STRATEGY RESEARCH PROJECT

THE STRATEGIC IMPLICATIONS OF THE USE OF NONLETHAL FORCE

BY

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ABSTRACT

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The national defense strategy of the United States is based on the premises of shaping the environment, responding to existing threats and preparing for the future. Nonlethal technologies can influence all these requirements. Like most nations, America uses its diplomatic, informational, military and economic resources to affect national policy. Nonlethal technologies can impact all the elements of national power, not just the military ones. This paper will examine emerging nonlethal technologies as well as those currently available. It examines the moral and legal implications of using nonlethal weapons, as well as potential conflicts with existing American treaties. It will examine the issue of nonlethal weapons changing the essence of military force. Finally, it will address the question of the long term uses these instruments will have in U.S. national policy.

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War is brutality and there is nothing you can do to change it.

—General William T. Sherman

The United States must develop and use nonlethal weapons as it implements its 21st Century military strategy of shaping the environment, responding to threats and preparing for the future. Nonlethal weapons and nonlethal technologies must have a significant role in creating the environment necessary to achieve these goals. Conversely, failure to maximize their potential will limit the exercise of American policy and inhibit the possibilities for the effective future use of military force.

As stated in the 1997 Quadrennial Defense Review, United States military forces exist to compliment other sources of national power, including diplomacy, economic trade and investment and information.[1] Shaping the international environment means fostering an international environment favorable to American interests. This includes promoting regional stability, preventing or reducing conflicts and threats, and deterring aggression or coercion.[2]

Economic, diplomatic and informational tools may, at times, be insufficient to promote and protect US interests. By responding to crises, the US shows its resolve, exercises its international leadership and promotes democracy. To be effective and credible, American military forces must be capable of

responding across the entire spectrum of conflict, from peace operations to conventional war.

The third leg of the Quadrennial Defense Review triad is preparing American military forces for an uncertain future. Although the global environment is increasingly unclear, America must retain its capability to respond and deter now. It must simultaneously upgrade its combat capabilities and support structures in an environment of unrelenting international demands. Preparing for the future involves modernization of weapon systems and exploiting the revolution in military affairs. It also includes developing insurance policies against the inevitable asymmetrical threats America and its armed forces will face at the beginning of the new century. At the core of the revolution in military affairs is a philosophy that future wars can be fought by significantly smaller forces using highly sensitive surveillance equipment and high accuracy ballistics.

For at least two centuries, writers have described weapons which use energy waves or pulses to knock out, knock down or disable enemies without necessarily killing them. For at least the last 40 years the US military has been pursuing (usually secretly) weapons of this type. Very few usable nonlethal weapons currently exist that have been designed for purely military purposes.[3] However, with the end of the Cold War and the expansion of American humanitarian and peacekeeping missions, the search for weapons that could incapacitate people without

inflicting lethal injuries has intensified. As the search for the right weapons intensifies, so does the search for their long term impact on US national military policy.

It appears America must develop and exploit the use of nonlethal options to effectively meet the national defense strategy outlined in the QDR. The international environment contains too much ambiguity, too many threats, and a variety of constraints which America has never previously seen arrayed against it. America must use every option, look forward innovatively and take the lead in developing techniques and strategies which best suit its national purposes. Many see nonlethals occupying a central position in a fundamental reorganization of the military and playing a central role in a revolution in military affairs which began at the end of the Gulf War.[4] Former USCENTCOM commander, General Peay stated that, "in the Army of the 1990s, military forces are required to provide domestic national assistance, such as internal peace keeping, and anti-drug operations and support of civil authorities to maintain stability in a rapidly changing America."[5] Implied in his vision are the incorporation and use of missions for which American military forces have not traditionally trained and the development and use of tools which have not been previously been at their disposal.

Background

A general definition of nonlethal warfare must include: the application of force while minimizing the fatal potential to most humans. Although this definition is incomplete and debatable, (for example: what is lethal? who are most humans?) it serves as a starting point for the discussion that follows. The most obvious benefit of nonlethal warfare is that it allows commanders to control people and situations in which the use of lethal force is undesirable. Its advantages include (1) expanded options for warfighting commanders, (2) controlled levels of physical violence, (3) a limiting of loss of life and (4) achievement of strategic paralysis.

The concept of nonlethal weaponry is not new, nor are examples of its use. During the Gulf War, Tomahawk Launched Cruise Missiles (TLAM) exuded long strings of carbon fibers which obliterated the Iraqi power grids. The carbon fibers caused the high tension power lines to short circuit and disintegrate[6]. The Israelis have used rubber bullets against Palestinian demonstrators; the British have used them for years in Northern Ireland. American peacekeeping troops in Bosnia are equipped with nonlethal weapons and are prepared to use them should they again confront armed civilian demonstrators.[7] American police forces have used nonlethals such as sponge grenades, rubber bullets, foam and dyes for years and they are an integral aspect of most 1990s domestic law enforcement arsenals.

