Netwar:

A New Paradigm for the Future

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"You may not be interested in war, but war is interested in you"
        -Leon Trotsky

I. Introduction

"To win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill." These words were written by the great Chinese warlord Sun Tzu many centuries ago, yet the principle described holds true even today, perhaps even more so with the onset of the 'information revolution' of the last several decades. This 'third-wave' in human civilization, like the waves preceding it, will be

characterized by a new form of warfare closely tied to the new economic and social order that it spawns. First-wave wars were fought using agrarian age weapons, (axes, swords & crossbows built by craftsman,) by groups organized by agrarian age economic and social structures (hierarchies). Second-wave wars have been fought using industrial age weapons (tanks, planes & guns built via mass production,) by groups similarly organized by their economic and social structures (hierarchies.) However, with the rise of the third-wave information age, wars will increasingly be fought using information age weapons (knowledge, images & ideas created by human minds,) by groups organized by information age economic and social structures (networks.)

This paper is about two aspects of these coming conflicts; the battle for control of the human mind and the organizational structure that it will be fought within. Conflict in the future will have far less to do with guns or bombs, and much more to do with thoughts and ideas. These ideas will be disseminated, not solely by hierarchical nations, but by dispersed, nonlinear and networked organizations and individuals. The power to persuade, lead and control is no longer the sole domain of the nation, but is increasingly found in non-governmental organizations (NGOs) like CNN, the Sierra Club and the Cali drug cartel.

Technology has driven this powershift by disseminating information communications technology that has allowed networks to usurp the power of hierarchies on a global scale. This fact poses no innate danger to the national security of the United States. Far from it. Information is the most democratic source of power. However, knowledge, the understanding of information, is not in itself objective. Information becomes knowledge when screened through the potpourri of filtering systems known as culture, language and custom (the 'worldview'). Worldviews will be the prizes for future contestants to capture, fought for on the global communications network by nations, organizations and individuals. We will all be combatants, willing or otherwise, in the clash of ideas. While you may not be interested in this coming netwar, the netwarriors are certainly interested in you.

II. Organizational Structure

Human social structure is closely related to the means by which that society creates wealth. As civilizations have transited from agrarian to information economies, their social organizations have shifted from hierarchical organizations towards networked structures. To understand this shift, we must first understand the structure of society in general.

Humans don't exist in social vacuums. We pass our days emeshed in a tangled web of social contacts. At the most basic level, these contacts exist as a 'primary group.' This consists of the individual's close associates and intimates with whom he generally engages in direct back-and-forth communication. Interestingly, the primary group has the most influence over the individual with regard to the manner in which information will be converted into knowledge. Different people will interpret a fact in different ways depending on the differing medium by which they hear it. Who the message comes from is just as important as the message itself.

Beyond this primary group of intimates, individuals have membership in broader 'secondary' groups. These groups consist of organizations to which the individual feels a bond because of loyalty, shared interests and values, etc. At the micro-level, these can consist of organizations like businesses, churches, sports teams and terrorist movements. At the more macro-level, secondary groups are institutional in nature; the fourth of July; the Federal Communications Commission; the Republican Party. Beyond that, there exist the ultimate secondary groups, national and supernational structures.

National structures evolved thousands of years ago when the earliest first wave civilizations developed. Where the economically valuable agricultural surpluses of a region came under the unifying control of a single authority, state-like structures developed to protect these surpluses by maintaining order. The nature of this early means of production had two significant consequences. First, control was exerted hierarchically. The structure resembled a pyramid, with the leadership at the top and everyone else below. Dictators and kings issued mandates to the people which were enforced capitally. Control was maintained through domination of society's information networks (education and communication media.) Control could be taken simply by replacing the top of the pyramid; that is by overthrowing the king or emperor. In this sense there was only one secondary group that mattered, the state. Any other secondary groups were tantamount to challenges to state authority, and were ruthlessly weeded out.

The agricultural nature of first wave societies also had important consequences for its warfighting abilities. Since agriculture was so labor intensive, relatively little time could be put toward the conduct of warfare. War was a seasonal occupation and even as late as the feudal period a lord could only keep his army in the field for forty days a year. This relation of warfighting to economic means of production would have dire consequences in the industrial age.

