



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**THE PRINCIPLES OF WAR: ARE THEY STILL
APPLICABLE?**

by

Brian B. Ettrich

June 2005

Thesis Advisor:
Second Reader:

John Arquilla
George Lober

Approved for public release; distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 2005	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE: The Principles Of War: Are They Still Applicable?			5. FUNDING NUMBERS	
6. AUTHOR(S) Brian B. Ettrich				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) The purpose of this thesis is to examine the principles of war as derived from the teachings of Baron Antoine Henri de Jomini and analyze them in terms of their continued applicability. This thesis looks at the complex nature of conflict in the 21st century, as well as the rise of unconventional warfare in recent years, and how significant changes in the overall realm of combat may be diminishing the relative importance of the nine principles of war utilized by the United States military for almost two centuries. The main objective of this study is to determine whether the traditionally accepted principles of war have become less applicable, and if so, to recommend new principles that could potentially be more appropriate for U.S. forces when developing new doctrine, strategy, tactics, and organizational structures. This study utilizes an heuristic approach in which the nine principles of war currently utilized by the United States military are projected through the lens of unconventional warfare in such a way as to consider whether these principles are no longer suitable for use when facing complex, innovative adversaries, such as globally—networked, non—state sponsored, terrorist organizations and/or rogue states. Upon demonstrating the diminished applicability of some of the nine principles of war still in use, this study then identifies and defines several new principles that should be considered more relevant to the changing conditions and circumstances of conflict. Finally, a discussion of principles of war as formulated by Sun Tzu provides a basis on which to compare and contrast Jomini's teachings with that of another great military thinker whose notions regarding the art of warfare may provide a more suitable paradigm upon which to construct a new version of the modern principles of war.				
14. SUBJECT TERMS Principles of War, Modern Principles of War, Jomini, Unconventional Warfare, 21 st Century Conflict, Modern Warfare, Future War, Sun Tzu, The Art of War.			15. NUMBER OF PAGES 115	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited.

THE PRINCIPLES OF WAR: ARE THEY STILL APPLICABLE?

Brian B. Ettrich
Major, United States Army
B.S., Siena College, 1993

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN DEFENSE ANALYSIS

from the

**NAVAL POSTGRADUATE SCHOOL
June 2005**

Author: Brian B. Ettrich

Approved by: Dr. John Arquilla
Thesis Advisor

Professor George Lober
Second Reader/Co-Advisor

Dr. Gordon McCormick
Chairman, Department of Defense Analysis

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

The purpose of this thesis is to examine the principles of war as derived from the teachings of Baron Antoine Henri de Jomini and analyze them in terms of their continued applicability. This thesis looks at the complex nature of conflict in the 21st century, as well as the rise of unconventional warfare in recent years, and how significant changes in the overall realm of combat may be diminishing the relative importance of the nine principles of war utilized by the United States military for almost two centuries. The main objective of this study is to determine whether the traditionally accepted principles of war have become less applicable, and if so, to recommend new principles that could potentially be more appropriate for U.S. forces when developing new doctrine, strategy, tactics, and organizational structures.

This study utilizes an heuristic approach in which the nine principles of war currently utilized by the United States military are projected through the lens of unconventional warfare in such a way as to consider whether these principles are no longer suitable for use when facing complex, innovative adversaries, such as globally networked, non-state sponsored, terrorist organizations and/or rogue states. Upon demonstrating the diminished applicability of some of the nine principles of war still in use, this study then identifies and defines several new principles that should be considered as more relevant to the changing conditions and circumstances of conflict.

Finally, a discussion of principles of war as formulated by Sun Tzu serves as a basis on which to compare and contrast Jomini's teachings with those of another great military thinker whose notions regarding the art of warfare may provide a more suitable paradigm upon which to construct a new version of the modern principles of war.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	SCOPE AND PURPOSE.....	1
B.	OBJECTIVES & METHODOLOGY.....	4
C.	AUDIENCE.....	5
D.	ORGANIZATION.....	5
II.	BACKGROUND.....	7
A.	HISTORY OF JOMINI AND HIS PRINCIPLES OF WAR.....	7
B.	JOMINI'S PRINCIPLES OF WAR – A REVIEW	13
C.	THE SHIFTING SANDS OF CONVENTIONAL WARFARE	27
III.	ARE JOMINI'S PRINCIPLES OF WAR STILL APPLICABLE?	31
A.	DEFINING UNCONVENTIONAL WARFARE	31
B.	GROWING COMPLEXITY AND TENDENCY TOWARD UW.....	33
C.	VIEWING JOMINI'S PRINCIPLES THROUGH THE UW "LENS".....	41
IV.	COMPARISONS	43
A.	WHICH PRINCIPLES ARE STILL APPLICABLE?	43
B.	WHICH PRINCIPLES HAVE DIMINISHED APPLICABILITY?.....	48
C.	ARE THERE "NEW" PRINCIPLES TO CONSIDER?	52
D.	JOMINI'S PRINCIPLES VS. SUN TZU'S ART OF WAR.....	58
V.	CONCLUSION	65
A.	SUMMARY	65
B.	RECOMMENDATIONS FOR FURTHER RESEARCH	67
	APPENDIX – CHRONOLOGY OF U.S. PRINCIPLES OF WAR.....	69
	LIST OF REFERENCES.....	83
	BIBLIOGRAPHY	87
	INITIAL DISTRIBUTION LIST	99

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FIGURES

Figure 3-1: The Al Qaeda Network	38
(From: <i>Global Salafi Jihad: Empirical Assessment & Social Network Analysis</i> , presented by Dr. Marc Sageman at NPS, April 2005)	38
Figure 3-2: The UW “Lens”	41
Figure 5-1: Principles of War Through the UW “Lens” – Before & After	66

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AI – Area of Interest.

AO – Area of Operations.

C2 – Command & Control.

CNN – Corporate News Network.

CSS – Combat Service Support.

CTC – Crime Terror Continuum.

DOD – Department of Defense.

FM – Field Manual.

GWOT – Global War On Terrorism.

HUMINT – Human Intelligence.

IED – Improvised Explosive Device.

IO – Information Operations.

ISB – Intermediate Staging Base.

ISR – Intelligence, Surveillance, Reconnaissance.

JP – Joint Publication.

METT-TC – **M**ission, **E**nemy, **T**errain & **W**ather, **T**roops & **S**upport
Available, **T**ime Available, **C**ivil Considerations.

NATO – North Atlantic Treaty Organization.

NPS – Naval Postgraduate School.

OPSEC – Operational Security.

PGM – Precision-Guided Munitions.

RMA – Revolution in Military Affairs.

SASO – Stability and Support Operations.

TOC – Transnational Organized Crime.

UW – Unconventional Warfare.

WMD – Weapons of Mass Destruction.

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

I would be most ungrateful if I failed to express my many thanks to all those who have contributed so much toward the completion of this project. I want to thank Dr. John Arquilla for his willingness to support my ideas, as well as for his patience and encouragement. His passion for challenging traditional military thought was inspirational. I greatly appreciate Professor George Lober's efforts toward editing and refining my work, as well as his commitment to "getting it right" on my behalf. Thanks to Dr. Gordon McCormick whom I first met in the austere surroundings of Afghanistan and who was pivotal in my efforts to pursue studies at the Naval Postgraduate School. Finally, to my wife Kerry and daughters Emily and Anna, thank you for your patience and understanding during all those periods when it probably felt like I lived at the library rather than in our home. Your never-ending support and devotion to me as I pursue my dreams will be a debt I will carry with me into eternity.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

The dogmas of the quiet past, are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise with the new occasion. As our case is new, so must we think anew, and act anew.

President Abraham Lincoln, in an 1862 address to Congress

A. SCOPE AND PURPOSE

This study examines the modern principles of war and how they might need to change as a result of rapidly increasing complexity in the realm of warfare. I have chosen to pursue this endeavor because I have a keen interest in the success of United States armed forces on the battlefields of tomorrow. The circumstances and challenges of conflict in the 21st century have evolved such that current doctrine, strategy, tactics, and organizational structures may have to be modified if we are to effectively combat, counter, and defeat our current and future adversaries.

Military thought in the United States has been largely dominated by Jominian concepts for two centuries. The idea that there exist some fundamental principles of war, as developed by Baron Antoine Henri de Jomini in the early nineteenth century, first appeared at the United States Military Academy shortly after its founding in 1802. Prior to the U.S. Civil War, General Henry Wager Halleck translated some of Jomini's works for inclusion in the West Point cadet curriculum. Young officers such as Robert E. Lee and Ulysses S. Grant, delving into the knowledge obtained during their time at the academy, relied heavily upon Jominian principles, as did other well-known Civil War generals, during the course of the conflict. It is intriguing to note that historic victories, as well as defeats including Lee's overall loss of the Civil War, were the end result. Ironically, Lincoln could be viewed as the ultimate anti-Jominian with regard to his cordon offensive around the South which distributed rather than massed forces. Following this significant era in United States military history, emphasis

on Jominian concepts persisted and his theory with regard to principles of war was officially adopted in a formalized manner by the United States military in 1921. It was at this point in history when the Army published a list of nine principles in its *Training Regulation No. 10-5*, albeit without explaining in any detail the underlying meaning and/or proper application of each. Instead, the regulation included a mere paragraph that briefly outlined their purpose while simultaneously labeling them as “immutable” principles. This list, introduced over 80 years ago, was comprised of the same nine principles upon which U.S. armed forces of the 21st century are basing their organizational structures, doctrine, strategy, and tactics. The modern principles of war are *objective, offensive, mass, economy of force, maneuver, unity of command, security, surprise, and simplicity*. With the exception of *maneuver* and *unity of command* which, at the time of initial publication were instead termed *movement* and *cooperation*, the nine principles of war recognized and used by the United States military have remained unchanged for almost a century. (Glenn, 1998, p.2)

Conventional warfare, characterized by large standing armies utilizing infantry, artillery, and cavalry, massed in carefully orchestrated formations, and brought to bear via intricate schemes of maneuver against similarly arrayed adversaries, was the predominant mode of combat in the era that inspired Jomini to develop his principles of war. Since the birth of these principles at his hand almost 200 years ago, many wars have been waged, battles fought, and both victories and defeats experienced through reliance upon Jomini's teachings as a foundation for doctrine, strategy, and tactics.

Even after World War II, the Cold War provided likely scenarios which served to further encourage the use of his principles of war concept in order to formulate intricate strategies by which to achieve victory in the seemingly “inevitable” confrontation between the massed armored forces of NATO and the Warsaw Pact. However, warfare is changing. Perhaps Vietnam and other “decolonizing” people's wars a generation ago, Operations DESERT SHIELD/DESERT STORM (these despite being primarily conventional in nature), and now the Global War on Terrorism (GWOT), have provided the first glimpse of

a shift in the nature of warfare significant enough to lead one to consider revisiting Jomini's principles of war. Instead of the aforementioned large, standing armies that characterize conventional warfare, we now face adversaries whose composition, strategies, and tactics tend more toward the realm of unconventional warfare. An elusive, highly-networked array of adversaries with global reach and a tendency toward utilizing terrorism, to include the employment of weapons of mass destruction (WMD), defies the normal conventions of warfare upon which Jomini based his principles. But this is the reality we now face and are likely to face to an ever heightening degree well into the future.

Even before 11 September 2001, President George W. Bush challenged us to 'redefine war in our own terms' in response to the conflicts of a new century. To meet the President's challenge, we must revisit the principles of war and determine their applicability in the 21st century. (Morgan, 2003, p.34)

Given the numerous roles United States armed forces will potentially play in ongoing and future conflicts against this relatively new and highly formidable breed of adversaries, it behooves us to perform a critical analysis of the principles upon which our military establishment bases its doctrine, strategy, and tactics in order to determine whether we are preparing our forces for victory or dooming them to ultimate failure. Questioning the applicability of Jomini's principles of war after the United States military has relied on them for almost two centuries is by no means a radical attempt to defy convention. On the contrary, I judge it to be a pragmatic approach to scrutinize and amend said principles as necessary to ensure that our armed forces appropriately tailor their designs and methods of waging war in the future. In his 1992 work, *Masters of War: Sun Tzu, Clausewitz, and Jomini*, Michael I. Handel alludes to the idea that the rules and principles of war are not cast in stone.

Boldness, daring, and risk-taking defy rational analysis and transcend any rules, which is what makes them so unpredictable and difficult to counter...It simply means that in the unstructured, competitive, and probabilistic environment of war, some rules make sense some of the time, but all rules cannot be followed all of the

time. The secret of success for the creative military genius lies in knowing when to break the rules of war and when to heed them. (Handel, 1992, p.9)

I submit that Handel's notion should be taken a step further in that the key to success is not just a product of breaking and following the rules of war as the situation dictates, but rather a willingness to accept that the "rules of the game" may have changed, in addition to keeping one's mind open to the notion of actively reevaluating and modifying the very rules and principles that determine how one's forces should be employed.

B. OBJECTIVES & METHODOLOGY

The main objective of this thesis is to answer the question of whether the nine Jominian principles of war are still applicable on the modern battlefield, given the fact that the spectrum of conflict has become largely dominated by unconventional warfare (UW). For this undertaking, I have established a framework applying an heuristic approach wherein each of the nine principles is viewed and analyzed through the lens of unconventional warfare. Upon completion of this analysis, I delve further into each of these nine principles to arrive at a determination regarding their applicability (or the lack thereof) to our military's efforts to combat and defeat current and future adversaries likely to be encountered within the contemporary battlespace.

If sufficient evidence is found to conclude that the nine Jominian principles of war have, in fact, become less applicable to both current and future combat operations and endeavors, I am prepared to provide detailed recommendations regarding the alteration and/or replacement of said principles. My recommendations and suggestions for further research with respect to changes in force structures, doctrine, strategy, and tactics will be designed in such a way so as to address the issues that stem from any proposed changes to the principles of war.

It is my sincere hope that this project will serve as a catalyst for increased emphasis and significant efforts to posture, prepare, and train the United States

military to the degree that its effectiveness and capabilities on the modern battlefield will be significantly enhanced. Only through proactive innovation and a willingness to distance ourselves from the existing Jominian principles of war paradigm, when appropriate, can we expect to legitimately maintain our status as the world's greatest fighting force.

C. AUDIENCE

This thesis is written primarily for policy makers, military leaders of all levels, and those who formulate and write military doctrine—such as the operations doctrinal terms and concepts found in *Army Field Manual (FM) 3-0*. Also included are the numerous variations of the principles of war utilized by United States Armed forces from 1836 to 1978 in order to demonstrate how the same general paradigm has been adhered to time and again by our nation's military. Additionally, this compilation of lists should serve to sharpen the contrast between the traditionally accepted principles of war currently in use and the list of new principles derived from this study. The end result should be an increased awareness and understanding of the need to retool the modern principles of war so that future doctrine, strategy, tactics, and organizational structures are formulated to properly address and effectively mitigate the complexities of the modern battlefield.

D. ORGANIZATION

This paper is divided into five chapters including the introduction. Following the introduction in Chapter I, Chapter II addresses the historical background of Baron Antoine Henri de Jomini, the history of his principles of war concept, the circumstances surrounding the adoption of Jominian concepts by United States military thinkers, and a brief discussion of the declining trend in conventional warfare and strategies with regard to the 21st century battlefield. Chapter III defines unconventional warfare (UW) in order that the term be properly understood and its context established for the purpose of this study. This chapter goes on to discuss the growing domination of the modern battlefield

by numerous aspects of unconventional warfare. Finally, it addresses the growing trend towards UW in combination with Jominian concepts by projecting the modern principles of war through the UW lens. Chapter IV compares and contrasts the principles of war, in terms of continued and/or diminished importance with those that emerge following scrutiny through the UW frame of reference. It then discusses the principles that have been determined to be no longer applicable and offers insight with regard to new principles that are better suited for the complex nature of 21st century warfare. Finally, it compares Jomini's principles with those of Sun Tzu in an effort to demonstrate that modern warfare and its associated principles may be better served by reliance upon the concepts of a different school of military thought. The future of the principles of war, along with conclusions and recommendations for further research, is explored in the final chapter.

II. BACKGROUND

It is universally agreed upon, that no art or science is more difficult than that of war; yet by an unaccountable contradiction of the human mind, those who embrace this profession take little or no pains to study it. They seem to think, that the knowledge of a few insignificant and useless trifles constitute a great officer. This opinion is so general, that little or nothing is taught at present in any Army whatsoever. The continual changes and variety of motions, evolutions, etc., which the soldiers are taught, prove evidently, they are founded on mere caprice. This art, like all others, is founded on certain fixed principles, which are by their nature invariable; the application of them can only be varied: but they are themselves constant.

General Henry Lloyd, Field Commander in the Austrian Army during the Seven Years' War, 1766

A. HISTORY OF JOMINI AND HIS PRINCIPLES OF WAR

In order for one to critically analyze Jomini's principles of war and develop new theories regarding their continued applicability to 21st century warfare, one must first obtain a more thorough understanding of their origin. To gain a better appreciation for these nine principles, often referred to as "immutable," as well as for the military genius whose experiences as a staff officer under Napoleon and extraordinary understanding of the military art allowed him to masterfully orchestrate their formulation, I submit that we should first examine Jomini's background. By looking back and delving into his life, military career, and the circumstances that shaped his tactical and strategic thinking, one can begin to more clearly comprehend how Jomini developed his principles of war and created a concept that has remained relatively unaltered for almost two centuries.

Numerous authors and military historians make mention of Baron Antoine Henri de Jomini and his development of a set of universal principles of war stemming from the study and observation of Napoleonic warfare and strategy. Four of these authors/historians in particular—Azar Gat (1992), Gerard Chaliand

(1994), John Shy (1986), and J. D. Hittle (1958)—provide significant levels of detail in their individual works with regard to Jomini's personal history and background in addition to their discussions of his contributions to the study of the military art. As a result, I am relying on the contributions of these authorities to assist me in providing a consolidated history of Jomini and his principles of war. By doing so, I hope to broaden the reader's awareness of Jomini's military genius and provide valuable insight with regard to the origins of his nine "immutable" principles. I firmly believe this to be a crucial first step toward effectively conducting a critical analysis of Jomini's principles of war in order to determine whether they are still applicable to modern warfare.

Baron Antoine Henri de Jomini was born in Switzerland in 1779. Of Italian ancestry, he was raised in a middle-class family and was afforded both an education and upbringing normally associated with that particular level of the social class hierarchy. Upon completion of his schooling, he entered the labor force as a bank employee in Paris. Disenchanted by the boring monotony that characterized this occupation, Jomini quickly determined that the banking industry was not the niche he was destined to occupy in life. In sharp contrast to the world of finance, he saw much greater promise in the glory and excitement of serving in the French Army under Napoleon Bonaparte. Thus, at the tender age of seventeen, Jomini joined the French Army and embarked upon his lifelong career of military service. From the outset, he aspired to achieve greatness in his chosen profession. Rather than pursue a hasty enlistment and settle for service as a private, Jomini sought out and managed to obtain a position as a staff officer where he was tasked to handle basic logistics issues and concerns. This initial duty assignment was merely a stepping stone to Jomini whose tremendous ambition, combined with innate curiosity and natural ability, enabled him to envision the attainment of higher positions of responsibility, influence, and importance (Hittle, 1958, pp.2-3).

One area of expertise that served to accelerate Jomini's career in the French Army was his demonstrated aptitude for complex military thinking. In chapter six of Peter Paret's *Makers of Modern Strategy: From Machiavelli to the*

Nuclear Age, John Shy explains that Jomini himself credits the exploits of the French Army of Italy under Napoleon from 1796 – 1797 with catalyzing his keen interest in military theory (p.147). It was these stunning military achievements, combined with Jomini's intense study of war in general and the financial assistance of General Ney, that led to the publication of his first book in 1803. Perhaps it was this point in Jomini's life, at the age of twenty-four, that we can begin to see his principles of war in the earliest stages of their development.

