

Published *Airpower Journal* - [Spring 1995](#)

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## **WEAPONS OF MASS PROTECTION:**

### **NONLETHALITY, INFORMATION WARFARE, AND AIRPOWER IN THE AGE OF CHAOS**

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Airpower has become the first choice of policymakers and politicians around the world who must suggest how the international community should react to stop some infringement of the established order or crimes against humanity. Whether the threat be Serbian warplanes pounding Bosnian religious sites or a resurgence of Saddam Hussein's Iraqi adventurism, Somalian warlords firing on United Nations (UN) peacekeepers, or Rwandan refugees streaming across uncontrollable borders, the politically correct response when the United States or the international community must resort to force is always "air strikes." Why? Because airpower seems to offer the potential of force projection without politically unacceptable risks, without risk of entering upon the "slippery slope" of long-term involvement characterized by the commitment of ground troops, without risk of US or coalition casualties in a casualty-averse world, and without massive logistical expenses and subsequent reconstruction costs.

Since airpower as currently deployable and constituted was designed for battle in a bipolar world, it cannot always successfully undertake the new roles and missions seen for it by politicians, policymakers, and diplomats. Service chiefs and mission planners alike must find new ways to fulfill decision makers' expectations and the evolving requirements of a world no longer divided into two neat power blocs. Airpower has the potential to provide a credible deterrent and effective first response in today's conflict-rich environment. For airpower to afford such early, cost-effective, casualty-limiting, minimally destructive, logistically feasible ways to project power, it must be able to attain sharply constrained and multiplex objectives in multiple theaters simultaneously.

*Nonlethality* is the use of weapons of mass protection such as nonlethal and antilethal weapons and information warfare to project high-precision power in a timely fashion, delivering results that are life conserving, environmentally friendly, and fiscally responsible. Such weapons can provide airpower with capabilities that will yield new supports to diplomacy, a credible deterrent below the level of massive conventional force projection, and an expanded ability to meet evolving mission needs when used in

conjunction with conventional force.[1](#)

The ability to nonlethally overwhelm an enemy who is using lethal force has become a clear requirement for peacekeeping, peace enforcement, operations other than war, and military operations in built-up areas where minimum destruction of life and property are prerequisites for action. Airpower's capability to execute these new roles and missions where policy makers require decisive action to be undertaken in a timely fashion but always from the moral high ground and under media scrutiny is increasingly critical, has increasingly come into question, and must be reaffirmed. In order to maintain airpower's position as a strategic capability of unparalleled effectiveness, planners must now reevaluate the very nature of the world in which power will be projected and must begin to develop new doctrine and capabilities to fill those needs.

Acquiring weapons of mass protection--nonlethal, antilethal, and information warfare weapons--and integrating them into current force capabilities may be one way that airpower can secure for years to come its primacy in strategic utility for the post-cold-war conflict environment. In order to evaluate this thesis, we must reexamine the nature of warfare as it has evolved and its relation to policy in a world that has drastically changed over the last half century and especially in the last decade. We must also examine the potential difficulties of fielding nonlethal, antilethal, and information weapons in the new threat environment.

## **An Age of Chaos**

An unforeseeable consequence of the breakdown of the bipolar world has been to remove war from the purview of the dueling superpowers and to return it to the people. Transnational and subnational groups, rogue states and breakaway republics, civil warmongers and tinhorn dictators, ethnic purists, and religious fundamentalists all see the inchoate environment of the post-cold-war world as an opportunity to seize or increase power. The result is an environment of spreading destabilization that can be characterized as an age of chaos.

### *A New Class of Threat*

The current chaotic environment of multiplex threats to the international rule of law is uniquely unresponsive to conventional diplomacy or war-fighting methodologies tooled for the cold war over nearly half a century. Taken one by one, the many disparate conflicts erupting among the former client states of the Soviet Union may seem unmanageable. Taken together as a new class of threat, these flash points can be viewed as the inevitable attempts of states built on the Soviet Union's "military-bureaucratic country" model to expand militarily in order to survive.[2](#) Unanswered questions about the relevance of chaotic destabilization of the former communist world to the national interests of the United States and other major powers in the developed world impede decision making. Ad hoc decisions to act made by policymakers are often disastrously unenforceable by the diplomatic or military components of nations or groups of allies.[3](#)

