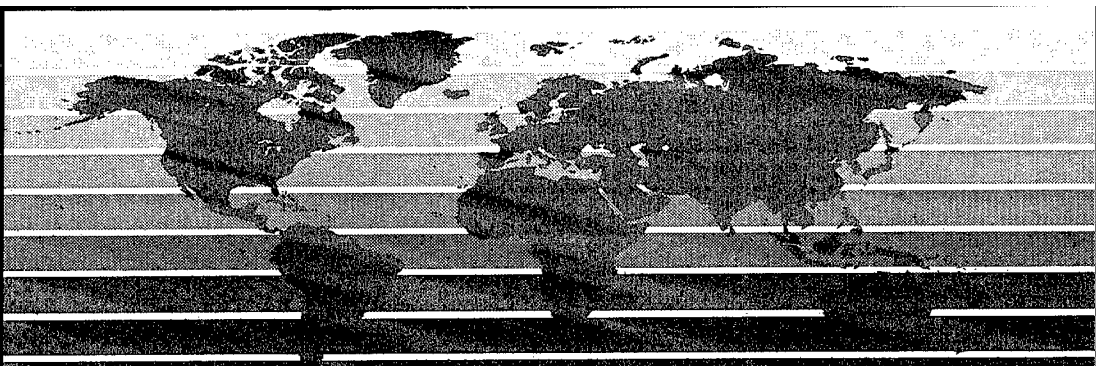

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NONLETHALITY AND AMERICAN LAND POWER:
Strategic Context and Operational Concepts

Douglas C. Lovelace, Jr.
Steven Metz

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As great changes taking place in the global security environment, American land power must be adapted to assure it can continue to protect and promote U.S. national interests. This requires the development and integration of a range of new technologies, concepts and organizations. Among these, nonlethality--using armed force in a way that minimizes casualties--shows promise for specialized applications. To that end, the authors discuss nonlethality of armed forces within its larger strategic context and explain how it is related to the revolution in military affairs. They then assess the arguments for and against the integration of nonlethality into American doctrine and procedures. Finally, they offer operational concepts which could serve as the basis for doctrine and for tactics, techniques, and procedures.

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NONLETHALITY AND AMERICAN LAND POWER: STRATEGIC CONTEXT AND OPERATIONAL CONCEPTS

Douglas C. Lovelace, Jr.
and
Steven Metz

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Comments pertaining to this report are invited and should be forwarded to: Director, Strategic Studies Institute, U.S. Army War College, 122 Forbes Ave., Carlisle, PA 17013-5244. Comments also may be conveyed directly to the authors. Dr. Metz can be reached by calling (717) 245-3822, fax (717) 245-3820, or by email at metzs@awc.carlisle.army.mil Professor Lovelace can be reached by calling (717) 245-3010, fax (717) 245-3820, or by email at lovelacd@awc.carlisle.army.mil Copies of this report may be obtained from the Publications and Production Office by calling commercial (717) 245-4133, DSN 242-4133, FAX (717) 245-3820, or via the Internet at rummelr@awc.carlisle.army.mil

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FOREWORD

Within the U.S. Army, this is a time of both excitement and challenge. As immense change takes place in the global security environment, American land power must be adapted to assure it can continue to protect and promote national interests into the 21st century. This requires the development and integration of a range of new technologies, concepts, and organizations. Among these, nonlethality—using armed force in a way that minimizes casualties—shows promise for specialized applications.

Nonlethal technology, concepts and doctrine may provide the Army a way to retain its political utility and military effectiveness in a security environment characterized by ambiguity and the glare of world public opinion. To explore this, the Army is undertaking programs and initiatives which may make it the driving force in nonlethality.

This study by Steven Metz and Douglas C. Lovelace, Jr., is a contribution to this effort. In it, they place nonlethality within its larger strategic context and explain how it is related to the revolution in military affairs. They then assess the arguments for and against the integration of nonlethality into American doctrine and procedures. Finally, they offer operational concepts which could serve as the basis for doctrine and for tactics, techniques, and procedures.

The Strategic Studies Institute is pleased to offer this report as a contribution to the ongoing process of refining American land power.

LARRY M. WORTZEL
Colonel, U.S. Army
Director, Strategic Studies Institute

BIOGRAPHICAL SKETCHES OF THE AUTHORS

DOUGLAS C. LOVELACE, JR., is the Douglas MacArthur Professor of Research at the U.S. Army War College. He joined the Strategic Studies Institute (SSI) in 1994 after retiring from the Army. His Army service included a combat tour in Vietnam and a number of command and staff assignments, including assignments in the Plans, Concepts, and Assessments Division and the War Plans Division of the Joint Staff. He holds a B.S. in aerospace management, and an M.A. in business from Embry Riddle Aeronautical University, and is a graduate of the National War College. His SSI studies include *The Evolution in Military Affairs: Shaping the Future U.S. Armed Forces* and *Unification of the United States Armed Forces: Implementing the 1986 Department of Defense Reorganization Act.*

STEVEN METZ is the Henry R. Stimson Professor of Military Studies at the U.S. Army War College. He has served as a research professor at the Strategic Studies Institute since 1993. Before that, he taught at the Air War College, the U.S. Army Command and General Staff College, and several universities. He holds a B.A. and M.A. in international studies from the University of South Carolina, and a Ph.D. in political science from the Johns Hopkins University. He is the author of more than seventy publications on world politics, national security policy, and military strategy. His SSI studies include *Strategic Horizons: The Military Implications of Alternative Futures* and *Strategy and the Revolution in Military Affairs: From Theory to Policy* (with James Kievit).

Professors Lovelace and Metz earlier collaborated on *The Future of American Landpower: Strategic Challenges for the 21st Century*, and *The Principles of War in the 21st Century: Strategic Considerations* (both with William T. Johnsen, Douglas V. Johnson II, and James O. Kievit).

SUMMARY

The nature of the contemporary strategic environment has generated much interest in nonlethality among American defense policymakers and military leaders. While cases can be made both for and against integration of nonlethality into military doctrine and strategy, proponents of nonlethality have a stronger case.

With appropriate forms of technology, doctrine, operational concepts, and rules of engagement, nonlethality could increase the utility of the U.S. armed forces during this era of ambiguous conflict. Nonlethality could provide political decision-makers and military commanders with means to dominate the portion of the spectrum of force that lies between diplomacy and lethality. In doing so, they will be better able to apply the precise psychological pressure required to modify an adversary's behavior in a certain way. Nonlethality can be used to deter or preempt conflict, separate belligerents and allow for "cooling off," encourage negotiation, protect noncombatants, facilitate disaster relief and humanitarian assistance operations, enhance the effectiveness of lethal weapons and other instruments of national power, and reduce risks to U.S. forces.

Nonetheless, there are several cautions associated with the use of nonlethality. The apparent avoidance of political risks that nonlethality provides can delay necessary debate and the making of tough policy decisions. The pursuit of nonlethality by the United States could be viewed as hegemonic by other countries. Nonlethality could compromise the principle of military necessity if it encourages field commanders to be less discriminating in distinguishing military targets from nonmilitary locations and populations. Finally, nonlethality could lead to increased violations of sovereignty.

From an operational perspective, nonlethality appears to have more applicability at the lower end of the conflict spectrum. Nonlethal capabilities should be included in plans for the application of flexible deterrent options (FDOs). In that role, nonlethality can add to the effectiveness of diplomatic, economic, informational, and other military FDOs. It is critical, however, that nonlethal FDOs be crafted to avoid inadvertently placing the United states on the "slippery slope" to involvement in a series of peripheral bloodlettings that might undercut American public support for a strategy of global engagement. In that regard, it will sometimes be necessary to clearly announce that U.S. forces will resort to lethal force if nonlethality fails to have the desired effect. In other situations, it will be more prudent to create deliberate ambiguity on the willingness to resort to deadly force.

Within the context of military operations other than war (MOOTW), nonlethality should be considered for force and site protection, riot and crowd control, separation of belligerents, interdiction of resupply efforts or offensives, operational persuasion, and security assistance. For small-scale conflicts, nonlethality can help insure mission accomplishment while controlling and ultimately reducing the level of violence. Although nonlethality will be most useful at the lower end of the conflict spectrum, it has significant applicability for major theater warfare. It that regard, nonlethality should be employed to enhance the effectiveness and efficiency of lethal weapons. Nonlethal capabilities also can be used to measure a certain dose of punishment to aggressor states and to facilitate post-war reconstruction. Finally, nonlethal capabilities can be used for direct action missions that might include strategic preemption, hostage rescue, and anti-terrorist operations.

