

Naval War College
Newport, RI

**THE NETWORK CENTRIC OPERATIONS - EFFECTS BASED OPERATIONS MARRIAGE: CAN IT
ENABLE PREDICTION OF "HIGHER ORDER" EFFECTS ON THE WILL OF THE ADVERSARY**

By

Carl A. Barksdale
Commander, USN

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department.

The contents of this paper reflect my personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

13 May 2002

Professor David M. Goodrich
Captain Mark J. Campbell, USCG

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED			
2. Security Classification Authority:			
3. Declassification/Downgrading Schedule:			
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.			
5. Name of Performing Organization: JOINT MILITARY OPERATIONS DEPARTMENT			
6. Office Symbol: C		7. Address: NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207	
8. Title (Include Security Classification): THE NETWORK CENTRIC OPERATIONS - EFFECTS BASED OPERATIONS MARRIAGE: CAN IT ENABLE PREDICTION OF "HIGHER ORDER" EFFECTS ON THE WILL OF THE ADVERSARY (UNCLASSIFIED)			
9. Personal Authors: Commander Carl A. Barksdale, USN			
10. Type of Report: FINAL		11. Date of Report: 13 May 2002	
12. Page Count: 24		12A Paper Advisor (if any): Captain(Ret) James A. Fitzsimonds	
13. Supplementary Notation: A paper submitted to the Faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.			
14. Ten key words that relate to your paper: Network Centric Operations, Effects-based Operations, Targeting, will and belief structure, Soviet's in Afghanistan, Tet Offensive, Israel in Lebanon, planning, BDA, prediction			
15. Abstract: Network Centric Operations is touted as enabling Effects Based Operations targeted at the "will and belief systems" of the adversary. This assertion is explored. Specifically, for Effects-Based Operations against the will and belief systems to be enabled, the operational commander needs to know what makes an adversary give up and needs to be able to plan and assess the associated indicators of the desired operational effect? Assessment implies measurement or sensing. The will and belief systems are psychological factors that have defied measurement or assessment. Historical analysis is conducted for three losing side's reactions to identify any patterns that may be used as measures or as indicators that desired effects have been achieved. Effects-Based Operations is a good theoretical approach to targeting and operational planning. It answers the question, Why are we taking this action? However, since the will and belief systems of the adversary are psychological factors, this paper shows that planning for higher order effects remains problematic. Thus, the operational commander will still have to rely on his/her gut feel and occasional fleeting indicators to discern higher order effects on the will of the adversary vice plan and confirm effects via the promised in-depth knowledge provided by the omnipresent sensor grid in Network Centric Operations.			
16. Distribution / Availability of Abstract:	Unclassified X	Same As Rpt	DTIC Users
17. Abstract Security Classification: UNCLASSIFIED			
18. Name of Responsible Individual: CHAIRMAN, JOINT MILITARY OPERATIONS DEPARTMENT			

19.Telephone: 841-3556	20.Office Symbol: C
------------------------	---------------------

Security Classification of This Page Unclassified

THE NETWORK CENTRIC OPERATIONS - EFFECTS BASED OPERATIONS MARRIAGE: CAN IT
ENABLE PREDICTION OF “HIGHER ORDER” EFFECTS ON THE WILL OF THE ADVERSARY

Network Centric Operations is touted as enabling Effects Based Operations targeted at the “will and belief systems” of the adversary. This assertion is explored. Specifically, for Effects-Based Operations against the will and belief systems to be enabled, the operational commander needs to know what makes an adversary give up and needs to be able to plan and assess the associated indicators of the desired operational effect. Assessment implies measurement or sensing. The will and belief systems are psychological factors that have defied measurement or assessment. Historical analysis is conducted for three losing side’s reactions to identify any patterns that may be used as measures or as indicators that desired effects have been achieved.

Effects-Based Operations is a good theoretical approach to targeting and operational planning. It answers the question, Why are we taking this action? However, since the will and belief systems of the adversary are psychological factors, this paper shows that planning for higher order effects remains problematic. Thus, the operational commander will still have to rely on his/her gut feel and occasional fleeting indicators to discern higher order effects on the will of the adversary vice plan and confirm effects via the promised in-depth knowledge provided by the omnipresent sensor grid in Network Centric Operations.

THESIS :

The combination of Network Centric and Effects-Based Operations is purported to enable accurate and predictable targeting of the will and belief structure of future adversaries. At the end of every war, there is a perceived winner and a perceived loser. At some point in the confrontation, the losing antagonist decides to give up - to submit to the will of the winner. For the Network Centric/Effects-Based Operations combination to be effective, a better understanding of why the losing antagonist decides to give up is required. This paper will explore why “losers” decide to give up. It is believed that the process is complex and context dependent. If the foregoing is correct, the Network Centric/Effects-Based Operations marriage will not make it possible to accurately predict effects on the will and belief structure of an adversary. Rather, the combination of those concepts will enhance our ability to destroy or degrade functions or systems, but the promised and desired effect on the will and belief systems of the adversary will remain the subject of conjecture and surmise vice the realm of certainty and predictability as envisioned.

BACKGROUND :

The Network Centric Operations Capstone Concept states that Effects-Based Operations is one of the “major supporting concepts” Joint forces will use to “execute Network Centric Operations.”¹ It is argued that “Network Centric Operations start by gaining and retaining an Information and Knowledge Advantage” and that the “Knowledge Advantage ... enables and connects the other concepts.”² Further, this required Knowledge Advantage is gained through four supporting elements: Historical and Cultural Foundations, Real-Time Battlespace Awareness, Command Philosophy, and the Information Hardware Backplane.³ The Historical and Cultural Foundations element requires that future Joint-warfighters possess or develop “[a]n in-depth historical-regional knowledge of potential adversaries and the battlespace” as “[t]his knowledge is also increasingly essential for successful Effects-Based Operations”.⁴ Under the Real-Time Battlespace Awareness element, “sensors will provide weapons-quality tracking, identification, and detailed effects assessment.”⁵ Thus enabled, Effects-Based Operations “emphasize rapid maneuver that creates unacceptable change from the adversary’s perspective *using effects directed as much against the enemy’s will and belief structure as physical targets.*”⁶ [Emphasis added.]