The history of warfare shows that high tech, smart weapons are only one dimension of combat power. For example, Serbian militia can counter the most sophisticated gadgetry the United States can field against it by simply positioning their mortars next to mosques. American military experience in Vietnam showed US vulnerabilities against tough, resilient adversaries that have studied and know American weaknesses. This trend will not change in the aftermath of the Gulf War. Potential foes will learn the lessons of that conflict. America cannot rely on a continuing litany of incompetent opponents such as Saddam Hussein and Manuel Noriega. War is still a complex political act; combat remains an art, not a science. Nonlethals provide a hedge against any advantage America's more astute enemies may garner.[8]

Current Nonlethal Capabilities

Table 1 outlines the major types of nonlethal weapons. The table includes a mixture of capabilities which are well-known and with which most Americans are familiar (biological, for instance). There are also some emerging technologies (acoustic, microwave and kinetic) which have limited general knowledge and some for which technology has barely begun to uncover the warfighting potential (financial, diplomatic, superlubricants).

The capabilities described are clearly complementary and usable to varying degrees to shape the future strategic and operational environments. In their article, "Nonlethal

Technology and Airpower," Majors Klaaren and Mitchell propose using nonlethal technology early in a conflict and in such a way that targeted leaders are unaware of its application. The goal is to disrupt leadership to such an extent that it would reconsider going to war. By using technology to access enemy networks, the US could use electronic bullets from a remote site to destroy specific components of the regime's command and control equipment.[9] Nonlethal weapons are highly effective for attacking electricity (such as those that disabled Iraqi power). Also usable are microbes or chemicals that alter petroleum products, rendering them useless. Theoretically, nonlethal means can disable a nation's transportation system. Airpower could drop microbes or chemical agents on roads and airports to ruin them or to damage the rubber tires of vehicles that use the roads. Agents or caustics used on rail lines deteriorate the lines or prevent train cars from generating the friction needed to move. Infiltration of an economic infrastructure can cause the collapse of the state's electronic financial network and cause general economic chaos among the government and its people.[10]

The Effects of Nonlethal Weapons

The effects of nonlethal weapons on humans vary widely depending both upon the type of weapon and the physical condition

of the targeted individual.[11] Lasers currently exist which can blind people, either temporarily or permanently. The biological effects of beamed energy permeate the electromagnetic and sonic spectrums. Some acoustic and sonic weapons can vibrate the human digestive and nervous systems to stun them, nauseate them or liquefy their bowels and turn them into quivering diaherretics.[12] Some weapons heat humans using microwave radiation while others put potential enemies to sleep. Sonic cannons are under development which throw shock waves with sufficient force to knock down a person. The human body is essentially an electromechanical system; shutting down that system is the premise that drives many nonlethal weapons. Devices that disrupt the electrical impulses of the nervous system can affect behavior and bodily functions.

Potential effects on equipment include: degrading petroleum in enemy vehicles and dissolution of rubber, with the most notable target being tires. Frictionless weapons cause enemy vehicles to slide from the roads or rail cars to spin helplessly on their tracks. Sonic weapons fire at enemy aircraft to knock them, for varying lengths of time, from their established flight paths. The lasers that fire at enemy soldiers also disable the optics of enemy fire control systems. These are but a few of the options currently being explored.

Chemical and biological weapons also cross into the realm of the nonlethal. Chemical and biological weapons, unlike many of

the other nonlethals under discussion are certainly nothing new. Since the introduction of chemicals on the battlefields of the First World War, predicting the impact of their use has been (at best) an imprecise science. Largely influenced by weather and dispersion, even the most deadly chemical may or may not have its intended effect(s). Other chemicals, such as blister agents, do not kill but rather disable and severely discomfort. Treaties and protocols largely address the use of chemicals. However, many of the emerging technologies of nonlethal weapons fall into the chemical realm. See table 1. The current discussion of nonlethals does include some emergent chemical weapons whose intent is to disable. Other, more established agents or those which have lethal intent are usually not included in the existing nonlethal dialogue.