Nonlethality will not create difficult rules of engagement (ROE) problems. Rather, nonlethality will enable commanders to tailor better rules and operational procedures that ensure force, proportionate to that necessitated by the situation and mission, is available and usable. Conse-

quently, decisions that must be made by field forces concerning the appropriate level of force to be applied will be less ambiguous. Rather than adding complexity to ROE issues, nonlethality should be seen as providing unprecedented fidelity in the application of force to accomplish a wider set of legitimate missions.

Nonlethality will not remove violence from armed conflict. Nonlethal capabilities will not obviate lethal forces, at least not for the foreseeable future. In fact, in some cases, nonlethality should be used to enhance the effects of lethal weapons. Still, nonlethality can sufficiently increase the utility of American land power in this era of ambiguity and uncertainty to warrant its pursuit.

Recommendations.

- The U.S. armed forces, particularly the Army and Marines, should develop operational concepts for the employment of nonlethality.

- These operational concepts should not be constrained by extant capabilities or those under development. The concepts must drive technological investigations. In particular, research is needed on wide-area, stand-off non-lethal systems, and on variable intensity non-lethal systems so that commanders have a true rheostatic capability rather than an "either/or" choice between lethal and non-lethal means.

- The Army should begin research and development of data bases to support assessments of the psychological impact which certain actions are likely to have in certain cultures. This will help commanders to select the appropriate circumstances for the use of nonlethal weapons and guide the research and development community as they refine nonlethal weapons, thus linking operational imperatives and technology.

- Once concepts and technology are in place, the Standing Rules Of Engagement should be reviewed for possible modification or supplementation to ensure full realization of the additional capabilities nonlethality has to offer.

- Joint doctrine setting forth the operational concepts for the use of nonlethality in design of operations should be developed and promulgated. Service doctrine should follow suit.

- Policymakers should remain ever-mindful of the cautions associated with the application of nonlethality.

NONLETHALITY AND AMERICAN LAND POWER: STRATEGIC CONTEXT AND OPERATIONAL CONCEPTS

Introduction.

As the concept of a revolution in military affairs gained acceptance among strategic thinkers, agreement emerged on its essential characteristics. *Speed* and *precision* are the keys, with both made possible by vastly increased *knowledge*. Speed includes both mental quickness—the ability to gather and assess accurate information and make decisions in a short period of time—and rapidity of movement and fire. Precision entails limiting unintended or undesired effects, whether through accuracy or by weapons specifically designed to avoid such effects. It is both an economizing measure and a response to changes in the ethical and political context of armed conflict. While most attention within the realm of precision has focused on the dramatic increases in the accuracy of modern weapons, *nonlethality* also shows promise for limiting unintended or undesired effects, and for allowing military forces to attain a degree of psychological precision to complement physical precision. (See Figure 1.)

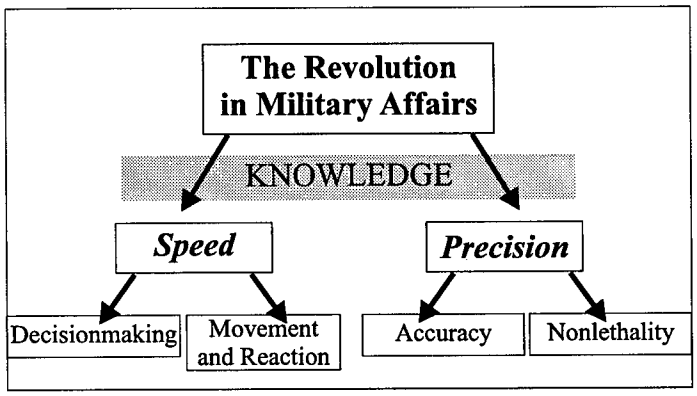

Figure 1.

The brief history of nonlethality in the United States is part of the immense conceptual and organizational change that followed the end of the Cold War. Prompted by lobbying from the U.S. Global Strategy Council, a conservative think tank chaired by former CIA deputy director Ray S. Cline, Secretary of Defense Dick Cheney established a Non-Lethal Warfare Study Group in March 1991.[1] This group, under the control of Undersecretary of Defense for Policy Paul D. Wolfowitz and chaired by Dr. Zalmay Khalilzad, Assistant Deputy Under Secretary of Defense for Policy Planning, eventually supported a wide range of policies and programs to stoke the development and fielding of nonlethal weapons. Convinced of the revolutionary potential of nonlethality, it advocated a nonlethal defense initiative modeled after the Strategic Defense Initiative. Within the Pentagon, this was too much change too fast. When Donald Yockey, Under Secretary of Defense for Acquisition, argued that the existing programming architecture could adequately handle nonlethal weapons, his opposition helped to blunt adoption of the study group's findings.[2] Nonlethal weapons then moved to the Pentagon's back burner during the transition from the Bush to the Clinton administration.

Soon the involvement of the U.S. military in Bosnia, Somalia, and Haiti as well as the disaster at the Branch Davidian compound in Waco, Texas resuscitated interest. This time, though, the impetus came from military field commanders rather than strategic theorists. Following his experience as commander of American forces protecting the final withdrawal of United Nations forces from Somalia, U.S. Marine Corps Lieutenant General Anthony Zinni became the prime advocate for the development and fielding of nonlethal weapons.[3] The 1995 Commission on Roles and Missions, by identifying counterproliferation, information warfare, peace operations, and operations other than war as high priorities, provided further political ammunition for advocates of nonlethality.[4] And, in 1996 General John J. Sheehan, commander of the U.S. Atlantic Command, added

his support in an important speech to the Non-lethal Defense Conference II.[5]

By 1996, the Office of the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict had produced a foundation policy document—Department of Defense Directive (DODD) 3000.3, *Policy for Non-lethal Weapons*—with Charles F. Swett as the lead author. Also in 1996, the Under Secretary of Defense for Acquisition and Technology designated the Commandant of the Marine Corps executive agent for the program. The Policy for Non-Lethal Weapons defined nonlethal weapons as those "explicitly designed and primarily employed so as to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment," and established a policy framework for their use.[6] A January 1997 memorandum of agreement among the military services established the Joint Non-lethal Weapons Directorate which reports to the Marine Corps Commandant. By 1998 this organization had developed a Joint Concept for Non-lethal Weapons.[7] Attempts also are underway to link U.S. thinking on nonlethal weapons to that of allied nations. The NATO Defense Research Group, for instance, has held a series of seminars to find common ground among the Alliance members.

Driven, in part, by General Zinni's influence, the U.S. Marine Corps has been the most active service in assessing and developing nonlethal weapons. Some of the best analyses have come from Marine authors.[8] While the Air Force has shown less institutional interest in nonlethal weapons, astute strategic thinking has come from Air Force authors or been published in Air Force sources.[9] Most work on the strategic, political, and normative dimensions of nonlethality, though, has taken place outside the Department of Defense. Two of the most persistent proponents have been Chris and Janet Morris, the writers who initially convinced Ray Cline to lobby the Department of Defense. Additionally, John B. Alexander, former

program manager and leader of disabling technologies research at Los Alamos National Laboratory and now director of science liaison at the National Institute for Discovery Sciences, has been an active supporter.[10]

A growing literature on nonlethal weapons is emerging in the strategic studies community and now includes important books by Nick Lewer and Steven Schofield, and by David A. Morehouse.[11] Prestigious think tanks such as the Center for Strategic and International Studies, the Institute for Foreign Policy Analysis, and the Council on Foreign Relations have studied the military implications of nonlethality.[12] More recently, the mass media has joined in with stories in *U.S. News and World Report* and a British-produced documentary that is frequently broadcast on the cable Discovery Channel.[13] And, there has been some interest within the U.S. Congress. Senator Bob Smith, chairman of the Acquisition and Technology Subcommittee of the Senate Armed Services Committee, became a vocal supporter arguing that nonlethal weapons, "can offer US and NATO troops the capability to manage, contain, and diffuse certain volatile and low-intensity situations."[14]

Although the Army has been as energetic at the tactical level as the Marines, it could contribute more to the strategic and operational level debate, particularly given the change underway in the nature and use of American land power. In the current strategic environment, land power is used to prevent hostile states from coercing or intimidating U.S. friends and allies by deterring, preempting, or defeating aggressors. It is also employed to help protect friendly states from substate or nonstate enemies and to facilitate humanitarian relief and conflict resolution during internal violence or disorder. To do these things in an increasingly complex security environment demands creativity and new concepts. Nonlethality has the potential to be one of these concepts.