With the arrival of second-wave industrial society, warfighting became a function of mass production. The country that could produce the most men, guns, tanks, planes and ships usually won a second-wave war. For example, in World War II, the United States "sent 15 million men to war, but mass-manufactured nearly 6 million rifles and machine guns, over 300,000 planes, 100,000 tanks and armored vehicles, 71,000 naval vessels, and 41 billion (billion, not million) rounds of ammunition." Death became an assembly-line function as the Nazi's murdered 6 million Jews with industrial efficiency. Conflict was no longer a part-time job. It metamorphed into the Clauswitzian monster of total war; one which could touch an entire populace; one which could be fought for years without end; one which would not be stopped until the factors of production were exhausted.

The industrial age also subtly altered the manner in which control was exercised, gradually pulling societies away from the monolithic grasp of hierarchical control. The roots of this shift were sown years before when Gutenberg invented the first printing press in 1456. However, books and education were held in the domain of the privileged classes. It was not until the industrial age that universal schooling became the norm for a significant percentage of the population.

It is no coincidence that true representative democracy began to appear in this era. As the hierarchical controls over communication and education began to break down, more and more secondary groups appeared and a measure of power was taken from the state by the people. Nevertheless, the lack of sophisticated communication structures still stood as a significant roadblock to a wholesale deviation from the hierarchical model of the first wave. States were still the primary means of organization. Traditional media like books and newspapers might have become more widely dispersed, but their form had remained essentially unchanged since Gutenberg printed his first bible in the 15th century. The information age would alter this system drastically.

Perhaps the most significant change of the latter part of the 20th century has been the explosion in communications technology. Black and white television gave way to digital satellites broadcasting 500 channels of images and sound anywhere in the world. The Internet allows anyone, anywhere to make available any information to everyone. Communications links among individuals and groups have multiplied geometrically, with no end in sight. This increasingly thick web of communication holds with it some significant implications for the manner in which power will be

exercised in the future.

Networked, as opposed to hierarchical, forms of organization were traditionally thought to be too inefficient because they required too much interaction between nodes. In the past, development of these forms of organization were stymied by hierarchical control and the dearth of communication technologies. As fax machines, satellite communications, the internet, etc., continue to enhance the abilities of the individual to communicate with any other individual, networks will continue to sap control away from more hierarchical systems based on one simple principle; where hierarchies exist because of the information they control, adding communication technologies will erode their power.

Networks will not necessarily replace hierarchies across the spectrum. Historically, the trend has been for new information technologies to destroy existing hierarchies. These old hierarchies are then replaced by new hierarchies that incorporate the new technology. A classic example is the decline of the Catholic Church's Papacy hierarchy after the invention of the printing press. Yet this outdated hierarchy was replaced by monarchies, which were in turn replaced by the modern nation-state. Nevertheless, we have entered the first period in human history where true all-channel networks are possible. In many instances these networks will not just erode hierarchical power, but will replace them entirely.

The information age is also significantly changing the way in which wealth is generated. The manipulation of information, not industrial production, is the primary means of wealth generation in the third-wave. One need only look to Forbes list of the richest persons in America and note that four of the top five are in software or microchips, the two touchstones of the information age. Whereas first-wave societies create wealth through human labor and second-wave societies create wealth through machine labor, third wave societies create wealth through intellectual labor. The manner of wealth creation in first and second wave societies had significant implications for the manner in which they conduct warfare. Similarly, conflict in the third-wave will be waged not just with labor and production, but with information and ideas.

III. Netwar and Memes*

When considering the greatest minds in the study of warfare, one does not ordinarily think of Hollywood Movie creation John Rambo. However, in a brief pause from his happy gunplay, he made the observation that "the mind is the ultimate weapon." Indeed, a vast array of killing tools and

strategies for their employ have sprung from the brain of Homo Sapiens. But while John Rambo's words were accurate, if he had ever bothered to put down his explosive tipped arrows and ponder the true implications of his statement, he might have stumbled upon true insight into the nature of war. The mind is not only the ultimate weapon, it is the preeminent battleground.