Rationale for the Use of Nonlethal Weapons

Some of the arguments for the use of nonlethal weapons have been previously discussed. The US lead in nonlethal technology will increase its strategic options and reinforce its position as the unquestioned leader in the post cold war world. Weapons, like military forces, must be useful, usable and used.[13] To be relevant, armed services must be able to deliver the required intensity and type of force in a manner which is usable to policymakers. If the desired result is deterrence in an evolutionary worldwide geopolitical climate, cessation of

hostilities or denuding a potential aggressor of its ability to threaten its neighbors, military and political leaders must explore all options.[14]

The current focus of military missions has shifted to regional conflicts, insurgencies and peace operations. Since the end of Operation Desert Storm in 1991, the US military has found itself: (1) shrinking numerically to approximately 60 percent of the forces of cold war peaks and (2) increasingly deployed.[15] None of the deployments require the type of overwhelming conventional force usually associated with sending American troops to foreign soil.

Many scientists and policymakers envision nonlethals in a major role in these increasingly deployed, progressively smaller forces. As a minimum, a mix of lethal and nonlethal weaponry must create a mixture of precision kinetic, nonlethal chemical, and electromagnetic weapons that are legal, ethical, humane and effective. Our future enemies will probably use only lethal force. In spite of this, the US will have to respond with an overwhelming array of lethal, nonlethal, and informational technologies. Potential adversaries must know the US can, and will, respond effectively to any threat.

The Strategic Arguments Against the Use of Nonlethal Weapons

Opponents of nonlethal technology have a number of arguments at their disposal. First, they say the term "nonlethal" is

politically attractive but deliberately misleading.[16] The weapons themselves, in many scenarios of their use, clearly can result in casualties. Most, if not all, of the synonyms for nonlethal weapons--soft kill, mission kill, less than lethal weapons, noninjurious incapacitation, disabling measures and strategic immobility--all are euphemistically incorrect.

Other opponents say basic questions are still unasked. Referring to the disabling of the Iraqi power grid, the effect on the noncombatant civilian population was devastating. Similarly, the effect of a sonic cannon directed at an aircraft that crashes to earth is still lethal. It will be of little comfort to the pilots that the originally intended effect was merely to knock it from its course.

Others simply are suspicious of any government program shrouded in secrecy and afforded the opportunity for only limited public debate.[17] The fear is of an unseen government empire which clandestinely absorbs huge amounts of taxpayer money, funds the new post war burgeoning bureaucracy, and suppresses huge quantities of historic and policy records. To make matters worse, the government would be pursuing a goal which does not deliver what it promises, or it inefficiently creates products which are no different (read lethal) than the proven ones it was to replace.[18]

One of the lingering concerns about the pursuit of nonlethal technology is that future battlefields will not be nearly as

benign, nor bloodless, as the optimistic futurist would like to believe. As long as tribal wars and ethnic cleansing occur throughout the world, slaughter will occur. Trying to wish it away with the belief of stunningly surgical technology is, at best, spurious. Compounding the problem is the aforementioned fact that most of the desired technology is (1) in the hands of the United States and the more developed world--certainly not where most of the future massacres will occur (2) shrouded, for the most part, in secrecy and (3) untested and unproved to any practical extent. Betting the future of US foreign policy on a series of weapons with these overwhelming shortcomings is foolishly optimistic, they contend.[19]

Opponents believe the development of nonlethal weapons may violate some provisions of existing treaties. For example, biological agents which degrade the functioning of aircraft fuel, lubricants, and electrical insulation could violate provisions of the Biological Warfare Convention (BWC). The BWC prohibits the development, production or possession of biological agents that have no application for protective or peaceful purposes.[20] Biological agents are microorganisms causing deterioration of food, water or any deleterious effect on the environment.

Similarly, the development of supercaustics that degrade roads and tires also corrode skin, eyes, clothing and shoes may violate existing chemical treaties as well as the Geneva Protocol. Proscribed chemicals are those which cause death,

temporary incapacitation or permanent harm to humans to animals. The Geneva Protocol of 1925 prohibits the use in war of asphyxiating, poisonous or other gases and of all analogous liquid materials or devices. Because of this, the use of sticky foam and supercaustics may be disallowed because of their potentially asphyxiating or toxic effects.[21]

Many people fear nonlethal weapons will continue the disquieting trend of military involvement in traditional domestic civilian matters. Amendments to the Posse Comitatus Act allow National Guardsmen to participate in drug interdiction efforts and property searches. Active military force involvement in border drug interdiction shows that both active and reserve forces are becoming more comfortable and competent in the traditionally, non-military domestic protection roles. It may be only a short step to having American military forces used in an adversarial role against American citizens, with nonlethal weapons being one of the main facilitators of this highly undesirable prospect.