To understand the strategic and operational functions of nonlethality, senior military leaders must place it in proper

perspective. This study is intended to support such understanding. Rather than approaching military capabilities as being divided into lethal and nonlethal, we see them as a continuum based on the intensity and reversibility of force. (See Figure 2.) Furthermore, this study stresses *nonlethality* rather than specific nonlethal weapons since, at the strategic and operational levels, weapons themselves are less relevant than their context, use, and implications. The study does not attempt to provide detail on the characteristics of weapons that are fielded or under development, or on the tactical use of nonlethal weapons.[15] However, we do contend that operational decisions involving nonlethality must be made with an astute understanding of their strategic context. Therefore, we link the strategic context of nonlethality with operational concepts. While the concepts might provide a framework for doctrine and tactics, techniques, and procedures, we will not attempt specific doctrinal or procedural recommendations. Instead, we will focus on three core issues: (1) What accounts for the growing interest in nonlethality among American strategists and policymakers? (2) Should the United States fully adopt nonlethal operational concepts? and, (3) If the United States does adopt nonlethal operational concepts, what should they be?

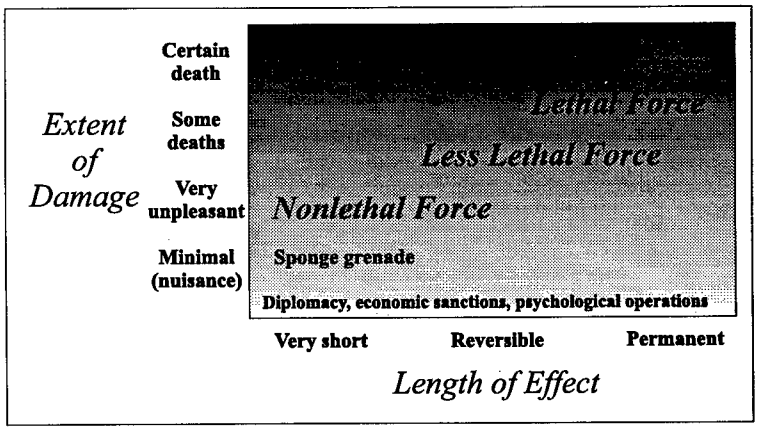

Figure 2.

What Accounts for the Growing Interest in Nonlethality?

The growing interest in nonlethality on the part of American policymakers and military strategists is a logical response to changes in the global security environment. Basically, it is part of the desire to preserve and enhance the political utility of military force. To have utility, a military force must be capable of attaining its objectives and be politically usable. If American political leaders feel that the use of force entails unacceptable political costs or pressures, the utility of even conventional forces will be limited. A number of features of the contemporary security environment may give armed forces equipped with both lethal and nonlethal weapons greater political utility than those which only have lethal means.

One such feature is the pervasiveness and strategic significance of low-level, protracted substate or internal conflict. "Less than war" or "other than war" violence has always existed but was overshadowed by traditional war between the great powers during most of the 20th century. In the post-Cold War era, though, large-scale war between great powers has become unlikely. American military prowess deters astute enemies from traditional aggression. Only a truly stupid opponent like Saddam Hussein would even consider it. Global interdependence has also made traditional state-on-state war less likely by rendering governments more vulnerable to political pressure and economic sanctions. And the fact that most of the world's major powers (save China) are, to a greater or lesser extent, democracies lowers the chances of traditional state-on-state war.[16]

But even as major conventional conflict becomes rare, "less-than-war" violence, instigated by those immune to world public opinion or willing to pay the political and economic costs associated with making war, has become common. The world is not yet "a kinder and gentler place." Most contemporary armed conflict pits substate entities in a

struggle for territory, power, or both. Violence is primal, with battle lines and alliances based on ethnicity, clan, religion, or race rather than ideology. Contemporary conflict tends to be over what one *is* rather than what one *believes*.

Primal conflict is steeped in political and moral ambiguity, much of it deliberate. Ambiguity provides cover and camouflage for those who wish to use violence while minimizing its political costs. It is not clear whether the traditional rules and laws of armed conflict apply to less-than-war violence. It is often unclear who is the aggressor and who is the victim in contemporary ambiguous conflict. The existing system for the control of warfare, centered on the United Nations and championed by the United States, is predicated on the concept of aggression. There are rules and procedures for stopping it. When an aggressor cannot be identified or when both (or all) protagonists in a conflict are equally culpable, the system breaks down. Furthermore, militias, armed gangs, and terrorist cells dominate contemporary ambiguous conflict. This makes it difficult to separate the leadership and armed forces from noncombatants.

However frustrating, ambiguous, low-level conflict cannot be disregarded by political leaders and strategists. Electronic communication, whether through the media or the Internet, mobilizes constituencies for nearly every conflict anywhere in the world. Passions can be inflamed, support or lobbying organizations formed, and calls for action spread in hours or days. Not all conflicts capture global attention—witness the bloody but largely ignored civil wars underway in Sudan, Sierra Leone, or Tajikistan—but all have the potential to do so. In part this is because modern low-level conflicts can easily spread and escalate. The 1996-97 civil war in Zaire/Democratic Republic of the Congo, for instance, sparked refugee problems and armed violence in the neighboring Congo Republic and a number of other nearby nations. The possibility of escalation is omnipresent in Bosnia and

Kosovo. The list goes on. At the same time, the booming global market in sophisticated weapons—a result of the end of the Cold War which left huge arms stockpiles spread around the world and deflated traditional markets —increased the violence associated with ambiguous, low-level conflict.

When low-level, ambiguous violence began to dominate the contemporary security environment, the core objectives of military force shifted. Primal hatreds are so strong and so savage that negotiation is difficult. Each side tends to seek total victory, and is often willing to make immense sacrifices to achieve it. In such an environment, the purpose of military power—particularly external power—is compellence.[17] Unless outside powers are willing to allow the stronger side to win, force must be used to end the violence and prepare for a negotiated resolution. This is an historic shift in the *raison d'etre* of military power.

One characteristic of intervention in ambiguous, low-level conflict is the need for psychological precision. In traditional state-on-state warfare the goal is to break the enemy's will, often by simply destroying targets of value until the enemy submits. By contrast, low-level, ambiguous conflict demands psychological precision aimed at cultivating desired attitudes, perceptions, and beliefs. Over time, pummeling targets might break an enemy's will to resist, but initially tends to steel resolve and amplify hostility. It cannot be fine-tuned for specific psychological effects such as encouraging a group to support certain leaders or policies. Standoff warfare, with its potential precision of physical effects but inherent imprecision of psychological effects, is a psychological axe rather than a scalpel. It does not work in low-level, ambiguous conflicts. Admittedly, having the capability for psychological precision does not guarantee that military actions will have the desired psychological effects. That requires deep cultural understanding to know what actions will generate what attitudes, beliefs, and perceptions. But the absence of psychological precision will almost always guarantee

failure in ambiguous, hands-on warfare. This is a prime reason for the current interest in nonlethality.

Ambiguity is not the only defining feature of the contemporary security environment. The proliferation of weapons of mass destruction and the means to deliver them is also central. Currently, at least 25 countries have or are developing nuclear, chemical, or biological weapons and the means to deliver them.[18] Soon weapons of mass destruction and ballistic or cruise missiles will be common. Preventing or postponing hostile states or organizations from acquiring weapons of mass destruction and long-range delivery systems will be an important task for the U.S. military and those of other states in coming decades. And, during crises or armed conflict, preventing the actual use of weapons of mass destruction will be even more critical.

All of these changes in the global security environment have affected the way American leaders seek to sustain public support for global engagement and the exercise of military power. Since the end of the Cold War, the Bush and Clinton administrations have remained determined to apply power to promote stability, even in regions without a tradition of American involvement or clear, tangible national interests. American leaders also have developed a deep belief in the advantages of early engagement in a crisis, in preemption, and in shaping the security environment rather than simply responding to it. If the "lesson of Bosnia" for U.S. policymakers was that an effective international response to regional conflict usually requires direct American involvement, the "lesson of Rwanda" was that it is better to intervene early rather than late.

The problem is that the public and some members of Congress are not convinced by the administration's activist arguments. Given this, sustaining public support for engagement in low-level conflict has been a key objective of the Clinton administration. This requires minimizing the risk to the U.S. military forces through participating in a coalition where the risks and costs are shared, by the use of

overwhelming force where appropriate, or by the development and use of appropriate force protection technology (the solution closest to the American heart). This helps to explain the Clinton administration's interest in nonlethality.

Should the United States Pursue Nonlethality?

While there is great interest in nonlethality in the Pentagon and among strategic thinkers, cases can be made both for and against the full development and integration of nonlethal weapons. Understanding these is vital for wise policy choices.