## ***Quantifying the Threat***

The greatest threat to the international rule of law in modern memory may be the spread of chaotic destabilization throughout the developing world. Unable to see these disparate threats as part of a single class of threat with effects greater than the sum of its parts, the United States and the international community fail to act decisively. As in the mathematical model of chaos theory, the number of discrete destabilizing events, nondestructive to the status quo when taken singly, may mount until their frequency causes a catastrophic shift in the nature of things--in this case, the balance of power in the world.<sup>4</sup>

## ***Redefining Roles and Missions***

Redefined roles and missions of not only militaries but diplomatic corps and international entities such as the United Nations and the North Atlantic Treaty Organization (NATO), as well as the role of the United States as world leader and the single remaining superpower, are critical lest chaotic destabilization erode the credibility of the international community to maintain order and the rule of law. If faith in the ability of the world community to maintain order fails, the utility of all existing international and national entities comes into question. People will sustain their governments only as long as those governments maintain order and provide security and benefits to citizens at home and abroad.<sup>5</sup>

## ***Recognizing the Problem***

International consensus for action against destabilizing forces is difficult to achieve, and this very difficulty emboldens would-be aggressors who carefully calculate rationales for their violence, some hiring international public relations firms to make their cases for the world's media. Once these forces draw the attention of the world media, the attention of the international community, its governments, and their militaries invariably follows. Thus, the focus of world leaders on areas of crisis is primarily determined not by internal evaluation of the importance of any chaotic situation to the national security of the United States or other nations but by the amount of media attention given to a crisis. Since this media coverage is often sought, courted, or even bought by aggressors, combatants, or defenders, the initiative in such situations is on the side of those who can command world attention. More and more international response to crises seems effectively media-driven. The ability of the developed world's conflict management bodies to set the agenda--to preempt crises with early and decisive diplomatic and unconventional action or to mitigate such crises with conventional methods--is demonstrably inadequate for a number of reasons:

- A given crisis may bear no apparent or direct relation or pose no imminent threat to one's own national security.
- Internal and international consensus for timely action is difficult to achieve because of varying evaluations of the seriousness of the threat.
- The roles, prerogatives, and utility of international instruments such as NATO or the UN in such

crises are increasingly unclear.

- Internal pressures on nations to act in any such crisis vary in accordance with treaty obligations, commercial interests, and domestic constituencies developed for or against specific action.
- The developed world's intolerance of casualties when weighed against the casualty tolerance of the developing world, militates against the insertion of ground forces should a consensus for action be developed.
- Roles and missions of military and peacekeeping forces are inadequately defined both in unilateral and multilateral terms.
- Training, doctrine, and capabilities for such new roles and missions are consequently inadequate.

The result of these unsolved problems is that US and other policymakers wait too long to announce actions and then announce actions that may not be operationally or logistically feasible with the forces and weapons at hand.

### ***Air Power and the Reality Gap***

When the United States or its coalition partners wait too long to act and an international situation such as Bosnia has degenerated to a point where leaders must announce some action they think will restore their international respect and credibility, air power is the inevitable inheritor of the problem. In the United States, especially, elected officials continually call on airpower to project a US or US-led coalition force decisively from above in any situation where action is demanded but where the commitment of ground troops could lead to casualties or longer-term involvement, both of which are anathema to contemporary policymakers.

This situation has effectively eroded much of the credibility of the United States as a world leader, which was gained at such great cost during the cold war and the Persian Gulf War. The importance of that credibility is not simply a matter of US pride. US credibility is the primary security factor protecting US citizens and businesses around the world. Each time limited air strikes are undertaken by NATO or coalition forces with indeterminate results, the damage to US and international security establishments' credibility is greater than it is to that of the declared enemy. Each time US leaders promise swift action by air in circumstances that are operationally impractical, US resolve and international prestige are eroded, leading to increasing danger for all US citizens abroad.

A particular problem for airpower inherent in the larger geopolitical situation is that the utility of airpower itself comes into question each time the US Air Force must mitigate policy makers' zeal for impractical action.

### ***Recognizing the New Imperatives of the Age of Chaos***

The shared imperatives of the world community in the age of chaos are several and conflicting:

- To enforce the international rule of law,

- To maintain the credibility of international institutions,
- To assure human rights,
- To defend the viability of international trade'
- To protect the ecology and environment, and
- To ensure national sovereignties.
- The imperatives of the United States in the age of chaos are divergent:
- To ensure the national security of the United States,
- To maintain US world leadership,
- To sustain the rule of law,
- To project power to enforce policy while limiting casualties and damage,
- To satisfy US ethnic constituencies and international treaty signatories, and
- To create a climate of safety for globalized US trading interests.