Consider human 'will.' The American Heritage Dictionary defines it as "The mental faculty by which one deliberately chooses or decides on a course of action." Ultimately this is the arena in which war, indeed all conflict, is waged. People decide to fight. If enough do so, there is war. Simplistic perhaps, but valid nevertheless. Interestingly enough for us, the converse is also true. Cause the enemy to loose his will to fight, end the war. Or better yet, destroy his will before violence breaks out and win a bloodless battle.

This bloodless battle sounds nice on paper, but one might wonder how it could possibly ever be implemented. In fact, psychological operations, designed to undermine the will of the enemy, harken to the earliest days of warfare. The Mongol armies of antiquity were masters of this art. Outclassed in close combat by the Western forces they faced, they suffered heavily in siege combat. In response, they began spreading the message that cities that resisted their rule would be slaughtered to the last man, woman and child. Cities that surrendered to Mongol rule would be incorporated into the empire and treated well. Peaceful surrenders became plentiful.

A more modern example sprung from the cold war. Mutually Assured Destruction, the doctrine that any nuclear attack by one side would result in an overwhelming response, destroyed any possible will to start a nuclear war between the superpowers. This simple idea prevented total war and drove the conflict into less dangerous realms.

While idea warfare has been around for a long time, never before has the potential for victory through the power of ideas been so tantalizing. The explosion of global communications is allowing the near-instantaneous transmission of any idea throughout the globe. If words can be weapons, the reach of any potential adversary is now stretched across the face of the planet. Recognizing this new form of conflict, John Aquilla and David Ronfeldt gave it a name; Netwar.

Netwar refers to information-related conflict at a grand level between nations or societies. It means trying to disrupt, damage, or modify what a

target population knows or thinks it knows about itself and the world around it. A netwar may focus on public or elite opinion, or both. It may involve public diplomacy measures, propaganda and psychological campaigns, political and cultural subversion, deception of or interference with local media, infiltration of computer networks and databases, and efforts to promote dissident or opposition movements across computer networks.

Netwar is omnipresent. It spans the entire conflict spectrum, from peace to total war. It is incorporated into political, social and economic policy. It involves every person on the face of the planet, for the objective is not control of their physical person, which would be impossible, but control of their will. And perhaps most disturbingly, netwars are being fought 24 hours a day, 7 days a week by more actors than one can comprehend.

At its most basic level, netwar can be fairly harmless. A cola company advertises that its product it better than its competitors, causing you to change your mind. More significant netwars are fought over political issues like abortion and gun control, with groups from each side attempting to sway public opinion to their cause. On the most extreme level, the world spent much of the last 50 years engaged in a netwar between communist and democratic ideologies. This battle still flares up in Cuba. U.S. sponsored Radio Martí contests for the minds of the Cuban people while Cuban support networks generate opposition for U.S. policies.

In the most stunning application of Netwar to date, on New Year's Day 1994, the Zapatista National Liberation Army (EZLN), a previously unheard of insurgent group, thrust itself onto the world stage by seizing control of several towns in the Mexican state of Chiapas. Had it not been for their ingenious use of global communications, the world might have dismissed this insurrection as just another Latin American rebellion for the government to quash. Instead, the EZLN and their charismatic leader, subcommandante Marcos, engaged the Mexican government in a very effective Netwar.

First, the EZLN called a press conference disavowing any Marxist ideologies or ties to other Latin American revolutionary groups. It called for respect for local peoples; a true political democracy; fair elections and social reforms. In the words of Marcos himself: "We do not want state power. It is civil society that must transform Mexico-we are only a small part of that civil society, the armed part- our role is to be the guarantors of the political space that civil society needs." Is this just a new tact for revolutionaries disillusioned by the fall of communism? Perhaps, but

Marcos seems to speak to something more than simple armed revolt. "War will be exorcised by the pressure put on by civil society throughout the country. . . . The problem will arise if civil society becomes exhausted, tired, collapses; in that case everything will be left loose and they will jump on us through the military route."