As Shy writes,

Not only was he obsessed by visions of military glory, with himself imitating the incredible rise of Bonaparte who was only ten years his senior, but in a telling phrase Jomini remembered being possessed, even then, by "*le sentiment des principes*"—the Platonic faith that reality lies beneath the superficial chaos of the historical moment in enduring and invariable principles, like those of gravitation and probability. To grasp those principles, as well as to satisfy the more primitive emotional needs of ambition and youthful impatience, was what impelled him to the study of war. Voracious reading of military history and theorizing from it would reveal the secret of French victory. (Paret, 1986, p.148)

Jomini credits General Henry Lloyd as being the greatest contributor to his demonstrated proficiency in the areas of military theory and strategic thought. Lloyd, a Welshman, commanded one of the key field units in the Austrian Army during the Seven Years' War. Based on his experiences in that conflict, he wrote a history of the German campaigns that occurred therein. In his writings, he openly criticized Frederick II's abilities as a warfare strategist and accordingly, raised the eyebrows of many within the military community. Likewise, Lloyd's *Military Memoirs*, originally published in 1781 as *Continuation of the History of the Late War in Germany*, generated considerable levels of interest and excitement. Essentially, this work was nothing more than a lengthy essay on "the General Principles of War." Nevertheless, the contents of those memoirs had a vital impact on Jomini's thinking.

Lloyd provided both a model and a challenge in the young man's efforts to reduce the fantastic world of war at the end of the eighteenth century to some kind of intellectual order. (Paret, 1986, p.148)

Unfortunately, Lloyd's "invariable principles" had little to offer in terms of useful content. Instead, his emphasis was on providing a logical analysis of the strategy and tactics that had proven successful in European warfare prior to the French Revolution. Although his approach to war as a science was appropriate to the Enlightenment, it failed to take into account the changing conditions and ground-breaking innovations that characterized Napoleonic warfare and the age of revolution. Napoleon read Lloyd's works with contempt, but Jomini appreciated Lloyd's scientific approach because it embraced the manner in which he himself viewed the study of warfare and military theory. Understanding that Lloyd's conclusions did not explain the numerous successes achieved by Napoleon, Jomini set out upon his own study of strategy and tactics in the realm of Napoleonic warfare, using Lloyd as the model which he would then refine and eventually transform into the foundation for his own legacy of military thought (Paret, 1986, p.149).

I fell back then, upon works of military history in order to seek, in the combinations of the great captains, a solution which those systems of the writers did not give me. Already had the narratives of Frederick the Great commenced to initiate me in the secret which had caused him to gain the miraculous victory of Leuthen (Lissa). I perceived that this secret consisted in the very simple maneuver of carrying the bulk of his forces upon a single wing of the hostile army; and Lloyd soon came to fortify me in this conviction. I found again, afterwards, the same cause in the first successes of Napoleon in Italy, which gave me the idea that by applying, through strategy, to the whole chess-table of a war this same principle which Frederick had applied to battles, we should have the key to all the science of war (Jomini, 1838, as cited in Paret).

Despite Lloyd's influence and significant contributions to Jomini's ultimate preeminence as a master of the military art, he himself failed to achieve any significant renown and is nearly forgotten in military history.

Jomini's first significant work, *Traite des Grandes Operations*, albeit not his greatest accomplishment, played a pivotal role in his ascension to the position of military consultant for the many leaders of the world's great powers (Hittle, 1958, p.7). A heavy treatise which dealt with the campaigns of Frederick the Great, this work quickly captured the attention and imagination of Napoleon after Jomini successfully seized the opportunity to present it to him. In short order, Napoleon recognized Jomini to be a man who truly understood and appreciated the Napoleonic military method. In admiration of what he perceived to be a brilliant military mind, Napoleon awarded Jomini with a regular colonel's commission and directed that he be assigned to perform duties as a member of his staff at Mainz (Hittle, 1958, pp.3-4). In 1813, Jomini was promoted to the rank of general de brigade and assigned as Chief of Staff for Marshal Ney, a position in which he excelled and eventually earned the Marshal's recommendation for promotion to general de division. He was, however, denied promotion as a result of the treachery of Berthier, Napoleon's Chief of Staff and Jomini's chief rival. Disappointed, but determined, Jomini resigned from the French Army and accepted a commission as full general in the Russian Army under Alexander. In Moscow, he worked tirelessly to enhance Russian military thought. In the process of doing so, he played a key role in founding the Nicholas Military Academy in Moscow in 1832. His passion for military study continued to flourish and he repeatedly produced volumes of thoroughly detailed military history and theory.

Before his death in Paris in 1869 at the age of 90, Jomini wrote twenty-seven volumes on the subject of military history and theory, covering the operations of Frederick the Great, the Wars of the French Revolution, and the Napoleonic campaigns. By far, his greatest work was the *Precis de L'Art de la Guerre (Summary of the Art of War)* which was published in 1838. This theoretical treatise served as a highly-refined summation of the doctrine, strategy, and military theory in which he was so deeply immersed for more than twenty-five years.

All those ideas embodied in earlier books appear to be sifted carefully and evaluated in terms of his more mature and considered judgment before they found their way into the famous *Summary*. This book was recognized as an epic contribution to military thought. It was translated into practically all the important languages. (Hittle, 1958, p.10)

Jomini's development of practical military theory, as well as his subsequent teachings on the subject, were derived from his numerous, first-hand experiences on the battlefield. A veritable professor of the Napoleonic method of warfare, he skillfully wielded his pen to produce works that effectively schooled many of the world's military thinkers in the art of modern war (Hittle, 1958, p.36).

In the latter years of his life he had the pleasant satisfaction of knowing that he was looked upon as one of the foremost military minds in the world. His books were essentials of military education. (Hittle, 1958, p.7)

Although his teachings and contributions in the realm of military thought were embraced and heeded by many, Jomini was not without a fair share of critics. In addition to Napoleon's chief of staff, Alexander Berthier, who sharply criticized Jomini's *Traite* as being wholly inconclusive (Alger, 1982, p.21), other military thinkers, such as Carl von Clausewitz, were outspoken in their arguments against Jomini's works. Clausewitz viewed Jomini's theory as being "one-sided" and strove to provide a more complete, well-rounded approach to the theory of warfare through the creation of numerous works. His writings about the 1812 campaign in Russia, though a relative masterpiece, received little recognition and became destined for obscurity. In contrast, *On War* achieved widespread acclaim and was probably his greatest work. In this famous publication, it is significant to note that Clausewitz specifically warned against a reliance on set principles. Bernard Brodie, in *War and Politics* (1973), writes,

Although Clausewitz himself frequently spoke loosely of certain "principles" to be observed and followed,...he specifically rejected the notion that there could be any well-defined body of particular rules or principles that universally dictated one form of behavior rather than another. (p.446)

Clausewitz sought to identify the aspects of warfare that were constant rather than support the notion of fleeting principles specific to a particular campaign or era. He concluded that only by doing so could effective military theory be developed and successfully applied throughout the ages. Peter Paret, in his essay *The Genesis of On War*, comments,

If the present did not provide the ideal against which war in the past could be measured, Clausewitz was equally insistent that Napoleonic war could not establish standards for the future. What did this mean for theory? To Clausewitz the answer was obvious: The theory of any activity, even if it aimed at effective performance rather than comprehensive understanding, must discover the essential, timeless elements of this activity, and distinguish them from its temporary features. Violence and political impact were two of the permanent characteristics of war. Another was the free play of human intelligence, will, and emotions. These were the forces that dominated the chaos of warfare, not such schematic devices as Bulow's base of operations or Jomini's operating on interior lines. (Howard & Paret, 1976, p.11)

Essentially, Clausewitz's *On War* was a written critique of Jominian thought, but his approach therein was viewed as overly philosophical and impractical by war's practitioners. Despite his warnings, military theorists strongly desired to pursue the formulation of a concise list of immutable principles. As a result, Clausewitz's teachings gave way to continued emphasis on Jominian concepts. It is perhaps ironic, and would be much to Clausewitz's chagrin, that *On War* ultimately resulted in his being viewed as a prime contributor to the modern principles of war (Alger, 1982, pp.28-29).

B. JOMINI'S PRINCIPLES OF WAR – A REVIEW

Far from the concise list that characterizes the principles of war utilized by the United States military today, Jomini's principles emerged in a somewhat obscure and ambiguous fashion. Despite being credited with the main thrust of contributions that were ultimately transformed into the modern principles of war, there exists little, if any, evidence to suggest that Jomini, or his contemporary Clausewitz, ever actually developed the first formal list of these principles. Through the course of my research, I found John Alger to be a key source of

information, vital to navigating the circuitous route by which Jomini's writings evolved into the list of principles currently in use by the military profession. In *The Quest for Victory* (1982), Alger points out the various terms, used synonymously by military thinkers and theorists, to explain what they felt were the basic set of truths concerning warfare.

Because principles of war are fundamental truths pertinent to the practice of war, the earliest known writers who contributed to the understanding of such fundamentals are rightfully called military philosophers. In the millenniums of recorded history that preceded Napoleon, military philosophers identified fundamentals that to them conveyed essential information concerning the practice of war. They organized their thoughts in varying ways and generally called attention to some precepts that they considered to be of greater importance...terms for these important precepts varied. They were called principles, maxims, theories, axioms, rules, or judgments. Regardless of the generic term used or the number of precepts identified, concepts that today are accepted as "principles of war" frequently appeared in early writings on war. (Alger, 1982, p.4)

As a military philosopher, Jomini was no different than his predecessors when attempting to articulate his notions about the art of war and its underlying principles. Throughout his numerous writings, he was, at best, inconsistent in the application of his methodology and in his utilization of various definitions when attempting to explain his concepts regarding the regulating principles of the conduct of war (p.19). The first work by Jomini, in which one can begin to see the origins of the modern principles of war, is his *Traite de grande tactique, ou relation de la guerre de sept ans, extradite de Tempelhof, commentee aux principales operations de la derniere guerre; avec un recueil des maxims les plus importantes de l'art militaire, justifiees par ces differents evenements* (Treatise on grand tactics, or a discussion of the Seven Years War, taken from Tempelhof, commented upon and compared to the principal operations of the latest war; with a collection of the most important maxims of the military art justified by these different events) (pp.19-20). A firm believer in the notion that the concepts of operational lines and grand tactics together comprised the foundation of the science of war, Jomini developed a total of eleven maxims on lines of operations,

five of which he included in Volume I and the rest in Volume II of his *Traite*. (pp. 20-21) Unfortunately, he wrote these initial volumes and addressed these maxims in much the same way as Lloyd attempted to address his “invariable principles” in the aforementioned *Military Memoirs*.

Jomini's first two volumes hardly differed from the earlier work of Lloyd as far as “principles” were concerned. Maxims and principles were identified but scattered. Some summaries were provided, and little attention was paid to semantic distinctions among the various branches of war and among the terms *principle*, *maxim*, and *rule*. Furthermore, little attention was given to clarity; frequent repetition of similar thoughts and redundancy confused the stated concept (Alger, 1982, p.21).

Jomini later consolidated his maxims on the conduct of war in a stand-alone conclusion to his *Traite* which he published in 1807. His new chapter, titled “Resume of the General Principles of the Art of War,” was by no means a complete listing of the principles of war that Jomini held dear, nor did it clarify potential differences in the terms *maxim* and *principle* because he continued to use both interchangeably. (p.21) However, because Jomini had finally presented his concept, “as a list of general truths whose application contributes to success in war,” they may be legitimately viewed, “as the prototype of the modern ‘principles of war’” (Alger, 1982, p.23). The actual list, to include Jomini's discussion of what he considers his “fundamental principle,” is as follows:

The fundamental principle, whose application is necessary to insure the success of strategical decisions and without which all strategical decisions are fatal, is to operate with the greatest mass of forces, in a combined effort, against the decisive point....The means of applying this great maxim are not very numerous; it is enough to read of the operations of Napoleon and Frederick to gain an exact idea of them. I am going to try to point out all of them.

1. The first means is to take the initiative of movement. The general who succeeds in gaining this advantage is the master of the employment of his forces at the place where he chooses to take them. On the other hand, the general who waits for the enemy can make no strategical decision since he has subordinated his movements to those of his adversary and since he does not have time to stop the troops that are already in motion. The general who takes the initiative knows what he is going to do; he conceals his

movements, surprises and crushes an extremity or weak point. The general who waits is beaten at one point before he learns of the attack.

2. The second means is to direct movement against the most important weak point of the enemy's forces. The selection of this point depends upon the position of the enemy. The most important point will always be the point that offers the most favorable opportunities and the greatest results: for example, positions that may lead to the severing of the line of communications between the enemy force and his base of operations.

3. The result of the preceding truths is that if preference is given to the attack of the extremities of a line, then care must be taken not to attack both of the extremities at the same time....

4. In order to be able to act in a combined effort on a single point, it is important to hold your forces in an area that is very nearly square so that they will be highly dispatchable. Large fronts are as contrary to good principles as broken lines, large detachments and divisions isolated beyond supporting distance.

5. One of the most efficacious ways to apply the general principle is to make the enemy commit errors that are contrary to the principle....

6. It is very important when one takes the initiative to be well informed of the positions of the enemy and of the movements that he is capable of undertaking. Espionage is a useful means....

7. It is not sufficient for success in war to skillfully bring masses to the most important points; it is necessary to know how to employ them there. If a force arrives at a decisive point and is inactive, the principle is forgotten; the enemy can counterattack....

8. If the art of war consists of bringing the superior effort of a mass against the weak points of the enemy, it is undeniably necessary to pursue actively a beaten army....

9. In order to make superior shock of a mass decisive, the general must give care to raise the morale of his army....

10. By this rapid review, it is seen that the science of war is composed of three general activities, which have only a few subdivisions and few opportunities of execution....The first is to hold the most favorable lines of operations....Second is the art of moving masses as rapidly as possible to the decisive point....Third

is the art of simultaneously bringing the greatest mass to the most important point on the field of battle. (Alger, 1982, pp.22-23)

This list of maxims was, perhaps, the closest Jomini ever came to the modern principles of war. By the time he published his last writings on the study of military theory, more than thirty years of study and experience in the art of waging war amounted to little more than his summary statement that,

There exists a small number of fundamental principles of war, which could not be deviated from without danger, and the application of which, on the contrary, has been in almost all time crowned with success. (Hittle, 1958, p.43)

Jomini never clearly defined the general principles of war, nor did he provide concise details concerning the “fundamental principles” mentioned above. However, he remained emphatic throughout his writings that they did, in fact, exist, and he maintained a tight grip on his belief in the concept of one great fundamental principle.(Alger, 1982, p.27)

It is proposed to show that there is one great principle underlying all the operations of war,--a principle which must be followed in all good combinations. It is embraced in the following maxims:--

1. To throw by strategic movements the mass of an army, successively, upon the decisive points of a theater of war, and also upon the communications of the enemy as much as possible without compromising one's own.
2. To maneuver to engage fractions of the hostile army with the bulk of one's forces.
3. On the battlefield, to throw the mass of the forces upon the decisive point, or upon that portion of the hostile line which it is of the first importance to overthrow.
4. To so arrange that these masses shall not only be thrown upon the decisive point, but that they shall engage at the proper times and with energy. (Jomini, 1992, p.70)

Jomini's critics and contemporaries, such as Clausewitz and Archduke Charles of Austria, as well as other military theorists whose pursuits ran parallel to Jomini's in the nineteenth and early twentieth centuries, all contributed in varying degrees to the modern principles of war in use today. However, it was

Jomini, more than any other, who was most influential in shaping the military institutions of those periods because the prevalent methods of soldier training were based, in large part, upon his teachings (Alger, 1982, p.31). Further development of Jomini's ideas on the principles of war and their ultimate evolution into the present-day, concise list can be traced back to the courses of study in military history and theory offered by the leading military schools of the nineteenth century. The Prussian War College, Britain's Royal Military College, West Point, and the French Artillery and Engineer School were just a few of the hallowed institutions whose teachings served to promote Jomini's principles of war concept. Independent writers also expounded upon his ideas in numerous works during this timeframe. Before long, the contributions of both the learning institutions and the various literary works resulted in a widespread belief that the principles of war concept was, indeed valid (Alger, 1982, p.32). Since this study is primarily concerned with the modern principles of war as they pertain to the United States military, let us focus on the manner in which Jomini's concepts first appeared in American military thinking.

The Jominian concept of principles of war was initially introduced to the United States in 1817 by John Michael O'Connor. As part of his translation of de Vernon's *Traite elementaire d'art militaire et de fortification* (Elementary treatise on the military art and fortifications), O'Connor included a modified translation of Jomini's chapter on general principles. In his introductory comments for the chapter on Jomini, he hailed Jomini's principles and maxims as being "the grand principles of the science" (Alger, 1982, p.42). O'Connor's translation was used at the United States Military Academy until 1820, when Dennis Hart Mahan, the father of U.S. naval pioneer Alfred Thayer Mahan, arrived and replaced it with numerous texts of his own. Both Mahan and Sylvanus Thayer, despite having had extensive exposure to the use of military history and strategy studies at some of the leading military learning institutions of Europe, gave little emphasis to the pursuit of such learning endeavors at West Point. Courses designed to specifically address these topics were deemed to be unnecessary and were subsequently left out of the West Point curriculum. Despite a strong reluctance

to embrace Jomini's concept of principles of war, Mahan "maintained an almost dogmatic belief in the existence of principles for the conduct of war" (Alger, 1982, p.43). Accordingly, the majority of his writings were largely dominated by a principles-based approach to understanding numerous circumstances in a variety of subject areas.

The tendency to enumerate was not confined to the study of scientific or engineering subjects, for an examination of the titles alone of the texts used at the military academy in the period between its founding in 1802 and 1860 reveals that nearly one—quarter of the titles of texts used in humanities courses claimed to present the "elements of" or the "principles of" some particular subject. In the sciences, nearly 30 percent of the titles of texts claimed to present "principles" or "elements." (Alger, 1982, p.43)

As the United States Military Academy and other formal military schools began to slowly expand their horizons and adopt Jomini's concepts, individual writers external to these institutions began to embrace and tout Jomini as well. In 1846, General Henry Wager Halleck translated Jomini's *Vie politique et militaire de Napoleon* (Political and military life of Napoleon) and published a consolidated series of lectures that dealt specifically with military art and science. Examination of Halleck's work provides significant indications of the level to which he was enamored with Jomini's teachings.

Halleck presented terse principles, rules, and maxims and used the terms interchangeably. For example, he stated, "The first and most important rule in offensive war is, to keep your forces as much concentrated as possible. This will not only prevent misfortune, but secure victory." On the next page, he added, "If, as we have seen, it be the first great rule for an army acting on the offensive principle, to keep its forces concentrated, it is no doubt, the second, to keep them fully employed." He then referred to these "great rules" as the "leading maxims for conducting offensive war." In referring to Jomini's *Precis* in highly complementary terms, Halleck claimed that its chapter on strategy embodied the principles of that branch, and in referring to Napoleon's memoirs, he claimed that they contain "all the general principles of military art and science." (Alger, 1982, pp.45-46)

Halleck's writings went on to become a useful guide and were widely read by American military personnel.

In 1860, Jefferson Davis led a committee charged with reviewing the overall organization, discipline system, and curriculum in use by West Point. During the course of its review, the committee voiced considerable concern over the lack of emphasis on the study of strategy and military history. Still, only subtle changes occurred with regard to the attention that these topics received in the classroom. It wasn't until the beginning of the U.S. Civil War that Mahan began including more on strategy in his approach to teaching. Increased interest in the topic displayed by the cadets, combined with various events within the war itself, led Mahan to expand one of his more famous works, *Advanced-Guard, Outpost, and Detachment Service of Troops*, through the addition of "a concise statement of the Principles of Strategy and Grand Tactics". In doing so, he appears to have concurred somewhat with Jomini's fundamental principle of success through concentration of one's forces.

The Civil War itself contained numerous campaigns and engagements that pitted Jominian principles against themselves. Military leaders from both sides embraced concepts and principles learned while studying as contemporaries at the military academy prior to the rise and secession of the Confederacy. This devotion to Jomini by both Union and Confederate leaders produced decisive victories as well as crushing defeats for both sides throughout the duration of the conflict to include General Robert E. Lee's overall defeat and surrender by war's end. One can only surmise that the outcomes of numerous engagements between armies using the same Jominian principles were varied as a result of significant differences in skill with regard to the proper and effective application of said principles. That being said, several key victories in the Civil War were the result of rather anti-Jominian approaches to warfare, as evidenced by Lee's division of his small force into even smaller components at Chancellorsville and the emphasis by Lincoln on a cordon offensive which distributed, rather than massed, Union forces.

