U.S. Air Force white paper, "Nuclear Sufficiency in the 1990s and Beyond: The New Strategic Equation," argues that "perhaps the most significant aspect of the withdrawal of most, and eventually probably all, forward-based tactical nuclear weapons back to the U.S. mainland will be its impact on raising the U.S. threshold of nuclear use and blurring the distinction between tactical and strategic nuclear weapons."³⁰ Consequently, as the U.S. signals a reduction in its intent to employ nuclear weapons, the suitability of systems in the stockpile to accomplish any "nonstrategic" nuclear mission is also reduced.

All Army nuclear weapons (Lance missiles and 8-inch and 155mm artillery-fired atomic projectiles, or AFAPs) have been retired and are awaiting dismantlement. The weapons remaining available to the ground commander are primarily mid- to high-yield B-61 gravity bombs and Tomahawk Land Attack Missiles/Nuclear (TLAM/N) as shown in table 1.³¹³²³³ The Air Force Short-Range Attack Missiles SRAM-II and SRAM-T were cancelled in conjunction with the PNI, which resulted in the retirement of 3,050 tactical nuclear weapons and an additional 1,275 being put into storage.³⁴

Table 1
U.S. NONSTRATEGIC NUCLEAR WARHEADS
AVAILABLE TO THE LAND COMPONENT COMMANDER

	Weapon	Range (km)	Yield (kt)	Pre-PNI Qty	PNI Qty
Army	Lance	120	1-100	850	0
	Artillery (8" + 155mm)	18	<1-10	1,300	0
Navy	TLAM/N	2,500	200	350	350
	Bombs (B-57, B-61)	N/A	10-500	925	0
USAF	Bombs (B-61)	N/A	10-500	2,000+	700

When describing these measures on 28 September 1991, General Powell explained that “we are changing our strategy, but it’s not a fundamental change. It’s just a change in the selection of means available to the ground commanders and the air commanders in the theater.”³⁵

Doctrinal Shortcomings

“Current doctrine rests upon questionable assumptions, lacks the flexibility required to fight a tactical nuclear battle, and limits itself by concentrating on defense.”³⁶ This 1983 assessment of U.S. nuclear doctrine by Lieutenant Colonel Jerry M. Sollinger in his study, “Improving US Theater Nuclear Doctrine: A Critical Analysis,” closely parallels the current situation although the strategic environment has markedly changed. U.S. nuclear doctrine rests on some unreliable assumptions, lacks the flexibility to fight on a “nonstrategic” nuclear battlefield, and limits itself by concentrating on avoidance and prevention.

Another doctrinal concern is the fact that U.S. policy tends to forfeit the initiative to potential enemies on the use of WMD. While consistent with defensive national strategy, this can have serious consequences for U.S. military forces. A critical tenet of U.S. Army operations doctrine as specified in Army Field Manual 100-5, *Operations*, is to wrest the initiative from the enemy to control the battle.³⁷ U.S. policy allows the enemy to shape the situation and therefore to a certain extent prescribe U.S. actions since the United States will likely act only in response to his aggression.

FUTURE CONSIDERATIONS AND ASSUMPTIONS

Stability of Deterrence

Deterrence is not a permanent condition. Its effectiveness is a function of numerous variables. The value of many of these variables will be altered over time, thereby disrupting some previous strategic equations. In spite of great efforts by many to the contrary, nuclear deterrence may fail. As former Secretary of Defense Robert S. McNamara stated, "The mere fact that no nation could rationally take steps leading to nuclear war does not guarantee that a nuclear war cannot take place."³⁸

The experience of the Persian Gulf War does not offer confidence regarding the prospect of continued success of deterrence. It "demonstrated that countries possessing ballistic missiles may see incentives in using them, even though they could be faced with certain retaliation."³⁹ Armed only with relatively crude conventional missiles, and the threat of missiles with chemical warheads, a regional power was surprisingly effective in holding the Mideast hostage. Iraq's moderate offensive capability placed a great deal of political pressure upon the allied coalition, which included most of the world's major nuclear powers, and at times seriously threatened its stability. It is alarming to consider the potential outcome of this conflict had Iraq waited until it attained a nuclear capability before undertaking its aggression.