To the extent that these interests converge, coalition action is possible. To the extent that US interests, which are internally consistent, diverge from the interests of our allies, which are sometimes inconsistent, the United States must decide in each case whether to lead or to defer.

Such decisions are in no small part based on the *capability to act*. Acting in the current international milieu described above means acting in a highly constrained environment very different from that of the cold-war era, an environment that requires the ability to do the following:

- Act in a timely fashion.
- Act decisively while limiting casualties and damage to the environment.
- Act below the threshold of war and without risking long-term involvement in a politically unsustainable ground war.
- Act effectively in an urban or complex environment where enemies and noncombatants are mixed.
- Act while claiming the moral high ground under constant media scrutiny.
- Act in pursuit of clear mission goals with high precision.
- Act effectively without risking US casualties.
- Use the threat of US military action as a credible deterrent.

## **A Short History of War as an Instrument of Societal Change**

Historically, war has been redefined by societies struggling with their leadership roles. More than 2,400 years ago, Sun Tzu counseled in *The Art of War* that armed force was to be applied so that victory would be gained (a) in the shortest possible time, (b) at the least possible cost in lives and effort, and (c) with the infliction on the enemy of the fewest possible casualties. He also stated that "to fight and conquer in all your battles is not supreme excellence; supreme excellence consists in breaking the enemy's resistance without fighting." and that "the skillful leader subdues the enemy's troops without any fighting; he captures their cities without laying siege to them; he overthrows their kingdoms without lengthy operations in the field."<sup>6</sup>

Sun Tzu was committed to the economic principles underlying the conduct of war in his time. People, even enemy people, had great value as potential workers and taxable citizens; human and natural resources were the primary prize in warfare; and goods and services were coveted booty, as were physical property and societal infrastructure.

In A.D. 1513, Niccolo Machiavelli observed in *The Prince* that

*there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain of success than to take the lead in the introduction of a new order of things, because the innovator has for enemies all those who have done well under the old condition, and lukewarm defenders in those who may do well under the new.*<sup>7</sup>

Later, in *The Discourses* he wrote that

*the object of those who make war, either from choice or ambition, is to conquer and to maintain their conquests, and to do this in such a manner as to enrich themselves and not to impoverish the conquered country. To do this, then, the conqueror should take care not to spend too much, and in all things look mainly to the public benefit; and therefore he should imitate the manner and conduct of the Romans, which was first of all to 'make war short and sharp.' . . . Whoever desires constant success must change his conduct with the times.*<sup>8</sup>

Like Sun Tzu, Machiavelli and his beloved Roman forebears saw war as a way to extend the boundaries of physical empire, to enrich and strengthen his society with the people, natural resources, and physical attributes of the lands to be conquered and absorbed. Even in a time of great change and turmoil, the basis for war was still economic. In A.D. 1690, John Locke wrote in *The Second Treatise of Government* that

*the state of war is a state of enmity and destruction, . . . it being reasonable and just that I should have the right to destroy that which threatens me with destruction; for, by the fundamental law of nature, man being to be preserved as much as possible when all cannot be preserved, the safety of the innocent is to be preserved . . . . Want of a common judge with authority puts all men in a state of nature; force without right upon a man's person makes a state of war both where there is and is not a common judge.*<sup>9</sup>

John Locke lived in a time of wars of attrition, when early war-fighting technology had matured until total destruction of all assets and persons of a society was not simply possible but probable. War by Locke's time was something that had to be limited by laws--either God's law or man's law--and a process that put at risk both innocents and desirable assets of warring societies. Populations are dense and people have less inherent value. The economic basis of war is beginning to be replaced by wars of ideology.

On 10 July 1827, Carl von Clausewitz said in *On War* that war is nothing but a continuation of policy by other means.<sup>10</sup> Clausewitz marks the maturation of "modern" wars of conquest in which war has become an instrument of statecraft among nations whose goals may be imperialistic, nationalistic, economic, ideological, or some combination of all four. The laws of the state have replaced the laws of God and man as adjudicator. The benefit of war is dependent on the wisdom of policy. The goals of war are not self-evident but are determined by the goals of the state.

If Clausewitz were alive today he might add that the main and self-justifying mission of the military is to make policy enforceable. Failing that, the military or any branch of it may risk its own continued survival since it exists at the sufferance of the state and ultimately of the people who fund the state so long as the state serves its people.