In this sense, the EZLN was very savvy. It knew that its small numbers of troops could never hope to wage an armed war of liberation against the Mexican government. Militarily it would be crushed. Instead, once it asserted force to focus national and world attention, it disseminated as much information as it could to international aid and civil-society organizations (the Red Cross, Native American and human rights groups) simultaneously pleading with them to come to Chiapas and monitor the conflict. NGOs swarmed to southern Mexico, many of them utilizing networks established to monitor human rights during the Central American conflicts of the 80's. Large citizen protests sprang up throughout Mexico, with smaller ones in the United States. The EZLN had the world watching closely and there was no way the Mexican government could end the insurrection by force. The government was forced to negotiate. As Mexico's foreign minister noted in 1995, "The shots lasted ten days, and ever since the war has been a war of ink, of written word, a war on the Internet."

The EZLN was so successful for two reasons. First, it mastered and utilized the network form of organization to the detriment of its hierarchical enemy. The EZLN recognized the value of the infrastructure of NGOs that crisscross the Americas, and it knew how to manipulate the global media network. This mastery of the public relations game was the second prong of its success. By characterizing itself more like oppressed liberal democrats than Marxist-revolutionaries, it gained the support of civil society actors throughout the hemisphere.

The power of the ideas espoused by the EZLN in support of their cause are not to be taken at all lightly. The most cynical could argue that they are no different than any other insurgent group except for the fact that they know how to package their struggle in a fashion attractive to a wider audience. Had Marcos come on the air preaching Marxist-Leninist rhetoric and calling for a peoples struggle against the capitalist oppressors, he probably would have been dismissed as just another banana republic, commie wacko. Yet the same people who would dismiss him in this guise come rushing to his defense when he speaks of a fairer democratic system and a more civil society. Why? Because he spoke in terms of a worldview consistent with western democracy. Because Marcos spoke in terms

consistent with his target audience, the EZLN's message was understood and distributed across the globe.

To help us understand just how powerful the synthesis of ideas, networks and communication can be, it is helpful to understand the concept of memetics. First coined by Richard Dawkins in his book 'the Selfish Gene,' a meme is a contagious information pattern that replicates by parasitically infecting the human mind and altering its behavior, causing the individual to propagate the meme to others. Dawkins describes memes as if they are not just ideas, but constructs with a life of their own:

Memes should be regarded as living structures, not just metaphorically but technically. When you plant a fertile meme in my mind, you literally parasitize my brain, turning it into a vehicle for the meme's propagation in just the way that a virus may parasitize the genetic mechanism of a host cell. And this isn't just a way of talking -- the meme for, say, 'belief in life after death' is actually realized physically, millions of times over, as a structure in the nervous systems of people all over the world.

Memes can be quite simple. A chain letter is a very basic meme. When you read the letter, you become infected by the idea that breaking the chain is bad luck. If you are susceptible, you send in a buck and mail copies of the letter to your friends, exposing them to infection. If this meme doesn't fit in with your worldview, it fails to infect you and you toss it in the trash.

Memes certainly aren't harmless. Take the meme that the tobacco companies have generated, that 'smoking is cool.' Perhaps you were raised not needing to attain 'coolness' or grandma' died of lung cancer. Your worldview would grant you immunity. Unfortunately, millions of people, especially approval-seeking adolescents, are vulnerable to this sort of meme. They get infected with the idea that 'smoking is cool.' Ten years later they realize that smoking is a nasty habit, that it is most certainly not cool and that it is going to kill them. By then their immunity to the meme is worthless. It has already altered their behavior, addicting them to nicotine and probably shortening their life. You may not be interested in R.J. Reynolds, but R.J. Reynolds is interested in you (and especially your children.) Netwar is everywhere.

Some memes are shortlived and highly infectious, like fashions or jingles. Others are nearly immortal, yet less infectious. Religion is certainly the most notable of this type. As an example, Catholicism has a number of traits that make it an excellent meme. It frowns on birth control, thereby

ensuring a growing supply of new hosts. It encourages missionaries, a facet that gave it millions of new hosts with the colonization of the New World. But supreme among any religious meme's behavioral features has been the concept of holy war or Jihad.