The conclusion of the foregoing paragraph implies that the future Network Centric structure and processes will enable the Joint Force Commander to target and assess the damage of actions conducted expressly to affect the will and belief structure of the adversary. In light of the importance of Effects-Based Operations, a basic understanding of the current state of the concept is required to assess and analyze its ultimate usefulness.

Despite the implication of a prominent proponent, Effects-Based Operations is not a new concept.⁷ Commanders have always been interested in the results of their operations. The earliest airpower theorists spoke in

terms of the effects of strategic bombing on the population and industry's capacity to support a war effort. Effects-based Operations can simply be thought of as the latest name applied to "optimum linking of means to ends for the achievement of ones objectives."⁸

Like operational planning, Effects-Based Operations start with the desired effect and work backward to identify actions that will deliver that effect. Today's technology allows practitioners to think in terms of massing effects versus massing forces. Brigadier General Deptula describes Effects-Based Operations as "parallel warfare ... in which forces attack all major targets at more or less the same time, to attain cascading effects."⁹ Correctly planned and executed parallel operations present a high rate of change and so degrade an adversary's systems and ability to cope that the adversary is effectively paralyzed.¹⁰

Like so many developing concepts or theories, there has been a proliferation of differing views about and vocabularies used to classify effects or results. Theoreticians have come up with different categorizations of effects such as direct or indirect; first, second, third order, etc., and lower or higher order effects.¹¹ Second, third, or higher order effects are considered indirect. Effects can be cumulative or discreet. Further, theoreticians have used different taxonomies of effects.¹² One theoretician might describe effects in terms of the levels of war, while another speaks in terms of war-making, war-sustaining, will to fight effects, while still others speak in terms of physical, systemic, or psychological effects; or military, economic, social, or political effects.¹³ For the purposes of this paper, affecting "the will and belief structure of the adversary" is a higher order, indirect, psychological/political effect.

It is not so important to understand all the categorizations and taxonomies as it is the basic underlying tenet - that actions are only undertaken with a specific "effect" in mind. And, generally, the "effect" is not merely destruction but some other (higher order/indirect) effect that follows from destruction. In the simplest terms, the Effects-Based Operations concept frames planners' thinking by making them answer the question: "Why?" In the context of this paper, the answer to the "Why" question is to make the adversary give up and admit defeat.

Prominent theories for mechanisms of defeat:

Lanchester: Although Frederick W. Lanchester did not theorize about the mechanisms of defeat, he did develop his now famous N-Square Law. These equations are used to calculate casualties in modern computer models thus determining the winner.¹⁴

McQuie: Robert McQuie studied 80 battles to see what effect casualties had on the outcomes. He concluded that amount or rate of casualties had very little if any discernable influence on the outcome of battles.¹⁵ In fact, he found "the principle condition associated with defeat appears to have been the use of maneuver by the enemy..." in 64 of the 80 battles studied.¹⁶

Douhet: Giulio Douhet's mechanism for defeat was to bomb cities to break the peoples' will to fight.¹⁷

Slessor: J. C. Slessor believed that the path to victory lay in subduing ground forces while simultaneously interdicting supplies.¹⁸

Warden: Colonel Warden developed what is widely known as his “five-ring” systems theory. The rings are concentric and form a bullseye. At the center is ‘leadership’, followed moving outward by ‘systems essentials’, ‘infrastructure’, ‘population’ and finally the outer most ring is ‘fielded military’. He stresses the interdependence of these components and that within them lie the centers of gravity that should be attacked. His mechanism for defeat is to either impose a higher cost on the enemy than he is willing to bear or to mass effects in parallel causing paralysis.¹⁹

Pape: “Robert Pape’s “denial” strategy seeks to “thwart the enemy’s military strategy”²⁰ and deny the opponent his objectives.... He maintains that once the opponent is convinced that he cannot achieve his military and political objectives, the cost of further resistance outweighs the benefits of that behavior, so he will concede to the coercer’s demands.”²¹

FACTS :²²

The Soviet Decision to pull out of Afghanistan:

When the Soviet Union invaded on Christmas Eve 1979 and installed its choice of puppet ruler, the Afghan communist government had been in power less than two years.²³ This marked the beginning of more than nine years of Soviet occupation.

The Peoples Democratic Party of Afghanistan established the Afghan communist regime following a successful coup in April 1978. Within very few months several tribal-religious oriented groups rebelled against the new communist government. Late in the same year, the Soviet Union and Afghanistan entered into a friendship treaty. Infighting and ineffectiveness characterized the inchoate Afghan communist regime.²⁴ Just four months prior to the Soviet invasion, Deputy Prime Minister Haffizullah Amin ousted and killed the first communist leader, President Nur Teraki.²⁵ “Amin’s rule was no better and the Soviet Union watched this new communist state spin out of control and out of Moscow’s orbit.”²⁶ The invasion shortly followed.

Most analysts believed the Soviets were planning a relatively short incursion (“several months” versus years) into Afghanistan to restore stability and ensure filial obedience.²⁷ Theories vary regarding the impetus for the invasion from a Soviet pension for expansionism, to a continuation of the “Great Game,” to a personal vendetta by Brezhnev.²⁸ At the time, the Soviet government held that they were invited in by President Amin to help put down the foreign-sponsored rebellion.²⁹ This explanation seems quite far-fetched as Soviet forces killed Amin and installed a more pliant Barak Kamal as the new President.³⁰ The day after the invasion, the final architects of the withdrawal, Shevardnadze and Gorbachev “meet to discuss [the invasion and] ... agree it was a fatal error that would cost the country dearly.”³¹

The invasion initially seemed to be a successful operation.³² Analysts estimated the Soviet Army would quickly suppress the rebellion through a combination of attrition and forced exile of rebellious elements.³³ What happened?

Basically, the Soviet invasion swelled and galvanized the rebellion. Formerly separate groups were convinced to align against a common enemy and faithful Muslim fighters flocked to Afghanistan to fight the infidel. In short, the “citizenry” rose in arms and prolonged the conflict until the Soviet Union gave up and withdrew in February 1989.

Approximately 15,000 Soviet soldiers of the roughly 640,000 that served in Afghanistan were killed over the nine year period.³⁴ Another 470,000, “fully 73 percent ... were wounded or incapacitated by serious illness.”³⁵ Soviet forces in Afghanistan ranged between “90-104,000” at any given time.³⁶ “Soviet equipment losses included 118 jets, 333 helicopters, 147 tanks, 1314 armored personnel carriers, 433 artillery pieces or mortars, 1128 communications or CP vehicles, 510 engineering vehicles and 11,369 trucks.”³⁷ It is estimated 1.3 million Afghans were killed and another 5.5 million became refugees (one-third of the prewar population)³⁸.