### *Defining War in the Age of Chaos*

In modern American military thought, war is usually defined qualitatively. War is limited, such as in the Persian Gulf War, or war is unlimited, as in World War II. "Unlimited war implies that the objective is the complete destruction of the enemy's war-making ability or unconditional surrender. . . . Limited war implies objectives short of the complete destruction of the enemy."<sup>11</sup>

At the end of the twentieth century, war can and should also be defined chronologically as an evolutionary procession shaped by the geopolitical climate in each of three eras.

**The Era of Wars of Conquest, 2800 B.C.- A.D. 1945.** From the conquests of Sargon of Akkad in Mesopotamia to Adolf Hitler's dreams of an Aryan hegemony, wars of conquest were predicated on the conquering state gaining economic and strategic benefit by acquiring the land, physical assets, and populace of others in order to increase its size and wealth, assert its dominance, and ensure its security. Destruction of an enemy replaced absorption of the enemy. Genocide became more commonplace as societies became more populated and the value of human life went down. Occupation of enemy territory became progressively less synonymous with conservation of his cultural assets since one goal of wars of conquest was to impose a cultural hegemony and another was to replace the dominance of one race over an area with the dominance of another race. By the time of World War I, scorched-earth warfare became an accepted tool of statecraft. Because of the relative slowness of societal and technological change and the inherent conservation of assets involved in wars of conquest, this era was a prolonged one.

**The Era of Wars of Deterrence, 1946-1989.** The cold-war epoch, which ended with the fall of the Berlin Wall at the close of 1989, demarcates a time of wars of deterrence in which countries built weapons of great and of mass destruction whose use was primarily as a deterrent to aggression. Ensuring the survival of the state was the military's greatest goal. The most important task of the military was to contain the spread of rival ideologies. The era of wars of deterrence was predicated on a doctrine of mutually assured destruction and marked by nuclear proliferation. This is an era in which war itself was of no economic benefit, but client states and wartime economies fueled international growth, and it was a time in which the value of war was the strength it gave to wartime economies. This era was shaped by

the industrial age and the capabilities that produced it. The original economic fundamentals underlying wars of conquest were completely eradicated and replaced with a doctrine of state survival that saw acquisition of enemy assets as immaterial and that required its military to be able to completely destroy not only the people but the physical assets of its enemies. This era was brief because of its lack of a sustainable economic goal and the speed of technological change.

**The Era of Wars of Divestiture, 1990-.** Wars of divestiture, the first of which was the Persian Gulf War, are wars of sharply limited scope whose economic rationale is the restoration of the rule of law and the status quo of free trade. The international community rallies to restore order, and the goal of the war is not the eradication of a regime or state but the divestiture of an aggressor's war-making capability and his ability to threaten the world order through wars of conquest. The goal of the state in this era is the maintenance of order and, through its military, the protection of the status quo or the restoration of the status quo ante. The goal of the military thus becomes the preservation of sovereign rights and the protection of innocents and preservation of the environment from destruction caused by wars of conquest or wars of deterrence. This era is marked by rapid, interdependent technological and geopolitical change in which geopolitical stability is measured by the stability of the rule of law. The length of this era will be dependent on the military's ability to ensure a stable rule of law through unilateral, coalition, and international action.

Because wars of divestiture take place in an environment in which there are many constraints, particularly due to the presence of the media, and because this environment is one of chaotic destabilization, both the political and military communities are struggling to come to grips with the implications of precedents being set on an ad hoc basis, without the benefit of an articulated framework.

Yet, analysis quickly yields numerous cases in point of more or less successful wars of divestiture. The Persian Gulf, Somalia, Haiti, and Bosnia all are examples of wars of divestiture despite the fact that all but the Persian Gulf War have occurred below the threshold of war as it is currently perceived.

### ***A Lowering Threshold of War***

A paradigm shift in international behavior has created a new area of military action between the point where conventional diplomacy fails and a declared war begins. Concomitant with this shift has come a lowering of the threshold of war itself. Reasons for military action are different than they were during the era of conquest or the era of deterrence. We may call these military actions peacekeeping, operations other than war, military operations in built-up areas, or any other politically popular term. The reality is that our military--and especially our airpower--is increasingly called upon to act. In this new area of military action, US casualties are unacceptable, enemy casualties and collateral damage must be minimized, and the goal of missions is political (such as restoring order or democracy, limiting humanitarian abuse, or reducing but not eradicating a threat) rather than military action in the classical sense--destruction of an enemy or conquest of his territory as a prelude to absorbing his assets.