The Cold War bipolar stalemate will not smoothly partition into an equivalent multipolar situation of mutual deterrence. John Van Oudenaren speculates that "as third world countries develop nuclear weapons and long range delivery systems, the United States will not be prepared to settle for a system of mutual deterrence, as had been the case with the American-Soviet relationship."⁴⁰ U.S. focus will, of necessity, move toward a more proactive posture, stressing more decisive outcomes than the Cold War strategic impasse. This was the perspective of Secretary of Defense Cheney when he said that the U.S. Cold War focus was to prepare to repel a massive Soviet invasion of Europe, but that in future regional conflicts "our stake will be less immediate, and political and strategic considerations will require a decisive outcome."⁴¹ This implies that to avoid slipping into a situation of mutual deterrence with third world countries, the United States will need powerful conventional preemption capabilities⁴² in addition to a viable nuclear deterrent.

Future combat will be greatly influenced by technological advances in weaponry, surveillance, and command, control, communications and intelligence (C³I) systems. Use of ACMs and FAEs will enable some nonnuclear munitions to achieve near low-yield nuclear destructive effects. The United States cannot forsake its nuclear option, however. As Lawrence Freedman cautions, nuclear weapons "remain as instruments of strategy, and before we assume that they no longer serve any strategic purpose we need to understand better than we do at the moment the sort of strategic purposes that might arise in the post-Cold-War political environment."⁴³

Utility of Nuclear Weapons Use

A constraint on the U.S. use of nuclear weapons is that the damage they would cause would most likely disproportionately exceed any military requirement. Edward N. Luttwak contends that “even the early fission bombs exceeded the culminating point of military utility because they were deemed excessively destructive to be used when less-than-vital interests were at stake.”⁴⁴ (A critical aspect of this issue is that what may be a “regional” war to the United States could be a “total” war of vital consequence to the enemy.) The United States is likely well beyond Luttwak’s point of proportionality in many scenarios since most of its weapons are comparable to, or far exceed, the yields of the 13-kiloton (kt) and 22kt fission bombs dropped in World War II (see table 1).⁴⁵

When considering the utility of particular targeting strategies, it is important to realize that regardless of the accuracy of current weapon systems, there is no purely “surgical” method for employing them; the “niceties of targeting doctrine do not make the weapons themselves discriminating.”⁴⁶ People die, equipment and facilities are destroyed, and fallout can contaminate large tracts of land. Coupled with these physical effects are the severe psychological effects that will also take their toll on the population of an attacked country, not to mention the moral and psychological effects on the American public. The United States has “apparently” limited itself to a relatively inflexible posture due to its propensity to avoid war unless absolutely vital interests are at stake. Whether or not this is correct is not the issue; if an enemy perceives inflexibility on the part of the United States, he may be more reckless in pursuing his ambitions.

A critical question for national leaders to ask is, “Does the United States want to have a usable or nonusable nuclear arsenal?” Current policy clearly favors the latter. Should the United States move too far toward a credible “warfighting” doctrine without first properly educating the public, it could be victimized by the same fear that caused the “neutron bomb” controversy in 1977-1978. The “usability” of enhanced radiation (ER) weapons blurred the line between nuclear and conventional war.⁴⁷ Concern was widespread that it would be too easy to cross the threshold to nuclear war, at which point it could deflagrate rapidly into an intercontinental nuclear exchange. Thus, the dilemma that will face the United States is that, although it does not want an option that is “easy” to use, if it should require that option, it must be easy to implement.⁴⁸

The Threat

It is clear that deterrence, and warfighting if deterrence fails, will be complicated by the increased number of potential adversaries armed with weapons of mass destruction. Looking toward future threats, Secretary of Defense Aspin is concerned that the increased proliferation of nuclear weapons and ballistic missiles will result in

nuclear weapons falling into the wrong hands.⁴⁹ Van Oudenaren expresses the concern that “specific regional conflicts are becoming more bitter and intractable and thus perhaps more likely to trigger not only regional nuclear arms races but perhaps the first actual post-World War II use of nuclear weapons.”⁵⁰

Russia has inherited the role of its predecessor as the most dangerous potential threat to the United States. Hopefully, the successor to the Soviet Union will succeed in its attempt to move away from a totalitarian past and implement democratic reforms. While the United States has naturally focused on assisting this transition,⁵¹ policy-makers cannot let their guard down. The weapons remain, the economy is in dire straits, and some in the former Soviet military establishment “undoubtedly have an attachment to traditional ways of thinking.”⁵² Discovery of former Warsaw Pact war plans after the reunification of Germany proved that “despite what Soviet and East European leaders claimed for decades, their governments had military plans that called for the conquest of Western Europe.”⁵³ The threat from a country that for 70 years espoused an ideology of world conquest cannot dissolve overnight. Of the propensity in the West to forget the harsh realities of the Cold War, Henry Kissinger asks, “Is it prudent to base policy on the assumption that an evolution barely three years old has already reversed a pattern of centuries?”⁵⁴ The answer should be obvious.