The conflict spanned the terms of “four [Soviet] general secretaries -- Brezhnev, Chernenko, Andropov and Gorbachev” and three United States Presidents -- Carter, Reagan and Bush.³⁹ Other major players included Pakistan, the UN, and the United States.

Beginning in early 1980, the UN overwhelmingly passed a resolution calling for the total withdrawal of all foreign forces from Afghanistan and did so every year thereafter.⁴⁰ The UN also sponsored Geneva talks between Afghanistan and Pakistan beginning in June 1982, which continued intermittently until a settlement was reached in April 1988.⁴¹ By mid-1982 the number of Afghan refugees in Pakistan exceeded 2.5 million and the European Parliament recognized “the Afghan resistance as a legitimate national liberation movement which should be provided all necessary aid.”⁴²

As early as April 1983 the Soviet Union indicated its willingness to withdraw when “Andropov tells Zia ul Haq [the President of Pakistan] ... that the Soviet Union wants to get out ... and would withdraw quickly if Pakistan ceased support of the Afghan resistance.”⁴³ Not only was Pakistan the major refugee host, but it acted as the conduit for U.S. aid to Afghan resistance, and it allowed rebels to launch attacks from within its territory.⁴⁴ In effect, Pakistan was a sanctuary for the rebels and acted as an agent of United States in resisting Soviet communist expansionism.⁴⁵

By mid-1985 the Geneva talks had made some progress. The parties had agreed on the “instruments of non-interference, international guarantees and the return of refugees.”⁴⁶ As always, the devil is in the details, and the parties could not come to agreement as to the sequencing or timing of the “instruments.”⁴⁷

Significantly, also in 1985, Mikhail Gorbachev acceded to General Secretary. In his Memoirs he noted the occasion as follows:

“On taking office as General Secretary in 1985, I was immediately faced with an avalanche of problems. It was vital to change our relationship with the West, particularly the United States, and to bring the costly and dangerous arms race to an end. We needed to withdraw from the damaging and costly war in Afghanistan. The Soviet Union faced tremendous internal problems.... Long-term problems needed to be addressed as soon as possible.... A programme that would stop the country’s slide towards crisis and prepare to meet the challenge of the future was urgently needed.”⁴⁸

Soviet Foreign Minister Shevardnadze echoed some of the General Secretary’s sentiments:

“The presence of our troops in Afghanistan not only hindered relations with many countries but also sowed doubt as to the sincerity of our desire to conduct international affairs in a new way.”⁴⁹

“The invasion of [Afghanistan] provoked a strong negative reaction that grew daily in our society and abroad.... after 1979 the majority condemned the Afghan adventure....”⁵⁰

The years of '86, '87 and '88 were consumed by all parties seeking an acceptable political settlement and by heavy fighting. Gorbachev and Shevardnadze wanted to get out of Afghanistan but were unwilling to incur the odium of abandoning an ally. Early in 1988, the Soviets reiterated their desire to withdraw in 1988 and dropped demands for “a prior internal political settlement.”⁵¹ Key to the foregoing “concession” was the “U.S. agreement to end aid to guerrillas” when the Soviets begin to withdraw.⁵² The Soviets agreed to start a ten-month withdrawal of troops beginning May 15, 1988 if the Geneva talks resulted in a settlement by March 15.⁵³ In early March 1988, the U.S. changed its position from stopping aid to the resistance upon the start of Soviet withdrawal to stopping aid when the Soviets “stop supplying Kabul.”⁵⁴ The Geneva talks stalled and the Soviet Union announced it would commence its withdrawal “even if negotiations in Geneva fail[ed] to reach an agreement.”⁵⁵ The Soviet Union and the United States compromised in early April 1988 agreeing that both would suspend aid during a withdrawal and then both could resume aid upon completion.⁵⁶ The U.S. and the Soviet Union pressured their agents (Pakistan and Afghanistan respectively) to sign an agreement on 14 April 1988 allowing for withdrawal.⁵⁷ The Soviets commenced withdrawal on 15 May 1988 and, despite continued fighting, withdrew half their forces by August 1988 amid mutual accusations by all sides of agreement violations.⁵⁸ The Soviets suspended the withdrawal in November 1988 citing continued support for the rebels by the U.S. and Pakistan and the “continued harassment of Soviet troops....”⁵⁹ The Soviets commenced talks with rebel groups seeking a cease-fire and continued to supply advanced weapons to Afghanistan.⁶⁰ The U.S. stated that improved relations depended on the Soviet Union meeting its withdrawal deadline of 15 February 1989.⁶¹ In January 1989, Shevardnadze stated all troops would be withdrawn by the deadline “despite continued fighting....”⁶² The Soviets completed a timely withdrawal on 15 February 1989 and claimed the decision was not due to a “military or political defeat” but “the product of a new political philosophy which brings political dialogue, not confrontation to the fore in international affairs.”⁶³

In his Memoirs, Gorbachev wrote the “difficult economic situation [in March 1989] was to a certain extent the result of the enormous costs of dealing with the aftermath of the Chernobyl accident, the earthquake in Armenia and the military adventure in Afghanistan.”⁶⁴ Shevardnadze said, “...Afghanistan cost us 60 billion rubles.”⁶⁵

U. S. Decisions following the Tet offensive of 1968:

In January 1968, when the North Vietnamese Army (NVA) and Vietcong (VC) launched the Tet offensive, Vietnam had been at war almost continually for the best part of 30 years. Immediately following the end of the war in the Pacific, British and Japanese forces helped the French retake Saigon from the nationalist Vietminh and the French began their attempt, with U.S. financial aid, to put down the nascent liberation movement led by the communist Ho Chi

Minh.⁶⁶ In May 1954, Ho Chi Minh's communist General Vo Nguyen Giap won the battle of Dien Bien Phu "mark[ing] the end of French military influence in Asia."⁶⁷ A Geneva agreement signed in July 1954 temporarily divided Vietnam at the 17th parallel into "zones" pending a "reunifying election" scheduled to follow in July 1956.⁶⁸ Certain that an election would result in a communist Vietnam, the U.S. installed the "puppet" Prime Minister Ngo Dinh Diem, who, with U.S. backing, canceled the southern zone's participation in the scheduled 1956 elections.⁶⁹ Advisors were sent to South Vietnam during the Kennedy administration - more than 12,000 were in country when the Gulf of Tonkin incident occurred in August 1964.⁷⁰ Immediately following the incident, Congress passed the Gulf of Tonkin Resolution giving the President carte blanche for military action in Vietnam.⁷¹ U.S. combat troops in South Vietnam exceeded 500,000 by the end of 1967.⁷² U.S. combat forces had been fighting a war of attrition searching for an elusive "cross-over" point where more enemy are killed than can be replaced.