At the strategic level, many critics argue that nonlethal weapons may perpetually place American policymakers on a slippery slope to war. As the lines become increasingly blurred between armed conflict, peace enforcement and police matters, once the military becomes involved at the low end of the spectrum, it may be only a short transition to more deadly situations for American forces than anything originally foreseen or desired.[22] Since US

military forces are already overtasked, it makes little sense to pursue vehicles which will encourage policymakers to use them even further and in roles for which military force may not be truly appropriate.

Using military force in such a manner has potentially overwhelmingly negative consequences on both the forces themselves and for the policymakers which employ them. Traditionally, military force has been most effective when used in an overwhelming violent manner. The Weinberger/Powell doctrine, formulated during the Bush Administration and convincingly demonstrated during the Gulf War, mandates the overwhelming use of military force.[23] It also states that military force should only be used when the use of such force clearly furthers American interests, the forces will be used with the undeniable intention of winning, the role is suitable for military force and a clear set of conditions for success has been identified and exit strategy for withdrawal of forces developed.[24] See Table 3 for the exact wording of the doctrine.

The advent of nonlethal weapons and the increasingly frequent peace operations may undermine the military's sense of itself. As an institution the military is highly dependent on tradition and much of its fighting spirit draws on that tradition. As the military repeatedly performs tasks contrary to those of a soldier, fighting spirit might wane. Harry Summers notes a negative historical precedent in the Canadian military

forces prior to the Second World War. He states their preoccupation with civilian missions, which justified their existence, caused them to focus their training efforts away from the development of their combat skills. When war came, they were unprepared and many poorly trained soldiers died needlessly.[25] The possibility exists that in its post Cold War search for relevance, the US military is creating a similar trap for itself. It may be an enormous mistake to give peace operations an equal training and resource footing as warfighting. It may create precedents which are misleading and fatal. Other, non military forces must assume this role. When employing nonlethals, police forces and nonmilitary units should use them.

In his article, "The Origins of the American Military Coup or 2012," Charles Dunlap creates a cautionary scenario in which, in the post Cold War era, American leaders were faced with an environment, for the first time in nearly half a century, in which there was no overarching external threat. In their search for missions, the Armed Forces became increasingly involved in domestic peace missions at the expense of military training. This had two disastrous results. First, American forces met defeat in a reprise of the Gulf War and secondly, they led a takeover of the US government--an environment in which they were more capable, since their warfighting skills had atrophied.[26] Dunlap argues that national security has economic, social, educational and environmental dimensions, but that does not mean

the military must promote them, nor are they the military's responsibility to correct. Calling these problems "wars," does not change their fundamental character. While Dunlap's scenario is far-fetched, it scares the opponents of the non traditional use of military force. It also is an indictment of any vehicle which furthers the use of military forces in this manner. Nonlethal weapons are disquieting because they are exactly such a vehicle.

The Arguments Supporting the Strategic Use of Nonlethal Weapons

Proponents of nonlethal weapons believe the advantages garnered from their use and development clearly outweigh any negative impact. America would be foolhardy not to aggressively explore and use the potential they present. Nonlethal weapons, although crossing a threshold with which American policymakers may not be entirely familiar, give them additional options. Just because the options exist, doesn't mean they will be used in every instance. As a deterrent to America's potential adversaries, they may be invaluable.[27] As additional policy tools, they increase the range of options for policymakers to foreseen to unforeseen, unpredictable crises. As such, they will help America solidify its role as the preeminent world leader of the next century. Conversely, a failure to use these tools will weaken American options, its grasp on the future and potentially its resolve. Any device which gives American forces the ability

to respond appropriately and measuredly must not be ignored. Nonlethals can help America respond strategically across the elements of national power.

Economically, nonlethals can enforce monetary policy, sanctions and can be an incredibly powerful deterrent to potential adversaries. No nation can wage war without the ability to fully exploit its economic potential and without access to all of its resources.[28] Once committed, an army in the field knows the collapse of its nation's economy will undermine it. As a historical note, the National Socialists of the 1930s preached that the German armies of the First World War had not been defeated on the battlefield but undermined by economic betrayal on the home front.[29] Although this was not truly the cause for Germany's World War I defeat, the German people believed it was. Such a threat today, whether real or imagined would have probably as far reaching an effect.

Diplomatically, nonlethal weapons represent a capability which the US must use to exert leverage over its potential foes. Conversely, they are a means of reassuring its allies of its commitment and resolve to carry out its stated diplomatic policies. These weapons must convey the message of American capability and credibility. Without them, they leave chinks in the US diplomatic armor which potential adversaries will be willing and able to exploit. Charles Dunlap, in article, "21st Century Land Warfare: Four Dangerous Myths," makes the points

that America's most likely future enemies will be unlike the US with widely varying moral, political and cultural norms.[30] He says future political structures will be organized around "cybertribes,"--groups of streetfighting, warrior nations, willing to attack the US in a vicious form of conflict stretching across the spectrum of war. Conventional diplomacy will certainly less effective against such a threat. However, with the increased array of options against these enemies which nonlethals provide, diplomacy will be more agile, responsive to the emerging threats and more effective.