Criteria for U.S. Nuclear Weapons Use

The United States should consider the use of nuclear weapons only when its vital interests are at stake and when no conventional option would be effective. This will require that the judicious and measured use of nuclear weaponry can immediately produce decisive military results in support of vital national interests. A crucial criterion in determining the suitability of a nuclear response will be to ensure that it is not excessively disproportionate to the level of threat presented by the enemy. Several scenarios exist in which the measured use of nuclear weapons could support military and national objectives,⁵⁵ the most plausible of which occur after the WMD threshold has been crossed by the enemy. These include defense against enemy WMD attacks and defense against potentially overwhelming conventional attacks.

The United States must have the capability, if deterrence fails, to respond flexibly and effectively to an aggressor’s first strike to limit damage to the extent feasible, regain escalation dominance and terminate the conflict on acceptable terms.⁵⁶ This can be accomplished by responding to enemy WMD use by attacking critical enemy targets, preferably with ACMs, but with low-yield nuclear weapons if necessary. Possibilities for these targets include WMD forces, C³ facilities and conventional forces threatening the survivability of the U.S. force. The U.S. response of necessity would be quick and militarily decisive and not merely an act of revenge.

WARFIGHTING DOCTRINE

Doubt

The most important aspect of a flexible warfighting doctrine is the ability to enhance deterrence. A variety of proportionate response options, including low-yield air, naval and ground systems, complicates enemy planning, fosters doubt in his mind, and may deter his aggression. The United States has experienced success with this in the past, notably with the Soviets' overestimation of Pershing II missile capability.⁵⁷ Therefore, "Western Governments may find it prudent not to rule out nuclear responses in all contingencies involving weapons of mass destruction; ambiguity could be constructive for deterrence in some circumstances."⁵⁸

"It is in the U.S. interest to maintain a deliberate ambiguity when facing aggressors like Saddam Hussein who are armed with weapons of mass destruction."⁵⁹ In a study for the U.S. Air Force, Reed and Wheeler contend that the calculated ambiguity of the United States regarding its response to Iraqi chemical attacks and "Israel's lightly veiled threat to respond to Iraqi chemical attacks with nuclear retaliation"⁶⁰ undoubtedly had a strong deterrent effect on the enemy's use of chemical weapons. NATO reaffirmed this vital feature of deterrence when it announced in "The Alliance's New Strategic Concept" on 7 November 1991 that nuclear forces "will continue to fulfill an essential role by ensuring uncertainty in the mind of any aggressor about the nature of the Allies' response to military aggression."⁶¹

How the Army Fights

Army Field Manual 100-1, *The Army*, states: "The Army's role in war is to apply maximum combat power against the enemy center of gravity and through swift, synchronized joint and combined action to destroy the enemy's will to resist."⁶² "Swift, synchronized joint and combined action" is the norm that is continuously pursued by operational commanders. Army leaders accept General Dwight D. Eisenhower's dictum that "separate ground, sea, and air warfare is gone forever. If ever again we should be involved in war, we will fight in all elements, with all services, as one single concentrated effort."⁶³ The Army is fully aware of the mutual interdependence of land, sea, air, and space operations, and "unlike the Air Force and Navy, has no visions of a war on its own terms."⁶⁴ The conditions created by the PNI increase this interdependence and make the Army more dependent on its sister services.

Doctrinal Challenges

Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, defines doctrine as the "fundamental principles by which the

military forces or elements thereof guide their actions in support of national objectives.”⁶⁵ At the core of the Army’s nuclear doctrinal issues is the definition of its role and mission. What nuclear missions belong to the ground commander? How does the LCC control the execution of NSNF fire support from Navy and Air Force weapon systems? How does he compensate for the shortcomings of these systems and optimize their strengths?

A shortfall of NSNF doctrine is that the LCC cannot readily exercise the C³ functions necessary to ensure that his employment concerns are properly addressed on targets that he has nominated for nuclear fires. His control over collateral damage, troop safety, and desired damage to the target is less than when he had organic nuclear delivery systems. The execution of Navy and Air Force NSNF fire support coordination (a function that should be controlled by the requesting commander) on the battlefield is almost delegated, by default, to the delivery platforms in the air or at sea. The LCC can only orchestrate the execution of nuclear packages (a specified number of nuclear weapons by yield and delivery system, for a specific purpose, at a specified time or window, and for a specific area)⁶⁶ for Air Force and Navy nuclear fire support to a limited degree. He nominates targets for packages and then waits to be told what he will receive from the other services, after approval by the CINC and the National Command Authority (NCA). As a consequence of the PNI, the LCC also has less access to a proportionate response (see table 1).