On September 29, 1967, the President publicly stated that the U.S. will "stop all ... bombardments of North Vietnam [in exchange for] productive discussions" as long as North Vietnam promises "not to take advantage of the cessation."⁷³ This offer had already been made to the North Vietnamese via private channels.⁷⁴ The North Vietnamese rebuffed the offer, and the U.S. bombing campaign was stepped up.⁷⁵ In late October 1967, an anti-war demonstration took place in Washington, DC; estimated participation ranged from 50,000 to 100,000.⁷⁶ The President was concerned about waning public and congressional support, and he had doubts that the war could be won militarily or diplomatically.⁷⁷ The President convened his group of "Wise Men" and sought advice in November.⁷⁸ Their advice was to continue "existing program[s]."⁷⁹ Much discussion took place during November as the administration's senior advisors either pushed for stabilization for the long haul (five to ten years) to enable Vietnamization, or expansion of bombing and ground operations to force the North Vietnamese to the negotiating table among other proposals.⁸⁰ Many differing views or recommendations on alternate courses-of-action are expressed to the President.⁸¹ He gave little indication of which alternatives he preferred; however, he expressed chagrin at the losses of aircraft and crews and directed that the target list be kept to the absolute minimum.⁸²

Around Thanksgiving 1967, General Westmoreland made a highly publicized trip to Washington for "consultations" and painted a rosy picture for the U.S. press of the progress made in the war over the last two years.⁸³ This visit was one element in the administration's strategy to shore up congressional and public support.⁸⁴ During discussions with the President, Westmoreland stated he had sufficient force in-theater.⁸⁵

On 31 January 1968 the NVA and VC launched the Tet Offensive. The scope and audacity of the offensive can only be appreciated with reference to the numbers of urban areas attacked and forces involved. Nearly simultaneously, "five of six major cities, thirty-nine of forty-four provincial capitals, seventy-one district capitals, and nearly every U.S. base in country" were attacked by an estimated 70,000 NVA and VC.⁸⁶ "In the first hours of the offensive more than one thousand aircraft were destroyed or damaged..."⁸⁷ Approximately 1,000 VC infiltrated

Saigon and created havoc by temporarily entering and holding the U.S. Embassy grounds, seizing the government radio station, and by surrounding the Presidential palace.⁸⁸

U.S. news media reports from Vietnam reflected a sense of crisis and depicted the NVA and VC as eminently capable and described their flawless execution of the devastating attacks.⁸⁹ Based on the early reporting, many people were led to believe the U.S. and the South Vietnamese Army (ARVN) suffered a major defeat. Between the initiation of the attack and the end of March, the effect on the U.S. public's and U.S. Congress' support for the war was devastating. There was a growing realization in the Administration that the press, Congress and the public felt that the Administration and the military had supplied misleading information to them on the progress of the war.⁹⁰ Other issues that weighed on the mind of the President were the North Korean capture of *USS Pueblo* just one week prior to Tet, a "gold crisis," racial unrest, and the continuing battle to hold Khe Sanh near the DMZ.⁹¹

On February 6th, during a meeting at which General Wheeler requested and was denied an end to the prohibition against bombing Hanoi and Haiphong, the National Security Advisor recommended President Johnson deliver a "war leader" speech to assure the public of the Administration's continued resolve to win the war.⁹² On February 9th, during a discussion on whether or not to send more troops, General Wheeler stated reinforcements were required, and if the President authorized sending an additional 40,000 to 50,000 troops to Vietnam, that he should call up the reserves to backfill in the U.S. strategic reserve.⁹³ President Johnson was incredulous and angered that Wheeler had tried to force his hand on the reserve call-up issue; just a week earlier General Wheeler had confirmed to the President that Westmoreland had all the forces needed.⁹⁴ Early in the next week, the Administration announced an additional 10,500 troops would be sent to Vietnam.⁹⁵ One day following the announcement, "Wheeler and the Joint Chiefs asked ... for the reserves to be mobilized...."⁹⁶ Debate continued about a strategy to win the war and whether or not a reserve call-up was necessary. General Wheeler traveled to Vietnam for discussions with Westmoreland to work on a plan for "victory."⁹⁷

On February 21st, the Administration received indications that the North Vietnamese were willing to "begin negotiations immediately after a bombing halt...[and were] also willing to talk about deescalating the war in the south."⁹⁸ Secretary of Defense (designate) Clifford wanted to pursue negotiations, while Secretary of State Rusk was less sanguine and opposed any bombing halt until the North Vietnamese agreed to discuss removing their forces from the South.⁹⁹

The Administration received a blow when General Wheeler cabled that Westmoreland needed another 200,000 troops, that our margin of victory over the enemy was a close run thing, and that the enemy had sufficient reserves and intended to launch more attacks.¹⁰⁰ At a luncheon meeting that day at the State Department (the President was resting at his ranch), Secretary of Defense McNamara (within days of turning over to Clifford) estimated the request would require \$15 billion in additional DOD funding, a reserve call-up of 150,000 and an "increased draft."¹⁰¹ A lively

discussion ensued between Clifford and McNamara on the merits of sending additional troops; McNamara literally broke down and sobbed after expressing his opinion that additional troops wouldn't help, that there was no strategy to win, and that the bombing campaign was accomplishing nothing.¹⁰² The following day, during a discussion with the President exploring the ramifications of not sending the requested troops, McNamara repeated his opinion that the additional troops would make little difference and that the outcome depended on the ARVN matching "the enemies capabilities and will."¹⁰³