Jihad is the ultimate expression of the meme's power. During a Jihad, the meme's hosts are so possessed by the meme that they can justify any action. Dawkins calls such people 'memoids' for their will is practically subjugated to that of the meme. During the Crusades, millions of Christian memoids journeyed deep into foreign lands seeking to spread the teachings of Christ by looting, pillaging and murdering throughout the East. Islamic memoids returned the favor by razing the West. Dawkins considers religion to be a revolutionary military technology, on par with the longbow, the tank and the hydrogen bomb.

Lessons of Netwar in the Vietnam War:
The United States had the unfortunate privilege of falling prey to a number of virulent memes that impeded its ability to fight the Vietnam war. One of the key vulnerabilities of a democracy is the need for a public approval of any sustained military action. The United States learned this lesson well. Despite winning the military battles convincingly, the United States lost the netwar, and hence the war, by letting public support for the military action slip away. Hanoi Jane, indiscriminate civilian targeting, brainwashing, media bias, GI body bags and portrayals of kindly Uncle Ho the agrarian reformer are all examples of netwar at its best. What could be more demoralizing than fighting in a war when half your country thinks you're a baby killer?

Perhaps the greatest military shortcoming of the United States government in Vietnam was its failure to wage anti-netwar. Structurally, the United States could not adapt to the networked nature of its enemy. U.S. military doctrine, designed to lop the head off of a very hierarchical Soviet command structure, was very ineffective in combating the networked structures of the Viet Cong. There were also numerous functional mistakes. Very few controls were placed on the on-site media to prevent irresponsible reporting. As the war dragged on, the United States failed to make a persuasive case for its continued presence in Vietnam. And on the micro-level, the United States displayed a naive disregard for simple communication structures.

One of the United States' goals in Vietnam was 'to win the hearts and minds of the people,' a seemingly impressive foray into the world of netwar. The implementation of this policy was sorely ineffective.

Indiscriminate bombing of the countryside and a lack of concern for collateral damage turned otherwise neutral citizens into hostile enemy supporters. On a structural level, our inability to operate within the local worldview hampered the effectiveness of our message. A study undertaken to determine why citizens chose to side with the Viet Cong over the ARVN found that most new Viet Cong recruits had been introduced to the organization via a friend or relative. Only after receiving assurances from a primary group intimate that the organization was; in the right/would treat them well/ had a chance of victory; would a young citizen join. In contrast, the VC's competition for soldiers were often faceless foreigners preaching a rationally superior system in a functionally inferior (impersonal) manner. As one ARVN officer noted, "Americans have much, but no talk. VC no have much, but have much talk, talk, talk. We must talk."

The United States was not alone in its misfortune. The Soviet Union's experience in Afghanistan is a similar tale of a militarily inferior opponent confounding a superpower through netwar. Recent history is littered with tales of the weak overcoming the strong using networks and ideas to make up for their lack of military strength. Beirut and Somalia are two notable instances where relatively few military casualties, broadcast on the nightly news in living color, caused a superpower to execute its exit strategy. Russia again learned the power of a netwar savvy foe, when small, networked bands of ten to twenty Chechen rebels, lightly armed but outfitted with radios, defeated them repeatedly. In spite of these problems, the United States seems to have learned a few lessons about how to conduct a netwar. The Gulf War of 1990-1991 is an excellent example. "World of netwar focuses on 'winning the hearts and minds of the people'"

Functionally, the United States took several important steps that enabled it to dominate the netwar theater of operations. Before the war, the U.S. fully disclosed to the world, and more importantly to its own people, the extent of Saddam Hussein's ruthlessness. Factual descriptions of his invasion of Iraq, his use of chemical weapons and his ruthless treatment of his own people were combined with strong rhetoric, so that before long the media had brandished him as the next Hitler. Projections were also circulated on what might happen to oil prices should Saddam press his attack and invade Saudi Arabia. The thought of a new Hitler, rumbling around the Middle-East and raising oil prices was enough for middle-America. Public opinion was securely behind military action.