Since acts of war must be ratified by Congress, US policymakers are hesitant to come to grips with this

new reality. When it is admitted that the threshold of war is lowering, Congress may act to preserve its prerogative to "advise and consent" below the current threshold at which its consent is required. Until that time, ad hoc policies and unclear mission definitions will prevail for political reasons, despite the difficulties this poses for our military, particularly for airpower, which is consistently called upon by political leaders to act--often impractically--to project military power in pursuit of political objectives that may or may not bear directly on national security.

And yet, all classical definitions of war imply that a military that cannot enforce policy has failed in its purpose. Therefore, a unique set of problems is developing for airpower and for all other military forces in this new conflict environment. The impractical must be made practical. The military, and especially airpower, must learn how to project power that is hyperaccurate yet minimally destructive, limited while being overwhelming, and effective against lethal force, yet nonlethal. Out of these seeming contradictions will come a new set of doctrinal tenets and operational requirements that serve the overriding requirement of policymakers in today's world.

This requirement of policymakers--to have at their disposal a new, highly effective, cost-efficient force equipped with weapons tailored to today's limited conflicts--does not end with force projection. The ability of our military to project limited force must be such that the very limitation of this force must be seen as a credible deterrent because the qualitative nature of the force available to the military allows the military to act earlier, and decisively, against aggression while limiting casualties and damage to the environment.

## **Airpower and the New Missions**

If war is now most critically an extension of policy, then the military's main mission must be to make policy enforceable across the operational continuum. To fail repeatedly in this is to call the value of a standing military into question. Therefore, military planners must look squarely at the geopolitical demands shaping policymakers' needs and be ready to meet those needs.

Of all branches of the military, the Air Force is the service most challenged by these new mission areas and the new requirements of policymakers. To a policymaker, airpower seems to offer easy answers to hard questions of how to project US power without risking US lives or involvement in protracted ground wars. To architects of air wars, this propensity of US officials to call for air strikes in any and all situations is more than problematical; it is dangerous to US Air Force cohesion and perhaps to the future of the service itself. A military service that cannot serve the needs of policymakers risks its *raison d'être*.

As has been shown since 1990, first with the success of the air war in the Persian Gulf and later with unsuccessful attempts to use airpower decisively in Bosnia and against the Serbs, these new missions are paramount to US national security interests whenever US credibility--US resolve and ability to act--come into question. This conclusion cannot be avoided indefinitely. Although war planners of all services would prefer not to engage in missions of such demanding constraint as seem to be required by wars of divestiture, there is a growing need to counter chaotic destabilization by projecting power to

enforce policy.

Therefore, the Air Force must look seriously at the way policymakers have clearly indicated that they wish to use airpower now and in the future and must find ways to meet the requirements of new roles and missions. Currently, many would argue that combined ground and air operations are limited to the operational and tactical levels. In the politically constrained environments of the future, airpower and ground power must be strategically applied to achieve our political objectives. Consequently, development of weapons of mass protection for the Air Force should be approached as part of a joint effort that also considers capabilities for ground forces and issues of interoperability.<sup>12</sup>

## Nonlethal, Antilethal, and Information Weapons in the Age of Chaos

The ancient weapons of chariot and cavalry warfare, the siege engines of Greek and Roman technology, the naphtha fireballs of the fifteenth century A.D., the horse-drawn cannon, the machine gun, the mechanized tank, and the early fighters and bombers of World War II-- these have given way first to weapons of mass destruction and then to electronically guided weapons of high precision.

As early as the Persian Gulf War, weapons of mass *protection* were coming into use as a means of destroying enemy command and control. The first 48 hours of the Gulf War showed beyond a doubt that electronic warfare technologies could keep US servicemen safe from enemy fire by denying the enemy the use of his command, control, communications and intelligence (C3I) capability.

Nonlethality, the theory that overwhelming nonlethal force could be used to defeat lethal force, and nonlethal weapons first received serious notice after their use in the Persian Gulf War. Carbon circlets were dropped on Iraqi power stations to deny electricity to the enemy, obscurants were used to deny the enemy targeting information about US troop movements, and electromagnetic weapons--reportedly including nonnuclear electromagnetic pulse--were used successfully to limit casualties, as President George Bush and Prime Minister John Major of the United Kingdom had publicly directed.