President Johnson had the new Secretary of Defense, Clark Clifford conduct a "full review."¹⁰⁴ The results were briefed on 4 March. The basic points of the brief were that no more than an additional 20,000 should be sent, that Vietnam was a bottomless pit, that the military's strategy had been unimaginative and static, and that it was time to change course.¹⁰⁵ For the remainder of March the factions within the Administration vied for the President's ear - State to stay the course and Defense to move toward disengagement. President Johnson named Westmoreland as Army Chief of Staff and named General Abrams as his replacement.¹⁰⁶ The "Wise Men" were recalled and their advice was 180 degrees out from that of November 1967; public opinion couldn't sustain the required effort, it was time to shift the rudder over to disengagement.¹⁰⁷

President Johnson delivered some campaign speeches in mid-March stating that he intended to do whatever it would take to win the war. Friends and the Democratic Party cognoscente informed the President that the reaction to the speeches was completely negative and it was unlikely he would win an up-coming primary.¹⁰⁸

Finally, on March 28th, the President was presented two draft speeches (originally proposed in February) to choose from; one a Defense favored draft, the other a State favored draft.¹⁰⁹ The President chose and delivered the Defense preferred version with minor modification.¹¹⁰ In the speech, the President announced the unilateral curtailment of the bombing campaign, named the representative to a hoped-for peace conference, and announced his intention not to seek a second term allowing him devote his total energies to his duties as President.¹¹¹ This speech, originally conceived to rally support for the war, marked the turn toward disengagement from Vietnam. In the span of roughly two months, the Tet Offensive had completely altered the Administration's outlook on the war and had brought home the sobering realization that the U.S. was engaged in a sanguinary stalemate.

Israel's Decision to withdraw from Lebanon in May 2000:

The Israeli's originally entered Lebanon in 1978 to suppress Palestinian Liberation Organization (PLO) attacks against northern Israel from Lebanon.¹¹² In 1982, Israel succeeded in driving the PLO out of Lebanon, but chose to remain thereafter in support of the Christian Militias during the Lebanese civil war.¹¹³ In 1985, realizing she "could not impose a new order in Lebanon," Israel withdrew to a 10-mile wide buffer zone in southern Lebanon to protect northern settlements from attacks by the Syrian and Iranian backed Hizbullah.¹¹⁴

A low level of war continued along the zone until withdrawal. Israeli soldiers killed yearly in buffer zone fighting exceeded 30 only in 1997 and were less than 25 most years.¹¹⁵ Total soldiers killed in action in the buffer zone over the 16 years of occupation were 265.¹¹⁶

The occupation seemed to have widespread public, government and military support up to 1997.¹¹⁷ In February of that year, two Israeli helicopters crashed in the zone while transporting soldiers to the front killing seventy-three.¹¹⁸ This event brought the zone and the occupation issue back into the public consciousness and government discussions.¹¹⁹ The accident sparked the formation of a particularly vocal group opposing continued Israeli occupation of the zone, which tended to keep the issue in play. Additionally, 38 soldiers were killed in the zone that year, the highest since 1985.¹²⁰ During late 1997 and early 1998, the Netanyahu government discussed and then proposed withdrawal from Lebanon in exchange for Hizbullah disarmament and “guarantees of safety” for their allies, the so called Southern Lebanese Army (SLA).¹²¹ The logic behind this proposal was that by withdrawing the Israelis could “de-link the Lebanon issue from negotiations with Syria and thus spare Israel the need to give up the Golan.”¹²² Syria did not support the initiative, so Lebanon rejected it.¹²³

The issue of the occupation and the need for the buffer zone became an issue in the campaign leading up to the 1999 elections.¹²⁴ The major parties, Labor and Likud, “re-framed” the issue of occupation so that withdrawal became an acceptable alternative to occupation as a military necessity.¹²⁵ During his campaign, Ehud Barak promised to “bring the boys home by June 2000.”¹²⁶ After he was elected, Barak attempted to link withdrawal to renewed efforts to obtain a peace treaty with Syria.¹²⁷ When those talks broke down, Barak brought the soldiers home as promised, and the Israeli occupation of Lebanon ended. After the withdrawal Barak restated his logic:

“...we are in a better position than before. I reduced significantly the legitimacy to shoot [at us] once we are within the borders of Israel. And I heightened a lot of freedom of maneuver for Israel to use the right of self-defense.... Once we are...defending ourselves from within our borders, the Lebanese government and the Syrian government are responsible to make sure that no one will dare hit Israeli civilians or armed forces within Israel.”¹²⁸

ANALYSIS:

The Soviet-Afghan case reviewed above represents a limited protracted war fought against a guerrilla force to install and then support a friendly regime in the context of the Cold War. The Vietnam Tet Offensive represents a major operation that took place, similarly, within a limited protracted war fought against regular and guerrilla forces to prop up a friendly regime in the context of the Cold War. The Israel-Lebanon case represents the very protracted vestiges of a limited protracted war fought against guerrilla forces to install a friendly regime in Lebanon. In all cases the opposing regular and guerrilla

forces received substantial outside support.

It appears the process leading from an emerging desire to "give up," to the consummation of that desire is complicated and often extended. In the Soviet-Afghan case the initial desire to exit was expressed six years before withdrawal occurred. Even after a leader came to power that, at least initially, expressed chagrin at entering the war, it still took another four years before the forces were withdrawn. Similarly, the U.S. did not pull out of Vietnam until 1973 even though the rudder had been turned over in that direction in 1968. Tet marked the turn or, in other words, the realization that the process of disengagement had to begin. In the Israel-Lebanon case the withdrawal happened in two steps. First, the Israelis withdrew from involvement in the Lebanese civil war in 1985, and finally from the buffer-zone fifteen years later.

In each case there is some support or at least an interpretation can be made leading to a notion or concept of a "trigger event" that sparked the process eventually leading to the decision to give up and pull out. For the U.S., Tet triggered the debate and the reassessment that led the President to decide not to introduce substantially more forces in the theater and to curtail bombing to seek to bring the North Vietnamese to negotiations. For Israel, the "trigger event" appears to be the dual helicopter crash that reawakened public and government awareness and ignited the debate leading to a review of the original justification for establishing the buffer-zone. In the Soviet-Afghan case, although Gorbachev only obliquely alludes to it, the trigger event was external to the theater of war -- it was the deplorable state and probable near collapse of the Soviet economy.