Informationally, the advent of nonlethal technology is a double-edged sword. The US may be able to (and communicate the ability to its enemies) infect and disable enemy computer systems, destroy his economic and banking infrastructure, incapacitate his military command and control structure and jam his television broadcasts--all as part of a nonlethal warfare campaign. For most conventional societies, this may be more than sufficient to force them to comply with the American will. However, for the developing "cybertribes," such a threat of internal demise may not be relevant because they either lack such a vulnerable conventional structure or they envision their own survivability in spite of such attacks.

In spite of the potential drawbacks, the US must deal with the known threats and the ones that are most likely to develop. In spite of the difficulties of dealing with non-national actors

(the "cybertribes") or injecting diplomacy and information into failed states, nonlethal informational technology, can have a crippling and demoralizing effect. As enemy nations suffer from misinformation and manipulation, they must suffer from degraded effectiveness to carry out a war or stabilize their own popular support for it.

Tactical Nonlethal Weapons

As mentioned previously, Israeli, British and American forces have used a limited array of tactical nonlethal weapons. The first extensive American use seems to have been in Somalia.[31] Unarmed hostile elements were foreseen as a substantial threat to the US peacekeeping forces. Large bands of looters and thieves would compete for any booty left behind by the UN. The Marines and soldiers trained extensively in crowd control but had never dealt with an extensive threat of this type before.[32] US forces had to reduce the possibility of confrontation with unarmed groups.

Nonlethal weapons filled the gap between verbal warnings and the use of deadly force. Historically, the accomplishment of military objectives has required killing the enemy. Military force developed over the centuries met and exceeded the lethality of the force available to the adversary. The intensity was never an issue since any force was deadly and judged only on the outcome: death or relative levels of destruction required to

reach an objective. The criteria for selection for the nonlethals was (1) availability with required delivery dates of two weeks or less (2) sufficient quantity to meet the expectedly overwhelming demand (3) proven field performance and (4) minimal training time associated with their use.[33] Table 2 illustrates the force continuum and the nonlethal weapons associated with that particular level.

Since nonlethal weapons were used extensively during all phases of the US involvement of the UN Operation in Somalia, they not only helped to control crowds but also assisted in the opening of roads and warehouses as well as protecting coveted supplies and food. Similarly, upon the US decision to withdraw, nonlethal weapons protected American forces as they left the country. In all cases, nonlethals appeared to satisfy the initially stated tactical intent of plugging a gap in the force continuum of a peacekeeping force in a failed nation. While nonlethals could not turn the tide of battle nor prevent mission failure, it is probably more a result of international political failings than an overall indictment on the effectiveness or future of these weapons.

The Departments of Justice and State have agreed to share nonlethal technology.[34] Among these are infrared surveillance gear, sonar devices for pinpointing the origin of gunfire and digital information systems that could permit instantaneous transmission of photographs of crime suspects to

police in the street.[35] These technologies can assist crime fighters, both domestic police forces as well as peacekeepers abroad. They can help the police and military police. They will definitely be useful in the military's current drug enforcement role and even more so if that role should be expanded.

Tactical Drawbacks to the Use of Nonlethal Weapons

The advantage of nonlethals as a tool in the force application continuum is relatively clear, but what are the tactical disadvantages? Critics assert that once nonlethals find their way into use by American forces, they will become the weapons of choice at the expense of lethal force, causing American troops to be less feared as combat fighters. Politically, as the likelihood of nonlethal use increases, critics fear decision makers will overuse the military and in roles for which military force is not appropriate.

Legally, rules of engagement (ROE) must be developed for nonlethal weapons for inclusion into standing ROE. In Somalia, ROE were approved and issued by the Joint Chiefs of Staff. Most provisions of the ROE were unclassified, including the sections concerning unarmed crowds and unarmed hostile elements. The ROE principle is that of a graduated response, using the minimum force necessary to respond to the threat, using the principles of proportionality and necessity.[36] There was a controversy concerning the use of crowd control devices. The Joint Chiefs of

Staff wanted specific ROE for these devices. The ground commander saw no reason for the distinction. This is one instance of how future ROE development and what potential improvements to these rules.

