

**DO THE PRINCIPLES OF WAR STILL
APPLY?**

**A MONOGRAPH
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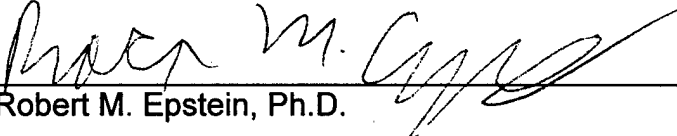
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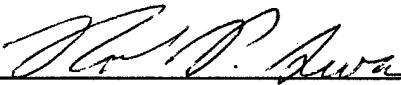
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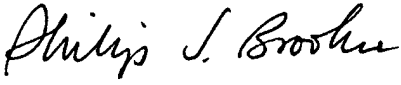
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ABSTRACT

DO THE PRINCIPLES OF WAR STILL APPLY? by MAJ Walter E. Piatt, USA, 61 pages.

As the Army prepares the final drafts of the new operational and tactical manuals for the twenty first century this monograph analyzes the relevance of the principles of war to tactical operations. To do this, this study conducts three evaluations, the first is a historical review to determine origin and intent. The second, is a comparison analysis of the principles against current doctrine. The third evaluation is an analysis of a recent operation. The first evaluation traces the origin of the principles of war and how they evolved to the present day list of nine, as defined in the 1993 version of FM 100-5. The second evaluation analyzes the principles of war using the purpose of offensive and defensive operations. The final evaluation analyzes Operation Just Cause using the principles of war.

Finally this monograph recommends which principles of war need to be changed and which ones need to be added.

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I. Introduction

Are the principles of war still relevant to tactical operations? The U.S. Army is currently rewriting FM 100-5. The drafts of the new manual are fundamentally different from current doctrine. One change in the new doctrine is the way the Army views the principles of war. The current FM 100-5, published in 1993, describes the principles of war as the foundation to Army doctrine in chapter two, stating that, "They are the enduring bedrock of Army doctrine." and "...have withstood the test of time."¹ The new FM 100-5 does not describe the principles of war as the foundation of doctrine, instead it lists the principles of war in an annex, claiming that their greatest value lies in the education of the military professional. Does this change in doctrine indicate that the principles of war will be less relevant in the future than they are today?

This significant change demands an objective review of the principles of war. The U.S. Army's new doctrine that is currently being written will be the doctrine that carries the Army into the twenty first century. This is a critical time for the validity of the principles of war to be scrutinized and their purpose for modern warfare defined.

What are the principles of war and what purpose should they serve are questions that can bring about conflicting responses by U.S. Army officers who study the same doctrine. The principles of war mean many things to many professionals; they are guides, tools for analysis, basis for thought, laws for operations, and procedures for military success. From all of these meanings it is difficult to determine the relevance of the principles of war in tactical operations. This makes it extremely difficult to explain the principles of war to the infantry company commander.

The Army clearly understands that doctrine must evolve to meet the challenges of the future. To do this, there is a constant need to reinvestigate all that is believed to be true in order to revalidate the usefulness of doctrine. The principles of war should not be protected from this review. The shift of the principles of war, from the foundation of Army operations to an annex, demand that the relevance of the principles be reviewed and debated until they are defined.

This monograph reviews the principles of war to determine their relevance. To do this, this study conducts three evaluations, the first is a historical review to determine origin and intent. The second, is a comparison analysis of the principles against current doctrine. The third evaluation is an analysis of a recent operation.

The first evaluation traces the origin of the principles of war and how they evolved to the present day list of nine, as defined in the 1993 version of FM 100-5.² The origin of each principle allows for examination of how the principles evolved throughout time and will shed light on their present day relevance.

The second evaluation is a comparison analysis of the principles of war to determine their relevance to current doctrine. The evaluation criteria used is the purpose of offensive and defensive operations as they are defined in FM 7-10, The Infantry Rifle Company.³ The evaluation criteria selected are relevant to tactical operations today, and they are very similar to the purpose of offensive and defensive operations as found in the revised final drafts of the future tactical and operations manuals.

The final evaluation analyzes Operation Just Cause using the principles of war. Operation Just Cause is a good example to analyze because it was recent, it was a joint

operation, it was complex, and it was to some degree an opposed entry operation.

Operation Just Cause is also a good example of what a future force projection operation may look like.