The cases highlight the fact that multiple entities, pressures, issues, and concerns exert differing and variable influences on leaders' decisions. This plethora of factors can broadly be categorized as internal, external and personal. External factors include what is happening in the war on the battlefield (e.g. enemy and friendly

actions, casualties, wins, and losses). International factors would be external and include information, or messages from, or discussions with allies, coalition partners, the enemy, the UN, or other concerned entities that are not directly involved in the conflict, and finally stories and comment from foreign media. Internal factors include advisors, friends, and adversaries within the government or anyone close to the leader, or close to his immediate advisors or who gets frequent attention from the media (e.g. the military, diplomatic, public, and political elite); and the situation within the country as a whole (e.g. economically, politically, militarily, and psycho-socially). Personal factors include the leader's knowledge, convictions, values, and beliefs. The leader is continually pulled and pushed along towards decisions with many of the above-delineated factors coming into play. As can be seen in the cases explored, the war or what was happening on the battlefield was only one of the influencing factors. Perhaps, because the war, or what is happening in it, is only one of the factors (albeit very important) vying for salience within the leader's decision process, this may somewhat explain the extended period of the "giving-up" decision process.

For the explored cases above, do any of the theories (really they are hypotheses) described above help predict the reactions of the leaders? Lanchester's attrition theory or model doesn't appear to work at this level of warfare at least as a mechanism that drove these leaders to concede. President Johnson was concerned about casualties, but not overly so. He appeared more concerned with the losses of aircraft and crews than the loss of ground forces. The theory appears to only be applicable on the tactical or, at best, the operational level and if the McQuie is correct, it is not even applicable there.

McQuie's assertion that "maneuver" more often accounts for conceding defeat on the battlefield than attrition may help us here. In other words, his theory may scale up to the strategic level. In his study, attainment of surprise was considered "maneuver." The Tet

offensive did come as a surprise to the Administration (they had started believing their own propaganda). The fact that the VC penetrated into what they believed to be relatively secure enclaves was shocking. This surprise and penetration, when coupled with the initial, widespread pessimistic news broadcasts so soon after General Westmoreland had asserted that there was "light at the end of the tunnel," created the sense of crisis in the Administration that led to the reassessment. During the reassessment process the rapidly dwindling public confidence and near simultaneous disappearance of his party's support coupled with vociferous new opposition drove President Johnson to make a radical change.

The Douhet, Slessor, and Warden theories do not help clarify these cases. However, a comparison of the case facts with Pape's theory concerning frustration (a nuance of Clausewitz' renunciation of the political object once the costs exceed the value) can be construed as one of the "mechanisms of defeat" possibly at work. There is a very apparent thread through all three cases that each government was stymied in its effort to attain its military objectives. In all the cases, the side that gave up appeared to do it after realizing the futility of continuing on the same course of action and that the desired outcome would not be possible without further investment of forces. Coupled with and perhaps instigating the thought process that led to this realization may be the fact that, in each case, the original expectation was to conduct a relatively short, limited war. When the envisioned short war did not materialize, and the reality of the protracted war set in, the leaders began to look for alternatives. Other alternatives were tried and failed to produce a decisive end. Eventually, most likely out of frustration, all three governments chose to get out while trying to preserve some semblance of national prestige and commitment. President Johnson's change represents an example of an alternative explored prior to a final decision to "give up." Additionally, other political considerations restrained the leaders from exiting early. In Vietnam

(later under Nixon) and in the Soviet-Afghan case, complete withdrawal was delayed by an attempt to preserve the illusion that the withdrawal was predicated upon a host government capability to competently assume the fight. In the Israel-Lebanon case, there was some delay due to their desire not to abandon the SLA. Again, there appears to be some evidence in the cases to support a hypothesis that if you frustrate (i.e. prevent from attaining political objectives) an adversary long enough, they will eventually give up. Of course, the winner must have been prepared to persevere even longer.

Each case is an example of the weak coercing the strong. The weak have fewer options; persistence appears to be their greatest weapon.

CONCLUSIONS:

Each case (even in the abbreviated form presented) shows a very complex process leading to the decision to "give up." The decisions were made in the realm of the cognitive in a political context. What exactly happened in the mind of the leader is not clear. We now know many of the inputs that were brought to bear on the decision; however, this does not reveal their salience in the mind of the leader. It is doubtful any future system will ever be able to predict such interaction. There appeared to be little evidence that an in-depth knowledge of the history and culture of the U.S., the Soviet Union, or Israel would have helped predict these decisions, not to mention when such decisions would be made and how long it would take before the forces withdrew.

Future Network Centric Operations may give our operational and strategic leaders more clarity of the operational area, and it may help solidify information necessary to conduct Effects-Based Operations. Such enhanced knowledge may allow for additional operations to produce even more pernicious functional or systemic effects than are possible today. However, targeting of the will and belief system of the adversary leader will remain in the realm of conjecture and the commander will have to surmise such higher order effects.

There is a conceivable exception to the foregoing. Should the U.S. have deeply penetrated the target (i.e. the adversary leader and/or his immediate entourage) whereby the operational commander gains access to the adversary leader's discussions, meetings and communications, targeting of the leader's will and belief system may become very lucrative indeed.

Nothing new was revealed by the study of these three cases. All the insights drawn in this analysis were captured years ago by Clausewitz, *et alia*. The cases reaffirm that conventional forces generally have a very tough time against irregular forces that are well supplied and that have a sanctuary. The hypothesis that long-term frustration of a conventional force will make its leaders reassess the policy basis for the war is supported and may provide an avenue for a commander to pursue in appropriate circumstances. The fact that a surprise leads to a sense of crisis is not new. We continue to count on this today to shake the morale and confidence of our adversaries.

Effects-Based Operations, combined with the concept of parallel warfare, may present a methodology that allows us to accelerate a leader's decision process to give up. Another propitious or opportune avenue to consider in future limited wars is to provide a pathway for an adversary leader to disengage while maintaining the semblance of commitment and the illusion of preserving his and his nation's prestige.

RECOMMENDATION:

1. Even though Network Centric enabled Effects-Based Operations most likely won't permit targeting of the will and belief system of the adversary at the strategic level, it may very well be used at the operational and tactical levels to attack the will and belief systems of adversary military forces. More study is needed at these levels to perfect the method. In the interim, use of Effects-based Operations in future planning is recommended. It extends regressive/reverse planning to the tactical level. It makes the planner figure out what effects are

to be produced in the operations area before selecting targets that will

lead the desired effect. This is much different from today's methodology of managing target lists.