The current state of technology in nonlethal weapons illustrate some serious problems. Sticky foam dispensers are large and difficult to use in close quarters. Compounding the problem is the difficulty of separating "slimed" rioters from peacekeeping troops. Having rioters and soldiers stuck to each other is hardly desirable. In reality, sticky foam is better suited to a lone drunk or troublemaker than in situations of mass civil unrest.[37]

Similarly, antitraction technology is viable only if friendly troops will not traverse that ground anytime soon. (No actual number of hours or days is currently available.) Anesthetics have the drawbacks of either not being instantaneous or of effecting unprotected troops. The remaining problem with anesthetics is what to do with large groups of anesthetized people.[38] Clouds of anesthetics could also move to places which kill noncombatants e.g. vehicle drivers or mothers bathing infants.

The problems illustrated for nonlethal foams and anesthetics generally apply to all nonlethals in crowd control situations--separating their effects between rioters, peacekeepers and noncombatants. However, the military should not abandon the

technology simply because some problems exist. Improvement of nonlethal products will ensure the right tool at the right time. The practical problems of nonlethal use must be an impetus to develop better nonlethals as well as better military tactics, techniques and procedures for their use.

Current Views of Operational Commanders

America equips its peacekeeping troops in Bosnia with nonlethal weapons; those soldiers may use them if necessary against armed civilian demonstrators.[39] In August 1997, US commanders requested additional nonlethals and training personnel after a rash of hostile demonstrations--termed sub-lethal attacks. Weapons available are 40mm sponge grenades, 40mm rubber balls, 40mm multi-foam batons and dye marker grenades. The venerable tear gas is also available to the Bosnian peacekeepers. These actions clearly indicate that US commanders see nonlethals filling a valuable role in helping their forces perform their mission.

The US regional commanders in chief (CINCs) vary in their opinion of the use of nonlethal weapons. USCINCCENT, USMC General Zinni, has repeatedly stated his support of their development and use. Non-USMC CINCs seem more reserved in their support. Integrated Priority Lists, a significant indicator of CINC development and acquisition priorities, are not yet inundated with demands for nonlethals.[40]

The CNN Factor

Nonlethal weapons may be absolutely essential to carrying out war in casualty adverse democracies. During the Gulf War, the media projected slaughter along the so-called "highway of death." This led to pressure to curtail the war and this war a reaction to enemy suffering. The response will be even more overwhelming if the images are of Americans being slaughtered. When live media reports combined with information from other high-tech sources communicate the horrific shrieks and terrifying sights of death and mutilation, the political pressure to terminate hostilities at any price may be inexorable.[41]

On the other hand, some see moral dilemmas in the use of nonlethal weapons. Is it worse to blind an opponent than to kill him? Is incapacitation worse than death? While much can be made of this issue, it simply comes down to the fact that the intent of the weapons is to hinder rather than kill opponents. While death may result, it is not their intent. Few would argue that fewer deaths and less suffering result from weapons intended to disable rather than to kill. Also, given the overwhelmingly lethal conventional military force, nonlethals are undoubtedly more humane overall. They allow enemies to potentially fight another day. They are generally less destructive. Those who argue against the cruelty of nonlethal weapons really are arguing against the inhumanity of the use of armed force.

Nonlethal weapons must undoubtedly have an impact on military forces. They are an additional tool for commanders and policymakers, an additional stop on the continuum of military force. There needs to be no change to military doctrine; commanders need not impose nonlethal weapons when conditions warrant the use of lethal force; there is a time and place for each. Certainly, the urban scenarios of Bosnia, Somalia and Haiti were/are compounded by indeterminable borders and civilian crowds in which US commanders are limited by their current inventories of weapons designed for employment in war. Commanders must, when placed in these situations, be given a flexible response to conventional arms.[42]

Conclusions

The use of nonlethal force must not be allowed to reflect a weakening of American resolve. They must be used to demonstrate American ingenuity and strength in the face of emerging threats. They are a counter to the so-called CNN effect of the instantaneous display of conflict worldwide. America's future enemies will be resourceful, deadly and will use American squeamishness against the American public.

American policymakers must continue the ongoing initiatives between the Departments of State and Justice to cooperate in the development of tactical nonlethal weapons. While it may be distasteful, in the classic military sense, for the Armed Forces

to use police tools, they will undoubtedly prove helpful in foreign peacekeeping and peace enforcement missions. The development of the means of detaining individuals as well as controlling crowds will clearly save both military and civilian lives. Sticky foams, riot control agents and stun technology will prove invaluable to both the military and police. Given the similarities of current police missions and evolving military missions, cooperation between these forces is absolutely essential. They must cooperate in the development of tactics, techniques and procedures for these nonlethal tools. In an era of intense media scrutiny and often instantaneous feedback, foreign citizens will merit the same humane treatment afforded to Americans.