Naval Support

A strength of sea-based fire support is that it is generally more survivable than its land-based counterpart. It is also more flexible politically because it does not require host-nation approval of its deployment. A weakness is that its NSNF function may conflict with the primary role of the platform, possibly resulting in reduced availability in certain situations. Responsiveness of Navy platforms to the needs of the ground commander is less than optimal because the Tomahawk Land Attack Missile/Nuclear (TLAM/N) cannot readily adapt to late-changing mission requirements, particularly in situations in which mobile targets must be attacked.

Air Support

Dual-capable aircraft (DCA) also lack the responsiveness required by the LCC. Standard air mission constraints on payload and delivery make minor modifications to the mission, even within the restrictions of the approved package, difficult to implement. Another weakness of aerial-delivery platforms is their reduced capability in adverse conditions, in spite of their classification as “24-hour all-weather” systems. Air-delivered gravity bombs can deliver more proportionate yields than the TLAM/N or air-launched cruise missiles, but are not as responsive as the LCC may require.

Courses of Action

The United States must carefully consider the challenges created by the PNI and by current economic and political conditions. Reed and Wheeler advise in "The Role of Nuclear Weapons in the New World Order" that "there are options for changing nuclear postures (alert rates, deployment patterns) in positive directions quickly, and these are being pursued. Changing the fundamental nuclear balance should proceed more deliberately, however."⁶⁷ Proposed solutions must not violate current treaties, jeopardize the success of the Non-Proliferation Treaty (NPT), or give cause for alarm due to their usability. While cost savings, flexibility and optimum employment of forces argue for dual-capable platforms, arms control initiatives favor verification procedures over operational flexibility.⁶⁸ Realizing that any modernization efforts will encounter resistance for political, economic and moral reasons, it is essential for the United States, as it attempts to shape nuclear posture, to maximize deterrent strength while improving warfighting capability.

Make ATACMS a Dual-Capable Delivery System

Although it is not feasible under present conditions, at some time in the future policy-makers may wish to consider making the Army Tactical Missile System (ATACMS), or its successor, a dual-capable delivery system with a low-yield warhead. Its 115+ km range⁶⁹ allows it to attack enemy targets out to operational depth, thereby providing the corps commander — the individual charged with orchestrating operational combat — a 24-hour, all-weather, responsive and proportionate option to employ when given the authority. This modification could be accomplished by retrofitting physics packages from retired warheads onto the ATACMS missile. The retention of a viable, organic, low-yield capability would be more important than the attainment of optimal design considerations (which would raise the sensitive issue of development of a "new" weapon). Such dual capability would allow the United States to maintain a politically nonthreatening posture of warhead storage in the continental United States during peacetime. Most importantly, this would serve to help reinvigorate the credibility of a timely, proportionate nuclear response available to the LCC.

Nonnuclear Option

A warfighting doctrine using strategic nonnuclear forces (SNNF)⁷⁰ to take advantage of ACMs and ballistic missile technology is a viable option. The Commission on Integrated Long-Term Strategy formed by the Department of Defense (DoD) and the National Security Council (NSC) in 1988 recommended that "we must diversify and strengthen our ability to bring discriminating, non-nuclear force to bear where needed in time to defeat aggression."⁷¹ ACMs and FAEs with near low-yield destructive effects coupled with technologically-advanced surveillance systems pro-

vide a potent nonnuclear alternative to ground forces engaged in combat with enemy forces. Powerful conventional countermilitary capabilities are available and "usable," as evidenced by the coalition forces in the Gulf War. Simultaneous strikes against C³ facilities, known Scud launcher sites and air defense systems were designed to neutralize the cutting edge of the Iraqi warfighting effort. The allied intent to deprive Iraqi forces of the ability to fight effectively was highly successful.

Operations and Procedures

Improving C³ systems and interoperability between the services is an ongoing effort in the Defense Department. The Joint Staff published Joint Publication 3-12, *Doctrine for Joint Nuclear Operations*, in April 1993 to establish a doctrinal foundation for the conduct of joint nuclear operations.⁷² The Army is working closely with the Air Force in the development of Joint Publication 3-12.1, *Doctrine for Joint Nonstrategic Nuclear Weapons Employment*, to address operational doctrine issues. Use of new systems such as the Joint Surveillance and Target Attack Radar System (JSTARS), which detects, locates, tracks, classifies and assists in attacking targets,⁷³ may also hold promise for facilitating nuclear operations.