Next, the Bush administration set its sights on securing world opinion by building a coalition within the auspices of the United Nations. By

characterizing U.S. actions as responses to the mandates of the U.N., the Bush administration framed the conflict in terms that were consistent with the worldview of a multitude of nations. This wasn't the U.S. protecting its economic, political and social interests, it was the U.N. standing together to combat aggression.

Once the air campaign began, the netwar continued. Sensitive to the preferences of its Arab allies, the U.S. convinced Israel to weather the storm of SCUD's without responding. Back in the U.S., citizens were treated to exciting images of precision airstrikes, possessing all the horror and misery of a videogame. Iraq fired back with images of a bombed-out 'baby milk factory' and reports of civilians killed while sheltering in a military headquarters, but these were largely ineffective in swaying public opinion.

In preparation for the ground attack, the will of the Iraqi army was continually hammered. In conjunction with relentless airstrikes, the U.S. engaged in a massive leaflet dropping campaign. The messages of the leaflets were eerily similar to that used by the Mongols centuries before, 'Surrender and be fed and clothed, resist and die.' The resulting mass surrenders at the beginning of the ground campaign attest to the value of this aspect of netwar. And, in contrast to our indiscriminate bombing of the countryside in Vietnam, airstikes were targeted to avoid civilian casualties thereby avoiding making enemies out of innocents.

With the grand success of the Coalition ground offensive, there was some discussion of continuing the ground war and taking Baghdad. One can only wonder how much influence the bloody news images of the so-called 'highway of death' had in swaying public opinion in favor of a cease fire.

As effective as the U.S. was in waging netwar against Iraq, it is by no means the model for conflict in the future. In fact, some have argued that an enemy is unlikely to engage the U.S. in a symmetrical, second-wave type war anytime in the near future. They argue that the U.S. possesses such vastly superior technology that any such foray would be tantamount to suicide. Indeed, a great body of scholars would agree that the U.S. faces a far greater threat from low intensity conflicts and netwars.

IV. The Future of Conflict

The future of conflict will have several characteristics. First, information and knowledge will be the primary weapons of information age battles. What an ally or enemy thinks, knows or believes is of crucial importance.

Second, organizational structure is a valuable technology. Networked forms of organization, empowered by communication technology, will increasingly challenge existing hierarchies. Third, future threats will come from organizations that are more dispersed, non-linear and diverse than in the past. With the crumbling of outdated hierarchies, new, non-governmental actors will increasingly move into the void.

To understand this shift, it is important to reiterate that conflict closely mirrors the means for wealth production. The third wave economy is breaking down old, outdated industrial systems, replacing them with ever-more differentiated pieces. Niche industries and niche markets move in to replace the old 'all-encompassing' structures. Similarly, threats have become 'de-massified.' The old 'all-encompassing' Soviet threat has been replaced by niche conflicts and niche actors. In the third wave, organizations multiply like rabbits and not all of them bear any national allegiance.

It is important to note that the great majority of these new NGOs pose no direct threat. Greenpeace is hardly a danger to the national security of the United States. However, not everyone is as civic-minded. Transnational criminal organizations (TCOs) have sprung up throughout the world and the U.S. should be very wary.

Organized crime is spreading around the world at a frightening rate. In Columbia, the Medellîn and Calî drug cartels have torn the country apart. Law enforcement has been decimated, government-cartel violence approaches the level of civil war and economic and social development are subject to the will of the narcotraficantes. However, the cartels' reach does not stop at Columbia's border. TCOs undercut national security by encouraging corruption and violence within their trafficking areas, linking areas of turmoil with areas of stability. These actions undermine the rule of law and should be considered grave threats to our national security.

TCOs are not confined solely to third-world nations. Sicily experienced a rash of violence in the 80's as a result of the crime families' attempts to exert control over the government. Japan has its Yazuka. The U.S. has its mob. And perhaps most worrisome of all, Russia is quickly falling under the control of organized crime syndicates. Consider:

Police in Russia estimate that about 3000 organized crime groups, allied into about 150 confederations, now exist and that half of the country's banks and real estate are mafia-owned. . . . These groups control not only traditional criminal activities such as drug trafficking, prostitution, extortion,

loan-sharking, black marketing, etc., but also other spheres of influence. For instance, estimates show that 40,000 state-run and private companies are controlled by the crime syndicates in Russia.