At the higher, strategic level America must be able to cripple its opponents with weapons that obliterate his transportation, information and communications systems. Whether the adversary is a conventional opponent, rogue nation or a cybertribe, nonlethal weapons are uniquely suited to attack enemy vulnerabilities and paralyze their belligerent capacity. Even the threat of nonlethal use, with their ensuing damage, would at least cause an enemy to pause and reconsider his actions. America must develop nonlethal strategic systems, deliverable by a variety of means (to assure redundancy) to slow our potential adversaries and to keep ahead of these clandestine technologies which can either be used for or against America. A proactive

stance using nonlethals to further American purposes easily seems to be the far more favorable option.

Americans must use every advantage available against these foes. Whether or not nonlethals will be effective against this type of foe remains is yet unseen. The option of their use must remain available. The US simply cannot afford not to develop and use these technologies. Nonlethal weapons must work as a tool to promote US foreign policy rather than a hindrance to it. Many issues remain unresolved. However, nonlethal weapons are a door to the use of military force in the 21st century.

5575 words

Table 1: Selected Types, Examples and Capabilities of Nonlethal Weaponry

Type	Examples	Capability
Acoustic	-Pulsed high intensity sound	Incapacitates people and equipment
	-Infrasound (low frequency)	Incapacitates people
	-Polysound (high volume)	Incapacitates people
	-Acoustic stun grenades	Incapacitates people
Biological	-Biodegrading organisms	Disable systems
	-Disease organisms (nonfatal)	Deter/incapacitate people
	-Arthropods (biting, disease transmitting)	Deter/incapacitate people/systems
	-Bioengeneering (genetic engineering)	Disable living systems
	-Pheromones (behavior altering)	Deny use of/disable systems
Chemical	-Antiriot agents (tear gas, mace, pepper spray)	Incapacitate people
	-Psychotropics (tranquilizers, calmatives)	Modify behavior/incapacitate people
	-Smell/flavor alterers (water, air)	Incapacitate people/disable systems
	-Corrosives (supercaustics, embrittlers)	Degrade metals and materials
	-Antitraction technologies (superlubricants)	Disable vehicles
	-Adhesives (superglues, sticky compounds)	Disable vehicles and equipment

	-Combustion inhibiting technology	Disable combustion engines
Electromagnetic	-Electrical interference (power effects, pulses)	Degrade/destroy equipment/systems
	-Electromagnetic pulse (EMP)	Degrade destroy equipment/systems
	-Electric shock (pulse, tasers)	Incapacitates people
	-High power microwave (HPM)	Deters/incapacitates people and equipment
Environmental	-Weather alterers (rain, drought, fog)	Degrade/disrupt operations
	-Emulsifiers (augment weather)	Disrupt lines of communication
Informational	-Media campaigns (news, opinion)	Disable disrupt human systems
	-Public laws (national, international)	Deter/degrade systems
Mechanical	-Blinding agents (fibers, polymers)	Incapacitate people/disable systems
	-Entanglers (foul propellers, rotors, vehicles)	Disable moving parts
	-Barriers (line of sight, travel)	Disrupt communications
	-"Soft" forces (water and air cannons)	Incapacitate people
Optical	-Lasers (laser rifles)	Deter people/disable equipment
	-Pulsed chemical lasers (airborne lasers)	Disable/destroy equipment
	-High intensity pulses (flash	Disable people, equipment

	grenades)	
Sociological	-Economic (counterfeit currency, key systems)	Disable financial systems
	-Political (discredit officials)	Disrupts diplomatic systems
	-Psychological Operations (PSYOPS)	Incapacitates/deters people
Technological	-Computer viruses (timed, coded, keyed)	Disable computer systems
	-Microdevices (microelectro-mechanical systems)	Disable/disrupt systems
	-Unmanned aerospace vehicles	Disable systems/protect crews