Following the end of the U.S. Civil War, the concept of principles of war appeared in various forms throughout military literature in the United States. Gustave J. Fiebeger, a professor of civil and military engineering at West Point

from 1896 to 1922, published *Elements of Strategy* which contained a list of twenty-one “military principles” derived from the teachings of Napoleon and Jomini. The 1905 edition of U.S. Service Regulations contained “general principles” of myriad activities specific to field service, but referred to the principles specific to combat as “general considerations.” In 1911, *U.S. Infantry Drill Regulations* identified a list of fourteen “imperatives” deemed essential for success in war. Following revision in 1913, *U.S. Field Service Regulations* replaced the 1905 “general considerations” with an expanded section titled “General Principles.” Revised and published again in 1914, *U.S. Field Service Regulations* included ten paragraphs of “combat principles.” In contrast to the general principles of combat in the 1913 edition which were largely informational in nature, these ten paragraphs were stated much more imperatively and contained ideas and concepts eerily similar to those introduced by Jomini.

The imperatives summarized in the 1914 *Regulations*, however, were not called the principles of war, they were not identified by titles of one or a few words, they were not immutable, or at least no claim was made that they were immutable, and the claim was not made that their application would ensure success in war. Nevertheless, the enumeration of ten imperatives, referred to as “combat principles,” demonstrated the official acceptance of the belief in the existence of principles and a proclivity to enumerate definitive principles for the conduct of war in official doctrine. (Alger, 1982, p.105)

Over time, increasing emphasis on the development of a terse, simple, list of the principles of war, thought by many to be the key to the effective understanding and use of said principles in combat, resulted in a steady, evolutionary process that ultimately produced the modern principles of war in use today. A detailed history of the principles of war used by the United States military can be found in Appendix A—Chronology of United States Principles of War. For the purposes of this study, I will use the principles of war currently found in the United States Army Field Manual (FM) 3-0, *Operations*, effective June 2001. The principles of war contained therein are credited as the foundation of operations. They are introduced as follows:

The nine principles of war provide general guidance for conducting war and military operations other than war at the strategic, operational, and tactical levels. The principles are the enduring bedrock of Army doctrine. The U.S. Army published its original principles of war after World War I. In the following years, the Army adjusted the original principles, but overall they have stood the tests of analysis, experimentation, and practice. The principles of war are not a checklist. They do not apply in the same way to every situation. Rather, they summarize the characteristics of successful Army operations. Their greatest value lies in the education of the military professional. Applied to the study of past campaigns, major operations, battles, and engagements, the principles of war are powerful tools for analysis. (pp.4-11 – 4-12)

FM 3-0 identifies, defines, and provides an explanation for each of the nine principles of war in the following manner:

Objective – Direct every military operation toward a clearly defined, decisive, and attainable objective. At the operational and tactical levels, objective means ensuring all actions contribute to the goals of the higher headquarters. The principle of the objective drives all military activity. When undertaking any mission, commanders should have a clear understanding of the expected outcome and its impact. At the strategic level, this means having a clear vision of the theater end state. Commanders need to appreciate political ends and understand how the military conditions they achieve contribute to them.

Offensive – Seize, retain, and exploit the initiative. Offensive action is key to achieving decisive results. It is the essence of successful operations. Offensive actions are those taken to dictate the nature, scope, and tempo of an operation. They force the enemy to react. Commanders use offensive actions to impose their will on an enemy, adversary, or situation. Offensive operations are essential to maintain the freedom of action necessary for success, exploit vulnerabilities, and react to rapidly changing situations and unexpected developments.

Mass – Concentrate the effects of combat power at the decisive place and time. Commanders mass the effects of combat power to overwhelm enemies or gain control of the situation. They mass combat power in time and space to achieve both destructive and constructive results. Massing in time applies the elements of combat power against multiple targets simultaneously. Massing in space concentrates the effects of different elements of combat power against a single target. Both

dominate the situation; commanders select the method that best fits the circumstances. To an increasing degree, joint and Army operations mass the full effects of combat power in both time and space, rather than one or the other. Such effects overwhelm the entire enemy defensive system before he can react effectively.

Economy of Force – Allocate minimum essential combat power to secondary efforts. Economy of force is the reciprocal of mass. It requires accepting prudent risk in selected areas to achieve superiority—overwhelming effects—in the decisive operation. Economy of force involves the discriminating employment and distribution of forces. Commanders never leave any element without a purpose. When it comes time to execute, all elements should have tasks to perform.

Maneuver – Place the enemy in a disadvantageous position through the flexible application of combat power. As both an element of combat power and a principle of war, maneuver concentrates and disperses combat power to place and keep the enemy at a disadvantage. It achieves results that would otherwise be more costly. Effective maneuver keeps enemies off balance by making them confront new problems and new dangers faster than they can deal with them. Army forces gain and preserve freedom of action, reduce vulnerability, and exploit success through maneuver. Maneuver is more than just fire and movement. It includes the dynamic, flexible application of leadership, firepower, information, and protection as well. It requires flexibility in thought, plans, and operations and the skillful application of mass, surprise, and economy of force.

Unity of Command – For every objective, ensure unity of effort under one responsible commander. Developing the full combat power of a force requires unity of command. Unity of command means that a single commander directs and coordinates the actions of all forces toward a common objective. Cooperation may produce coordination, but giving a single commander the required authority unifies action. The joint, multinational, and interagency nature of unified action creates situations where the military commander does not directly control all elements in the AO. In the absence of command authority, commanders cooperate, negotiate, and build consensus to achieve unity of effort.

Security – Never permit the enemy to acquire an unexpected advantage. Security protects and preserves combat power. It does not involve excessive caution. Calculated risk is inherent to conflict. Security results from measures taken by a command to protect itself from surprise, interference, sabotage, annoyance, and

threat ISR. Military deception greatly enhances security. The threat of asymmetric action requires emphasis on security, even in low-threat environments.

Surprise – Strike the enemy at a time or place or in a manner for which he is unprepared. Surprise is the reciprocal of security. Surprise results from taking actions for which an enemy or adversary is unprepared. It is a powerful but temporary combat multiplier. It is not essential to take the adversary or enemy completely unaware; it is only necessary that he become aware too late to react effectively. Factors contributing to surprise include speed, information superiority, and asymmetry.

Simplicity – Prepare clear, uncomplicated plans and clear, concise orders to ensure thorough understanding. Plans and orders should be simple and direct. Simple plans and clear, concise orders reduce misunderstanding and confusion. The factors of METT-TC determine the degree of simplicity required. Simple plans executed on time are better than detailed plans executed late. Commanders at all levels weigh the apparent benefits of a complex concept of operations against the risk that subordinates will not be able to understand or follow it. Multinational operations put a premium on simplicity. Differences in language, doctrine, and culture complicate multinational operations. Simple plans and orders minimize the confusion inherent in this complex environment. The same applies to operations involving interagency and nongovernmental organizations. (pp.4-12 – 4-15)

An explanation of acronyms found in the preceding definitions, as well as throughout this thesis, can be found in the List of Acronyms. The current version of *FM 3-0* also presents what it terms, *The Tenets of Army Operations*. These tenets, identified as *initiative*, *agility*, *depth*, *synchronization*, and *versatility*, are framed such that they are designed to build on the foundation established by proper application of the aforementioned principles of war. The manual deems them essential to the achievement of victory. Thus, they are “probabilistic” principles. “While they do not guarantee success, their absence risks failure” (p.4-15). The tenets of Army operations are explained in greater detail as follows:

Initiative – Initiative has both operational and individual components. From an operational perspective, initiative is setting or dictating the terms of action throughout the battle or operation.

Initiative implies an offensive spirit in all operations. To set the terms of battle, commanders eliminate or reduce the number of enemy options. They compel the enemy to conform to friendly operational purposes and tempo, while retaining freedom of action. Army leaders anticipate events throughout the battlespace. Through effective command and control (C2), they enable their forces to act before and react faster than the enemy does. From an individual perspective, initiative is the ability to be a self-starter, to act when there are no clear instructions or when the situation changes. An individual leader with initiative is willing to decide and initiate independent actions when the concept of operations no longer applies or when an unanticipated opportunity leading to the accomplishment of the commander's intent presents itself. Despite advances in C2 from digital technology, individual initiative remains important for successful operations. In battle, leaders exercise this attribute when they act independently within the framework of the commander's intent. They trust their subordinates to do the same. Disciplined initiative requires well-trained and competent leaders who carry out studied and considered actions.

Agility – Agility is the ability to move and adjust quickly and easily. It springs from trained and disciplined forces. Agility requires that subordinates act to achieve the commander's intent and fight through any obstacle to accomplish the mission. Operational agility stems from the capability to deploy and employ forces across the range of Army operations. Army forces and commanders shift among offensive, defensive, stability, and support operations as circumstances and missions require. This capability is not merely physical; it requires conceptual sophistication and intellectual flexibility. Tactical agility is the ability of a friendly force to react faster than the enemy. It is essential to seizing, retaining, and exploiting the initiative. Agility is mental and physical. Agile commanders quickly comprehend unfamiliar situations, creatively apply doctrine, and make timely decisions.

Depth – Depth is the extension of operations in time, space, and resources. Commanders use depth to obtain space for effective maneuver, time to conduct operations, and resources to achieve and exploit success. Depth enables momentum in the offense, elasticity in the defense, and staying power in all operations. In the offense and defense, depth entails attacking the enemy throughout the AO—simultaneously when possible, sequentially when necessary—to deny him freedom of maneuver. Offensive depth allows commanders to sustain momentum and press the fight. Defensive depth creates opportunities to maneuver against the enemy from multiple directions as attacking forces are exposed or discovered. In stability operations and support operations, depth

extends influence in time, space, purpose, and resources to affect the environment and conditions. In stability operations, ISR combined with IO help commanders understand factional motives, identify power centers, and shape the environment. In support operations, depth in resources, planning, and time allows commanders to stop suffering and prevent or slow the spread of disease. In all operations, staying power—depth of action—comes from adequate resources. Depth of resources in quantity, positioning, and mobility is critical to executing military operations. Commanders balance depth in resources with agility. A large combat service support (CSS) tail can hinder maneuver, but inadequate CSS makes the force fragile and vulnerable.

Synchronization – Synchronization is arranging activities in time, space, and purpose to mass maximum relative combat power at a decisive place and time. Without synchronization, there is no massing of effects. Through synchronization, commanders arrange battlefield operating systems to mass the effects of combat power at the chosen place and time to overwhelm an enemy or dominate the situation. Synchronization is a means, not an end. Commanders balance synchronization against agility and initiative; they never surrender the initiative or miss a decisive opportunity for the sake of synchronization. Some activities—such as electronic warfare, suppressing enemy air defenses, and shifting maneuver forces—might occur before the decisive operation. They may take place at locations distant from each other. Though separated in time and space, commanders closely synchronize such actions to mass overwhelming effects at the decisive time and place. Synchronization often requires explicit coordination and rehearsals among participants.

Versatility – Versatility is the ability of Army forces to meet the global, diverse mission requirements of full spectrum operations. Competence in a variety of missions and skills allows Army forces to quickly transition from one type of operation to another with minimal changes to the deployed force structure. Versatility depends on adaptive leaders, competent and dedicated soldiers, and well-equipped units. Effective training, high standards, and detailed planning also contribute. Time and resources limit the number of tasks any unit can perform well. Within these constraints, commanders maximize versatility by developing the multiple capabilities of units and soldiers. Versatility contributes to the agility of Army units. Versatility is a characteristic of multifunctional units. Commanders can take advantage of this by knowing each unit's capabilities and carefully tailoring forces for each mission. At higher echelons, versatility implies the ability to assume more complex responsibilities. (pp.4-15 – 4-18)

These modern principles of war, as well as their associated tenets, vary little among the doctrinal publications produced and utilized by all the armed forces of the United States. More importantly, these principles have remained very much the same as those officially adopted by the United States in 1921. Yet, as we shall see in the final portion of this chapter, the nature of warfare has undergone radical change since then. Following the end of the Cold War, the rate of change has increased further. Jomini's principles of war concepts lay at the root of the principles embraced by our modern military, but just as Lloyd's conclusions about the science of warfare failed to bridge the gap between warfare in the age of Enlightenment and Napoleonic warfare (Paret, 1986, p.149), so too may Jomini's concepts have become outdated in the face of the myriad complex circumstances and conditions inherent to the 21st century battlefield.

C. THE SHIFTING SANDS OF CONVENTIONAL WARFARE

The nature of warfare during the age of Napoleon provided the background for Jomini's development of his principles of war concepts and changed little despite the advent of the Industrial Age. Despite numerous advancements in technology and weaponry, the American Civil War, World War I, and World War II all exhibited characteristics of warfare with which Jomini would have been familiar and comfortable. Even the use of an atomic bomb by the United States against Japan would have done little to surprise the great military thinker. As evidenced by J.D. Hittle in his introduction to Jomini's *Summary of the Art of War* (1958), Jomini possessed tremendous vision and was able to foresee numerous advancements in how future wars would be waged.

Jomini knew that henceforward Europe's wars would be total wars. He also grasped the profound significance of Napoleon's ability to wage war without heed to national boundaries or great distances, and realized the implications of Napoleonic expansive war in terms of military history yet to be made, stating that "remoteness is not a certain safeguard against invasion." ...He was able to picture the coming wars in which rockets, shrapnel, and fast breech-loading field guns would be but a means of increasing the slaughter...Jomini was a prophet of the war to come. It was not until the twentieth century that the war-frightened world seemed to

heed Jomini's advice to limit the means of war by "laws of nations." Only now is the world, shocked by the blasts at Nagasaki, Hiroshima and Bikini, coming to realize the full importance and dreadful implications of Jomini's terse, somber prophecy: "The means of destruction are approaching perfection with frightful rapidity." (Hittle, 1958, pp.34-35)

However, even a visionary as great as Jomini has limits. It is difficult to ascertain what Jomini would have done with the nuclear deterrent stalemate that emerged and effectively cast a pall over strategic thinking for decades.

For the United States, there have been no full-scale, total wars since World War II. Our nation's armed forces, instead, have found themselves mired in a broad range of military endeavors that encompasses almost every aspect contained within the spectrum of conflict—major forays such as Korea and Vietnam; limited operations such as Grenada, Panama, Haiti, and Somalia; largely one-sided invasions such as Operation DESERT STORM, Operation ENDURING FREEDOM (Afghanistan), and Operation IRAQI FREEDOM (Iraq)—and everything in between. Only the Cold War provided the stage and had the potential to host that all-out, total war between super powers that Jomini envisioned. Now, the center stage of modern warfare is occupied by the Global War on Terrorism (GWOT) and the complexities contained therein transcend any of those considered by Jomini when he developed his notion of the principles of war. Just as Vietnam was a new kind of war with a plethora of new considerations and perplexing circumstances, so too is the complex nature of 21st century warfare we face now and can expect to contend with well into the future. The aforementioned Operation ENDURING FREEDOM was something rather unique in U.S. military history in that it was conducted primarily with special operations forces, focusing on unconventional warfare (UW), for nearly the first six months. Operations of this nature, conducted with an emphasis on UW, may be more the norm than the exception in future wars. This begs the question of whether our armed forces will seek to understand and readily make changes to address the complexities of modern warfare or respond--as the Army did in Vietnam—by adhering to the Army Concept (Krepinevich, 1986, p.4) in

which forces were trained and organized to coincide with the Army's perception of how wars ought to be fought—which basically amounted to wishing away the realities of warfare that failed to conform to preconceived notions about mid-intensity, conventional war.

Vietnam and Korea, already a generation in the past, were the first major wars lost and/or terminated inconclusively by the United States. War had changed significantly and unconventional warfare proved to be too much for our conventionally-minded armed forces. But the principles of war used then are the same ones relied upon by our nation's armed forces today. Rather than conduct a thorough examination of the principles of war and make changes to our military to increase its capabilities with regard to this new breed of warfare, policy makers and military leaders within the higher echelons have chosen instead to refine the rules that govern when the United States would allow itself to become involved in war.

These conditions, as formulated by people such as former Army Chief of Staff Gen. Edward C. "Shy" Meyer and Army War College strategist Col. Harry Summers and enunciated by Secretary of Defense Caspar W. Weinberger, hold that U.S. combat forces should not be committed overseas unless the interests involved are vital to U.S. security, the troops committed are sufficient in number to accomplish the mission, and the American political leadership has "the clear intention of winning." Finally, they contend, an atmosphere of popular and congressional support for the war must be present. These conditions are drawn, in Secretary Weinberger's words, from "lessons we have learned from the past." To a great extent, they represent the Army's lessons from Vietnam, and they signify the service's determination to ensure that for it there will be "No More Vietnams." And yet, if one examines closely the resurgence of Army interest in low-intensity warfare, there exist many disturbing parallels between what transpired before the Vietnam War and what has happened since the war. Indeed, the similarities drive the observer toward the ineluctable conclusion that if the Army has learned any lessons from Vietnam, it has learned many of the wrong ones. (Krepinevich, 1986, p.269)

The complexities of the 21st century battlefield are many and conventional warfare has evolved into a new breed of its own. Of particular concern is the growing predominance of unconventional warfare, guerrilla and terrorist tactics,

and insurgencies waged by fanatics who would like nothing better than to see the American giant toppled. The next chapter will discuss this complexity and examine the modern principles of war with respect to these changing conditions in an effort to demonstrate that the principles of war are in need of change if we are to avoid swallowing the bitter pill of defeat as we did in Vietnam.

III. ARE JOMINI'S PRINCIPLES OF WAR STILL APPLICABLE?

We have no right to assume that any physical laws exist, or if they have existed up until now, that they will continue to exist in a similar manner in the future.

Max Planck

A. DEFINING UNCONVENTIONAL WARFARE

Unconventional warfare (UW) is, by no means, a new phenomenon. It has existed in a variety of forms throughout history, and its very origin coincided with that of basic human conflict. From the campaigns of Alexander the Great and biblical accounts of partisan operations conducted by the Maccabees (Gann, 1971) to the daring tactics of Colonel Marion during the American Revolution and the present-day guerrilla warfare utilized by insurgents in Iraq, UW has been demonstrated to be a resilient and lethal phenomenon with the potential to mystify and/or render helpless even the most robust and technologically superior conventional forces.

This light armed people, relying more on their activity than on their strength, cannot struggle for the field of battle...[But] though defeated and put to flight one day, they are ready to resume the combat on the next, neither dejected by their loss nor their dishonour...they harass the enemy by embuscades and nightly sallies...Bold in the first onset, they cannot bear a repulse...[but] their courage manifests itself chiefly in retreat, when they frequently return, and, like the Parthians, shoot their arrows behind them...Neither oppressed by hunger or cold, nor fatigued by martial labours, nor despondent in adversity...they are as easy to overcome in a single battle, as difficult to subdue in a protracted war. (Cambrensis, 1908, pp.192-193)

UW has been shown to be of great utility throughout many centuries and in various types of wars, but has always been difficult to define and/or categorize because of the vast array of methodologies through which it has been applied at different times, by numerous countries, and in a variety of locations throughout the globe.

Guerrilla operations moreover comprise a vast range of military actions that frequently overlap—colonial wars, social wars waged by one class against another, guerrilla wars between hostile tribes, or campaigns fought as an adjunct to major military operations, to name just a few. (Gann, 1971, p.1)

Nevertheless, UW has endured and continues to evolve as a condition inherent to warfare. Throughout history, there appears to be a common, multifold theme in UW that applies to even its most diverse applications: operations always seem to occur in areas dominated by harsh terrain; guerrillas and/or insurgents are privy to key local knowledge and have obtained some measure of support from among the local populace; and guerrillas are more mobile than their opponents and prone to the use of hit-and-run tactics rather than prolonged, conventional engagements that naturally play to the strengths of their superior adversaries (Beckett, 2001). At present, this theme appears to remain consistent, but at the same time, there are new challenges and an increasing complexity to warfare in general that continues to make UW somewhat difficult to define.

During the course of my research, I found Thomas K. Adams's definition of UW to be an appropriate foundation on which to build my own, more inclusive definition for the purpose of analyzing the modern principles of war. Adams defines UW in the following manner:

Those military activities conducted within a conflict environment that are not directed toward or directly supporting conventional warfare, including humanitarian operations, complex emergencies, insurgency and counterinsurgency, some forms of subversion, sabotage and similar activities. Intelligence gathering is an incidental function in most forms of UW. UW is distinguished from conventional warfare chiefly by the fact that it does not seek to defeat or destroy enemy military forces in combat. (Adams, 1998, p.2)

Although I deem this definition to be useful, it is merely a stepping stone en route to developing the notion that UW has become significantly more complex. The advent of concepts such as cyber-war, cyber-terrorism, information warfare, and network-centric warfare, as well as others, has broadened the spectrum of

conflict and intricately obscured the dividing line between conventional warfare and UW. The conditions and circumstances likely to be encountered on the 21st century battlefield will, in my judgment, be frequently categorized and viewed as UW because they will appear to transcend the traditionally accepted conventions of warfare. For this reason, I have formulated my own definition of UW in such a way as to combine the aforementioned concepts, as well as others. In doing so, my analysis of the modern principles of war will be more thorough because it will give proper consideration to these new and complex phenomena when determining whether the Jominian principles are still applicable. My definition of UW combines aspects of the definitions previously formulated by Adams and the U.S. DOD (Department of Defense) with my own notions and reads as follows:

Unconventional Warfare (UW)—author’s definition. A broad spectrum of military, paramilitary, and civil operations, typically of long duration. UW includes low-intensity conflict, guerrilla warfare, insurgency and counterinsurgency, counterterrorism, cyber-warfare, cyber-terrorism, information warfare, counter-criminal activities, stability and support operations (SASO), psychological operations, and other covert or clandestine operations, as well as indirect activities such as subversion and sabotage. Intelligence collection, analysis, and dissemination are paramount to UW. Although UW may be distinguished from conventional warfare by the fact that it does not seek to defeat or destroy enemy military forces in combat, it may (and probably should) at times include activities which involve direct engagement with and the destruction of elements of a given adversary.