Nonlethal weapons (defined as weapons whose intent is to nonlethally overwhelm an enemy's lethal force by destroying the aggressive capability of his weapons and temporarily neutralizing his soldiers) will give the United States new options in peacekeeping and conventional force projection, as well as new supports to diplomacy and a credible deterrent below the level of massive conventional force projection.<sup>13</sup> Nonlethality posits that the world community has become averse to casualties and that the West, and the United States as leader of the world community, must develop and be ready, willing, and able to deploy decisive nonlethal weapons in situations where casualty-tolerant rogue states and subnational or pannational groups must be stopped by casualty-intolerant coalition forces. Nonlethality requires no massive investment in new technology, but a reevaluation and redirection of mature research programs into the weaponization and the fielding of usable systems that conserve life and are environmentally friendly and fiscally responsible. Nonlethality further posits that the technologies that

yield nonlethal systems will comprise a real peace dividend.[14](#)

Nonlethality categorizes nonlethal weapons as (1) antipersonnel or antimateriel; (2) electromagnetic, kinetic, or chemical; and (3) nonlethal and antilethal. Among technologies identified as nonlethal are acoustic, laser, high-power microwave; non-nuclear electromagnetic pulse; HP jamming; obscurants; foams; glues and slicks; supercaustics; magnetohydrodynamics; information warfare; and soldier protection. Among technologies identified as antilethal are countersniper, countermortar, antimissile, and high-precision weapons, including low collateral damage kinetic munitions with reduced lethality.

Nonlethal technologies require the simultaneous development of countermeasures and antifraticide because of the vulnerability of humans and, the weapons of the high-technology battlefield to nonlethal weapons. The value of nonlethality is presumed to be greatest to two critical users: the political decision maker, who must decide how and when to act, and the field commander, who must carry out the orders of the decision maker.

A key value and important policy issue central to nonlethality is the ability of nonlethal weapons to allow a nation equipped with them to act earlier against a threat. This same capability brings into question the level of international and, in the United States, congressional control over a state's ability to venture below the threshold of war.[15](#)

## **Nonlethal Weapons, Information Warfare, and the Problem of Provocation without Decisiveness**

Information warfare, a subset of nonlethality, traces its independent existence directly to the success of electronic warfare during the Gulf War. In *Nonlethality: A Global Strategy*, the authors listed information warfare as a subset of nonlethality. Today, information warfare has its own bureaucratic institutionalization and its own user base, funding, and constituency. It has these because electronic warfare proved overwhelmingly successful during the Gulf War. However, information warfare does not have a generally accepted conceptual structure outlining its utilities and attributes, as does nonlethality. Therefore, the authors will treat information warfare as sharing the same general attributes and strategic values as other nonlethal and antilethal weapons.

Information warfare technologies do differ from some other nonlethal and antilethal technologies in that information warfare technologies can seldom if ever be used alone. Because of this, we have chosen information warfare as our example in examining critical issues of geopolitical usability.

To be of consequence, any new defense technology must be useful, usable, and used.[16](#) It must have political utility. It must be legal. It must be moral in a milieu in which all military actions are subject to scrutiny by the media and the international community. It must be effective. It must be a superior choice to meet a policy objective. It must be dependable. It must produce the desired result. It must be short, sharp, successful, and economical. Most of all, it must be decisive or contribute to a decisive victory or a

desired outcome, even if that outcome is deterrence or show of force.

Information warfare technologies are those that deny, deform, destroy, or disable the enemy's communications and targeting capabilities. They may also be designed to act upon infrastructure points and therefore upon noncombatants. Some information warfare technologies are mature but classified. Others are conceptually obvious but are still in the design stage. Still others have been available since the height of the cold war but have never been used for fear that their use might be too provocative in an arena where consequences and repercussions are still murky.

International policymakers and weaponeers alike must consider four issues--legality, decisiveness, effectiveness against new forms of aggression, and proliferation--when considering the use of information and other nonlethal and antilethal weapons, especially in actions below the threshold of war.

### *Legality*

What actions made possible by new capabilities will be legal under international law? Some existing treaties predate but prohibit the use of information warfare technologies that belong to the electromagnetic spectrum of weapons. Chemical nonlethal weapons (riot control agents) risk a similar fate because of the draft Chemical Warfare Convention which may soon be ratified by the US Senate.