Table 2: The Force Continuum

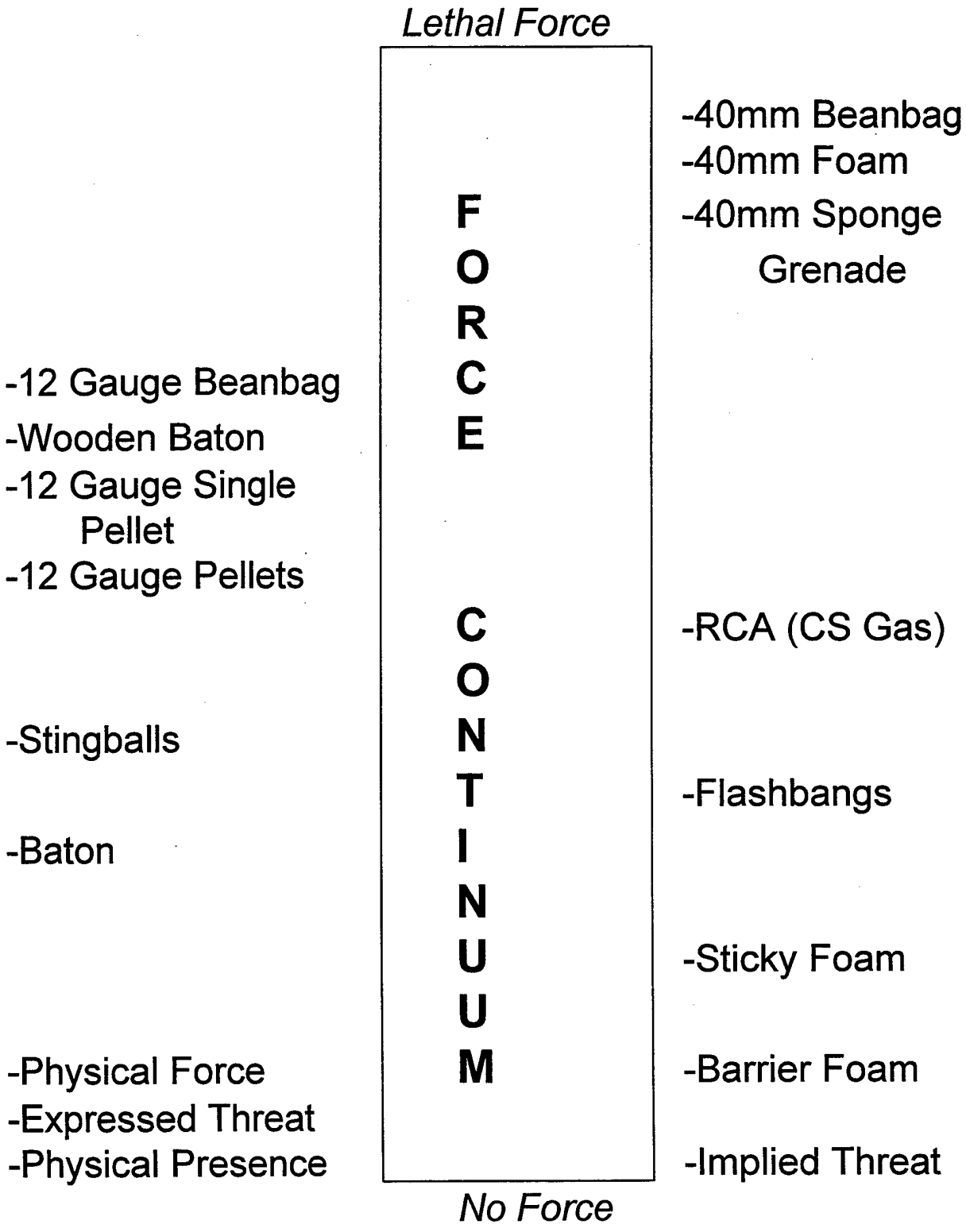

Table 3: Summary of Powell/Weinberger Thought Concerning the Strategic Use of Military Force.

Weinberger's Six Criteria to Determine the Conditions Under Which the Use of Military Force is Warranted

1. The United States should not commit forces to combat overseas unless the particular engagement or occasion is deemed vital to our national interest or that of our allies.

2. If we decide it is necessary to put combat troops into a given situation, we should do so wholeheartedly and with the clear intention of winning

3. If we decide to commit forces to combat overseas, we should have clearly defined political and military objectives

4. The relationship between our objectives and the forces we have committed--their size, composition, and disposition--must be continually reassessed and adjusted, if necessary.

5. Before the United States commits combat forces abroad, there must be some reasonable assurance we will have the support of the American people and their elected representatives in Congress.

6. The commitment of US forces to combat should be a last resort.

Powell's Four Propositions on When It Is Appropriate to Use Military Force

1. Force should only be used as a last resort.

2. Military force should be used only when there is a clear-cut military objective.

3. Military force should be used only when we can measure that the military objective has been achieved.

4. Military force should only be used in an overwhelming fashion.

ENDNOTES

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[38] Ibid 66.

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[40] Edward J. Hanlon, Jr., "In the Littoral, We Are All Mine Warriors." An interview by L. Edward Prina and Mary I. Nolan, Sea Power, May 1997, 24.

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