ANALYSIS AND EVALUATION

Threats

In spite of popular views advocating major nuclear reductions in the absence of a clear threat, the United States must remain cautious about overly optimistic forecasts of the future. The United States has miscalculated the intentions of its adversaries before⁷⁴ and may well do so again. The United States must fully consider the inherent uncertainty associated with estimating human intent when assessing future threats. Threats to U.S. interests in the future may be directed at the periphery of its power and resolve, possibly arising with the imminent or initial use of WMD by a regional power against a neighboring nation. This "lower intensity" threat requires the United States to maintain an appropriate deterrent posture complemented with a viable warfighting capability.

Deterrence

Due to its reduction in capabilities at the low end of the nuclear spectrum (specifically in the area of ground-based tactical nuclear weapons) and to its possible loss in credibility (due to its declaratory policy and force posture), U.S. WMD deterrence may not be as stable as the record would indicate. The United States has moved toward a less flexible nuclear posture that may not be adequate to counter certain threats and, therefore, may invite challenges from those who perceive that the

United States will not use its nuclear option. Complicating this situation is the possibility that traditional concepts of deterrence which applied to the Cold War may not apply to the emerging nuclear weapons states.

Deterrence can be enhanced by improving U.S. nuclear warfighting doctrine. This doctrine attempts to find the best means with which to employ nuclear weapons to achieve operational and strategic objectives and, if perceived as effective and credible by potential aggressors, can deter their hostile actions. The United States must ensure that those who contemplate crossing the nuclear threshold realize that they would be placing themselves in a “no-win” situation because of the U.S. capability and resolve to meet any challenge with a proportional and decisive response.

Challenges to a Nuclear Option

Regardless of the nuclear doctrine that the United States implements, the obstacles to its success must be recognized. There are severe limits to what can be accomplished by actually using a nuclear weapon because, in most circumstances, “one causes greater difficulties by using nuclear weapons than the difficulties that cause one to consider their use in the first place.”⁷⁵ The U.S. military must prepare to fight conventionally against an enemy who has already employed WMD, because any U.S. nuclear option has an “Achilles heel.” Nuclear weapons “have a special mystique, and public attitudes towards things nuclear—currently relatively quiescent—are subject to sudden highly emotional change. A single nuclear incident or accident could have broad repercussions. As one observer points out, anybody’s accident is everybody’s problem.”⁷⁶ It would be naive to presume otherwise.

McGeorge Bundy, the national security advisor to the president during the Cuban missile crisis, warned that sterile, textbook solutions are not nearly as “usable” as their authors would believe. This is due to “an enormous gulf between what political leaders really think about nuclear weapons and what is assumed in complex calculations of relative ‘advantage’ in simulated strategic warfare.”⁷⁷ Since “no plan survives first contact with the enemy,” any plan, nuclear or conventional, is subject to radical change on little notice. This is probably especially true in a situation when U.S. leaders may face the monumental burden of being forced to seriously consider the use of nuclear weapons.

U.S. leaders must convince the public “that they are doing what they can to minimize the chances that a nuclear war will occur.”⁷⁸ The U.S. government must also educate its allies, in particular its major European NATO partners (who are also experiencing an erosion of public acceptability of battlefield nuclear weapons⁷⁹) about its motivations. The focus should first be on the threat or conditions that require a response, and second on the means with which to counter this threat. Failure to take this approach may result in another “neutron bomb” affair in which an unclear policy line from Washington and signs of internal political bureaucratic strife doom the initiative.⁸⁰

New Technologies and Their Implications

Whatever balance of nuclear, conventional and ACM weaponry is established, political and military leaders must realize that “instruments alter, principles remain; a fact which those who would so loosely talk of the new weapons — the submarine, the aircraft, and the mine — having ‘revolutionized’ warfare would be wise to bear in mind.”⁸¹ As the nation modernizes its forces for the future, it should heed Luttwak’s observation that as new weapons evolve, “their impact on the prior balance of military power will increase only up to the culminating point.”⁸² Although it may not be apparent yet, the lesson of history says that smart bombs and nuclear missiles will no more attain the status of the “ultimate” weapon than the rifled musket or the tank.