The Case in Favor of Nonlethality. For the U.S. military, crisis response in politically ambiguous settings has supplanted warfighting as the most common military mission. Force is employed to prevent violence, allow a "cooling down period," compel the antagonists to negotiate, and, by protecting noncombatants, help avoid humanitarian disasters or refugee crises that might spread the conflict. Nonlethality may decrease the risk to U.S. forces and help avoid criticism that would result from noncombatant casualties and collateral damage.

The central concept here is the perceived gap between diplomacy and force.[19] Traditionally, Americans have considered force as a last resort, only to be used when other means have been exhausted and important national interests are threatened by an enemy. The idea that there is a rigid distinction between peace, where force is not appropriate, and war, where it is, limits the options available to national leaders. If the only alternatives are diplomacy or full-bore military action with its implication of overwhelming force and decisive victory, national leaders will have to eschew early intervention in a crisis or attempt to paint it as a significant threat that justifies major military action. But early intervention in a crisis facilitates resolution and limits the suffering it brings.[20] To rule it out means that the American military will often enter

ambiguous conflicts only after they have become intractable or impassioned. By the same token, overselling the American stake in a conflict in order to mobilize public support can be the first step toward a Vietnam-style imbroglio. What policymakers need is a way to use force that is effective but proportionate to American stakes in a conflict.

The need to finely tune the level of force used in ambiguous conflict reflects the fact that electronic communications have made much of armed conflict into theater.[21] The warring parties are like the actors in a play, interacting with each other while playing to an audience that includes their own supporters, potential allies, and global public opinion. Since antagonists in an ambiguous, low-level conflict often do not want external intervention, they will attempt to make it as costly as possible. Outsiders who do intervene must make their key audiences, including domestic ones, view the intervention as appropriate and worthwhile. Nonlethality might provide a way to do this.

To sustain support for an intervention, the United States must make it clear that its forces are using the minimum amount of force, and must take steps to avoid turning local people against the intervention. Nonlethality might give tactical commanders a "rheostatic" capability, allowing them to fine-tune the amount of force necessary for force protection and for the accomplishment of other missions such as physical separation of combatants or the distribution of humanitarian relief.[22] America's enemies would find it more difficult to undercut public support for American involvement by killing U.S. troops or by hiding among noncombatants.[23]

Nonlethality may offer a vital counter to the sort of asymmetric strategies that America's enemies are likely to pursue in ambiguous conflicts. In the future, American forces often will face opponents whose leaders went to college in the United States. Even more will have access to electronic media and entertainment from the United States

and thus have at least rudimentary insights into the American mind. Based on their understanding of the American mindset, many enemies will seek to kill or wound U.S. forces and will shield themselves among noncombatants, particularly in urban areas. Nonlethality could trump these techniques, protecting U.S. forces while retaining the "moral high ground."

Finally, nonlethality might support efforts to neutralize weapons of mass destruction, narcotics production, storage, or transportation facilities, forces preparing for conventional cross-border attacks, or terrorist support infrastructure. Currently, rules regarding sovereignty limit the conditions under which the United States strikes preemptively at such targets. Nonlethality might provide a way to neutralize the production of weapons of mass destruction without the contamination that would result from a conventional attack.[24] Given this, nonlethal weapons that could effectively destroy machinery and facilities with limited collateral damage or casualties—whether delivered by air, missile, or special forces—might make preemptive intervention more politically palatable, augmenting deterrence and saving countless American lives.

The Case against Nonlethality. Nonlethality is not without costs, risks, and possible unintended side effects. For example, nonlethality can be seen as an attempt to avoid tough policy decisions associated with the use of force. If policymakers believe that military force can be used bloodlessly, they might be tempted to intervene in ambiguous conflicts where no tangible U.S. interests are at stake. Phrased differently, nonlethality might make all interventions appear low cost and thus cloud the judgement of policymakers. Similarly, if the public and Congress believe that the costs of intervention are low, they might not play their natural (and healthy) role of skeptic. Just as the defendant in a criminal case must be proven guilty beyond a reasonable doubt, it is a good thing for American policymakers to be similarly certain that the military intervention is necessary and appropriate. Nonlethality

might cloud such decisions. If the costs of intervention are not clear up front, the result can be fiascos like Somalia where the parties to the conflict recognize the fragility of American public support for the intervention, escalate the violence, and end up damaging U.S. prestige and eroding public support for further humanitarian intervention.

The phrase "nonlethal weapons" can be misleading to the public. As the *Joint Concept for Non-lethal Weapons* states, "[n]oncombatant casualties, to include serious injuries and fatalities, will continue to be a *regrettable but unavoidable* outcome when military power is employed, whether or not non-lethal weapons are available."[25] Anything powerful enough to affect a determined opponent can cause serious harm or even death. Nonlethal weapons are designed for use against healthy adults, but when they are used for crowd control or in urban conflict, the targets will often be the young, old, sick, or weak. Some may die. Even anti-materiel weapons are likely to cause deaths as planes crash, vehicles wreck, trains derail, and power grids fail, leaving hospitals dysfunctional. The American public, when faced with television pictures of dead civilians when they expected none, may lose its stomach for intervention.

Even if nonlethality works perfectly, it might not always decrease regional violence. Sadly, many internal conflicts must run their bloody course before the antagonists are ready for resolution. Serious negotiations only occur when both sides tire of the violence. Outside intervention may be like holding the lid on a boiling pot and end up postponing resolution rather than facilitating it. And, in a time when many states are becoming leery of American power, any steps taken by the United States to make intervention easier, including the development and deployment of nonlethal weapons, will increase distrust and perhaps even hostility. For many foreigners, to transform what is already a peerless military into something even more effective suggests hidden and insidious motives.

Once U.S. forces equipped with nonlethal weapons do intervene in an ambiguous conflict, nonlethality might increase the level of violence rather than lower it. Groups targeted by nonlethal weapons may escalate rather than submit. If U.S. military targets are protected with nonlethality, opponents may simply seek softer targets, perhaps American civilians in the country (such as aid workers), U.S. facilities outside the area of conflict, or sites in the United States itself which can be struck by terrorists. Nonlethality also may erode deterrence as opponents develop a tolerance for the unpleasant effects.

Nonlethality might contribute to short-term, tactical success by allowing troops to protect themselves from an angry crowd or clear an urban area of enemy forces, but it might bring long-term, strategic problems by making enemies believe that the costs of opposing the United States are acceptable. And nonlethality used against materiel rather than people may prove more expensive than conventional destruction in the long term, requiring repeated applications. Generally it is easier for an enemy to repair a system or facility struck by nonlethal weapons than one utterly destroyed by conventional munitions.

At the tactical level, nonlethality might lead commanders to be less discriminating in distinguishing legitimate military targets from unacceptable ones, thus weakening or circumventing the law of armed conflict. Nonlethality could generate a "when in doubt, shoot" mentality. Conversely, the presence of nonlethal weapons could lead tactical commanders to postpone the use of lethal force longer than they might otherwise, thus exposing their troops to increased danger. Nonlethal weapons could further complicate the decisions that tactical commanders must make in very stressful conditions. And, nonlethal weapons could increase the load that already overburdened troops must carry and add new maintenance and logistics requirements.

The availability of nonlethal weapons for preemption against weapons of mass destruction sites or production facilities, narcotics production, storage, or transportation facilities, forces preparing for conventional cross-border attacks, or terrorist support infrastructure might lead political leaders to forget that the use of nonlethal force is still a violation of sovereignty and should only be done under the most dire conditions. Even at the tactical level, nonlethality moves the United States into unexplored ethical terrain. Some technology that appears nonlethal, such as blinding lasers, has been deemed to be in violation of human rights.[26] Other potentially useful nonlethal technologies are or may be prohibited by the Chemical Weapons Convention and the Biological Weapons Convention.[27]

If the United States Chooses to Develop Nonlethal Operational Concepts, What Should They Be?

Whether to pursue nonlethality is a strategic decision based in part on operational considerations. If such a decision is made, the development of nonlethal operational concepts should be guided by two overarching considerations. First, nonlethality is not a discrete and distinct way of conducting military operations. Rather, it is a term that represents that portion of the spectrum of force between persuasive diplomacy and capabilities consciously designed to be deadly.[28] Consequently, some nonlethal systems might be a small step removed from negotiation. Their impact will be reversible and tolerable. Even damage to materiel may be easily and quickly repaired. On the other hand, some nonlethal capabilities may be distinguished from lethal systems only by the fact that they were not primarily designed to cause death. The damage done to materiel and targeted systems may be as irreversible or difficult to repair as that done by conventional munitions. Nonlethal operational concepts logically will range from those intended to merely persuade to those designed to compel desired behavior.