NOTES

¹ U.S. Naval War College, Network Centric Operations: A Capstone Concept for Naval Operations in the Information Age, (Newport, RI: 2000), 7.

² Ibid.

³ Ibid., 7-10.

⁴ Ibid., 7.

⁵ Ibid., 8.

⁶ Ibid., 11.

⁷ Brig. Gen. David A. Deptula implies a newness of the concept by noting that the first day of the Gulf War air campaign “marked the birth of “effects-based” operations, or EBO, as a principle means of conducting warfare.” See Brig. Gen. David A. Deptula, “Firing for Effects,” Air Force Magazine, April 2001, 46-47. Major T. W. Beagle’s review of the theoretical basis of Effects-Based Operations noted that the “common thread throughout the writings of prominent [airpower] theorists [is] [t]he desire to control the enemy rather than simply destroy him ... which suggests that effects-based operations are not new at all, but rather as old as airpower employment itself...” See T.W. Beagle, Major, USAF, “Effects-Based Targeting: Another Empty Promise?”(Maxwell Air Force Base, Ala.: Air University Press, 2001), 16-24.

⁸ James Fitzsimonds, “Effects Based Operations (EBO)” [draft] D by Fitzsimonds, 1.

⁹ Deptula, 48.

¹⁰ Ibid., 48-49.

¹¹ Beagle, 6-9.

¹² Ibid.

¹³ Ibid.

¹⁴ Robert McQuie, “Battle Outcomes: Casualty Rates As a Measure of Defeat,” Army, (November 1987): 31-33.

¹⁵ Ibid., 33.

¹⁶ Ibid.

¹⁷ Beagle, 16.

¹⁸ Ibid., 18.

¹⁹ Colonel John A. Warden III, USAF, “Air Theory for the Twenty-first Century,” Lkd Battlefield of the Future: 21st Century Issues, Chapter 4, at “Aerospace Power Chronicles Home,” {<http://www.airpower.maxwell.af.mil/airchronicles/battle/chp4.htm/bftoc.html>} [28 April 2002]

²⁰ Robert A. Pape, Jr., Bombing to Win: Airpower and Coercion in War, (Ithaca, N.Y.: Cornell University Press, 1996), 69-79; quoted in Beagle, 23.

²¹ Beagle, 23.

²² Context is very important; however, for the sake of brevity, only the most salient facts are presented.

²³ General (Ret) Mohammad Yahya Nawroz, Army of Afghanistan, Lester W. Grau, “The Soviet War in Afghanistan: History and Harbinger of Future War?”, (FT Levenworth, KS, Foreign Military Studies Office, 1995), 3. Lkd. [28 Mar 2002]

²⁴ Rasul Bakhsh Rais, War Without Winners: Afghanistan’s Uncertain Transition After the Cold War (Karachi: Oxford University Press 1997), 77-85.

²⁵ Tom Rogers, The Soviet Withdrawal From Afghanistan: Analysis and Chronology, (Westport, CN: Greenwood Press, 1992), 62.

²⁶ Nawroz and Grau, 2

²⁷ Ibid., 2-3.

²⁸ Rais, 66-88

²⁹ Ibid., 74.

³⁰ Ibid.; Rogers, 62.

³¹ Eduard A. Shevardnadze, The Future Belongs to Freedom, (New York: The Free Press - a Division of Macmillan, Inc., 1991), 26.

³² Nawroz and Grau, 2.

³³ Ibid., 2, 4.

³⁴ Ibid., 5.

³⁵ Ibid.

³⁶ Ibid., 4.

³⁷ Ibid., 7.

³⁸ Ibid., 3.

³⁹ Ibid., 5.

⁴⁰ Rogers, 63. Besides the immediate costs to prestige of the UN resolution, the United States imposed a grain embargo from January 1980 to April 1981, sixty countries boycotted the 1980 Moscow Summer Olympics and China’s prestige was enhanced vis-a-vis the Third World.

⁴¹ Ibid., 64.

⁴² Ibid., 64-65.

⁴³ Ibid., 65.

⁴⁴ Ibid., 13.

⁴⁵ Ibid. For its trouble, Pakistan received in excess of \$7 billion in aid and military sales, and the U.S. government looked the other way as Pakistan developed nuclear weapons.

⁴⁶ Ibid., 67.

⁴⁷ Ibid.

⁴⁸ Mikhail Gorbachev, Memoirs, (New York: Doubleday, 1995), 171.

⁴⁹ Shevardnadze, 69.

- ⁵⁰ Ibid., 121.
- ⁵¹ Rogers, 101.
- ⁵² Ibid., 101, 109.
- ⁵³ Ibid., 109, 110.
- ⁵⁴ Ibid., 117.
- ⁵⁵ Ibid., 121.
- ⁵⁶ Ibid., 128-129.
- ⁵⁷ Ibid., 129-131.
- ⁵⁸ Ibid., 142-172.
- ⁵⁹ Ibid., 195.
- ⁶⁰ Ibid., 195-200.
- ⁶¹ Ibid., 200.
- ⁶² Ibid., 208.
- ⁶³ Ibid., 222-223.
- ⁶⁴ Gorbachev, 281.
- ⁶⁵ Shevardnadze, 58.
- ⁶⁶ George Katsiaficas, ed., Vietnam Documents: American and Vietnamese Views of the War (Armonk, New York: M.E. Sharpe Inc, 1992), 3-6.
- ⁶⁷ Ibid., 9.
- ⁶⁸ Ibid., 29, 42.
- ⁶⁹ Ibid., 40-43.
- ⁷⁰ Ibid., 61.
- ⁷¹ Ibid., 51.
- ⁷² Ibid., 62.
- ⁷³ Congress, Senate, Committee on Foreign Relations, The U.S. government and the Vietnam War: Part IV, July 1965-January 1968, Congressional Research Service, 103D Cong., 2d sess. (Washington, DC: GPO, 1994), 783.
- ⁷⁴ Ibid.
- ⁷⁵ Ibid., 874.
- ⁷⁶ Ibid., 865.
- ⁷⁷ Ibid., 869.
- ⁷⁸ Ibid., 876.
- ⁷⁹ Ibid., 876-877.
- ⁸⁰ Ibid., 878-890.
- ⁸¹ Ibid.
- ⁸² Ibid., 891.
- ⁸³ Ibid., 896-897; Peter Braestrup, Big Story (Novato, CA: Presidio Press, 1994), 51-53.
- ⁸⁴ Senate Committee on Foreign Relations, 896.
- ⁸⁵ Ibid., 898.
- ⁸⁶ Katsiaficas, 85.
- ⁸⁷ Ibid.
- ⁸⁸ Ibid.
- ⁸⁹ Braestrup, 143-176.
- ⁹⁰ Lloyd C. Gardner, Pay Any Price: Lyndon Johnson and the Wars of Vietnam (Chicago: Ivan R. Dee, 1995), 420-423.
- ⁹¹ Ibid., 426, 429.
- ⁹² Ibid., 422.
- ⁹³ Ibid., 424.
- ⁹⁴ Ibid.
- ⁹⁵ Ibid., 430.
- ⁹⁶ Ibid.
- ⁹⁷ Ibid.
- ⁹⁸ Ibid., 431.
- ⁹⁹ Ibid., 432.
- ¹⁰⁰ Ibid., 435.
- ¹⁰¹ Ibid., 436.
- ¹⁰² Ibid., 437.
- ¹⁰³ Ibid.
- ¹⁰⁴ Ibid., 440.
- ¹⁰⁵ Ibid.; Katsiaficas, 111-114.
- ¹⁰⁶ Gardner, 451-453.
- ¹⁰⁷ Ibid., 454-455.