What Remains Important

As stated at the beginning of this paper, political, economic, strategic, operational, tactical, technical and societal considerations all affect America’s warfighting doctrine. With domestic issues currently at the top of the national agenda, the U.S. military must proactively shape its future posture because the debate over force structure issues “is likely to be settled by fiscal and political, rather than mission-oriented, realities.”⁸³ If proposals are not accepted, the military must not get cut out of the policy-making process. It must maintain political relevance and shape the political-military battlefield because “throughout history, the best armies have been those who anticipated the future and adapted themselves, not merely to survive change, but to capitalize upon the opportunities that change presented.”⁸⁴

The United States will continue to have a need for low-yield, usable nuclear weapons in the future because there are credible scenarios which could call for this capability. The LCC requires a flexible, responsive and proportionate capability to complicate any potential adversary’s plans and strengthen a current “weak link” in the chain of deterrence. Any significant modernization measures probably cannot occur until after the 1995 NPT conference, however, in order not to jeopardize the efforts of the nonproliferation regime.⁸⁵

SUMMARY AND CONCLUSIONS

The Presidential Nuclear Initiative of September 27, 1991, has profound implications on the strength of U.S. deterrence and on the conduct of nonstrategic nuclear land warfare should deterrence fail. The increased gap in proportionate nuclear options has contributed to a more distinct discontinuity between deterrence and warfighting doctrine and has blurred the distinction between strategic and nonstrategic nuclear forces. This initiative has resulted in a less flexible U.S. nuclear posture and has potentially weakened the future deterrent capability of U.S. forces at a time when it is most needed.

The United States cannot ignore planning to fight a war with its nonstrategic nuclear forces simply because it is too horrible to contemplate because, as Clausewitz warned:

If bloody slaughter is a horrible spectacle, then it should only be a reason for treating war with more respect, but not for making the sword we wear blunter and blunter by degree from feelings of humanity, until once again someone steps in with a sword that is sharp and hews away the arms from our body.⁸⁶

As the nation shapes its political and military strategies for the future, it must heed the advice of George Washington who, paraphrasing the Romans, stated that “to be prepared for war is one of the most effectual ways of preserving the peace.”⁸⁷ The United States must have a demonstrated and credible capacity to fight at all levels in the spectrum of conflict, including those involving nonstrategic nuclear forces, so that hopefully, it will not have to fight in any of them.

ENDNOTES

1. Dick Cheney, Message 272236Z SEP 91 from the Secretary of Defense to the Department of Defense containing the complete transcript of President George Bush's speech given at 8:00 p.m., 27 September 1991.
2. A good explanation of the administration's concerns about Soviet control of tactical nuclear weapons and the resulting motivations for the president's initiative of 27 September 1991 is contained in the testimony of Stephen J. Hadley, Assistant Secretary of Defense for International Security Policy, to the Senate Armed Services Committee on 5 February 1992.
3. William M. Arkin, "Nuclear Junkies: Those Lovable Little Bombs," *The Bulletin of Atomic Scientists*, July/August 1993, p. 30.
4. *Nuclear Proliferation Status Report, July 1992*, by the Nuclear Non-Proliferation Project (Washington, D.C.: Carnegie Endowment for International Peace, July 1992).
5. John Van Oudenaren, "Nuclear Weapons in the 1990s and Beyond," in *Nuclear Weapons in the Changing World: Perspectives from Europe, Asia, and North America*, eds. Patrick J. Garrity and Steven A. Maaranen (New York: Plenum Press, 1992), p. 51.
6. Les Aspin, *The Bottom-Up Review: Forces for a New Era* (Washington, D.C.: Department of Defense, 1 Sep 93).
7. Joint Pub 1, *Joint Warfare of the U.S. Armed Forces* (Washington, D.C.: Department of Defense, 11 Nov 91), p. 1.
8. Andrew W. Marshall, "Strategy as a Profession for Future Generations," *On Not Confusing Ourselves: Essays on National Security Strategy in Honor of Albert and Roberta Wohlstetter* (Oxford: Westview Press, 1991), p. 310.
9. Michael Howard, "The Forgotten Dimensions of Strategy," *Foreign Affairs*, Summer 1979, p. 982.
10. Paul Nitze, "The Relationship of Strategic and Theater Nuclear Forces," *International Security*, Fall 1977, p. 125.
11. David Yost, "The Delegitimization of Nuclear Deterrence?," *Armed Forces and Society*, Summer 1990, p. 489.
12. Dick Cheney, "Statement of the Secretary of Defense before the Senate Armed Services Committee in Conjunction with the FY 1993 Budget for the Department of Defense", January 31, 1992, p. 28.