### *Decisiveness*

Which new operational capabilities offer decisive advantages, either when used alone or in concert with conventional force, and which are too provocative to provide real utility? Information warfare brings to the policymaker and diplomat the most serious problems of decisiveness that exist among the nonlethal arsenal. It may be tempting to intercept and deform another nation's communications and send those messages on their way with new information inserted, but circumstances in which such tactics alone will provide a deterrent or a decisive victory will be rare. It may be attractive to use information warfare to deny a rogue state access to internationally banked funds, but such actions may be unacceptably provocative in the eyes of the international community. Communications or banking embargoes are now possible, but the results of imposing them may be unclear.[17](#)

### *Defense against New Forms of Aggression*

What new capabilities must we develop in order to have defenses against their use by rogue states or international criminals? Although both issues noted directly above may limit or slow US or Western development or use of new kinds of weaponry, neither legality nor decisiveness will deter rogue states, terrorists, and subnational and pannational groups of religious fundamentalists, cultural separatists, or ideologues of any sort from building and using information weapons as well as some types of nonlethal and antilethal weapons that can be configured from off-the-shelf components and that require no technological expertise or hardware that is effectively restrictable. Only the creation of a nonlethal, antilethal, and information arsenal can convey to the West the expertise needed to develop and deploy

effective countermeasures against nonlethal, antilethal, or information warfare attack, especially attacks on our woefully vulnerable banking and communications systems.

### ***Proliferation***

What technologies will inevitably proliferate because of their mature nature, and how should the international community acknowledge and deal with the proliferation of new and evolving nonlethal and antilethal capabilities that impact international security? Information weapons have already proliferated beyond hope of containment. The personal computer, the telephone, the modem, the Internet--all are at the heart of modern man's daily life. Attempts to put mediating electronics in new defensive systems cannot address this vast vulnerability. Information warfare is already the domain of computer hackers. Its weapons are available worldwide. Its systems can be cobbled together from electronics stores on the streets of any city in the world or can be ordered by mail. Banking and communications security can only be ensured by new and stringent efforts to develop proprietary safeguards, countermeasures, and antifratricide and share them not only with our allies but with our interdependent commercial enterprises worldwide. Other nonlethal technologies with even more aggressive capabilities, such as high-power microwave weapons, can be constructed from easily obtainable commercial components. As the information highway makes technology more accessible, this trend can only continue to grow.

## **In the Age of Chaos, What Constitutes an Act of War?**

These examples are but a few of many cases that illustrate that nonlethal weapons, and especially information warfare technologies, bring into question as never before the issue of what constitutes an act of war. Unless and until we wish to use nonlethal and information warfare technologies alone against an enemy, this question may seem immaterial since all nonlethal technologies, including information warfare, used in conventional operations have the potential to provide new and needed options to military planners. However, as deterrence and allied shows of force become more commonplace, this question of what defines an act of war takes on increasing immediacy. If we accept that the threshold of war is being lowered and that new technologies will provide new options to war planners, we must accept the necessity of redefining the act of war itself.

When we are using nonlethal, antilethal, and information weapons in concert with conventional weapons for peacekeeping or in pursuit of clear national objectives, such new technologies and new operational strategies and tactics yield no such difficulties. In such cases, nonlethality can provide commanders with new ways to meet mission objectives and allow diplomats and policymakers to act in an area of warfare heretofore inaccessible--that area between the moment that diplomacy fails and a shooting war begins.[18](#)

## **Nonlethality and a New Strategic Doctrine**

The way we insert nonlethal and information warfare technologies into our force mix will be critical issues linked to the adoption of a new strategic doctrine suited to the evolving geopolitical climate. That

doctrine may well be the containment of barbarism or the containment of conflict itself, a possibility only if the world community acknowledges the true nature of the current geopolitical climate and chooses to act aggressively not only for self-preservation but for the protection of human rights. The articulation of any such new strategic doctrine that can be shared by the world community will be based partly on the realization that nonlethal, antilethal, and information weapons comprise a new category of weaponry--weapons of mass protection.

### ***Weapons of Mass Protection***

Nonlethal, antilethal, and information weapons form a new arsenal for a new era of warfare, an arsenal that can generally be termed *weapons of mass protection*. Weapons of mass protection are weapons that can be used earlier to deter by denial<sup>19</sup> in order to support diplomacy, to limit aggression, to nonlethally disarm or dissuade, and to destroy lethal capability with a minimum of damage to noncombatants, combatants, and the environment. Weapons of mass protection may include nonlethal weapons, antilethal weapons, and conventional weapons. They may be electromagnetic, kinetic, or nonlethal chemical.