From this point on, any discussion of UW will be in reference to this definition.

B. GROWING COMPLEXITY AND TENDENCY TOWARD UW

Martin van Creveld, in *The Transformation of War* (1991), provided intriguing insight with regard to the potential for enhanced complexity and growing propensity for waging UW on the 21st century battlefield. In the chapter titled *Future War*, he wrote with frightening accuracy about the shape of things to

come in terms of potential adversaries, underlying causes, likely strategies and tactics, and the overall aims of waging war in the conflicts that appear destined to arise on the battlefields of tomorrow. He writes,

...nuclear weapons are making it impossible for large sovereign territorial units, or states, to fight each other in earnest without running the risk of mutual suicide...If fighting is to take place at all, then not only the armed forces but the political communities on whose behalf they operate will have to become intermingled. If and when such intermingling takes place, it is very likely that the forces fielded by these communities will no longer be of the conventional kind...If states are decreasingly able to fight each other, then the concept of intermingling already points to the rise of low-intensity conflict as an alternative. The very essence of such conflict consists in that it circumvents and undermines the trinitarian structure of the modern state, which is why that state in many ways is singularly ill-suited for dealing with this kind of war. (p.194)

Of particular note is van Creveld's emphasis on the increasing role of terrorism and criminal activity in future wars. He eerily predicted the emergence of terrorist, guerrilla, and criminal organizations built upon foundations of charisma and motivated by ideological fanaticism (p.197). With this emphasis in mind, van Creveld also pointed to the probability that the usually clear distinctions between combatants and non-combatants would become significantly blurred.

As the spread of low-intensity conflict causes trinitarian structures to come tumbling down, however, strategy will focus on obliterating the existing line between those who fight and those who watch, pay, and suffer. Hence probably the existing war convention will go by the board in this respect as well...war will become a much more direct experience for most civilians, even to the point where the term itself may be abolished, or its meaning altered. War will affect people of all ages and both sexes. They will be affected not just accidentally or incidentally or anonymously from afar, as in the case of strategic bombing, but as immediate participants, targets, and victims. (pp.202-203)

One need only look to the attacks on the World Trade Center, the Bali hotel bombing, and the train bombings in Madrid, among others perpetrated by Al Qaeda and comparable terrorist organizations, to realize the frightening reality of van Creveld's predictions.

Despite the exemplary skill and accuracy with which van Creveld was able to describe the nature of war in the 21st century, there exist additional developments that exacerbate the growing complexity and unconventional aura that surrounds the modern battlefield. Cyber-warfare, information warfare, globally-networked adversaries, and the eroding distinctions between war and crime are becoming increasingly important factors for consideration.

Cyber-warfare, despite having not yet been developed to its full potential, appears as if it will rapidly rise to a position of prominence with regard to modern warfare. In *Cyberwar Is Coming!*, Arquilla and Ronfeldt explain the Cyberwar concept in the following manner:

Cyberwar refers to conducting, and preparing to conduct, military operations according to information-related principles. It means disrupting if not destroying the information and communications systems, broadly defined to include even military culture, on which an adversary relies in order to “know” itself: who it is, where it is, what it can do when, why it is fighting, which threats to counter first, etc. It means trying to know all about an adversary while keeping it from knowing much about oneself. It means turning the “balance of information and knowledge” in one’s favor, especially if the balance of forces is not...This form of warfare may involve diverse technologies...It may also involve electronically blinding, jamming, deceiving, overloading, and intruding into an adversary’s information and communications circuits. (Arquilla & Ronfeldt, 1997, p.30)

Given the rapid growth of technology, its ever-increasing availability, and the relatively low cost by which it can be obtained almost anywhere throughout the world, Cyberwar capability is not likely to be possessed and utilized solely by the United States and its allies. As a result, states traditionally viewed as inferior and/or organizations such as Al Qaeda could potentially obtain the means to develop and utilize cyber-warfare to effectively nullify the force advantages that currently exist in the militaries of the nations they view as adversaries. While the United States and its coalition partners may one day enjoy the ability to employ cyber-warfare across the broadest spectrum of its potential, I have little doubt that terrorists and other adversaries will use it as a potent force multiplier. In

some cases, cyber-warfare may even serve as the “equalizer” that one day enables a terrorist enemy to defeat one of the world’s great powers.

Closely related to cyber-warfare, information warfare is quickly developing into a key aspect of waging war. In the *Fourth Edition of Strategy and Force Planning* (2004), Martin van Creveld contributed an article titled *The Transformation of War Revisited* (2001). Having the advantage of hindsight, he went back to his original work, *The Transformation of War* (1991), and summarized the ways that many of his writings and predictions had come to fruition. Simultaneously, he identified his failure to address information warfare as the “greatest single shortcoming” (p.618) of his book. In simple terms, information warfare is the use of information as a weapon in itself. This concept is critical in terms of the 21st century battlefield because “modern societies and their armed forces are extraordinarily dependent on information and becoming more so with each passing day” (p.618). Computers are utilized and, in many cases, serve as the main source of control for a majority of the systems that run most of the functions inherent to daily life in both the civilian and military realms. With so many of these computers invariably linked by way of a vast array of networks, defending against information warfare is extremely difficult.

In information warfare, both geographical space and time are irrelevant. Attacks scarcely require a base and can be directed at any point from any other point regardless of distance. Thus understood, such warfare would appear to be a leveler. Especially when compared with conventional war...it favors the small against the large. This will be even more true if the attacker does not strike roots at any particular place but retains his mobility instead. Rather than waiting for the government-sent special weapons and tactics (SWAT) team to find him and strike at him, he should be capable of easily packing up his equipment and going somewhere else. (p.619)

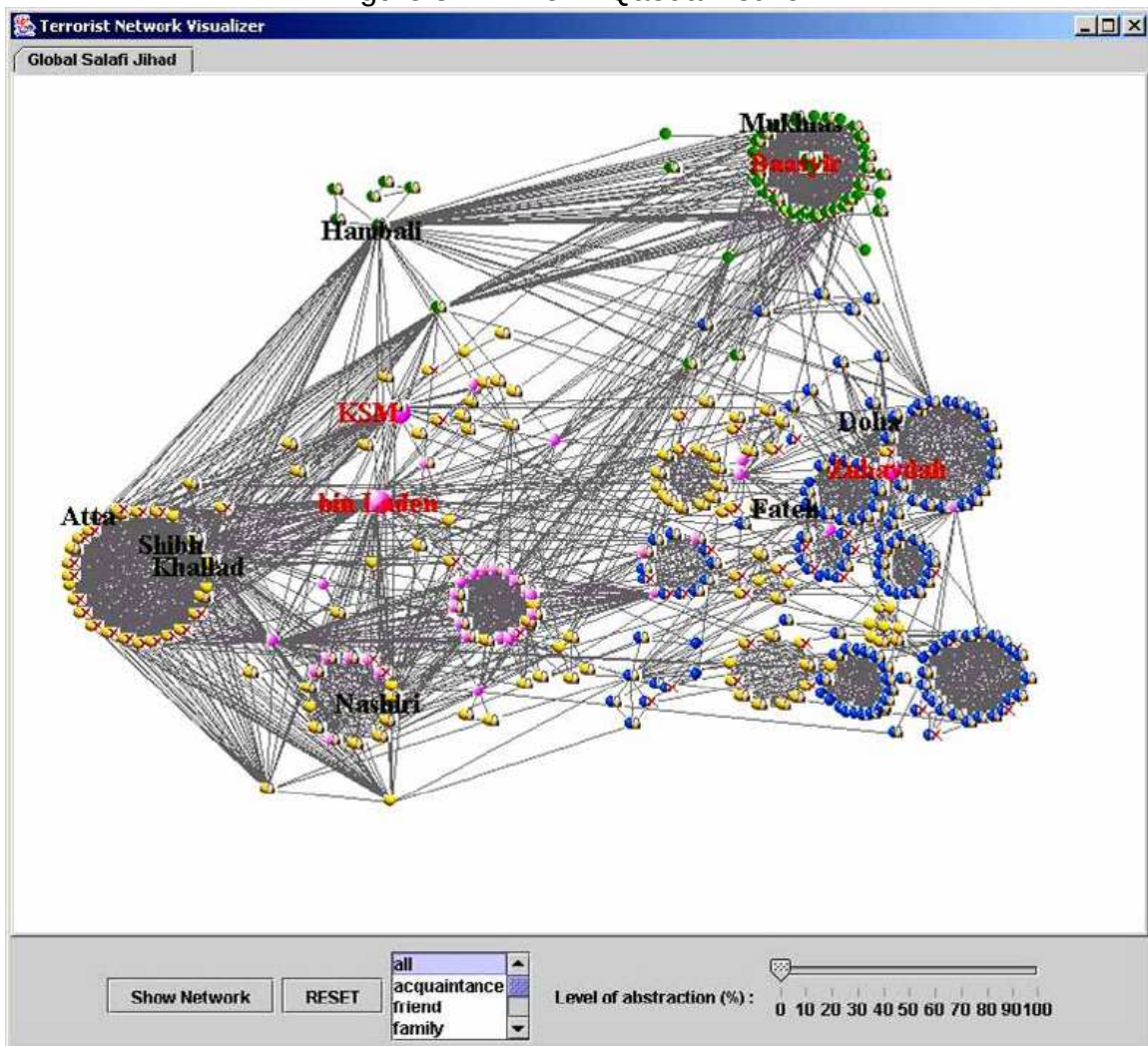
Because of their distinct advantage with regard to mobility, van Creveld asserts that information warfare is likely to be pursued by non-state actors such as terrorist groups. Such adversaries, with little or none of their own infrastructure to be concerned with, can improvise and adapt to their circumstances and surroundings at any given time without any significant degradation to their

information warfare capabilities. These conditions give further credence to the growing influence of information warfare and the apparent shift away from conventional war towards UW and low-intensity conflict (p.620). Further discussions of cyber-warfare, information warfare, and cyber-terrorism, as well as the ways they contribute to the increasing complexity of the 21st century battlefield, can be found in Verton's *Black Ice* (2003), Libicki's *What Is Information Warfare?* (1995), and Arquilla and Ronfeldt's *Networks and Netwars* (2001).

Yet another factor of considerable consternation when examining the intricacies of 21st century warfare is the complex, networked organizational structures that, thus far, have appeared to be most advantageous for our enemies. Take, for example, the globally-networked structure of the Al Qaeda terrorist organization. In *Terrorism and Violence in Southeast Asia* (2005), Zachary Abuza presents a good overview of Al Qaeda that serves to provide a decent appreciation for the complex nature of this adversary. Osama Bin Laden established this terrorist group in 1988, with the assistance of key individuals within Saudi Arabian intelligence, for the purpose of orchestrating Arab recruitment for the mujahideen. From this we can assert that networking was an integral part of Bin Laden's repertoire from the very beginning. Built upon a small, core leadership consisting of a mere 30 individuals, the organization functions via a potent international network of approximately 24 constituent groups with cells dispersed throughout at least 60 different countries across the globe. Core Al Qaeda membership is estimated to be somewhere in the neighborhood of 5000 to 12000 – strong (Smith, 2005, p.41). Above and beyond the establishment of its own terrorist cells, Al Qaeda has also found success in co-opting additional groups with individual domestic agendas and incorporating them into the organization's overall structure. Upon pledging allegiance to Bin Laden, these groups then enjoy the benefits of shared intelligence, funding, logistics, and newly recruited membership. Too small to undertake any major operations of their own, the underlying strength of the cells is the network itself. Al Qaeda has demonstrated an aptitude for mobilizing

individual cells as necessary and/or creating new cells in various regions throughout the world. With growing regularity, these cells are then capitalizing on the strength of the organization's global network to coordinate and support their individual efforts (p.30). In an April 2005 briefing at the Naval Postgraduate School (NPS), Dr. Marc Sageman provided graphics that portray the complicated array of network linkages of which the Al Qaeda terrorist organization is composed. See Figure 3-1 below.

Figure 3-1: The Al Qaeda Network



(From: *Global Salafi Jihad: Empirical Assessment & Social Network Analysis*, presented by Dr. Marc Sageman at NPS, April 2005)

To say that such an organizational structure is complex and daunting would be a considerable understatement. In Lesser's *Countering the New Terrorism* (1999), Dr. John Arquilla effectively describes the Al Qaeda organization as follows:

...diverse, dispersed nodes who share a set of ideas and interests and who are arrayed to act in a fully internetted 'all-channel' manner...the network as a whole (but not necessarily each node) has little to no hierarchy, and there may be multiple leaders. Decision-making and operations are decentralized, allowing for local initiative and autonomy. Thus, the design may appear acephalous (headless), and at other times polycephalous (hydra-headed). (p.49)

To date, we have made a fair amount of progress in our efforts to understand, dissect, and counteract the creative web of nodes and channels that conceals our adversary. But our opponent has proven to be a quick study, constantly analyzing his successes and failures and making changes as necessary to enhance the potential that subsequent operations will be properly executed. Without a doubt, every step we make toward dismantling our enemy's organizational network is likely to be two steps behind his ongoing efforts to refine and strengthen the bastions that so masterfully conceal his every activity.

Also of note as a growing concern is the rapidly shrinking gap that has traditionally separated war and criminal activity. In *Terrorism and Violence in Southeast Asia* (2005), Tamara Makarenko's article on terrorism and transnational organized crime (TOC) elucidates the insidious nature of this emerging threat. She writes,

...it has become increasingly evident that the greatest threat to security emanates from the rapidly evolving phenomena of terrorism and transnational organized crime (TOC). In actuality, national, regional, and international experience with insecurity over the past decade has confirmed that terrorism and TOC deserve paramount attention precisely because they both span national boundaries and thus are necessarily multidimensional and organized; and, because they directly threaten the stability of states by targeting economic, political, and social systems. (p.169)

The frequency with which terrorist groups and criminal organizations are coordinating and combining their efforts to obtain much-needed resources and

further their interests is increasing at an astonishing rate. For example, conditions of instability, exacerbated by the growing influence of terrorism, in various regions throughout the world have provided a foothold for criminal organizations who seek to expand their operations and exert political influence. Concurrently, terrorist organizations are skillfully wielding the sword of religious ideology to bolster support and develop stronger ties in the realm of criminal activity (pp.169-170). In what she refers to as the “Crime-Terror Continuum (CTC),” Makarenko asserts that

...the differences commonly identified between organized crime and terrorism are currently defunct. When assessing contemporary security threats, the reality is that it has become increasingly difficult to distinguish between political and criminal motivations. (p.173)

The convergence of these once separate phenomena could further complicate the friction and uncertainty that surrounds our adversaries on the 21st century battlefield because economic and political considerations will need to be entertained, in addition to purely military objectives, to an even greater degree than has been the case previously.

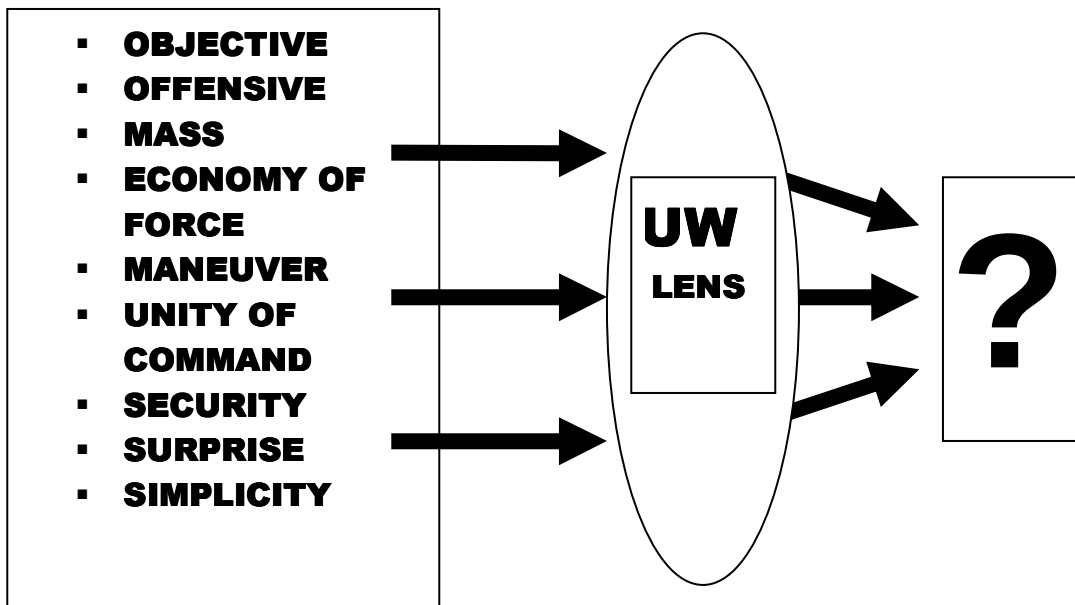
...military and economic functions will be reunited. Individual glory, profit, and booty gained directly at the expense of the civilian population will once again become important, not simply as incidental rewards but as legitimate objectives of war. (van Creveld, 1991, p.216)

At the same time, enhanced connections between terrorist and criminal organizations may provide valuable opportunities for the United States to infiltrate, gather timely intelligence on, and ultimately apprehend and defeat large chunks of the enemy’s networks. Our willingness to quickly recognize and proactively pursue this evolving threat will be a key factor in determining our success or failure in future wars.

C. VIEWING JOMINI'S PRINCIPLES THROUGH THE UW "LENS"

With what I hope to be a greater appreciation for--as well as a better understanding of the emergence of--the aforementioned considerations, combined with my more inclusive definition of UW, we can now pursue an analysis of the modern principles of war. Picture, if you will, the notion of UW and the growing complexity of the 21st century battlefield as a lens through which the principles of war can be projected and subsequently analyzed in terms of their continued applicability. See Figure 3-2 below.

Figure 3-2: The UW "Lens"



The bold question mark on the right of Figure 3-2 should serve to indicate that there exists some degree of uncertainty with regard to the continued applicability of the modern principles of war. I turn, once again, to van Creveld's *The Transformation of War* (1991) in which he writes,

Like a man who has been shot in the head but still manages to stagger forward a few paces, conventional war may be at its last gasp. As low-intensity conflict rises to dominance, much of what has passed for strategy during the last two centuries will be proven useless. (p.205)

Jomini's understanding of strategy was specific to the era during which he amassed his wealth of military knowledge and experience. As a result, many of the conditions and circumstances inherent to the 21st century battlefield were not realistic considerations for him to factor in when developing the principles of war. This is precisely why, as we move on to the next chapter to examine the applicability, or lack thereof, of the modern principles, we do so with my new definition of UW and the complexities of modern combat as the key components of the "lens" we utilize for our scrutiny. The Commandant of the United States Marine Corps, General M. W. Hagee, articulated the importance of evaluating the very principles by which we are guided during our efforts to wage war, as well as the need to develop a willingness to change said principles if, by such evaluation, we are able to conclude this to be a prudent measure. In the foreword of *Small Wars/21st Century* (2005), he writes,

Traditional and irregular adversaries will continue to generate a wide range of complex and ambiguous challenges. Their structure and operating style will not be readily reduced to a simple template. Nor will future adversaries array themselves in convenient linear formations nor contemplate set piece traditional operations against us...The challenge before us is to successfully meet tomorrow's uncertain security through continuous learning and adaptation. The emerging security environment demands we sharpen our focus on this increasingly likely form of warfare and adapt to its new characteristics...the political, security, and economic consequences of this mode of war will be high. They are the converse of past wars, and the emergence of low frequency/high amplitude war has serious implications for our doctrine, training, education and materiel requirements. (pp.i-iii)

IV. COMPARISONS

*...nothing is less conducive to the successful waging of armed conflict than to take the existing convention for granted. A system of thought that ignores the war convention altogether, like **vom Kriege** and its successors, cannot fail to misrepresent the nature of armed conflict.*

Martin van Creveld, from *The Transformation of War*

A. WHICH PRINCIPLES ARE STILL APPLICABLE?

By viewing the modern principles of war through the UW “Lens” I have determined the following principles to be of continued applicability to the complex nature of warfare on the 21st century battlefield: *Objective, Offensive, Economy of force, Maneuver, Unity of command, and Security*. My justification for making such a determination concerning these six principles is as follows:

Objective

Clear goals and a thorough understanding of the required/desired end-state is vital to success in warfare. Complexity on the 21st century battlefield is multi-faceted and the objectives contained therein are more complicated than ever before. Overarching, strategic objectives must be understood at all levels and tactical objectives must be viewed in terms of how they impact the big picture. More so than in previous eras, every potential effect of an objective’s attainment must be carefully analyzed to determine whether or not it will support or impede the desired outcome of a given campaign or strategic initiative. Essentially, objectives are becoming inherently deeper and/or broader. Instead of simply seizing and occupying a piece of terrain, now and in the future one must give careful consideration to the second and third-order effects of doing so. How will it affect the attitudes of the local population? Will doing so interfere with regular activities vital to the local economy? Failure to think in these terms could likely result in growing support for the adversary and the emergence of barriers that significantly impede the ability to accomplish the overall mission.