Second, even though the principles of military necessity and proportionality were developed to constrain lethal warfare, they equally apply to nonlethality. Causing people to convulse uncontrollably while sorting out the combatants, for instance, would be just as much a violation of the law of armed conflict as using a rifle to wound them. International law recognizes that some noncombatant casualties and "collateral damage" are unavoidable. But the principle of proportionality demands that the suffering of war, particularly on the part of noncombatants, be minimized. Thus, the development of nonlethal operational concepts that provide for the application of more effective force to achieve less critical military objectives may be more difficult than one might suspect.

While the main rationale for the use of nonlethality at the strategic level is to enhance the political utility of force, at the tactical and operational level it is psychological precision. The greater the need for psychological precision, the greater the value of nonlethality. In large-scale warfighting where the objective is decisive victory and the major psychological state desired is the collapse of the enemy's will to resist, nonlethality will play a secondary role, supplementing lethal force. In ambiguous conflict where greater psychological precision is required, nonlethality may be secondary or primary, depending on the specific situation and the psychological makeup of those against whom nonlethals will be used. The core task for the operational commander and his staff is to discern what specific attitudes, beliefs, and perceptions he wants to create among the parties to the conflict. Examples may include:

- The United States is benign now, but will punish actions at variance with the desired ones, especially the use of violence.

- The United States is not hostile toward the local people, but will punish combatants.

- The United States is showing great restraint.
- The United States is able to protect its forces even in the face of efforts to harm them.
- The United States has the capacity to counter proliferation, terrorism, narcotrafficking, and aggression even given the political restraints of global leadership.

This list is notional. The specific psychological objectives will vary from operation to operation. The appropriate role of nonlethality and the conditions for the use of nonlethal weapons will be determined, in part, by these psychological objectives.

Given that precision of effect is a core characteristic of the ongoing revolution in military affairs and that nonlethality is one way of augmenting such precision, the U.S. military is likely to pursue the development of 21st century operational concepts based on types of operations.

Nonlethal Flexible Deterrent Options. At one end of the operational continuum, nonlethality should be integrated into flexible deterrent options (FDOs). FDOs are a blend of steps taken to deter threats to U.S. interests. They usually include both military and nonmilitary actions. Nonlethality can create a firewall between adversaries and minimize confrontation, thus allowing effective diplomacy. Nonlethality may also limit the chances of escalation. In the first case, the rapidity with which the non-lethal FDOs could be introduced would be key. In the second case, timing would be critical.

Nonlethality could be more appropriate than lethal force in FDOs that seek to persuade rather than compel. Still, to deter effectively, nonlethality must inhibit movement toward confrontation by exacting a sufficient price. For example, nonlethality could be employed to interdict the marshaling of resources and personnel necessary for aggression. The nonlethality component of FDOs should

raise the costs of aggression without putting U.S. personnel or noncombatants at significant risk. Nonlethality alone may not accomplish this, but may do so in conjunction with other military and nonmilitary actions. Particularly, nonlethality can enhance the effectiveness of diplomacy and coalition-building as well as economic and informational FDOs. "The effectiveness of sanctions," writes Joseph Siniscalchi, "can be significantly enhanced by concurrent employment of non-lethal weapons."[29] To support the other elements of national power, force based on nonlethality must not be perceived as heavy-handed and must not fuel the escalatory propensities of potential belligerents. It should be seen as stabilizing and de-escalating. The operational methods by which nonlethality is used will play a major role in determining whether it is able to play this stabilizing role.

When part of FDOs, nonlethality must avoid the "slippery slope" of intervention. This is not to say that nonlethality may be applied only in situations where deadly force would be used if necessary. To hold that would be to deny the increased utility of the U.S. armed forces that nonlethality promises. Likewise, there should be no policy that nonlethality must be employed before resort to lethal force. The concept is not for a "graduated response" but for a "graded" application of force that is reasonably certain to achieve the desired deterrence.

In some situations it would be prudent to send a clear signal that if nonlethality proves unsuccessful, resort to lethal force will be certain. Where one or more of the antagonists are anxious for the confrontation to assume lethal dimensions, however, such a pronouncement would provide a road map for escalation and U.S. armed forces should not promise that lethal force only will be used for self-defense. A better alternative may be deliberate ambiguity as to whether, or to what extent, the United States would be willing to escalate. Nonlethality is not intended to obviate lethal force but may, in some situations, supplant lethal weapons.

In order for nonlethal FDOs to have the intended psychological impact, they must be supported by in-depth intelligence. Commanders designing FDOs must understand the mindset, values, and motives of potential opponents. This will require a staff rich in regional experience and cultural awareness which can accurately assess the psychological impact that specific weapons are likely to have under certain conditions. A data base of culturally-sensitive psychological research would be a valuable planning tool for FDOs and other uses of nonlethality. In developing FDOs, commanders must avoid nonlethal measures that are likely to evoke lethal responses. A nonlethal capability should not be included as part of an FDO unless it is more likely to reduce tension than exacerbate it.

Nonlethality and Military Operations Other Than War. Nonlethality has operational utility beyond deterrence. Military operations other than war (MOOTW) such as humanitarian assistance, military support to civilian authorities, peace operations, and noncombatant evacuation operations will provide fruitful areas for nonlethality. Most MOOTW involve precisely the kind of ambiguous conflicts where nonlethality can have the greatest utility. In fact, nonlethal weapons should be part of the standard mission package in MOOTW. They should range from low- to mid-intensity, and from very short effect to reversible but lasting effects. (See Figure 3.) For MOOTW, nonlethality would have a number of functions:

Force and Site Protection. Effective force and site protection requires the ability to quickly and efficiently distinguish, segregate, and neutralize threats, even when they are interspersed among or exploit civilians. The standard procedure for force and site protection in MOOTW should be a layered defense, the outer ring of which should be nonlethal but the inner parts of which should be increasingly lethal. The fact that nonlethal measures are backed by lethal ones should be clearly signaled. For force

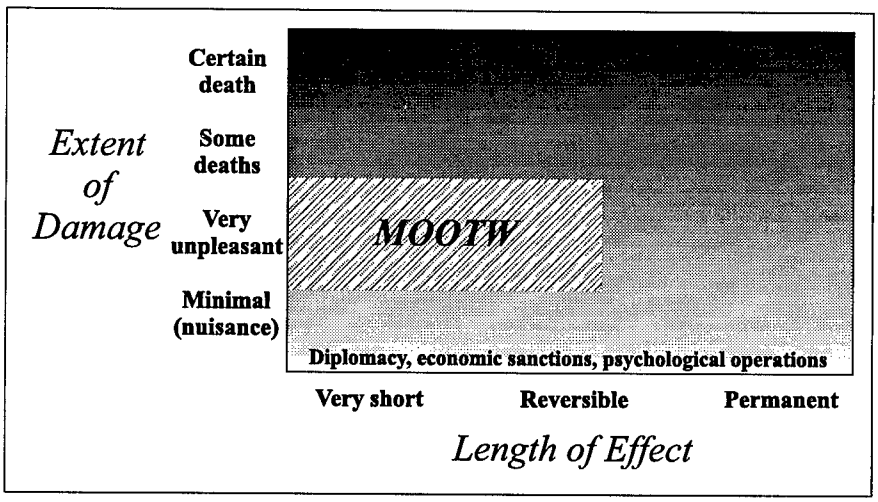

Figure 3.

and site protection, nonlethal capabilities augment deadly force, but do not replace it.[30]

Riot and Crowd Control. A concept for dispersing crowds and controlling riots is a necessary complement to force and site protection. The concept should provide general incentives for the crowd to disperse peacefully while creating special inducements for agitators to desist. The timeliness and persuasiveness of the general incentive must be commensurate with the intensity and potential destructiveness of the mob mentality exhibited by the crowd. Crowds that have the potential for violence but have not yet reached that stage might be dispersed through patient dialogue. On the other hand, a riotous mob might require immediate treatment by nonlethal capabilities further up the force continuum. This means that U.S. forces should have access to nonlethal weapons with varying intensity of effects. Those for use in, say, humanitarian relief operations against an agitated but nonviolent crowd should be "nuisance" style weapons with effects that are quickly reversible and which cause only limited discomfort. Those for use against a dangerous crowd would clearly need to be of a higher intensity.