Weapons of mass protection have broad utility in that they meet the following constraints imposed by the new geopolitical climate on policymakers and military planners:

- Limit casualties and environmental and collateral damage.
- Act earlier and decisively in defense of human life.
- Minimize reconstruction costs.
- Deter by denial.
- Restore a credible threat of effective action.
- Enforce the rule of law.
- Maintain the moral high ground.
- Protect lives of US and allied personnel.

### ***Useful, Useable, and Used***

We have noted that weapons, to be viable, must be useful, useable, and used. To be relevant, armed services must be able to deliver the required intensity and type of force to the target in such a way as to deliver the desired result to the policymaker. When this result is a cessation of hostilities or a divestiture of the ability to threaten aggression rather than complete surrender or unequivocal victory, new methods must be made available to the military planner so that the goals of the policymaker can be met.

### ***Airpower and Nonlethality***

Airpower is clearly the first choice of policymakers when contemplating timely action abroad. The US Air Force can utilize existing technology and weapons platforms to develop new capabilities that will provide policymakers with the tools necessary for timely action in the new area between conventional

diplomacy and warfare. These tools can and must be a mixture of precision kinetic, nonlethal chemical, and electromagnetic weapons that are legal, ethical, humane, and effective. Since potential enemies will be using lethal force when US or allied forces act to overwhelm that lethal force with weapons of mass protection, it is important that the capabilities of nonlethal, antilethal, and information warfare technologies be known and understood not only by policymakers but by aggressors, both for the potential deterrent effect and to demonstrate that fear of casualties will not stop the US or allies from acting.

Most of the flash points of chaotic destabilization are client states of the former USSR. Airpower can reach these venues in a timely fashion and with a less-troubling level of troop commitment as far as Congress is concerned. Whether air planners will take up the challenge and adapt their technologies and platforms to these new missions may be the question that determines the future of airpower in the coming century.

## SUMMARY

The age of chaos has created new demands on policymakers and war planners alike. Wars of divestiture, which may occur far below the previous threshold of war, provide a new challenge to the United States. Weapons of mass protection can be developed that will allow the United States to assert its leadership while holding a moral high ground internationally. Airpower holds the key to timely delivery of weapons of mass protection in ways that will create new supports to diplomacy, a new deterrent below the level of massive conventional force projection, and enhanced, politically useable conventional force with which to meet the challenges of the chaotically destabilized, media-scrutinized environment. The basic values inherent in airpower--deep penetration, broad reach, precision delivery, early entry--must be augmented with the ability to carry payloads whose results enforce policy throughout the operational continuum in ways suitable to the needs of decision makers in this age of chaos. Wars of divestiture have at their core the aim of restoring order with minimum destruction. Weapons of mass protection have a political utility that encompasses the changed environment for warfare and allows the United States to enforce its policies when necessary, thereby exercising its role as world leader. Airpower, demonstrably the first choice for early action by US decision makers, can project nonlethal, antilethal, and information warfare while conserving lives, limiting destruction, and deterring by denial, thus helping to chart the course of US military power in this new and evolving action area.

### Notes

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12. From a briefing presented by Charles Swett (ASD/SOLIC/PP) and Donald Henry (OUSDA/S&T/OM) to the National Defense University, 17 November 1994; and conversation of authors with Col Thomas M. Kearney, USAF, College of Aerospace Doctrine, Research, and Education (CADRE), Maxwell AFB, Alabama, 18 January 1995.

13. Chris Morris and Janet Morris, *Nonlethality: An Overview* (West Hyannisport, Mass.: Morris & Morris, 1994).

14. From a series of discussions with Thomas Moore, professional staff member, Senate Armed Services Committee staff, 1994.

15. From a series of discussions led by Col John Warden, USAF, commandant, Air Command and Staff College, Maxwell AFB, Alabama, and Malcolm Weiner, president, Millburn Corporation, at the American Assembly, 8-10 February 1994.

16. Thomas B. Baines, *Information Operations in War* (unpublished paper, 1994).

17. Warden discussions, 1994.

18. From a briefing presented by Charles Swett (ASD/SOLIC/PP) to the School of Information Warfare and Strategy, National Defense University, 17 November 1994, Washington, D.C.

19. Ibid.

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## Contributors

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