Additionally, if we are to successfully counter our highly-networked enemies, it is imperative that we maximize the autonomy, creative initiative, and the ability to act in a timely manner of units at every level. To do so with confidence, objectives must be carefully chosen and disseminated in order to ensure that vital opportunities at the tactical level can be rapidly exploited in support of the main objective. If we can somehow implement a network approach ourselves in the effort to combat our adversaries, there is perhaps significant potential that doing so will allow us to pursue a greater number of objectives than in the past.

Offensive

Future warfare will likely be won by those who maintain the offensive. Forces that are proactive and in constant pursuit of the enemy will enjoy a greater advantage than those who content themselves with reacting and responding to an elusive foe. The former will constantly seek out new and innovative methods for maintaining the upper hand while simultaneously striking the adversary in a pre-emptive manner to keep him continually off balance. The latter will waste precious manpower and resources in an effort to keep up with an enemy who consistently succeeds in setting the pace of battle. The likely adversaries in the 21st century will be mobile, well-networked fighters able to drift in and out of both the global and local surrounding population at will. Failure to adhere to this principle will result in war being fought on the enemy's terms. Such an approach to warfare on tomorrow's battlefield will likely mean defeat for even the most robust and technologically superior armies. This presents implications for our current, strategically defensive, stance with regard to homeland defense, as well as for our defensive approach in most of Afghanistan and Iraq. With regard to the former, our administration's emphasis on preemption, the notion that the best defense is a good offense, is a step in the right direction, but will have to be utilized with great caution and in a very calculated manner. It may not be easy to determine the true identities of our foes in the future and, subsequently, could result in a decreased ability to preempt with overwhelming force. Significant adjustments will need to be made to provide us with a wide range of flexible, but highly effective preemption options. As far

as current operations in Afghanistan and Iraq are concerned, the successes of reasonably well-coordinated offensives in Iraq, although varied in magnitude and often quite limited, may be the start of a positive trend. Accordingly, our forces have continued to pursue such operations with increasing frequency. Positive results and more substantial successes achieved consistently may lead our forces to pursue a similar approach in Afghanistan as well. In the end, recognition of and a willingness to embrace the advantages inherent to offensive operations may prove to be vital to our pursuit of victory in both of these troublesome conflicts.

Economy of Force

The unpredictability and widely-dispersed nature of probable enemies in future wars significantly enhances the priority that should be given to this principle. Prudent use of one's forces with this principle in mind could support a more indirect, multi-pronged, simultaneous advance against the enemy thereby requiring him to defend multiple objectives all at once. Even more important, if we conduct our attack in terms of simultaneous strikes against multiple areas of an adversary's operational continuum, and do so repeatedly over time, the outcome could prove to be quite beneficial. For example, consider simultaneous attacks using cyber-warfare, information warfare, police raids, guerrilla warfare tactics, sabotage, and precision-guided munitions (PGM) against a terrorist network's computer systems, local support, criminal linkages, individual cell 'safe houses', and key leadership figures respectively. Success in any one of these areas would likely be of little consequence, but over time, continued application of such pressure would likely result in successes being achieved against multiple targets. Repeated evolutions would likely weaken the enemy's organization sufficiently enough to severely hamper or degrade his overall operational capabilities. In terms of the Powell Doctrine, which places high emphasis on overwhelming force to defeat the enemy, some degree of reinterpretation may have to be pursued. I submit that, despite involving attacks that are not necessarily military in nature, future emphasis on *Economy of Force* in this vein

will enable us to bring a newer, broader, and more potent breed of overwhelming force to bear against our adversaries.

Maneuver

This principle maintains a high level of importance and applicability largely due to the fact that it is intimately related to *Offensive* and *Economy of force*. Going back to the way it is defined in *FM 3-0*, *Maneuver* involves the dynamic and flexible application of various elements which, when effectively combined with other principles, can be a vital contributor to efforts specifically directed at keeping an adversary off-balance and in a largely reactive mode. Utilized efficiently, this principle can turn the tables in our favor such that we become more unpredictable than our enemy and better able to counteract his strategic moves via a greater degree of flexibility. That being said, *Maneuver* should not only be viewed in terms of a traditional “Blitzkrieg” mindset. Instead of only concerning ourselves with the dynamic and flexible application of purely military elements, the future will demand that we view this principle in terms of the sum total of all the elements and innovations inherent to future wars. Skillful *Maneuver* within the realms of “cyber-warfare,” “information-warfare,” and “networks,” in combination with the physical movement of forces throughout the battlespace, could result in an enabling effect for our forces that will be daunting.

Unity of Command

Considering that potential adversaries in future wars are likely to depend on globally-dispersed and networked organizational structures with little direct command, the United States and its allies will be required to conduct operations via a system of multi-national coalitions if they expect to pursue, engage, and/or counteract the enemy, simultaneously in multiple regions, with any degree of consistency. With such an approach, we are reminded of the previous discussion regarding the continued applicability of *Objective*. Maintaining a clear focus on the overall desired end-state becomes a tremendously difficult endeavor when the theater and final outcome of actions conducted therein are in terms of

global scale. Viewed in this perspective, it becomes abundantly clear why “unity of effort” is used synonymously with this principle. *Joint Publication (JP) 3-0, Doctrine for Joint Operations* (2001), highlights the difficulties likely to be encountered with *Unity of command* when conducting operations on so large a scale.

In these operations, other government agencies often may have the lead. Commanders may answer to a civilian chief, such as an ambassador, or may themselves employ the resources of a civilian organization. Command relationships often may be only loosely defined and many times will not involve command authority as understood within the military. This arrangement may require commanders to seek an atmosphere of cooperation to achieve objectives by unity of effort. Military commanders need to consider how their actions contribute to initiatives that are also diplomatic, economic, and informational in nature. Because operations often will be conducted at the small unit level, it is important that all levels understand the military-civilian relationship to avoid unnecessary and counterproductive friction. (p.V-2)

The pursuit and potential implementation of a networked approach to warfare, essentially “fighting fire with fire” in the sense that we might best be able to combat our future adversaries with globally-dispersed, networked forces of our own, may permit a more distributed approach to *Unity of command*. We may be able to field a complex network of small, highly autonomous, and extremely capable units that, with a clear understanding of the overall mission, could engage the enemy with the utmost in speed and agility. Much like the foes of tomorrow, our forces would require little to no direct command—just an intimate knowledge of the desired end state and a thorough appreciation for the full depth and breadth of the objectives they prosecute. Here again, “unity of effort” takes on greater meaning because all members of the network will need to maintain the highest regard for the overarching goal and ensure that their individual unit efforts compliment rather than counteract one another. Regardless of which term is used, *Unity of command* remains applicable as one of the modern principles of war.

Security

Defined in *FM 3-0* (2001) as, “never permitting the enemy to acquire an unexpected advantage,” it would appear that this principle is more applicable than ever. The unpredictable nature of the enemy, combined with a veritable plethora of mechanisms with which he could launch a wide variety of harmful attacks, makes this principle vital to success in warfare. The potential damage that could be inflicted by asymmetric threats is overwhelming. Above and beyond physical attacks conducted by human beings who remain hidden within the local population until a given time, the attacks that could be launched via cyber-warfare have added an entirely new dimension to the concept of security. Take, for example, the notion of a cyber-attack that shuts down power and/or communications in a major city in close coordination with the detonation of a “dirty bomb” or similar weapon of mass destruction (WMD). The resulting tragedy would be devastating—not just in terms of the loss of human life, but with regard to the severe blow suffered by the economic and political systems of the country in which the event occurs as well. This is just one of many examples that lead me to assess security as being a principle of war that is most likely to endure scrutiny for generations to come.

B. WHICH PRINCIPLES HAVE DIMINISHED APPLICABILITY?

Although the majority of the modern principles of war appear to be relatively unchanged and seemingly retain their applicability to the 21st century battlefield when viewed through the UW “lens,” there are a few which I have deemed to be somewhat less fortunate. *Mass*, *Surprise*, and *Simplicity* are three of the modern principles of war that, in my determination, have become significantly less applicable and may even deserve to be replaced in light of the changing conditions and growing complexity of future war.

Mass

Jomini considered *Mass* to be a fundamental principle of war. However, application of this principle to the conditions inherent to 21st century warfare

could be, at best, extremely problematic. The enemy has already shown a willingness and uncanny ability to strike with a significant degree of speed, agility, and audacity to maximize the death and destruction he leaves in his wake. He does this where and when it is least expected and with methods that minimize his own risk. As we have seen time and again in Iraq, our massed formations as small as three and four-vehicle convoys have been successfully engaged using remotely detonated improvised explosive devices (IEDs) and/or suicide bombers with explosive-filled vehicles. The resulting casualties and destroyed equipment has almost always been in favor of the enemy. In terms of the growing number of asymmetric threats, *Mass* would appear to be detrimental as well. A nearly undetectable enemy who willingly blends with the local population while in possession of a potent capability to manufacture and deliver various types of bombs can get close enough to pose a viable and deadly threat to major choke points. Our troop and equipment concentrations at major ports, regional air bases, and forward-deployed intermediate staging bases (ISBs) provide lucrative targets for remotely-detonated devices and/or “human” bombs (Schneider, 2005, p.5).

The current U.S. military definition of *Mass* is in terms of massing the effects of combat power. As summarized by Paul Murdock in *Principles of War on the Network-Centric Battlefield: Mass and Economy of Force* (2002),

The effects massed are primarily those of “fires” (modes of delivering weaponry against an enemy, usually at long range and having an operational-level effect upon the enemy)—lethal and nonlethal, direct or indirect—seeking to disrupt, divert, delay, or destroy enemy forces or information systems...The effects are what is important. The goal of war is to achieve political goals by using organized violence to influence the mind and behavior of the enemy leadership...To mass effects that do not contribute to this end is to practice poor operational art. (p.3)

This effects-based approach will prove to be extremely complicated, if not altogether impossible, to carry out with any degree of success against an adversary who is widely dispersed and intermingled with the civilian population. Even the use of precision-guided munitions (PGMs) will not be sufficient to

adequately mitigate the inherent risk of killing scores of innocent non-combatants involved when engaging the enemy in this fashion. Adherence to this principle as it is currently defined will likely result in collateral damage that only serves to strengthen the enemy's information campaign efforts counter to our cause.

The devaluation of *Mass* as a modern principle of war could have serious doctrinal and organizational implications for our armed forces. Taken to the extreme, it could result in the dissolution of our armored divisions, the retirement of a significant portion of our conventional bomber fleet, downsizing of our ballistic missile submarine stocks, the complete overhaul of our current military organizational structures, etc.. However, we cannot go to such extremes just yet. All out, conventional warfare is and will likely continue to be an infrequent occurrence, but far from an impossibility. Hence, the challenges ahead involve training, equipping, and organizing our forces to become extremely flexible. They will need to be adept at meeting and defeating cunning, new adversaries while simultaneously maintaining the ability to fight and vanquish a traditionally-arrayed opponent. Can we realistically field such an agile and capable force? Yes, we can. The task will be far from easy, but it will be essential.

Surprise

The decreased applicability of this principle for U.S. forces is largely the result of what is currently referred to as the "Information-Based Revolution in Military Affairs (RMA)" (Litton, 2000, p.1). Of significant impact when achieved, but difficult to obtain, *Surprise* is defined as "striking the enemy at a time or place or in a manner for which he is unprepared" (FM 3-0, 2001, p.4-14). With the basic nature of this new RMA being that information receipt, transmittal, and overall utilization is accelerating rapidly, *Surprise* will be more difficult for our forces to achieve given the greatly enhanced battlefield awareness maintained by all sides in a given conflict. Our likely adversaries have already demonstrated their abilities to skillfully utilize information as a form of warfare and as a force multiplier to assist them in eroding the traditional advantages enjoyed by numerically and technologically superior forces. Litton (2001) argues that,

If we are engaging an adversary who has not mastered the information-based RMA, the principle of surprise could be an important aspect of the way we will employ force...by achieving information dominance early on in the conflict, we will be able to “see” and “engage” the enemy’s forces, while denying him that same capability. This ability to “surprise at will” may cause the enemy to withdraw or surrender simply by communicating to him that “we know where you are.” (p.7)

I submit that, despite our technological advantages, the enemy has, thus far, exhibited a better grasp of the emerging RMA than has the United States. If the war in Iraq and the hunt for Al Qaeda are any indication, it would appear that our adversary is better able to “see,” “engage,” and “surprise at will” and is, in fact, denying us the same capabilities. For example, not only are Iraqi insurgents continuously attacking U.S. convoys with remotely-detonated IEDs, but also filming the attacks from concealed positions nearby and then broadcasting the terrifying footage via the internet. One should also note the *Surprise* achieved by terrorists in the attacks on the World Trade Center and the train bombings in Madrid. In each of these instances, it is we—not the enemy—who are being attacked at a time, place, and in a manner for which we are unprepared.

An additional factor that erodes the applicability of *Surprise* to U.S. forces in future conflicts is the ever-growing presence of the media in and around the 21st century battlefield. Networks such as CNN are willing and able to broadcast the horrors of war, via the internet and television, almost as soon as they occur. Friendly force information, to include approximate troop strengths, unit types, and general plans for maneuver and engagement are broadcast world-wide with little or no concern for operational security (OPSEC).

Simplicity

Currently defined in terms of “preparing clear, uncomplicated plans and clear, concise orders to ensure thorough understanding” (FM 3-0, 2001, p.4-15), I feel rather strongly that this principle is unnecessary. To address the necessity of formulating plans, orders, and operations concepts that are clear and easily executable by even the lowest level subordinates, I see no reason whatsoever

why *Simplicity* has not been categorized as an operational tenet rather than as one of the modern principles of war. It may be argued that the growing trend toward coalition warfare, as well as the greater number of operations involving non-governmental and interagency organizations, will increase the need to emphasize *Simplicity*. I agree with the need for greater emphasis, but still do not believe that an enhanced need for simple plans and concepts should elevate *Simplicity* to a status other than that of a key tenet of operations. In direct contrast, “complexity” may be emerging as the real principle of 21st century warfare. I will discuss this notion in greater detail as we move ahead to the next section of this chapter.

It is important to keep in mind that my determinations concerning the decreased applicability of these three principles are based on my own, individual interpretations of what challenges await our forces on the battlefield of tomorrow. I have no doubt that some will view my findings as arguable or even ludicrous, but if I have at least encouraged some to think more intensely about these principles, then I am pleased. Before finalizing your judgment on the matter, let me offer some additional observations to contemplate.

C. ARE THERE “NEW” PRINCIPLES TO CONSIDER?

Rather than simply suggest that some of the modern principles of war may not be applicable in the future and leave it at that, I would like instead to suggest that there may, in fact, be “new” principles to consider as either replacements for or additions to the list of principles currently in use. I am proposing that *Networking*, *Flexibility*, *Complexity*, and *Cultural Understanding*, while at first glance appearing to be somewhat foreign to traditional military thinking, may be concepts worthy of inclusion in the principles of war that guide us on the 21st century battlefield.

Networking & Flexibility

Given the complex, networked structure preferred by our current adversary and likely to be replicated in varying degrees by our future enemies,

these concepts could potentially provide our forces with greatly enhanced capabilities in support of engaging and defeating their opponents. The battlespace of the 21st century has expanded significantly. Many of our adversaries utilize terrorist tactics and operate in such a way as to simultaneously carry out devastating attacks in distinctly different locations throughout the globe. Essentially, the battlespace that could once be defined by geography and/or borders, as well as managed and understood in terms of finite, controllable areas, has reached a level of magnitude that is now synonymous with the globe itself. *Networking* is vital then if we are to maintain and/or improve our ability to manage and control so vast an area. To effectively cover the globe in order to promptly preempt and/or react to multiple terrorist attacks, we must develop strong networks with indigenous populations throughout the world. Doing so will permit us to obtain more timely intelligence about our adversaries, allow for wider dissemination of our intent, and enable us to augment our forces with indigenous forces such that combat power can be injected decisively and expeditiously.

United States military forces are designed to attack rather than defend; be proactive rather than reactive in their combat endeavors. The inclusion of *Networking* and *Flexibility* as modern principles provides significant potential for benefit. Network utilization within our force structures, as well as between our forces and those of other countries, can enhance the flow of intelligence in such a way as to preserve our abilities to remain proactive against our enemies. Through the continuous exchange and sharing of information we will not only maximize our opportunities to seize the initiative against our adversaries, but expand our capabilities as well with regard to staying ahead of our opponents and creating *flexible* options with which to sustain our momentum against them. The wealth of intelligence and information available as a result could allow us to formulate and implement more comprehensive and *flexible* maneuver schemes. Missions could be executed more quickly and decisively while a networked array of logistical nodes supports our maneuvering forces.

Networking could provide key planners and decision-makers with an enhanced visibility of battlespace circumstances and conditions as a result of the increase in timely information and intelligence. Improved continuity between elements of multi-national coalitions, as well as between front-line and rear-echelon units, could greatly diminish uncertainty regarding who is in control and subsequently allow forces to maintain a sharper focus on the overall objective.

The significant improvement in the flow of information and intelligence obtained via *Networking* will be vital to the determination of appropriate measures required to ensure effective force protection. Through the inclusion of indigenous populations in the “network” scheme, significantly higher levels of human intelligence (HUMINT) would be available and could serve to provide a more accurate picture of the enemy threat. For operational security (OPSEC) purposes, *Networking* would allow greater *Flexibility* in terms of leaders being able to maximize or minimize the network scope as necessary in order to control and monitor the flow of key information and intelligence.

Efficiently-linked forces could be maximized or minimized as required to ensure effective employment in terms of time, location, and force strength. By the same virtue, the network supporting said forces could be expanded or shrunk down as necessary to provide optimum efficiency levels. Information and intelligence provided by the network would provide planners with greater accuracy when determining force requirements for areas of interest (AIs) within the battlespace. Related to this benefit, enhanced intelligence about the adversary gained through *Networking* would minimize his deception efforts and prevent our forces from misconstruing enemy strengths and capabilities.

Networking could potentially provide our forces with the ability to identify, plan for, and engage key objectives earlier on in any given conflict. Well-connected networks incorporating military forces and indigenous populations would provide better information about potential objectives and allow for greater *Flexibility* to be incorporated into the plans developed to target and engage them decisively.

Complexity

My recommendation for this concept to be considered as a potential principle of war stems from the assumption that the multitude of potential adversaries in future wars will likely rely on complex, networked structures with which to support their operations. The antithesis of *Simplicity*, which I downgraded previously as being more suitable for categorization as an operational tenet than as a principle of war by way of its current definition, *Complexity* does not refer to the construct of our warfighting plans, orders, and concepts. Instead, I am suggesting that we consider adopting this principle as it pertains to our own force structures. Intimately related to *Networking*, I submit that we will be better postured to oppose and defeat a complex, networked adversary if we, ourselves, have arrayed our forces in a complex, networked manner that causes him to view us as an agile, unpredictable, flexible, and truly formidable opponent. Currently, our forces utilize clearly-defined, easily-discerned, hierarchical structures. What if the obvious suddenly became ambiguous and our adversary lacked visibility of our centers of gravity? Better still is the notion that our resulting complex and widespread organization could make it nearly impossible for an adversary to conduct its activities without us knowing about them in advance and thwarting their every move.