Agitators require more particularized treatment not only because their actions fuel the emotions of the present crowd, but also because they can repeat their incitement at a later time or in a different place. Their permanent dissuasion, therefore, is key to long-term stability. In most cases, removal of agitators will not be feasible before the crowd disperses. Still, in a manner somewhat analogous to separating combatants from noncombatants, agitators must be identified, temporarily silenced, and marked for future apprehension. This can be accomplished by combining appropriate nonlethal doctrine, training, and capabilities. Some extant nonlethal weapons have shown great utility for general riot and crowd control during humanitarian relief and peace support operations. Others need further testing. Advanced and more effective capabilities are under development, some of which will enable better targeting of agitators. As with force and site protection, nonlethal weapons used in crowd control should, under most conditions, be backed by lethal weapons, or at least the belief that American forces are prepared to escalate to lethal force must be implanted in the crowd.[31] Nonlethal weapons should also have adequate range so that soldiers using them can keep a safe distances from hostile crowds.

According to the *Joint Concept for Non-Lethal Weapons*, "the capability to resort to deadly force must always remain an inherent right of individuals in instances of self-defense, as well as an inherent responsibility of commanders when the mission and circumstances warrant it."[32] This policy and the means of effecting it must be obvious to the crowd. That suggests that the forces equipped with nonlethal and lethal weapons should remain close enough for mutual support, but should be distinguishable by the crowd. The precise configuration will, of course, depend on the circumstances.

Physical Separation through Buffers or Demilitarized Zones. In low-level conflict, successful negotiations often require physically separating the parties to a conflict. The

goal is to diminish passion and hatred. Nonlethal capabilities could be used by peacekeeping forces to initially separate and then maintain segregation of belligerent groups without endangering negotiations. A mix of capabilities including anti-personnel, anti-materiel, counter-mobility, and barrier systems can be brought to bear to reduce substantially the need to interpose U.S. forces between opposing factions. The actual nonlethal capabilities employed will depend on the specific operational conditions, but their use must appear even-handed.

Interdiction and Isolation. There will be times during MOOTW that U.S. forces will need to prevent the supply or resupply of parties to a conflict and isolate them from supporters. In many situations, it would be beneficial to do so with as few casualties as possible to avoid escalating tensions and increasing hostility from whomever is providing the supplies. Nonlethal capabilities can perform such interdiction in a manner that is neither threatening nor provocative, but seen as preventive. Air- or artillery-delivered nonlethals could be used to misdirect or redirect shipments, spoil supplies and disable equipment in staging areas, and interdict resupply convoys.

Operational Persuasion. In peace support operations, there may be times that parties to the conflict need to be persuaded to stop certain types of behavior or pursue negotiations more seriously. Using deadly force for this risks escalation and might cause negotiations to break down. Nonlethality provides a way for U.S. forces to convince a recalcitrant party to change behavior while limiting the chances of escalation or the dilution of international support for the operation. The American "stick," in other words, should be no bigger nor threatening than necessary but must be sufficient. A wide variety of nonlethal capabilities can be combined to form an operational pattern designed to accomplish such strategic objectives.

Security Assistance. One of the most important activities of the U.S. military is its efforts to preempt conflict and shape the security environment by providing advice and assistance to friendly states. Some of those countries face substate or nonstate challenges. Since nonlethality is perfectly suited for counterinsurgency and other measures directed against internal threats, the U.S. armed forces should be prepared to provide advice and assistance on the integration of nonlethal capabilities into plans for providing internal security. The same holds for American assistance to U.N. peacekeeping forces or those from other friendly states. Nonlethality, in other words, should be an integral element of U.S. security assistance and nation assistance programs. Low-technology nonlethal capabilities designed for close action may be most appropriate. Other types of nonlethal technology may be inappropriate for transfer to other states for maintaining internal stability.

Small-scale Conflict. There has been little discussion concerning the use of nonlethality in small-scale conflicts (SSCs). While there may be some hesitation among observers about the utility of such weapons in actual conflict, we believe that they can play a useful role. Nonlethal weapons can be used to supplement the use of lethal force, largely in ways already outlined in the previous discussion of MOOTW. Additionally, given the need to prevent small-scale conflicts from spreading, nonlethals can be used as a means to defuse, rather than escalate, situations (e.g., crowd control or immobilizing hostile groups). In some cases, they may be used in lieu of more lethal effects (e.g., disabling vehicles instead of destroying them). Third, nonlethals can be used to supplement and enhance the use of lethal force. The guiding principle behind the employment of nonlethal means should remain using the lowest level of force necessary to achieve the objective with acceptable risks to friendly forces and noncombatants.

The use of nonlethal weapons in SSCs is not without cautions, however. As U.S. Army Chief of Staff General Dennis J. Reimer notes, "A characteristic of missions in the

next century will be the ability to quickly transition between the use of lethal and nonlethal means."[33] This could create confusion on the part of subordinate leaders and their soldiers over which level of force they should apply. This suggests that nonlethal force cannot be used in isolation. Forces must have immediate recourse to more lethal force, should it be required.

Cautions notwithstanding, nonlethality will play a significant role in small-scale conflicts. Most of the concepts discussed above for FDOs and MOOTW will apply, but the overriding consideration for small-scale conflicts will be to facilitate timely mission accomplishment while controlling and ultimately reducing the level and scope of violence. In most small-scale conflicts, the commander first should employ nonlethal capabilities in combination with lethal weapons to contain the conflict and establish conditions for mission accomplishment. Once that is accomplished, the commander should begin a transition to purely nonlethal force to set the stage for turnover of the situation to the host nation and the withdrawal of U.S. forces.

Nonlethality can be used, therefore, both to supplement and supplant lethal weapons in small-scale conflicts. Nonlethality should be used without accompanying lethal weapons in situations where the use of lethal weapons would not be necessary for mission accomplishment, and where the use of lethal weapons would be unacceptably escalatory. That is, lethal weapons should not be used in situations where nonlethal capabilities employed in conjunction with nonmilitary instruments of national power would be sufficient for mission accomplishment.

In situations where lethal force is required, it should be supplemented by nonlethal capabilities. The combined application of lethal and nonlethal force can facilitate more efficient and effective mission accomplishment for two reasons. First, nonlethal capabilities can mitigate and ameliorate adverse effects of lethal force such as collateral damage, noncombatant casualties, and perceptions of

heavy-handedness. These features of nonlethal force would be particularly critical for military operations in urban terrain (MOUT) or other situations in which combatants are interspersed with noncombatants. Second, nonlethal capabilities can enhance the effectiveness of lethal force by disabling enemy personnel and equipment, creating lucrative targets, affording more precise engagements, inhibiting enemy sustainment efforts, and eroding the enemy's will to fight. For small-scale conflicts, nonlethal capabilities should figure prominently in operational designs that seek to apply precisely the right type and amount of force when and where needed.

Major Theater War. One might not expect nonlethal capabilities to play a substantial role in major theater war with its emphasis on the application of overwhelming force to rapidly defeat the enemy. The idea of minimizing force is not a dominant consideration. Nonetheless, the principles of military necessity and proportionality apply to major theater war as much as to less violent operations. Major theater war would strain national capabilities and call for the most efficient application of all available and suitable military systems. Consequently, nonlethality should be part of theater campaign design in ways that enhance the effectiveness of lethal weapons. In particular, nonlethality may augment destruction of some key targets, and help in situations where enemy combatants are mixed with civilians. The nonlethal systems used in major theater war would range from those with short-term effects used in urban combat, up to those with permanent effects used for strategic strikes. The intensity of effect for nonlethals used in major theater war would, of course, generally be higher than those used in MOOTW. (See Figure 4.)

If the United States becomes involved in a major theater war in coming years, urban engagements may pose some of the greatest challenges. Cities will often be the strategic centers of gravity, since that is where most people and wealth will be. Combat will occur there both because of the concentration of national power and because enemies,

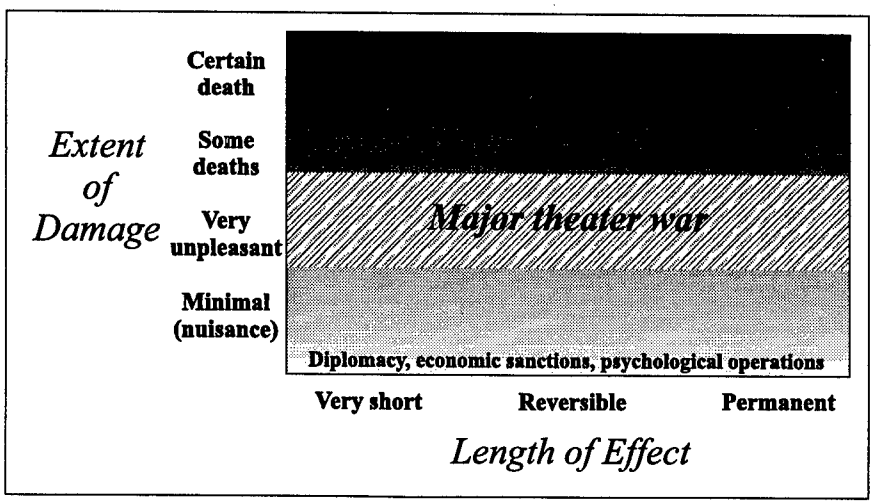

Figure 4.

recognizing the complexity of urban warfare, will choose to fight there as an asymmetric counter to American prowess in open terrain.