TCO control of Columbia is troubling enough. TCO control of a nuclear armed state would be simply unacceptable. Consider that in Russia in 1993, there were some 200 known incidences of smuggling involving nuclear materials. While none involved weapons-grade materials, the threat seems clear enough.

In addition to the threats posed by TCOs, we can expect a great diversity of challenges from organizations that might look or sound different than those we have traditionally faced. States will find it increasingly necessary to deal with these organizations to further their interests. These targets include the full range of NGOs, including environmental groups, professional organizations, corporations and media broadcasters. The recent controversies surrounding monetary contributions by Chinese nationals to the Democratic and Republican parties are but one example of this subtle new paradigm.

We can also look forward to more hybrid combinations of involvement, mixing elements of second-wave shooting wars and third-wave netwars. LIC (low intensity conflict) and OOTW (operations other than war) are the acronyms of the future. Since it stands to reason that where there is conflict, but little apparent violence, netwar is raging, we would do well to master this form of warfare.

V. Recommendations

If the United States is going to wage netwar instead of having netwar waged on us, we need to acknowledge three changes. First, strategy can no longer be defined in second wave terms. We must invent new doctrines that acknowledge the power of netwar. Second, netwar is a military technology. Mastery of this art will be essential to future national security. Third, existing structures for dealing with conflict deserve close scrutiny. We must examine our own abilities to conduct netwar within the institutional framework that we establish

U.S. foreign policy is currently focused on democratic enlargement. This remnant from the Cold War harkens back to the days of Democracy vs. Communism, NATO vs. the Warsaw pact and U.S. vs, USSR. However, for much of the world, political liberalism is a foreign concept that simply doesn't mesh with their worldview. Attempting to engage these peoples

with our version of democracy smacks a bit too much of American ideological imperialism.

Assuming that democracy is the best form of government available to us today, that on the free marketplace of governments it reigns supreme, then it seems natural that given a free and informed choice, the people of the world will choose democracy. If that is the case, current barriers to democratization are not ideological, but informational. Non-democratic peoples simply aren't getting the information they need to make that informed choice. As Secretary of State George Schultz noted back in 1985, "The free flow of information is inherently compatible with our political system and values." This suggests a different strategy than democratic enlargement.

Openness, not enlargement, should be the touchstone of U.S. foreign policy. We should enable the global availability of communication technologies that will engage the world not in American style democracy, but in the open debate over ideology. We must not fall into the trap that our version of democracy is the right one for everybody. The worldview of other peoples is rarely consistent with our own. Instead, we should enable the debate, the ideological struggle, in the only way possible; through the power of ideas and information.

In this sense, it is easy to conceptualize how the U.S. could better serve its interests by broadening its media capabilities throughout the world. Instead of dropping bombs on Iraq later, drop satellite dishes now. Wherever voices of intolerance and hatred arise, wage anti-netwar in response.

The importance of anti-netwar was demonstrated in April 1994 in Rwanda. Media poor, with only six newspapers and no television stations, the main means of communication, other than word of mouth, was radio. When Radio Télévision Libre des Milles Collines and Radio Rwanda began broadcasting death warrants over the radio and inciting tribal genocide, there was no opposition voice to stop them. Closed and homogeneous channels of communication breed hatred and intolerance. Openness encourages a battle of ideas and words, sparing bloodshed.

Unfortunately, the very openness that we enable will generate a variety of new challenges. Netwar, unlike warforms of the past, is being fought around-the-clock, every day of the year and it targets everyone. To be successful at it we must formulate warfighting strategies that are appropriate not just to our superior technological capabilities, but to this new conception of reality.

Netwar is as much about organizational structure as it is about ideology. In the past, the networked structure simply allowed fringe groups to survive. Now it is enabling them to compete more equally with states and other hierarchical systems. The U.S. must master this form, turning its focus from beheading a hierarchical opponent to dismantling hostile networks. Understanding the fact that it takes networks to fight networks leads to two obvious strategies.