Some examples of the efforts to pursue measures that lean toward an enhanced complexity with regard to our own force structures and doctrine are the concepts of *network-centric warfare* and *swarming*. The former, as described by Cebrowski and Garstka in *Proceedings* (1998) and summarized by Paul Murdock in *Parameters* (2002), is based upon a system of three grids known as the “sensor grid,” the “information grid,” and the “transaction (engagement) grid.” The first of these grids can be envisioned as a wide array of sensor technologies such as optical devices, HUMINT sources, infrared receivers, and a variety of radar dispersed globally and deployed throughout the air, space, land, and maritime domains. These sensor technologies would be both static and dynamic in their application. The concept for the second, information-based, grid involves a vast, largely-static, network of communications devices such as satellites,

computers, data-transmission media, and the like. This network would function, in large part, to transmit data collected by the numerous sensor technologies.

The information grid would transmit sensor information, recommendations and orders, intelligence, and real-time information about operations, logistics, and other functions—information needed by leaders at all levels to plan, monitor, and control operations more effectively, efficiently, and responsively. (Murdock, 2002, p.4)

The third and final “transaction grid,” would compile the data provided through the “sensor” and “information” grids to effectively marry available means of engagement with identified targets and provide precision guidance for these systems to maximize their accuracy and lethality.

Although this concept is not yet a reality, it is a vital step in the right direction. The technological challenges associated with pursuing such an endeavor are daunting, but by no means insurmountable. More challenging still are the sweeping changes to existing military doctrine that will have to be made in the course of transforming the idea of *network-centric warfare* into a functional operational capability (p.4).

Swarming, a concept introduced by Arquilla and Ronfeldt (2000), is closely related to *network-centric warfare* in that it is highly dependent upon networks, places a keen emphasis on information, and will involve major doctrinal changes if it is to be implemented as a true capability of our future warfighters. The authors define this innovative theory as follows:

...a seemingly amorphous, but deliberately structured, coordinated, and strategic way to strike from all directions, by means of a sustainable pulsing of force and/or fire, close-in as well as from stand-off positions—will work best, and perhaps will only work, if it is designed mainly around the deployment of myriad, small, dispersed, networked maneuver units (referred to as “pods” organized in “clusters”). Swarming cannot work if it is based on traditional mass or maneuver formations. These swarm units are not only internetted with each other, but also can coordinate and call upon other assets in the area. To achieve this, swarming

depends upon the operation of a vast, integrated sensory system that can distribute not only specific targeting information but also overall topsight about conditions in and around the battlespace. (Arquilla & Ronfeldt, 2000, p.45)

Regardless of the difficulties involved, persistent efforts to achieve such bold innovations will ensure our forces are prepared and equipped to overcome the challenges of the 21st century battlefield. *Complexity* then may be a key factor in the way our forces wage war in the future. Perhaps the doctrinal changes that occur as a result should accordingly embrace it as a new principle of war.

Cultural Understanding

My regard for culture and its many facets as an important consideration when determining the principles of war for the future stems from the detailed emphasis it receives in the U.S. Marine manual, *Small Wars/21st Century* (2005). The elements that effect how the population of a given nation, region, or territory involved in war thinks and what drives them to action must be clearly understood by our fighting forces if we are to conduct operations throughout the world with any degree of success. The pursuit of a globally-networked adversary, the growing emphasis on multi-national coalitions, and the low-intensity conflicts with which we are likely to find ourselves predominantly engaged all combine to make it essential for us to obtain and maintain a thorough understanding of different cultures if we are to effectively grasp the complex nature of the strategic environment. A concerted effort to understand the attitudes, language, religion, customs, lifestyles, and economies of different populations, as well as other factors that drive said people to think and act differently than those of us accustomed to traditional “Western” thinking, can do much to facilitate the success of military operations. Conversely, the deliberate decision to ignore these factors could significantly impede the efforts of our forces and transform realistic expectations of victory into largely unattainable goals.

In such an environment, an understanding of the culture can mean the difference between success and failure. Seemingly minor or tactical actions can cause major disruptions at the strategic level...we must adapt our plans and strategies to the nature of the

culture and the people we encounter. We cannot dictate that they see events, priorities, and our efforts through our own cultural prism. (pp.38-39)

D. JOMINI'S PRINCIPLES VS. SUN TZU'S ART OF WAR

Credited with having written the oldest-known treatise on the conduct of warfare, *The Art of War* (circa 500 B. C.), Sun Tzu takes a fundamental approach to the art of waging war by analyzing it in terms of a small group of key factors whose impacts on the attainment of victory in a given conflict are then estimated with regard to another set of significant elements or considerations. Sun Tzu asserts that the factors of *Moral Law*, *Heaven*, *Earth*, *The Commander*, and *Method and Discipline*, when properly considered in terms of the advantages and disadvantages they provide to oneself and one's adversaries, can be used to effectively determine the potential for both victory and defeat in battle. These factors, when thought of in terms of our own, Western, way of thinking, can be viewed as *Moral Influence*, *Weather*, *Terrain*, *Command*, and *Doctrine* (Alger, 1982, p.5). Sun Tzu explains each of these factors in greater detail and emphasizes the significance of properly considering (and failing to consider) them as follows:

The *Moral Law* causes the people to be in complete accord with their ruler, so that they will follow him regardless of their lives, undismayed by any danger. *Heaven* signifies night and day, cold and heat, times and seasons. *Earth* comprises distances, great and small; danger and security; open ground and narrow passes; the chances of life and death. *The Commander* stands for the virtues of wisdom, sincerity, benevolence, courage and strictness. By *Method and Discipline* are to be understood the marshaling of the army in its proper subdivisions, the gradations of rank among the officers, the maintenance of roads by which supplies may reach the army, and the control of military expenditure. These five heads should be familiar to every general; he who knows them will be victorious; he who knows them not will fail. Therefore, in your deliberations, when seeking to determine the military conditions, let them be made the basis of a comparison...The general that harkens to my counsel and acts upon it, will conquer—let such a one be retained in command! The general that harkens not my counsel nor acts upon it, will suffer defeat—let such a one be

dismissed! While heeding the profit of my counsel, avail yourself also of any helpful circumstances over and beyond the ordinary rules. According as circumstances are favorable, one should modify one's plans. (Sun Tzu, 500 B.C. in Phillips, 1985, pp.21-23)

While so vehemently emphasizing the necessity to consider and properly address these factors, Sun Tzu also maintained a firm belief in the notion that every conflict would be unique, in and of itself, and as such, that the conduct of one's forces therein could not be governed by fixed rules or principles. "In the art of war, there are no fixed rules. These can only be worked out according to circumstances" (Alger, 1982, p.5). Perhaps it is for this very reason that the armed forces of the Western world, with their affinity for rules-based methods and procedures, have never been significantly influenced by Sun Tzu's teachings, despite the value of their understanding. Instead, our forces, along with many of our allies, have long-embraced Jominian concepts of certain, fundamental principles, such as *Mass*, to govern the conduct of operations throughout numerous different conflicts without regard for their varied nature. As discussed earlier, rigid adherence to these principles has not always resulted in victory for our military. Continued reliance on this "cookie cutter-like" approach to waging war may be of even greater detriment in the years to come.

I submit that, in light of the growing complexity of the 21st century battlefield and the trend towards war being waged through predominantly unconventional means, Sun Tzu's variety of military thinking may be more suitable than Jomini's when preparing our forces to combat and effectively defeat both current and future enemies. Consider the following areas of emphasis covered in SunTzu's *Art of War*:

Energy—Concerned mainly with the effective use of both direct and indirect methods of attack and maneuver, Sun Tzu also points out the significant advantages to be gained by maximizing the flexibility of one's forces. This flexibility, stemming more from the indirect than the direct and shown to be a vital

aspect of our forces if they are to be successful in future endeavors, is beautifully described by Sun Tzu in terms of nature, colors, and music. He writes,

In all fighting, the direct method may be used for joining battle, but indirect methods will be needed in order to secure victory. Indirect tactics, efficiently applied, are inexhaustible as Heaven and Earth, unending as the flow of rivers and streams; like the sun and moon, they end but to begin anew; like the four seasons, they pass but to return once more. There are not more than five musical notes, yet the combinations of these five give rise to more melodies than can ever be heard. There are not more than five primary colors, yet in combination they produce more hues than can ever be seen...In battle, there are not more than two methods of attack—the direct and indirect; yet these two in combination give rise to an endless series of maneuvers. The direct and indirect lead on to each other in turn. It is like moving in a circle—you never come to an end. Who can exhaust the possibilities of their combinations? (Sun Tzu, 500 B.C. in Phillips, 1985, p.31)

Maneuver and *Offensive*, principles which I have said will continue to be applicable to future wars, as well as *Flexibility*, which I offered for consideration as a “new” principle of war, appear to be inexorably intertwined in the teachings of Sun Tzu—much as they are likely to be on the 21st century battlefield. Additionally, Sun Tzu uses the subject of *Energy* to address the chaos inherent to warfare and how to use it to one’s advantage. In this respect, he continues Clausewitz’s worries about “friction” and the “fog of war.” His emphasis on this element of combat coincides nicely with my assertion that *Complexity* will be vital with regard to the manner in which we structure and disperse our forces against future adversaries.

Amid the turmoil and tumult of battle, there may be seeming disorder and yet no real disorder at all; amid confusion and chaos, your array may be without head or tail, yet it will be proof against defeat. Simulated disorder postulates perfect discipline; simulated fear postulates courage; simulated weakness postulates strength. Hiding order beneath the cloak of disorder is simply a question of subdivision; concealing courage under a show of timidity presupposes a fund of latent energy; masking strength with weakness is to be effected by tactical dispositions. Thus one who is skillful at keeping the enemy on the move maintains deceitful appearances, according to which the enemy will act. (Sun Tzu, 500 B.C. in Phillips, 1985, p.32)

Weak points and strong—Sun Tzu addresses this subject in terms of imparting one's will on the enemy. As it pertains to our own forces in future wars, Sun Tzu's emphasis on secrecy and the ability to simultaneously attack the enemy at multiple points blends nicely with the aforementioned concept of *Networking* as a potential principle of war. Complex in nature, difficult to discern, and providing our forces and their allies with the ability to maintain global coverage, our intricately-networked, but unified effort could strike the enemy at the point or points where he is least prepared.

By discovering the enemy's dispositions and remaining invisible ourselves, we can keep our forces concentrated while the enemy must be divided. We can form a single united body, while the enemy must split up into fractions. Hence there will be a whole pitted against separate parts of a whole, which means that we shall be many to the enemy's few...The spot where we intend to fight must not be made known; for then the enemy will have to prepare against a possible attack at several different points; and his forces being thus distributed in many directions, the numbers we shall have to face at any given point will be proportionately few. (Sun Tzu, 500 B.C. in Phillips, 1985, pp.34-35)

Maneuvering—Sun Tzu regards tactical maneuver as the most difficult aspect of warfare because it involves, "...turning the devious into the direct, and misfortune into gain" (Phillips, 1985, p.37). His concerns with regard to this subject are many, but well-founded. With the continued applicability of *Maneuver* to our own forces, combined with innovative concepts such as "swarming" and my own assertion that *Cultural Understanding* is of growing importance, I submit that Sun Tzu's teachings in this area are a good fit for our future military.

We cannot enter into alliances until we are acquainted with the designs of our neighbors. We are not fit to lead an army on the march unless we are familiar with the face of the country—its mountains and forests, its pitfalls. We shall be unable to turn natural advantages to account unless we make use of local guides. In war, practice dissimulation, and you will succeed. Move only if there is a real advantage to be gained. Whether to concentrate or to divide your troops must be decided by circumstances. Let your rapidity be that of the wind, your compactness that of the forest...Let your plans be dark and impenetrable as night and when

you move, fall like a thunderbolt. (Sun Tzu, 500 B.C. in Phillips, 1985, pp.38-39)

The use of spies—The vital nature of intelligence with regard to future warfare makes Sun Tzu's emphasis on this subject particularly important. Of course, when writing *The Art of War*, his teachings focused mainly on the traditional notion of human spies because HUMINT was the only available mode of intelligence gathering at the time. At present, the concept of spying is multifaceted and the methods available for gathering intelligence are numerous. In the future, capabilities will likely prove to be greater still. Nevertheless, if our forces are to pursue advanced concepts, such as *network-centric warfare*, and make the sweeping doctrinal changes required to implement them effectively, Sun Tzu may be a truly worthy guide.

...what enables the wise sovereign and the good general to strike and conquer, and achieve things beyond the reach of ordinary men, is *foreknowledge*. Now this foreknowledge cannot be elicited from spirits; it cannot be obtained inductively from experience, nor by any deductive calculation. Knowledge of the enemy's dispositions can only be obtained from other men...it is only the enlightened ruler and the wise general who will use the highest intelligence of the army for purposes of spying, and thereby they achieve great results. Spies are a most important element in war, because on them depends an army's ability to move. (Sun Tzu, 500 B.C. in Phillips, 1985, pp.60-63)

Though these are just a few of the teachings contained in Sun Tzu's *The Art of War*, further scrutiny of this particular school of military thought will likely result in the discovery of additional information in support of applying this paradigm to our own military thinking in the future. The overarching concept that war is unique in its every occurrence is what appears to differentiate it most distinctly from traditionally accepted Jominian concepts.

All men can see the tactics whereby I conquer, but what none can see is the strategy out of which victory is evolved. Do not repeat the tactics which have gained you one victory, but let your methods be regulated by the infinite variety of circumstances...Water shapes its course according to the ground over which it flows; the soldier works out his victory in relation to the foe whom he is facing. Therefore, just as water retains no constant shape, so in warfare

there are no constant conditions. He who can modify his tactics in relation to his opponent and thereby succeed in winning, may be called a heaven-born captain. (Sun Tzu, 500 B.C. in Phillips, 1985, pp.36-37)

Our ability to contend with the emerging threats of the 21st century will depend on the willingness of our armed forces to become extremely adaptive and more agile than ever before. Accordingly, it may be time to expand the horizons of our military thinking and look to Sun Tzu for some of the answers.

THIS PAGE INTENTIONALLY LEFT BLANK

V. CONCLUSION

Yes, we have slain the dragon. But now we live in a jungle filled with a bewildering variety of poisonous snakes. And in many ways, the dragon was easier to keep track of.

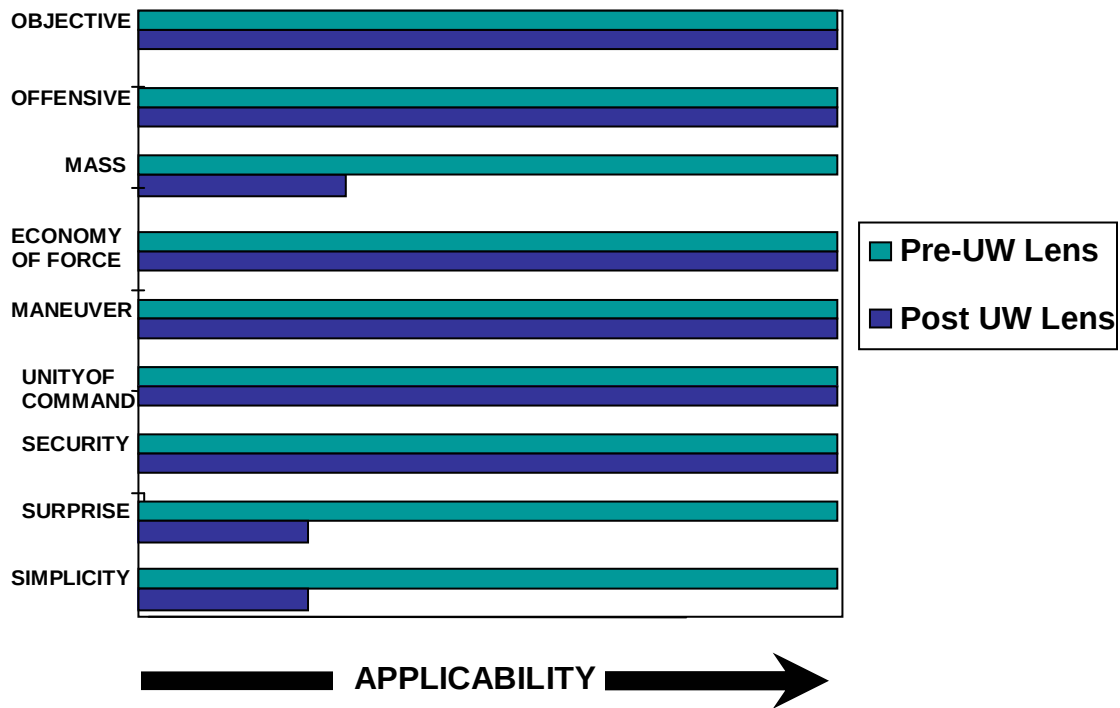
James Woolsey, former director of the CIA after the end of the Cold War

A. SUMMARY

The modern principles of war, integral to U.S. military thinking for nearly two centuries, have to some degree grown less applicable to the emerging threats and increasing complexity of the 21st century battlefield. Low intensity conflict and the pursuit of warfare via unconventional means, though persistent elements in the conduct of war since the very beginnings of human conflict, have seemingly moved to the forefront of the long list of considerations and concerns faced by military leaders and planners in both current and future wars. Unconventional warfare (UW) has expanded significantly in its scope such that the complexities of war that must be overcome by our forces in both conventional and unconventional conflicts are daunting. I submit that the distinction between these types of war has, at best, become extremely blurred.

As a result of what appears to be a growing necessity for both conventional and unconventional forces to consider UW, its ramifications, and the overall role it plays in the complex nature of future warfare, I have examined the modern principles of war through what I have termed the UW “Lens.” The results of my analysis may be depicted as shown in Figure 5-1. Based on my analysis, I have determined that the majority of the modern principles of war are still applicable to the 21st century battlefield. However, I found the principles of *Mass*, *Surprise*, and *Simplicity* to be significantly diminished with regard to their continued application to the complex circumstances and conditions likely to be encountered during the conduct of future wars.

Figure 5-1: Principles of War Through the UW “Lens” – Before & After



It is important to keep in mind that the above figure is designed merely to assist in summarizing my conclusions about the decreased applicability of some principles of war for the U.S. military. As a simple visual aid, it does not take into account the myriad circumstances and/or conditions that make each conflict and adversary situationally-unique. By no means should it be viewed as a straightforward assessment of the modern principles that assumes away the numerous complexities of warfare. For example, one might look at *Offense* and ask whether it still maintains its applicability if both sides are equally well-armed and well-informed. Given such circumstances, might not defense be more advantageous than attack? Deriving the answer would be a thesis in and of itself.

Following my determination that these three principles have questionable utility for our future armed forces, I thought it prudent to explore the possibility that several “new” principles may be considered as a means by which to amend or supplement the existing modern principles of war. *Networking, Flexibility,*

Complexity, and *Cultural Understanding* are concepts that, if taken seriously and properly implemented, could revolutionize our armed forces and greatly enhance their capabilities with regard to waging war and achieving victory against the numerous and varied adversaries likely to be encountered in future conflicts.

Finally, Jominian military thought and the concepts therein, which have essentially been the foundation for U.S. military doctrine and strategy for nearly two centuries, may need to be combined with other paradigms as we seek to embrace and implement major innovations designed to enhance our warfighting capabilities. Although there may be others, Sun Tzu in particular appears to provide teachings that could serve us well as we look to concepts such as “swarming” and “network-centric warfare” to provide our forces with the agile, flexible, and increasingly capable postures that will be vital to their success.

B. RECOMMENDATIONS FOR FURTHER RESEARCH

Changing even just a few of the modern principles of war will not be an easy task that can be accomplished in short-order. Even the simple notion of calling these often-termed “immutable” principles into question has stirred considerable concern among many. Change is invariably difficult, but likely to be inevitable lest we choose instead to ignore the need for it and develop a keen fondness for the agony of defeat. Many of the innovations currently being explored will require sweeping changes to our force doctrines to accompany their realization if they are to be successful. Accordingly, changes to the very principles that have long served as a guide to our armed forces should, by my estimate, be carefully scrutinized and adjusted as necessary. I fear that the contrary will occur and we will limit ourselves by falling into the trap of trying to make the “new” adapt to and fit into the “old.”