Stand-off, lethal methods will not be appropriate in urban engagements, even if they are substantially more precise than those available today. Military operations in urban terrain (MOUT) will involve face-to-face confrontations and close-in solutions. Nonlethal capabilities might enable the U.S. military to remove enemy forces from urban environments with minimal civilian casualties and limited risk to American forces. If nonlethal weapons were developed which were capable of temporary incapacitation, separating combatants and noncombatants would entail much less risk to U.S. forces. To hold areas already cleared, nonlethal weapons could limit the risk to U.S. soldiers performing sentry duties and lessen the chances that noncombatants wandering through cleared areas would be harmed. For refugee control, nonlethals could help prevent riots and assist U.S. forces in dealing with any combatants that attempted to hide among refugees.

Even outside urban combat, nonlethality can mitigate the undesirable side effects of lethal weapons and modulate

the punishment inflicted upon an aggressor. For example, if the intent is to limit the scope and/or duration of the effects of war on an enemy, the theater commander might employ point-target nonlethals such as vehicle disablers and anti-mobility systems. This approach would facilitate post-war reconstruction and restoration of essential services in situations where replacement of the war-making enemy government is a U.S. objective. On the other hand, if the objective is to reverse an aggression and inflict punishment on an aggressor, nonlethal capabilities which are more widespread or semi-permanent in their effects might be appropriate. Of course, if the United States desired to mete out extreme punishment, it could apply purely destructive lethal force. In any case, the availability of nonlethal capabilities that provide a continuum of force between diplomatic persuasion and lethal force would provide increased options to strategists and operational planners.

Direct Action Missions. Another category of operations for which nonlethal capabilities have potential utility are those referred to as direct action missions. They may include strategic preemption, hostage rescue, and counter-terrorism.

Strategic Preemption. Nonlethality could be a central feature of systems the United States uses for strategic preemption, whether to control the proliferation or deployment of weapons of mass destruction, to counter narcotrafficking or terrorism, or to launch a spoiling or disarming attack to prevent imminent conventional aggression.[34] Strategic preemption sometimes entails a breech of national sovereignty, albeit a necessary one. To be able to conduct such missions with limited casualties would greatly aid national leaders who must decide if the risk of inaction justifies the political costs of preemption.

Strategic preemption may involve standoff, air-delivered systems or those used by special forces in close proximity to the target. Unlike the nonlethal weapons

described in DODD 3000.3, those used for strategic preemption may have relatively irreversible effects on materiel. (See Figure 5.) The concept for employment of nonlethal capabilities against weapons of mass destruction must minimize the risk of precipitating the deadly effects of the targeted weapons while ensuring the weapons are no longer usable or accessible by their owners. The concept might consider gluing or otherwise sealing the entrances to facilities shut, use of chemical, electronic, or acoustic systems to damage electrical or electronic control systems, or making the weapons otherwise inaccessible to their owners. When directed at conventional forces or the power bases of narcotraffickers, nonlethal capabilities would focus primarily on permanent damage or destruction to certain types of equipment and facilities and might take the form of material embrittlement, decay of rubber, or fuel contamination.[35]

Hostage Rescue and Counterterrorism. Hostage rescue and counterterrorism situations are distinct military operations. Nonetheless, with respect to the use of nonlethal capabilities, they are sufficiently similar to be discussed together and addressed by similar concepts. The paramount concern for such operations is the precise control and application of force. The hostage takers and terrorists must be immediately identified and neutralized without

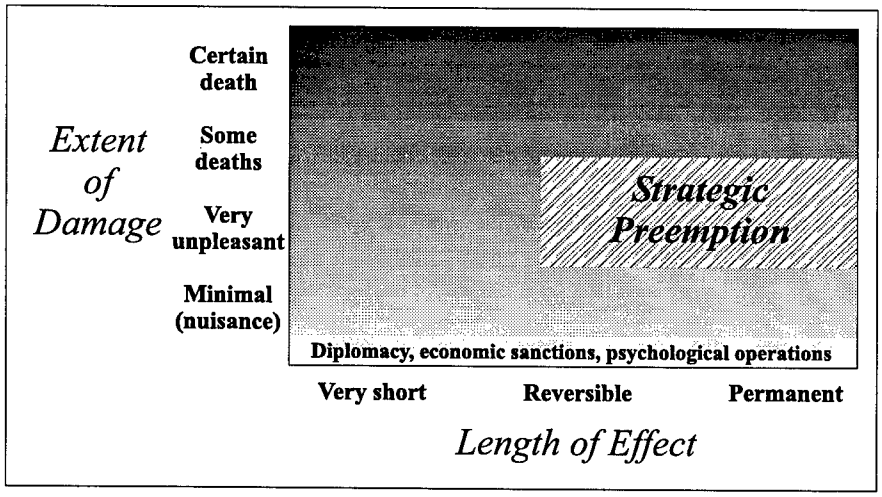

Figure 5.

unnecessary harm to hostages or victims. That is best accomplished by virtually if not physically segregating the hostage takers or terrorists from the hostages or victims.

In practice, however, that is not often possible. Consequently, a concept of using nonlethal capabilities to incapacitate hostage takers and terrorists without inflicting more than temporary discomfort upon the hostages or victims slowly has been evolving. To date, the efficacy of the concept has been constrained by the lack of suitable nonlethal capabilities. As more interest in nonlethal technologies is generated and new capabilities are developed and fielded, this concept can mature. The result will be a substantial reduction in the risks associated with hostage rescues and counterterrorist operations, and increased probability of success.

Rules of Engagement. A discussion of operational concepts for the employment of nonlethal capabilities would be incomplete without addressing their impact on rules of engagement (ROE). Fundamentally, rules of engagement should seek to match the level of force called for in a situation to the means available for generating force. Stated differently, a situation creates a "military necessity" for a given level of force to accomplish a presumably legitimate mission. Service members must be able to generate force "proportionate" to the necessity. The problem that confronts commanders in military operations below the level of major war is that the appropriate level of force often falls within the interstices of available means, and a good match is not possible.[36] The alternatives are either to risk mission failure due to reluctance to generate the force required, or to risk inflicting unacceptable injury, death, or collateral damage.

Military leaders have labored long to craft ROE to bridge this gap—to connect what cannot be connected. Their dilemma is that they are faced with two independent variables beyond their control: available weapons systems and force requirements generated by the situation and mission. Some analysts and military officers suggest that

establishing new ROE for nonlethal capabilities will create decision variables too complex for service members to manage. Actually, the reverse is true. Not providing ROE that match a service member's capability to respond with the level of force called for by the situation creates an insoluble situation that at best promotes mission failure and at worst results in excessive force and unnecessary injury or death. The addition of nonlethal capabilities to the options available to commanders will allow more precise tailoring of ROE for MOOTW as well as for small-scale conflicts.

When reviewing the rules established regarding the use of force by the U.S. military and various law enforcement agencies, one rule is universal—deadly force should not be used when nonlethal force could reasonably be expected to suffice.[37] This rule should serve as the "prime directive" in crafting ROE for the use of nonlethal capabilities. Given that various nonlethal capabilities range along a spectrum of force that falls between persuasive diplomacy and lethal force, it follows that ROE should provide that the level and type of nonlethal force applied should be the minimum necessary to provide reasonable assurance of mission success and acceptable risk. These general prescriptions provide a foundation for the development of more specific ROE and operational procedures tailored to specific situations and capabilities.

There are additional generalizations. For example, the rules of engagement for the use of nonlethal capabilities should provide for the seamless integration of lethal and nonlethal weapons within the design of the operation. Rules of engagement should discourage use of nonlethal capabilities in situations where escalation to lethal force would be both certain and imminent. Nonlethality, particularly in MOOTW, may be the preferred option, but it should never be the only option. Additionally, ROE for nonlethal capabilities must not signal that the use of lethal weapons has been ruled out. Furthermore, ROE should place the decision as to whether lethal or nonlethal means

should be used at the lowest possible level. In general, the use of nonlethality for strategic preemption will require national level decision. There must be plans for integrating nonlethality into campaign plans for major theater war in accordance with the theater commander's intent. Finally, the actual use of nonlethality in MOOTW should be left to the discretion of tactical commanders.