13. Les Aspin, "From Deterrence to Denuking: Dealing with Proliferation in the 1990s," February 18, 1992, p. 4.
14. Department of Defense, *The President's New Focus for SDI: Global Protection Against Limited Strikes (GPALS)* (Washington, D.C.: Strategic Defense Initiative Office, 6 June 1991), p. 3.
15. George Bush, *National Security Strategy of the United States* (Washington, D.C.: The White House, August 1991), p. 25.
16. Thomas C. Reed and Michael O. Wheeler, *The Role of Nuclear Weapons in the New World Order*, 1991, p. 18.
17. Bernard W. Rogers, Prepared Statement in *NATO Defense and the INF Treaty*, (S. HRG 100-493, Pt.2) Hearings Before the Committee on Armed Services, United States Senate January 29; February 12, 1988, pp. 115-119.
18. Nitze, p. 131.
19. Press Communique M-NPG-2(92)83 (Brussels: NATO Press Service, 21 October 1992), para. 4.
20. Press Communique S-1(91)85, *The Alliance's New Strategic Concept* (Brussels: NATO Press Service, 7 November 1991), para. 55.
21. David S. Yost, "The History of NATO Theater Force Policy: Key Findings from the Sandia Conference," *Journal of Strategic Studies*, Vol.15 No.2 (June 1992), p. 233.
22. Aspin, "From Deterrence to Denuking," p. 15.
23. A.S. Collins Jr., "Tactical Nuclear Weapons: Are They a Real Option?," *Army*, July 1982, pp. 8-48.
24. Henry S. Rowen, "The Evolution of Strategic Nuclear Doctrine," Laurance Martin's *Strategic Thought in the Nuclear Age* (London: Heinemann, 1979), p. 143.
25. Colin Powell, News Briefing September 28, 1991, Office of the Assistant Secretary of Defense (Public Affairs), p. 12.
26. Nitze, p. 131.
27. Reed and Wheeler, p. 7.

28. Dick Cheney, News Briefing, September 28, 1991, Office of the Assistant Secretary of Defense (Public Affairs), p. 17.
29. Reed and Wheeler, p. 33.
30. United States Air Force White Paper AF/XOXXI, "Nuclear Sufficiency in the 1990s and Beyond: The New Strategic Equation" (10 April 1992), p. 6.
31. Weapons quantities were obtained from William Mathes, "Fallout from Cuts Spans Range of Opinion," *Army Times*, 14 October 1991, p. 8.
32. Missile ranges were obtained from Ian G.S. Curtis, "The Missile Tables," *Defense & Foreign Affairs Strategic Policy*, Vol. XIX, No. 3, March 1991, pp. 16,19.
33. Weapons yields were obtained from Chuck Hansen, *U.S. Nuclear Weapons 1987*, pp. 106-7.
34. Mathes, p. 8.
35. Powell, 28 Sep 91, p. 12.
36. Jerry M. Sollinger, *Improving U.S. Theater Nuclear Doctrine: A Critical Analysis* (Washington, D.C.: National Defense University Press, 1983), p. vii.
37. Department of the Army Field Manual 100-5, *Operations* (1993), pp. 2-6.
38. Rowen, p. 148.
39. Department of Defense, "The President's New Focus for SDI: Global Protection Against Limited Strikes (GPALS)" (Washington, D.C.: Strategic Defense Initiative Office, 6 June 1991), p. 3.
40. Van Oudenaren, p. 37.
41. Cheney, January 31, 1992 Statement to SASC, p. 22.
42. Van Oudenaren, p. 37.
43. Lawrence Freedman, "Whither Nuclear Strategy?", *New Thinking About Strategy and International Security*, ed. Ken Booth (London: Harper Collins Academic, 1991), p. 88.
44. Edward N. Luttwak, "An Emerging Postnuclear Era?", *The Washington Quarterly*, Winter 1988, p. 9.

45. Samuel Glasstone and Phillip J. Dolan, *The Effects of Nuclear Weapons* (Washington, D.C.: Department of Defense, 1977), p. 36.
46. McGeorge Bundy, "Strategic Deterrence Thirty Years Later — What Has Changed?", presented to the International Institute for Strategic Studies Annual Conference on 6 September, 1979 at Villars, Switzerland, p. 2.
47. S.T. Cohen, "The Neutron Bomb: Political, Technological, and Military Issues" (Cambridge, Mass.: Institute for Foreign Policy Analysis), 1978, in Fred C. Ikle's "NATO's 'First Nuclear Use': A Deepening Trap," *Strategic Review*, Winter 1980, p. 21.
48. This philosophical controversy between the "maximalist" warfighters and the "minimalist" assured destruction school is characterized by Michael J. Mazarr in "Nuclear Weapons After the Cold War," *The Washington Quarterly*, Summer 1992, vol. 15.
49. "Proliferation is Major Fear," *Jane's Defence Weekly*, September 11, 1993, p. 5.
50. Van Oudenaren, p. 50.
51. Testimony of Joseph E. Kelley, Director-in-Charge, International Affairs Issues, National Security and International Affairs Division, before the Committee on Governmental Affairs, U.S. Senate, March 9, 1993.
52. Lothar Ruhl, "Offensive Defence in the Warsaw Pact," *Survival*, Vol. XXXIII, No. 5, September/October 1991, p. 449.
53. *Ibid.*
54. Henry Kissinger, "Charter of Confusion: The Limits of U.S.-Russia Cooperation," *International Herald Tribune*, 6 July 1992.
55. See Thomas W. Dowler and Joseph S. Howard II, "Countering the Threat of the Well-Armed Tyrant: A Modest Proposal for Small Nuclear Weapons," and Thomas F. Ramos, "The Future of Theater Nuclear Forces," *Strategic Review*, Fall 1991.
56. Reed and Wheeler, p. 5.
57. Yost, Sandia Conference, p. 252.
58. David S. Yost, "Western Nuclear Force Structures," *Nuclear Weapons and the Future of European Security*, ed. Beatrice Heuser (London: Brassey's for the Centre of Defence Studies, King's College, University of London, 1991), p. 45.