¹⁰⁸ Ibid., 447-448, 455-456.

¹⁰⁹ Ibid., 456-457.

¹¹⁰ Ibid., 457.

¹¹¹ Ibid., 457-458; Katsiaficas, 106-111.

¹¹² Dalia Dassa Kaye, "Political Leadership, Framing and Security Policy: The Israeli Decision to Withdraw from Southern Lebanon" n.d. (Unpublished Research Paper, George Washington University, Washington, DC: 2001) Lkd. "PROceedings Paper Abstracts" at "Political Research Online, Harvard University Library," {<http://pro.harvard.edu/papers/048/048002KayeDalia0.pdf>} [28 March 2002], 5; Shlomo Brom, Israel and South Lebanon: In the Absence of a Peace Treaty with Syria (The Jaffee Center for Strategic Studies, Tel Aviv University: 1999), 7.

¹¹³ Brom, 7.

¹¹⁴ Brom, 7; Kaye, 5.

¹¹⁵ Kaye, Table 1.

¹¹⁶ Ibid.

¹¹⁷ Ibid., 7-9.

¹¹⁸ Ibid., 9.

¹¹⁹ Ibid., 16-17.

¹²⁰ Ibid., 16.

¹²¹ Ibid., 27-29.

¹²² Ibid., 29.

¹²³ Ibid., 30.

¹²⁴ Ibid.

¹²⁵ Ibid., 30-32.

¹²⁶ Ibid., 33.

¹²⁷ Ibid., 36.

¹²⁸ Ibid., 35.

BIBLIOGRAPHY

Barrett, David M., ed. Lyndon B. Johnson's Vietnam Papers: A Documentary Collection. College Station, TX: Texas A&M University Press, 1997.

- Beagle, T.W., Major, USAF. Effects-Based Targeting: Another Empty Promise?. Maxwell Air Force Base, Ala.: Air University Press, 2001.
- Bingham, Price T., Lt Col., USAF (Ret.). "Transforming Warfare with Effects-Based Joint Operations." Aerospace Power Journal. 15:1 (Spring, 2001): 58-66.
- Brom, Shlomo. Israel and South Lebanon: In the Absence of a Peace Treaty with Syria. The Jaffee Center for Strategic Studies, Tel Aviv University: 1999.
- Clausewitz, Carl Von. On War. ed. and trans. Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1976.
- Davis, Paul K. Effects Based Operations A Grand Challenge for the Analytical Community. Santa Monica, CA: RAND Corporation, 2001.
- Deptula, David A., Brig. Gen., USAF. "Firing for Effects." Air Force Magazine, 84 (April 2001). 46-53.
- Fitzsimonds, James. "Effects Based Operations (EBO)." [draft] D by Fitzsimonds.
- Gardner, Lloyd C. Pay Any Price: Lyndon Johnson and the Wars of Vietnam. Chicago: Ivan R. Dee, 1995.
- Gorbachev, Mikhail. Memoirs. New York: Doubleday, 1995.
- Katsiaficas, George, ed. Vietnam Documents: American and Vietnamese Views of the War. Armonk, New York: M.E. Sharpe Inc, 1992.
- Kaye, Dalia Dassa. "Political Leadership, Framing and Security Policy: The Israeli Decision to Withdraw from Southern Lebanon." n.d. Unpublished Research Paper, George Washington University, Washington, DC: 2001. Lkd. "PROceedings Paper Abstracts" @ "Political Research Online, Harvard University Library." {<http://pro.harvard.edu/papers/048/048002KayeDalia0.pdf>} [12 April 2002]
- McQuie, Robert. "Battle Outcomes: Casualty Rates As a Measure of Defeat" Army. (November 1987): 30-34.
- Nawroz, Mohammad Yahya, General (Ret), Army of Afghanistan, Lester W. Grau. "The Soviet War in Afghanistan: History and Harbinger of Future War?" FT Levenworth, KS, Foreign Military Studies Office, 1995. Lkd. [28 Mar 2002]
- Rais, Rasul Bakhsh. War Without Winners: Afghanistan's Uncertain Transition After the Cold War. Karachi: Oxford University Press 1997.
- Rogers, Tom. The Soviet Withdrawal From Afghanistan: Analysis and Chronology. Westport, CN: Greenwood Press, 1992.
- Shevardnadze, Eduard A. The Future Belongs to Freedom. New York: The Free Press - a Division of Macmillan, Inc., 1991.

U. S. Congress. Senate. Committee on Foreign Relations. The U.S. government and the Vietnam War: Part IV, July 1965-January 1968. Congressional Research Service, 103D Cong., 2d sess. Washington, DC: GPO, 1994.

U.S. Naval War College. Network Centric Operations: A Capstone Concept for Naval Operations in the Information Age. Newport, RI: 2000.

Warden, John A., III, Colonel, USAF. "Air Theory for the Twenty-first Century." Lkd. Battlefield of the Future: 21st Century Issues, Chapter 4, at "Aerospace Power Chronicles Home."
{<http://www.airpower.maxwell.af.mil/airchronicles/battle/chp4.htm/bftoc.html>}[28 April 2002]