Conclusions.

The strongest proponents of nonlethality contend that it portends a fundamental shift in the nature of warfare. Nonlethality, David A. Morehouse writes, "is a revolutionary concept that can guide the international community into a new world order."[38] The critics of nonlethality, on the other hand, consider it a dangerous Pandora's Box that will lower thresholds for the use of force. They reason that policymakers will be tempted by nonlethal capabilities to employ U.S. forces in operations that could escalate into warfare without adequate discussion and debate. We suggest that the utility of nonlethality in protecting and advancing U.S. national security objectives falls somewhere between these two extremes.

With appropriate forms of technology, doctrine, operational concepts, and rules of engagement, nonlethality could increase the utility of the U.S. armed forces during this era of ambiguous conflict. Nonlethality could provide political decisionmakers and military commanders with means to dominate the portion of the spectrum of force that lies between diplomacy and lethality. In doing so, they will be better able to apply the precise psychological pressure required to modify an adversary's behavior in a certain way. Nonlethality can be used to deter or preempt conflict, separate belligerents and allow for "cooling off," encourage negotiation, protect noncombatants, facilitate disaster relief and humanitarian assistance operations, enhance the effectiveness of lethal weapons and other instruments of national power, and reduce risks to U.S. forces.

Nonetheless, there are several cautions associated with the use of nonlethality. The apparent avoidance of political risks that nonlethality provides can delay necessary debate and the making of tough policy decisions. The pursuit of nonlethality by the United States could be viewed as hegemonic by other countries. Nonlethality could compromise the principle of military necessity if it encourages field commanders to be less discriminating in distinguishing military targets from nonmilitary locations and populations. Finally, nonlethality could lead to increased violations of sovereignty.

From an operational perspective, nonlethality appears to have more applicability at the lower end of the conflict spectrum. Nonlethal capabilities should be included in plans for the application of flexible deterrent options. In that role, nonlethality can add to the effectiveness of diplomatic, economic, informational, and other military FDOs. It is critical, however, that nonlethal FDOs be crafted to avoid inadvertently placing the United States on the "slippery slope" to involvement in a series of peripheral bloodlettings that might undercut American public support for a strategy of global engagement. In that regard, it will sometimes be necessary to clearly announce that U.S. forces will resort to lethal force if nonlethality fails to have the desired effect. In other situations, it will be more prudent to create deliberate ambiguity on the willingness to resort to deadly force.

Within the context of MOOTW, nonlethality should be considered for force and site protection, riot and crowd control, separation of belligerents, interdiction of resupply efforts or offensives, operational persuasion, and security assistance. For small-scale conflicts, nonlethality can help insure mission accomplishment while controlling and ultimately reducing the level of violence. Although nonlethality will be most useful at the lower end of the conflict spectrum, it has significant applicability for major theater warfare. It that regard, nonlethality should be employed to enhance the effectiveness and efficiency of

lethal weapons. Nonlethal capabilities also can be used to measure a certain dose of punishment to aggressor states and to facilitate post-war reconstruction. Finally, nonlethal capabilities can be used for direct action missions that might include strategic preemption, hostage rescue, and counterterrorist operations.

Nonlethality will not create difficult ROE problems. Rather, nonlethality will enable commanders to tailor better rules and operational procedures to ensure force proportionate to that necessitated by the situation and mission is available and usable. Consequently, decisions that must be made by field forces concerning the appropriate level of force to be applied will be less ambiguous. Rather than adding complexity to ROE issues, nonlethality should be seen as providing unprecedented fidelity in the application of force to accomplish a wider set of legitimate missions.

Nonlethality will not remove violence from armed conflict. Nonlethal capabilities will not obviate lethal forces, at least not for the foreseeable future. In fact, in some cases, nonlethality should be used to enhance the effects of lethal weapons. Still, nonlethality can sufficiently increase the utility of American land power in this era of ambiguity and uncertainty to warrant its pursuit.

Recommendations.

- The U.S. armed forces, particularly the Army and Marines, should develop operational concepts for the employment of nonlethality.

- These operational concepts should not be constrained by extant capabilities or those under development. The concepts must drive technological investigations. In particular, research is needed on wide-area, stand-off nonlethal systems, and on variable intensity nonlethal systems so that commanders have a true

rheostatic capability rather than an "either/or" choice between lethal and nonlethal means.

- The Army should begin research and development of data bases to support assessments of the psychological impact which certain actions are likely to have in certain cultures. This will help commanders to select the appropriate circumstances for the use of nonlethal weapons and guide the research and development community as they refine nonlethal weapons, thus linking operational imperatives and technology.

- While the regional combatant commanders and services decided that the Standing Rules of Engagement should not be modified to account for specific weapons systems such as nonlethals, this issue may need to be revisited. Once advanced operational nonlethal concepts and technology are in place, the Standing Rules Of Engagement again should be reviewed for possible modification or supplementation to ensure full realization of the additional capabilities nonlethality has to offer.

- Joint doctrine setting forth the operational concepts for the use of nonlethality in design of operations should be developed and promulgated. Service doctrine should follow suit.

- Policymakers should remain ever-mindful of the cautions associated with the application of nonlethality.

APPENDIX
NONLETHAL TECHNOLOGIES

In the broadest sense, U.S. Department of Defense Joint Non-Lethal Weapons Program distinguishes two "core capabilities" for nonlethal weapons:

Counter-personnel capabilities including crowd control, incapacitation of individuals, denial of access, and clearing of facilities and structures;

Counter-materiel capabilities, including area denial and the disabling or neutralization of equipment or facilities.

Based on requirements passed from field commanders, current Department of Defense research and development focuses on:

Acoustics: Systems that deter, disorient, disperse, disable, and incapacitate individuals and deny access to areas.

Entanglements: Systems that deter, detain, disable, and often deny access and mobility to individuals through entanglement nets.

Kinetics: A family of direct fire, low hazard, non-shrapnel producing munitions and systems which will produce less-than-lethal trauma upon impact. This may include a modular crowd control munition based on the claymore mine dispenser which uses stinging rubber balls, a 66 mm system that can fire a "stingball" as an alternative to the current smoke grenade, and various other types of rubber and sponge projectiles.

Riot control agents: Crowd control systems that confuse, stop, neutralize, disable, disorient, distract, disperse, or isolate groups of people or potential threats.

Vehicle stoppers: Mechanical and directed energy systems that incapacitate vehicles, vessels, and aircraft.

Other nonlethal technologies are considered feasible and potentially effective. Some of these may be rejected on legal or ethical grounds, technological infeasibility, or failure to meet military needs. Others may enter the inventory of the U.S. military in coming decades. These technologies include:

Computer viruses that can cause computer systems or networks to malfunction, be controlled by external forces, or be destroyed.

Morphing which is the use of electronic audio and video media to simulate speech and mannerisms of an individual.

Conductive particles that can induce short circuits in electrical or electronic equipment.

Depolymerizing agents that cause polymers to dissolve or decompose.

Liquid metal embrittlement that significantly reduces the strength of metals or alloys.

Non-nuclear electromagnetic pulses that explode ammunition dumps or paralyze unprotected electronic systems.

Petroleum contaminators that make fuel unusable.

Supercaustics that corrode, degrade, or rot structural materials.

Superlubricants that cause a lack of traction.

Superadhesives that impede mobility by being sticky or space-filling.

Isotropic radiators that dazzle people or optical sensors with bright light.

Lasers that disable or destroy optical sensors or, potentially, blind people.

Pulsing lights that disorient or confuse personnel and degrade optical sensors.

Calmative agents that temporarily incapacitate personnel.

Carbon particles that short-circuit generators or electronic equipment.

High-power microwaves which destroy electronic microcircuits through pulsating energy emissions.

Climate control technology.

Electric stun guns.

Visual stimulus, illusion, and obstruction such as holograms.

Optical coatings deposited on optical sensors or viewing ports.

Soil destabilization substances that cause soil to become soft or unstable.

Malodorous substances that cause discomfort to personnel.

ENDNOTES

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22. *Joint Concept for Non-Lethal Weapons*, Quantico, VA: Joint Non-Lethal Weapons Directorate, 1998, p. 7.

23. *Nonlethal Weapons: Emerging Requirements for Security Strategy*, p. 8.

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33. Dennis J. Reimer, "Leaping Ahead to the 21st Century," *Joint Force Quarterly*, Autumn/Winter 1997-98, No. 17, p. 21.

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