59. Reed and Wheeler, p. 14.
60. *Ibid.*, p. 12.
61. Press Communique S-1(91)85, "The Alliance's New Strategic Concept" (Brussels: NATO Press Service, 7 Nov 1991), para. 55.
62. U.S. Army Field Manual 100-1, *The Army*, in Michael P.W. Stone and General Gordon R. Sullivan's *Strategic Force, Strategic Vision, for the 1990s and Beyond: United States Army Posture Statement for Fiscal Year 1993*, p. 2.
63. *The Joint Staff Officer's Guide*, AFSC PUB 1 (Washington, D.C.: U.S. Government Printing Office, 1993), p. X.
64. Carl H. Builder, *The Masks of War* (Baltimore: Johns Hopkins University Press, 1989), p. 91.
65. Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, D.C.: Department of Defense, 1 Dec 89), p. 118.
66. John P. Rose, *The Evolution of U.S. Army Nuclear Doctrine, 1945-1980* (Boulder, Colo: Westview Press, 1980), p. 172.
67. Reed and Wheeler, p. 9.
68. *Ibid.*, p. 33.
69. *U.S. Missile Data Book 1992*, eds. Ted Nicholas and Rita Rossi (Fountain Valley, Calif: Data Research Associates, 1991), pp. 2-17.
70. Mary Fitzgerald, "Evolving Military Doctrine of the Post-Soviet Armed Forces: 'Strategic Non-Nuclear Deterrence Forces,'" (Washington, DC: Hudson Institute, 13 March 1992).
71. Michael T. Klare, "Behind Desert Storm: The New Military Paradigm," *Technology Review*, May/June 1991, p. 31.
72. Joint Pub 3-12, *Doctrine for Joint Nuclear Operations* (Washington, D.C.: Department of Defense, 29 April 1993), p. iii.
73. "Army Weaponry and Equipment," *Army 1992-93 Greenbook*, October 1992, p. 265.
74. Ruhl, p. 442.

75. John Lewis Gaddis, "Nuclear Weapons, the End of the Cold War, and the Future of the International System," *Nuclear Weapons in the Changing World: Perspectives from Europe, Asia, and North America*, eds. Patrick J. Garrity and Steven A. Maaranen (New York: Plenum Press, 1992), p. 21.
76. Reed and Wheeler, p. 14.
77. Mazarr, p. 165.
78. Harold Brown, "Domestic Consensus and Nuclear Deterrence," *Defense and Consensus: The Domestic Aspects of Western Security, Part II*, Adelphi Paper No. 183 (London: International Institute for Strategic Studies, 1983), p. 22.
79. Van Oudenaren, p. 35.
80. James A. Thomson, "The LRTNF Decision: Evolution of U.S. Theatre Nuclear Policy, 1975-9," *International Affairs*, 1984, pp. 606, 613.
81. H.W. Richmond, *Naval Warfare* (London: Ernest Benn, 1930), p. 65, cited in Geoffery Till, *Maritime Strategy and the Nuclear Age* (New York: St. Martin's Press, 1980), p. 162.
82. Luttwak, p. 5.
83. Mazarr, p. 198.
84. Stone and Sullivan, *Army Posture Statement*, p. 2.
85. Conversation with Joseph Pilat, 19 November 1992, Monterey, Calif.
86. Karl von Clausewitz, *On War*, trans. O.J. Mathis Jolles (Washington, D.C.: Infantry Journal Press, 1950), p. 164.
87. George Washington, in the First Annual Address to both Houses of Congress, January 8, 1790, *Bartlett's Familiar Quotations*, ed. Emily Morison Beck (Boston: Little, Brown and Company, 1980), p. 379.