The U.S. must adapt its structures to a more networked form. Networks are unlikely to replace hierarchies as the dominant form in any large structure. Instead, hybrids, combining the command and control of hierarchies with the distributed webbiness of networks, should be carefully examined. Nowhere is this need more serious than in the arena of U.S. intelligence gathering.

Unfortunately, the current U.S. intelligence gathering apparatus is a confusing mishmash of hierarchical bodies whose structure seems ill structured for the future. If we can accept that in netwar, understanding is power, the need for a large and effective intelligence apparatus becomes obvious. The CIA, NSA and DIA should be networked into a single entity capable of coordinating the entire body of intelligence gathering. This network should then develop close ties to other potentially knowledgeable groups like the foreign service and overseas arms of private corporations.

These types of partnerships should not be limited strictly to intelligence gathering. If the information age is going to enable the rise of non-governmental actors, the U.S. should acknowledge this fact and enlist these organizations in preserving order. The government should develop networked partnerships with banks, airlines and human rights organizations, all of whom could be invaluable in assisting the fight against emerging hostile NGOs.

The U.S. must also take advantage of the fact that we are the most media-rich country in the world. All too often, the media and the government seem to be equal players in a contest for the American psyche. Far too often, the government fails to effectively communicate the reasons for its actions and the void is filled by NGOs. The government's facility at playing the public relations game seems haphazard at best. This must change, else we become prime targets for netwarriors.

Distrust of Big Media
I would recommend the establishment of a new government agency

dedicated to the factual and unbiased presentation of information. The days of the people trusting the media to present the unbiased facts are over. Big media is a big business. As the number of media outlets proliferate, we can expect more and more of them to throw responsible reporting out the window in favor of yellow journalism and muckraking, which tend to bring in larger audiences. As more and more stations focus on sensationalism and human interest stories, there opens up a niche for government broadcasting, dedicated to the presentation of the truth. Since there would be no economic incentive to grab a larger market share, this network could focus on stories that affect our national security; the rise of the narco-state in Columbia; the spread of the Mafia throughout Russia; or the pursuit of warcriminals in the Balkans.

Whenever there is government involvement in the media, there is of course opportunity for abuse. However, this danger could easily be alleviated by establishing firm rules that demand unbiased, non-partisan, factual reporting. And even if some bias did creep into the system, the effect would be blunted by the sheer number of media outlets available to the United States. The government would not be the voice of Big Brother, but simply one voice among many; a voice that needs to be heard.

VI. Conclusion

The information revolution has and will continue to present us with a new form of conflict that is closely tied to the manner in which we produce wealth. This 'netwar' will use information technologies to challenge existing organizational structures and ideologies. Netwar grants us new abilities for bloodless conflict, but also presents new dangers from dispersed actors. To fight a netwar, the U.S. must redefine its grand strategy to incorporate knowledge and information.

Above all else, the future promises chaos and much more of it. The only way to navigate through chaos is with knowledge and information. Netwar is about using information to exert your will without bloodshed. Should we fail to learn its lessons, we shall fall along the wayside of history. But if we can master Sun Tzu's 'acme of skill' and learn to fight the bloodless battle, our security will be ensured well into the future.

VII. Glossary of Terms

All-Channel Network - A network where each node (or individual person) can communicate with every other node.

First wave - A society whose primary means of wealth production is agricultural in nature.

Knowledge - Raw data becomes knowledge only after the individual filters it through their worldview.

LIC - Low Intensity Conflict.

Meme - a contagious information pattern that replicates by parasitically infecting the human mind and altering its behavior, causing the individual to propagate the meme to others.

NGO - Non-Governmental Organization.

Second Wave - A society whose primary means of wealth production is industrial in nature.

TCO - Transnational Criminal Organization

Third Wave - A society whose primary means of wealth production stems from manipulating information.

Wetwar - The psychological component to netwar. Also known as neo-cortical warfare.

Worldview - An individual's accumulated language, culture, beliefs and prior knowledge.

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