I recommend that new and innovative concepts be studied and analyzed to determine the principles and tenets that best define and govern each of them in their individual applications. Then, such study and analysis must continue to remain outside the harness of traditional thinking to effectively capture and embrace the school (or schools) of military thought that are most suitable for use.

Jomini, Clausewitz, Sun Tzu, and others have all made considerable contributions to the study of warfare. Wouldn't we be best served by broadening our horizons and utilizing the sum total of their wisdom? My own analysis, recommendations for "new" principles, and examination of an alternative school of thought, although limited in scope, will hopefully serve as a stepping stone for others whose efforts in a similar direction may effectively redefine the principles of war for the 21st century and beyond.

APPENDIX – CHRONOLOGY OF U.S. PRINCIPLES OF WAR

(From: *The Essence of Victory: A Chronological Compendium*, an appendix contained in *The Quest for Victory* by John I. Alger (1982))

Dennis Hart Mahan, “Principles Regulating the Plan and Profile of Intrenchments,” 1836

- I. A flanked position should be the basis of the plan of all intrenchments.
- II. Every angle of defence should be 90⁰.
- III. A line of defence should not exceed 160 yards.
- IV. A salient angle should not be less than 60⁰.
- V. A strong profile is essential to a vigorous defence.
- VI. The bayonet should be chiefly relied on to repel the enemy.
- VII. Intrenchments should be arranged to facilitate sorties.
- VIII. Intrenchments should contain a reserve proportioned to their importance.
- IX. Intrenchments should be defended to the last extremity.

Matthew F. Steele, “A Few of Jackson’s Maxims,” 1909

1. Always mystify, mislead, and surprise the enemy if possible.
2. When you strike him and overcome him never give up the pursuit as long as your men have strength to follow; for an enemy routed, if hotly pursued, becomes panic-stricken, and can be destroyed by half their number.
3. Never fight against heavy odds if by any possible maneuvering you can hurl your whole force on only a part, and that the weakest part, of your enemy, and crush it.
4. To move swiftly, strike vigorously, and secure all the fruits of victory is the secret of successful war.

5. A defensive campaign can only be made successful by taking the offensive at the proper time. Napoleon never waited for his adversary to become fully prepared, but struck him the first blow.

6. I had rather lose one man in marching than five in battle.

United States Army, "Summary of Combat Imperatives," 1911

1. Avoid combats that offer no chance of victory or other valuable results.
2. Make every effort for the success of the general plan and avoid spectacular plays that have no bearing on the general results.
3. Have a definite plan and carry it out vigorously. Do not vacillate.
4. Do not attempt complicated maneuvers.
5. Keep the command in hand; avoid undue extension and dispersion.
6. Study the ground and direct the advance in such a way as to take advantage of all available cover and thereby diminish losses.
7. Never deploy until the purpose and the proper direction are known.
8. Deploy enough men for the immediate task in hand; hold out the rest and avoid undue haste in committing them to action.
9. Flanks must be protected either by reserves, fortifications, or the terrain.
10. In a decisive action, gain and keep fire superiority.
11. Keep up reconnaissance.
12. Use the reserve, but not until needed or a very favorable opportunity for its use presents itself. Keep some reserve as long as practicable.
13. Do not hesitate to sacrifice the command if the result is worth the cost.
14. Spare the command all unnecessary hardship and exertion.

United States Army, "Combat Principles," 1914

The following principles apply to both offensive and defensive combat:

Fire superiority insures success.

Unity of command is essential to success. The regiment united in combat has greater force and fighting power than have its three separate battalions. A battalion acting as a unit is stronger than are four companies acting independently. All the troops assigned to the execution of a distinct tactical task must be placed under one command.

The task assigned any unit must not involve a complicated maneuver. Simple and direct plans and methods are productive of the best results in warfare.

All the troops that are necessary to execute a definite task must be assigned to it from the beginning. Avoid putting troops into action in driblets.

Detachments during combat are justifiable only when the execution of the tasks assigned them contributes directly to the success in the main battle or when they keep a force of the enemy larger than themselves out of the main battle. When combat is imminent all troops must be called to the probable field of battle. A force is never so strong that it can needlessly dispense with the support of any of its parts during combat.

Too many troops must not, however, be committed to the action in the early stages, no matter what be the nature of the deployment or the extent of line held. Some reserves must be kept in hand.

Use the reserve only when needed or when a favorable opportunity for its use presents itself. Keep some reserve as long as practicable, but every man that can be used to advantage must participate in the decisive stage of combat.

Flanks must be protected either by reserves, fortifications, or the terrain.

Flank protection is the duty of the commanders of all flank units down to the lowest, whether specifically enjoined in orders or not. This applies to units on both sides of gaps that may exist in the combat lines.

Reconnaissance continues throughout the action.

United States Army, "Employment of Cavalry, General Principles," 1914

1. Mounted action is the principal method of fighting of cavalry. Animated by an aggressive spirit, it will seize every opportunity to attack with the horse and saber. Success is achieved by simplicity in conception and vigor in the execution of plans.

2. The rifle enables Cavalry on foot to engage in effective combat, offensive or defensive, against forces of all arms.

3. In combining shock with fire action, the latter may be provided by the Horse Artillery, machine guns, or rifles, or by any combination of these arms.

4. On account of the variety of its weapons and methods of action, Cavalry is capable of independent operations under practically all the conditions of war.

5. The large size of modern armies and the great extension of their fronts have rendered it more difficult than ever to change disposition once made and have augmented the importance of celerity and endurance in marching.

6. Cavalry reconnoiters the theater of operations and the enemy's dispositions; it protects the army against surprise and screens its movements.

7. *Habitual reliance on dismounted action will weaken and eventually destroy initiative*; difficulties of terrain are likely to be overestimated. Cavalry imbued with the true spirit of the arm does not remain inactive, waiting for a more favorable opportunity for a mounted charge.

8. When small bodies of Cavalry unaccompanied by horse artillery or machine guns meet similar bodies of the enemy's Cavalry, their best course of action will usually be to make an energetic mounted attack at once, should the ground be in any way suitable, without delaying or weakening the mounted attack by dismounting a part of the command.

9. When opposing forces of Cavalry find themselves in contact, a decision as to the action to be adopted must be made and acted upon at once or disaster will result.

10. During the operations preceding a general engagement, the first and most important antagonist is the enemy's Cavalry.

11. In a battle of all arms even relatively small forces of Cavalry may achieve important results by seizing an opportune moment.

12. The character of the enemy and the nature of the terrain exercise a controlling influence on the operations of Cavalry.

13. Cavalry should be bold and enterprising.

14. Cavalry must not only be strongly impressed with the power of its rifles, but must be ready to assault on foot and to capture positions held by the enemy with the same determination and resolution of Infantry.

15. The most effective directions of attack are against the enemy's flank and rear. Enterprises against his communications may secure valuable results, but they should be so timed that the Cavalry will not be beyond reach for the use in a general engagement. *On the battlefield all bodies of troops must seek to contribute to the achievement of victory.*

16. The mobility of Cavalry comes into full play in the pursuit, to reap the fruits of victory; and in a retreat, in the quick utilization of successive defensive positions, and in the rapid withdrawal therefrom after breaking off the engagement at the last moment.

United States Army, "The Fundamentals of Offensive Combat for Small Units," 1918

Formation in depth of all offensive means.

The closest possible contact of assaulting units with the creeping barrage; this principle also applies to the contact with tanks.

Concentration of individual effort within the group; mutual co-operation of neighboring units, aided by supports properly disposed, which make it possible to break local resistance and to repel counterattacks.

The combination of fire and movement; that is advance by rushes of a fraction covered by the fire of the remainder; engaging the enemy by fire in front while groups work around his flanks; direct advance by a portion under cover of artillery, machine guns or other troops.

Continued maintenance of liaison in every form, and especially with artillery.

Rapidity, *order* and continuity in infantry action.

Careful organization and accurate execution of the "cleaning up."

The fearful effect of artillery, the action of tanks, and the German methods of combat restore to the infantry, *once within the hostile positions*, the necessary conditions for open warfare.

Therefore, the flexibility and mobility of infantry must be developed to the highest degree.

United States Army, "Offensive Combat; General Principles," 1919

1. The infantry must take the offensive to gain decisive results. Both sides are therefore likely to attempt it, though not necessarily at the same time or in the same part of a long battle line.
2. An infantry that knows how to attack will know how to defend, because it is easier to defend than to attack. The basis of training will be the attack.
3. The infantry attack has as its basis the fighting spirit and aggressiveness of officers and noncommissioned officers with fearless, intelligent leading on their part, and the individual initiative of the private soldier himself.
4. the primary duties of infantry commanders in combat are to maintain direction on their objectives, establish and maintain contact with the units on their flanks, and keep the higher command informed as to the situation.
5. There is no situation which can justify a commander for remaining in ignorance of the situation on his front.
6. Infantry has two general methods of action: fire and movement.
7. The movement of units in the advance to the attack should be made by bounds, i.e., successive positions along the axis of movement are selected as intermediate objectives and reconnoitered prior to occupation.
8. Surprise is an essential element of a successful attack.
9. The effect of surprise must be reinforced and exploited by fire superiority.
10. The success of any operation undertaken by a unit depends in a large measure of the degree to which subordinate units lend each other mutual support. The principle of mutual support is of especial application to units in support and reserve which have not been committed to action.
11. The critical points of a hostile defensive system are in general those points which afford extensive observation, either over the defensive zone and its rear or the ground over which the attack must advance; and those points which control

the communications of the defensive zone (road centers, villages). Such points are the especially important objectives of the attack.

12. When officers and men belonging to fighting troops leave their proper places to carry back, or care for, wounded during the progress of the action, they are guilty of skulking. This offense must be repressed with the utmost vigor.

United States Army, "The Principles of War," 1921

The following are fundamental principles of war:

- a. The Principle of the Objective.
- b. The Principle of the Offensive.
- c. The Principle of Mass.
- d. The Principle of Economy of Force.
- e. The Principle of Movement.
- f. The Principle of Surprise.
- g. The Principle of Security.
- h. The Principle of Simplicity.
- i. The Principle of Cooperation.

United States Army, "Combat, General Principles," 1923

378. The ultimate objective of all military operations is the destruction of the enemy's armed forces by battle. Decisive defeat in battle breaks the enemy's will to war and forces him to sue for peace.

379. Concentration of superior forces, both on the ground and in the air, at the decisive place and time, creates the conditions most essential to decisive victory and constitutes the best evidence of superior leadership.

380. Decisive results are obtained only by the offensive. Only through offensive action can a commander exercise his initiative and impose his will on the enemy.

A defensive attitude is never deliberately adopted except as a temporary expedient or for the purpose of economizing forces on a front where a decision is not sought in order to concentrate superior forces at the point of decisive action.

381. Numerical inferiority does not necessarily commit a command to a defensive attitude. Superior hostile strength may be overcome through greater mobility, higher morale, and better leadership. Superior leadership often enables a numerically inferior force to be stronger at the point of decisive action.

A strategically defensive mission is frequently most effectively executed through offensive action. It is often necessary for an inferior force to strike at an early moment in order to secure initial advantages or to prevent itself from being overwhelmed by a growing superiority in the hostile forces.

382. All combat action must be based upon the effect of surprise. Surprise takes the enemy in a state of moral and material unpreparedness, prevents him from taking effective countermeasures, and often compensates for numerical inferiority of force. Surprise is sought not only in the initial stage of action and by larger units but also throughout the action and by units of every echelon of command. The principle of surprise applies to fire as well as to movement.

The effect of surprise is dependent upon rapidity of maneuver, the efficiency of counterinformation measures, and the effectiveness of the means employed to deceive the enemy as to our own dispositions and intentions.

By feint and demonstration, the attacker attempts to mislead the enemy as to the time and place at which the principal effort is to be made. Attacks designed merely to hold the enemy along a certain portion of the front are so made that they can not be distinguished from the principal effort and that the enemy is compelled to commit the largest possible proportion of his forces to meet them. Provision is made for exploiting success wherever attained.

The defense seeks to attain the effect of surprise through concealment of the location of its principal defensive works and its reserves so that the enemy will encounter resistance where he does not expect it, fall under the surprise fire of unlocated defensive elements, and expose himself to the action of the counterattack. Provision for counteroffensive action is the most effective defensive measure against surprise.

The effect of surprise is furthered by variation in the means and methods employed in attack and defense. Fixed methods of procedure enable the enemy to estimate the character and object of an operation.

383. The necessity for guarding against surprise requires adequate provision for the security and readiness for action of all units.

Each unit takes the necessary measures for its own local security as soon as the next higher unit has developed for action.

Provision for the security of flanks is of especial importance in combat.

384. The effect of surprise must be reinforced and exploited by fire superiority.

The attack can dispense with fire protection only when covered by darkness, fog, or smoke.

The defense can not ordinarily gain fire superiority through superiority in the means which it puts into action. It must rely for fire superiority on better observation for the conduct of fire, on the more methodical organization of its fire, especially its flankings, more accurate knowledge of ranges and the terrain, the concealment of its dispositions, and the disorganization, which movement and accessory defenses produce in the attacker's dispositions.

385. The necessity for concentrating the greatest possible force at the point of decisive action requires strict economy in the strength of forces assigned to secondary missions. Detachments during combat are justifiable only when the

execution of tasks assigned them contributes directly to success in the main battle.

386. The task assigned to any unit must not involve a complicated maneuver. Simple and direct plans and methods are alone practicable in war.

United States Army, "The Principles of War," 1927

1. The Principle of the Objective.
2. The Principle of the Offensive.
3. The Principle of Mass.
4. The Principle of Economy of Force.
5. The Principle of Fire and Movement.
6. The Principle of Surprise.
7. The Principle of Simplicity.
8. The Principle of Security.
9. The Principle of Cooperation

United States Army, "Principles of Offensive Combat," 1931

1. Reconnaissance.—Reconnaissance, by means of which a commander gains information of the terrain and of the enemy confronting his command, will begin prior to, and continue throughout, an attack. Every commander, no matter what his unit, makes personal reconnaissances. Reconnaissance patrols are employed in almost all situations, and each is given a mission.
2. Security.—Security is closely related to reconnaissance, since measures adopted to obtain information afford considerable protections. However, each commander is directly responsible, regardless of provisions made by higher commanders, that his own unit is made secure.
3. The Offensive.—Infantry troops must be aggressive, and must usually take the offensive in order to obtain decisive results.
4. Surprise.—The principle of surprise requires that every effort be made to catch the enemy unaware, both in launching an attack and in carrying it through to a successful completion.
5. Fire and Movement.—In offensive combat, to reach the enemy and overcome him in close combat is the object of infantry. To reach him, it uses a combination of fire and movement.
6. Mutual Support.—Mutual support, like other forms of cooperation between units, increases the chances of success. The application of this principle

requires that an infantry unit, regardless of its size, assist others adjacent to it in getting forward.

7. Holding Advantages Gained.—If an attack is a success, commanders of all infantry units must clinch the advantages gained by the enemy's discomfiture. One of the most important and valuable means to accomplish this is the reserve.
8. Simplicity.—Simple plans are likely to succeed; and, conversely, complicated schemes are liable to fail.
9. Units of Command.—It is a well-established principle that there shall be only one commander for each unit, and one commander in each zone of action, who shall be responsible for everything within his unit or within his zone of action.
10. Reserves.—That adequate reserves should be withheld during the initial stage of the attack, in order to provide a means of influencing the latter course of the action, is an important doctrine.

United States Army Command and General Staff School, "The Principles of Strategy," 1936

1. The importance of offensive action.
2. The importance of concentration of combat power.
3. The importance of economy of force.
4. The importance of mobility.
5. The importance of surprise.
6. The importance of security.
7. The importance of cooperation.

United States Army Command and General Staff School, "Principles of War," 1939

1. Principle of Security.—We must assure *national security* or we shall cease to exist as a nation. National security is obtained through the avoidance of war and preparedness to meet war. The security of a military force in the field lies in a correct estimate of all enemy capabilities with the provisions made to meet them; in maintaining freedom of movement, as well as in guarding against surprise.
2. Principle of the Offensive.—Decisive results are obtained only by the *offensive*...
3. Principle of Superiority.—This principle is applicable to both offensive and defensive warfare. *Superiority* is vitally necessary to success when the national

attitude is offensive. This statement applies both to the nation and to the armies in the field...

4. Principle of the Unity of Effort.—*Unity of effort* is necessary to apply effectively the full power of the available forces. Complete unity of the nation in war implies a single control for each effort and a uniting of all efforts under one head. In the armed forces it is attained through unity of command. Where this is impracticable, dependence must be placed on *co-operation*.

5. Principle of the Common Objective.—There must be a common *objective* for all efforts. This objective is defined by the political objective of the war which must be clearly understood. For the nation, the common objective is usually secured through destroying the enemy's will to continue the war. For an armed force the military objective is the destruction of the hostile armed force. This may be secured either by direct action or an indirect approach, such as the occupation of an area vital to the continued existence of the hostile armed force. In conducting military operations, definite points, lines, or areas must be designated to the coordination of effort.

6. Principle of Simplicity.—There must be *simple conceptions* and the use of simple methods in war. In the excitement and confusion of war, complicated actions greatly increase the chance of error. The strength of a plan of operations is no greater than that of one of its subordinate parts, and if any part gives way because of an error or misunderstanding the whole plan may fall.

United States Army, "Principles of War," 1949

97. The Objective
98. Simplicity
99. Unity of Command
100. The Offensive
101. Maneuver
102. Mass
103. Economy of Forces
104. Surprise
105. Security

United States Air Force, "Basic Principles of War," 1949

1. The will to win (rapidly). (Applicable only to the offensive side.)
2. Singleness of purpose.
3. Coordination of ends and means.
4. The principle of indirect approach.
5. Surprise—Alternate objectives.

6. Intelligence.
7. Air supremacy.

Vice Admiral Richard L. Conolly, "The Principles of War," 1953

The Objective (as the master principle)

Simplicity

Control (in place of cooperation or unity of command)

The Offensive

Exploitation

Mobility (in place of Maneuver or Movement)

Concentration (in place of Mass or Superiority)

Economy of Force

Surprise

Security

Readiness (to include both readiness of personnel and readiness of materiel)

United States Army, "Principles of War," 1954

69. General

The principles of war are fundamental truths governing the prosecution of war. Their proper application is essential to the exercise of command and to successful conduct of military operations. The degree of application of any specific principle will vary with the situation and the application thereto of sound judgment and tactical sense.

70. Objective

Every military operation must be directed toward a decisive, obtainable objective.

71. Offensive

Only offensive action achieves decisive results.

72. Simplicity

Simplicity must be the keynote of military operations. Simplicity must be applied to organization, methods, and means in order to produce orderliness on the battlefield.

73. Unity of Command

The decisive application of full combat power requires unity of command.

74. Mass

Maximum available combat power must be applied at the point of decision.

75. Economy of Force

Minimum essential means must be employed at points other than that of decision.

76. Maneuver

Maneuver must be used to alter the relative combat power of military forces.

77. Surprise

Surprise may decisively shift the balance of combat power in favor of the commander who achieves it.

78. Security

Security is essential to the application of the other principles of war.

United States Army, "Principles of War," 1962

110. General

The principles of war are fundamental truths governing the prosecution of war. Their proper application is essential to the exercise of command and to successful conduct of military operations. These principles are interrelated and, dependent on the circumstances, may tend to reinforce one another or to be in conflict. Consequently, the degree of application of any specific principle will vary with the situation.

111. Principle of the Objective

112. Principle of the Offensive

113. Principle of Mass

114. Principle of Economy of Force

115. Principle of Maneuver

116. Principle of Unity of Command

117. Principle of Security

118. Principle of Surprise

119. Principle of Simplicity

United States Army, "Principles of War," 1968

5-2. General

The principles of war are fundamental truths governing the prosecution of war. Their proper application is essential to the exercise of command and to the successful conduct of military operations. These principles are interrelated and, depending on the circumstances, may tend to reinforce one another, or to be in conflict. Consequently, the degree of application of any specific principle will vary with the situation.

- 5-3. Principle of the Objective
- 5-4. Principle of the Offensive
- 5-5. Principle of Mass
- 5-6. Principle of Economy of Force
- 5-7. Principle of Maneuver
- 5-8. Principle of Unity of Command
- 5-9. Principle of Security
- 5-10. Principle of Surprise
- 5-11. Principle of Simplicity

United States Army, "The Principles of War," 1978

Objective
Offensive
Mass
Economy of Force
Maneuver
Unity of Command
Security
Surprise
Simplicity

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

- Adams, T. K. (1998). *US special operations forces in action: the challenge of unconventional warfare*. Portland, OR: FRANK CASS PUBLISHERS.
- Alger, J. I. (1982). *The quest for victory: the history of the principles of war*. Westport, CT: Greenwood Press.
- Army Field Manual (FM) 3-0. (2001, June 14). *Operations*. Washington, D.C.: Headquarters, Department of the Army.
- Arquilla, J. & Ronfeldt, D. (Eds.) (1997). *In Athena's camp*. Santa Monica, CA: RAND.
- Arquilla, J. & Ronfeldt, D. (2000). *Swarming & the future of conflict*. Santa Monica, CA: RAND.
- Arquilla, J. & Ronfeldt, D. (Eds.) (2001). *Networks and netwars*. Santa Monica, CA: RAND.
- Beckett, I. F. (2001). *Modern insurgencies and counter-insurgencies: guerrillas and opponents since 1750*. London, U.K.: Routledge.
- Brodie, B. (1973). *War & politics*. New York: Macmillan Publishing Co., Inc.
- Cambrensis, G. (1908). *The itinerary through Wales and the description of Wales*. London, U.K.: J. M. Dent.
- Chaliand, G. (1994). *The art of war in world history: from antiquity to the nuclear age*. Berkley and Los Angeles, CA: University of California Press.
- Gann, L. H. (1971). *Guerrillas in history*. Stanford, CA: Hoover Institution Press.

- Gat, A. (1992). *The development of military thought: the nineteenth century*.
New York, NY: Oxford University Press.
- Glenn, R. W. (1998, Spring). No more principles of war? *PARAMETERS*.
- Handel, M. I. (1992). *Masters of war: Sun Tzu, Clausewitz, and Jomini*.
Portland, OR: Frank Cass.
- Hittle, J. D. (Ed.) (1958). *Jomini and his summary of the art of war*. Harrisburg,
PA: Military Service Publishing Co.
- Howard, M. & Paret, P. (Eds.) (1976). *On war*. Princeton, NJ: Princeton
University Press.
- Joint Publication (JP) 3-0. (2001, September 10). *Doctrine for joint operations*.
Washington, D.C.: Joint Chiefs of Staff.
- Jomini, A. H. de, Baron (1992). *The art of war*. Mechanicsburg, PA: Stackpole
Books.
- Krepinevich, A. F. (1986). *The army and Vietnam*. Baltimore, MD: The Johns
Hopkins University Press.
- Lesser, I. O. (Ed.) (1999). *Countering the new terrorism*. Washington, D.C.:
RAND Corporation.
- Libicki, M. (1995, August). What is information warfare? *Advanced Concepts
and Information Strategy Paper 3*. Washington, D.C.: National Defense
University.
- Litton, L. G. (2000). The information-based RMA and the principles of war. *Air
& Space Power Chronicles*. Retrieved April 12, 2005 from
<http://www.airpower.au.af.mil/airchronicles/cc/Litton.html>.

- Morgan, J. G. (2003, October). Rethinking the principles of war. *Proceedings*.
- Murdock, P. (2002, Spring). Principles of war on the network-centric battlefield: mass and economy of force. *PARAMETERS*.
- Paret, P. (Ed.) (1986). *Makers of modern strategy: from Machiavelli to the nuclear age*. Princeton, NJ: Princeton University Press.
- Phillips, T. R., Brig. Gen. (Ed.) (1985). *Roots of strategy – volume I*. Harrisburg, PA: Stackpole Books.
- Sageman, M. (2005). *Global Salafi Jihad: empirical assessment & social network analysis*. Presented by the author at NPS in April, 2005.
- Schneider, B. R. (n.d.). Principles of war for the battlefield of the future. *Battlefield of the future: 21st century warfare issues*. Retrieved on April 12, 2005 from <http://www.airpower.au.af.mil/airchronicles/battle/chp1.html>.
- Security, Strategy, and Forces Faculty (Eds.) (2004). *Strategy and force planning* (4th ed.). Newport, RI: Naval War College.
- Smith, P. J. (Ed.)(2005). *Terrorism and violence in southeast Asia: transnational challenges to states and regional stability*. Armonk, NY: M.E. Sharpe, Inc.
- Sun Tzu (500 B.C.). *The art of war*. (L. Giles, Trans.) In T.R. Phillips (Ed.) *Roots of Strategy: Vol. 1*. Harrisburg, PA: Stackpole Books.
- United States Marine Corps. (2005). *Small wars/21st century*. Quantico, VA: Marine Corps Combat Development Command.
- Van Creveld, M. L. (1991). *The transformation of war*. New York, NY: The Free Press.

Verton, D. (2003). *Black ice: the invisible threat of cyber-terrorism*. Emeryville, CA: McGraw-Hill/Osborne.

BIBLIOGRAPHY

- Adams, T. K. (1998). *US special operations forces in action: the challenge of unconventional warfare*. Portland, OR: FRANK CASS PUBLISHERS.
- Alexander, B. (1993). *How great generals win*. New York, NY: W. W. Norton & Company, Inc.
- Alexander, B. (1995). *The future of warfare*. New York, NY: W. W. Norton & Company, Inc.
- Alger, J. I. (1982). *The quest for victory: the history of the principles of war*. Westport, CT: Greenwood Press.
- Army Field Manual (FM) 3-0. (2001, June 14). *Operations*. Washington, D.C.: Headquarters, Department of the Army.
- Arquilla, J. & Ronfeldt, D. (Eds.) (1997). *In Athena's camp*. Santa Monica, CA: RAND.
- Arquilla, J. & Ronfeldt, D. (2000). *Swarming & the future of conflict*. Santa Monica, CA: RAND.
- Arquilla, J. & Ronfeldt, D. (Eds.) (2001). *Networks and netwars*. Santa Monica, CA: RAND.
- Asprey, R. B. (1975a). *War in the shadows, volume I*. Garden City, NY: Doubleday & Company, Inc.
- Asprey, R. B. (1975b). *War in the shadows, volume II*. Garden City, NY: Doubleday & Company, Inc.
- Bates, J. A. (2005, April). *The war on terrorism: countering global insurgency in the 21st century*. Hurlburt Field, FL: Joint Special Operations University.

- Beckett, I. F. (2001). *Modern insurgencies and counter-insurgencies: guerrillas and opponents since 1750*. London, U.K.: Routledge.
- Beckett, I. F. W. & Pimlott, J. (Eds.) (1985). *Armed forces & modern counter-insurgency*. New York, NY: St. Martin's Press.
- Biddle, S. (2002, November). *Afghanistan and the future of warfare: implications for army and defense policy*. Carlisle, PA: Strategic Studies Institute.
- Blank, S. J. (1993). *Afghanistan and beyond: reflections on the future of warfare*. Carlisle, PA: Strategic Studies Institute.
- Brodie, B. (1973). *War & politics*. New York: Macmillan Publishing Co., Inc.
- Cambrensis, G. (1908). *The itinerary through Wales and the description of Wales*. London, U.K.: J. M. Dent.
- Chaliand, G. (1987). *Terrorism*. London, U.K.: Saqi Books.
- Chaliand, G. (1994). *The art of war in world history: from antiquity to the nuclear age*. Berkley and Los Angeles, CA: University of California Press.
- Charters, D. & Tugwell, M. (Eds.) (1989). *Armies in low-intensity conflict: a comparative analysis*. London, U.K.: Brassey's Defence Publishers Ltd.
- Cimbala, S. J. (2001). *Clausewitz and chaos: friction in war and military policy*. Westport, CT: Praeger Publishers.
- Clark, I. (1988). *Waging war: a philosophical introduction*. New York, NY: Oxford University Press.
- Clark, W. K. (2001). *Waging modern war: Bosnia, Kosovo, and the future of combat*. New York, NY: PublicAffairs.

- Coker, C. (2002). *Waging war without warriors? The changing culture of military conflict*. London, U.K.: Lynne Rienner Publishers.
- Domke, W. K. (1988). *War and the changing global system*. New Haven, CT: Yale University Press.
- Doughty, R. A. (2001, March). The evolution of US Army tactical doctrine, 1946-76. *Leavenworth Papers*.
- Dupuy, T. N. (1980). *The evolution of weapons and warfare*. New York, NY: The Bobbs-Merrill Company, Inc.
- Dupuy, T. N. (1987). *Understanding war: history and theory of combat*. New York, NY: Paragon House Publishers.
- Feickert, A. (2005, February 4). U.S. military operations in the global war on terrorism: Afghanistan, Africa, the Philippines, and Colombia. *CRS Report for Congress*: The Library of Congress.
- Feickert, A. (2005, February 10). U.S. Army's modular redesign: issues for Congress. *CRS Report for Congress*: The Library of Congress.
- Freier, N. (2004). *Confronting an irregular and catastrophic future*. Carlisle, PA: U.S. Army War College.
- Frost, R. S. (1999, October). *The growing imperative to adopt "flexibility" as an American principle of war*. Carlisle, PA: Strategic Studies Institute.
- Fuller, J. F. C. (1958). *The generalship of Alexander the Great*. London, U.K.: Eyre & Spottiswoode.
- Galula, D. (1964). *Counterinsurgency warfare: theory and practice*. New York, NY: Frederick A. Praeger.

- Gann, L. H. (1971). *Guerrillas in history*. Stanford, CA: Hoover Institution Press.
- Gantzel, K. J. & Schwinghammer, T. (2000). *Warfare since the second world war*. New Brunswick, NJ: Transaction Publishers.
- Gareev, M. A. (1998). *If war comes tomorrow: the contours of future armed conflict*. London, U.K.: Frank Cass Publishers.
- Gat, A. (1992). *The development of military thought: the nineteenth century*. New York, NY: Oxford University Press.
- Glenn, R. W. (1998, Spring). No more principles of war? *PARAMETERS*.
- Greer, J. K. (2002, September - October). 22 Operational art for the objective. force CAC – *Military Review*, English Ed.
- Hammes, T. X. (1994, September). The evolution of war: the fourth generation. *Marine Corps Gazette*. Retrieved April 12, 2005 from <http://www.d-n-i.net/fcs/hammes.htm>.
- Hammes, T. X. (2004). *The sling and the stone: on war in the 21st century*. St. Paul, MN: Zenith Press.
- Hammes, T. X. (2004, November 5). 4th-generation warfare. Retrieved March 9, 2005 from <http://www.ocnus.net/cgi-bin/exec/view.cgi?-archive=57&num=14862>.
- Handel, M. I. (1992). *Masters of war: Sun Tzu, Clausewitz, and Jomini*. Portland, OR: Frank Cass.
- Handel, M. I. (1996). *Masters of war: classical strategic thought*. Portland, OR: Frank Cass.

- Handel, M. I. (Ed.) (1986). *Clausewitz and modern strategy*. Totowa, NJ: Frank Cass And Company Limited.
- Hennessy, M. A. & McKercher, B. J. C. (Eds.) (2003). *War in the twentieth century: reflections at century's end*. Westport, CT: Praeger Publishers.
- Hittle, J. D. (Ed.) (1958). *Jomini and his summary of the art of war*. Harrisburg, PA: Military Service Publishing Co.
- Howard, M. (Ed.) (1965). *The theory and practice of war*. New York, NY: Frederick A. Praeger Publishers.
- Howard, M. & Paret, P. (Eds.) (1976). *On war*. Princeton, NJ: Princeton University Press.
- Howard, M. (1983). *Clausewitz*. New York, NY: Oxford University Press.
- Howard, M. (1991). *Studies in war and peace*. Hampshire, U.K.: Gregg Revivals.
- Howard, R. D. & Sawyer, R. L. (2002). *Terrorism and counterterrorism: understanding the new security environment*. Guilford, CT: McGraw-Hill/Dushkin.
- Howard, R. D. & Sawyer, R. L. (2004). *Defeating terrorism: shaping the new security environment*. Guilford, CT: McGraw-Hill/Dushkin.
- Johnson, W. T., Johnson, D. V. II, Kievit, J. O., Lovelace, D. C. Jr., & Metz, S. (1995). *The principles of war in the 21st century: strategic considerations*. Carlisle, PA: Strategic Studies Institute.
- Joint Publication (JP) 3-0. (2001, September 10). *Doctrine for joint operations*. Washington, D.C.: Joint Chiefs of Staff.

- Jomini, A. H. de, Baron (1992). *The art of war*. Mechanicsburg, PA: Stackpole Books.
- Knox, M. & Murray, W. (Eds.)(2001). *The dynamics of military revolution 1300-2050*. Cambridge, U.K.: Cambridge University Press.
- Krepinevich, A. F. (1986). *The army and Vietnam*. Baltimore, MD: The Johns Hopkins University Press.
- Laquer, W. (1976). *Guerrilla: a historical and critical study*. Boston, MA: Little, Brown, and Company.
- Leonhard, R. R. (1998). *The principles of war for the information age*. Novato, CA: Presidio Press.
- Lesser, I. O. (Ed.) (1999). *Countering the new terrorism*. Washington, D.C.: RAND Corporation.
- Levy, B. (1964). *Guerrilla warfare*. Boulder, CO: Panther Publications.
- Liang, Q. & Xiangsui, W. (1999, February). *Unrestricted warfare*. Beijing, PRC: PLA Literature and Arts Publishing House.
- Libicki, M. (1995, August). What is information warfare? *Advanced Concepts and Information Strategy Paper 3*. Washington, D.C.: National Defense University.
- Litton, L. G. (2000). The information-based RMA and the principles of war. *Air & Space Power Chronicles*. Retrieved April 12, 2005 from <http://www.airpower.au.af.mil/airchronicles/cc/Litton.html>.

- Lonsdale, D. J. (2004). *The nature of war in the information age: Clausewitzian Future*. New York, NY: FRANK CASS.
- Lorber, A. (2002). *Misguided weapons: technological failure and surprise on the Battlefield*. Washington, D.C.: Brassey's, Inc.
- Luddy, J. (2005, February). *The challenge and promise of network-centric warfare*. Arlington, VA: Lexington Institute.
- Macgregor, D. A. (2003). *Transformation under fire: revolutionizing how America fights*. Westport, CT: Praeger Publishers.
- Maoz, Z. (1990). *Paradoxes of war: on the art of national self-entrapment*. Boston, MA: Unwin Hyman, Inc.
- Marine Corps Combat Development Command (2005). *Small wars/21st century*. Washington, D.C.: Government Printing Office.
- McCallister, W. S. (2005, March 5). *The Iraq insurgency: anatomy of a tribal rebellion*. Retrieved March 9, 2005 from http://firstmonday.org/issues/issue10_3/mac/index.html.
- McIntyre, J. J. (Ed.) (1979). *The future of conflict*. Washington, D.C.: National Defense University Press.
- Medalia, J. (2005, February). Nuclear terrorism: a brief review of threats and responses *CRS Report for Congress*: The Library of Congress.
- Metz, S. (2000, April). *Armed conflict in the 21st century: the information revolution and post-modern warfare*. Carlisle, PA: Strategic Studies Institute.

- Miko, F. T. (Coord.) (2005, February). Removing terrorist sanctuaries: the 9/11 commission recommendations and U.S. policy. *CRS Report for Congress*: The Library of Congress.
- Millet, A. R. & Maslowski, P. (1984). *For the common defense: a military history of the United States of America*. New York, NY: The Free Press.
- Morgan, J. G. (2003, October). Rethinking the principles of war. *Proceedings*.
- Murdock, P. (2002, Spring). Principles of war on the network-centric battlefield: mass and economy of force. *PARAMETERS*.
- Nicander, L. & Ranstorp, M. (Eds.) (2004). *Terrorism in the information age – new frontiers?* Stockholm, Sweden: FORSVARSHOGSKOLANS ACTA.
- O'Neill, B. E. (1990). *Insurgency & terrorism: inside modern revolutionary warfare*. Riverside, NJ: Brassey's (US), Inc.
- Otterbein, K. F. (1970). *The evolution of war: a cross-cultural study*. HRAF Press, Inc.
- Paret, P. (Ed.) (1986). *Makers of modern strategy: from Machiavelli to the nuclear age*. Princeton, NJ: Princeton University Press.
- Paschall, R. (1990). *LIC 2010: special operations & unconventional warfare in the next century*. McLean, VA: Brassey's (US), Inc.
- Phillips, T. R., Brig. Gen. (Ed.) (1985). *Roots of strategy – volume I*. Harrisburg, PA: Stackpole Books.
- Phillips, T. R., Brig. Gen. (Ed.) (1987). *Roots of strategy – volume II*. Harrisburg, PA: Stackpole Books.

- Rattray, G. J. (2001). *Strategic warfare in cyberspace*. Cambridge, MA: The MIT Press.
- Rosen, S. P. (1991). *Winning the next war: innovation and the modern military*. Ithaca, NY: Cornell University Press.
- Sageman, M. (2005). *Global Salafi Jihad: empirical assessment & social network analysis*. Presented by the author at NPS in April, 2005.
- Schmitt, M. N. & Green, L. C. (Eds.) (1998). *The law of armed conflict: into the next millennium*. International Law Studies, Volume 71. Newport, RI: Naval War College.
- Schneider, B. R. (n.d.). Principles of war for the battlefield of the future. *Battlefield of the future: 21st century warfare issues*. Retrieved on April 12, 2005 from <http://www.airpower.au.af.mil/airchronicles/battle/chp1.html>.
- Scott, H. F. & Scott, W. F. (1982). *The soviet art of war: doctrine, strategy, and tactics*. Boulder, CO: Westview Press.
- Security, Strategy, and Forces Faculty (Eds.) (1997). *Strategy and force planning* (2nd ed.). Newport, RI: Naval War College.
- Security, Strategy, and Forces Faculty (Eds.) (2000). *Strategy and force planning* (3rd ed.). Newport, RI: Naval War College.
- Security, Strategy, and Forces Faculty (Eds.) (2004). *Strategy and force planning* (4th ed.). Newport, RI: Naval War College.
- Serafino, N. M. (2004, August). Combating terrorism: possible lessons for U.S. policy from foreign experiences, summary of the major points of a seminar. *CRS Report for Congress*: The Library of Congress.

- Shultz, R. H. Jr., Pfaltzgraff, R. L. Jr., Ra'anana, U., Olson, W. J., & Lukes, I. (Eds.)(1989). *Guerrilla warfare and counterinsurgency: U.S.-Soviet policy in the third world*. Lexington, MA: Lexington Books.
- Smith, P. J. (Ed.)(2005). *Terrorism and violence in southeast Asia: transnational challenges to states and regional stability*. Armonk, NY: M.E. Sharpe, Inc.
- Sun Tzu (500 B.C.). *The art of war*. (L. Giles, Trans.) In T.R. Phillips (Ed.) *Roots of Strategy: Vol. 1*. Harrisburg, PA: Stackpole Books.
- Sun-Tzu & Gagliardi, G. (2004). *The art of war plus the warrior class: 306 lessons in strategy*. Seattle, WA: Clearbridge Publishing.
- Tomes, R. R. (2004, Spring). Relearning counterinsurgency warfare. *PARAMETERS*.
- Trinquier, R. (1964). *Modern warfare: a French view of counterinsurgency*. New York, NY: Frederick A. Praeger.
- Tsouras, P. G. (1994). *Changing orders: the evolution of the world's armies, 1945 to present*. New York, NY: Facts On File, Inc.
- United States Marine Corps. (2005). *Small wars/21st century*. Quantico, VA: Marine Corps Combat Development Command.
- Van Creveld, M. L. (1991). *The transformation of war*. New York, NY: The Free Press.
- Verton, D. (2003). *Black ice: the invisible threat of cyber-terrorism*. Emeryville, CA: McGraw-Hill/Osborne.

Watts, B. D. (2004). Clausewitzian friction and future war. *McNair Paper 68*.

Washington, D.C.: National Defense University.

Weigley, R. F. (1973). *The American way of war: a history of United States military strategy and policy*. Bloomington, IN: Indiana University Press.

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California
3. Strategic Studies Institute
Army War College
Carlisle Barracks, Pennsylvania
4. School for Advanced Military Studies
Ft. Leavenworth, Kansas
5. MAJ Dean Newman
History Department
United States Military Academy
West Point, New York
6. Marine Corps Concept Development Center
Quantico, Virginia
7. Dr. Gordon McCormick
Naval Postgraduate School
Monterey, California
8. Dr. John Arquilla
Naval Postgraduate School
Monterey, California
9. Professor George Lober
Naval Postgraduate School
Monterey, California
10. Mrs. Jennifer Duncan
Naval Postgraduate School
Monterey, California