II. Origins

To determine if the principles of war are relevant to the tactical commander today it is first necessary to dissect the origin of the principles to determine why and how they evolved. This is a necessary step in understanding the gap that exists between the original intentions and interpretations of the principles in the present. Full knowledge is required of the detailed evolution of the principles before any logical explanation can be made towards their relevance to today's tactical commander. What this section demonstrates is that the principles of war have evolved through time. Some theorists are given credit and others are given blame. History tells a much different story.

It is easy to trace the original written form of the principles of war as they are known today in the U.S. Army. The Army claims to have adopted these principles in 1921 from the work of British Major General J.F.C. Fuller.⁴ This however was not the birth of the principles of war, but only a single mutation along the path of evolution which best resembles their present day form.

To analyze the origins and evolution of the principles of war it is necessary to organize the evolution of the principles into periods in which major changes occurred. Five periods are used for this study, they are; 1) Pre-Modern Warfare. 2) The Birth of Modern Warfare and the Expansion of Military Thought. 3) The Principle Debate of the

Nineteenth Century. 4) World War I and the Birth of the Familiar Form, and 5) The Principles and Doctrine to Present Day.

Pre-Modern Warfare

Perhaps the first to attempt to capture the fundamentals of warfare was Sun Tzu. Sun Tzu's book, *The Art of War*, captured how military operations are influenced by nature and man. Sun Tzu offers no laws of war or rules to be strictly followed, yet his work is filled with military fundamentals that can be easily understood today.⁵ The overriding theme of *The Art of War* is that war is not decided by uncontrollable factors, only influenced by them. The major guidelines that Sun Tzu uses to explain how military operations should be conducted are, deception, intelligence, initiative, maneuver, logistics, leadership, and morale.⁶ (See Appendix A, Table A-I)

The next great contributions in the evolution of the principles of war come from Flavius Vegetius Renatus. In his work *De Re Militari*, translated, *On Military Institutions* Vegetius attempted to describe the fundamentals essential to victory in war. The key fundamentals Vegetius illustrates in his work are, discipline, organization, training, and administration.⁷ Vegetius did not outline his fundamentals in a numbered list but he did describe what he called general maxims. Vegetius' maxims are thirty-five short paragraphs, some only a sentence in length, describing what he thought to be the fundamentals of war.⁸ One theorist who based his work from the writings of Vegetius was Niccolo Machiavelli.

Niccolo Machiavelli published his book, *The Art of War*, in 1521.⁹ Machiavelli puts forth what he calls general rules for military discipline. The rules of Machiavelli are listed in Appendix A, Table A-II. Some of the conclusions that can be drawn from his rules are, the importance of morale, security, surprise, discipline, need for a reserve, know yourself and know your enemy, use of terrain, logistics, intelligence, and objective. Machiavelli put forth twenty seven lengthy rules. They were not short terse statements but they were an attempt to simplify the complex nature of war into general guides for conducting military operations.¹⁰

In the early 1600s Henry, the duke of Rohan wrote in his military memoir a volume entitled *The Perfect Captain*. In this volume, Rohan lists seven guides for the general who wishes to wage war. The guides Rohan put forth remain sound military advice today.¹¹ The general fundamentals he stresses are, initiative, discipline, leadership, and the need for mutual support. (See Appendix A, Table A-III)

Maurice de Saxe may not be remembered as the perfect captain, but he was certainly one of the most successful and colorful military leaders in Europe.¹² The time between Rohan and Saxe saw many developments in scientific thought that impacted military theory. As academic disciplines began to explain their subject through natural laws or principles, the logic followed that war could be understood in a similar way, through scientific method. The theory of Saxe is found in his book, *Reveries*, which was published in 1757. Saxe did not present a list of principles, rules or maxims in his work, but his book was short and provided clear instruction. Saxe placed emphasis on the need for administration, logistics, morale, deception, initiative, leadership, and discipline.¹³

Saxe believed in tricking the enemy through deception. Saxe also believed that a skillful leader would never be forced into battle unless it was his choosing, he claimed that a skillful general could wage war all his life without being forced into one. Saxe believed in taking advantage of opportunities, but more importantly, he believed in creating his own opportunity.¹⁴ Today, this is called initiative.

One man who learned from the theories of Saxe was Frederick the Great. Frederick's book, *Instructions For His Generals*, is the theory of a great military commander. Though he offered no list of principles, Frederick's book does offer maxims for success. The maxims that Frederick the Great stressed in his work are, logistics, maneuver, security, cultural awareness, morale, initiative, and leadership. Frederick understood clearly that the limitations placed upon an army were mostly due to logistics.¹⁵ Frederick also stressed maneuver greatly, stating that, "...I approve of all methods of attacking provided they are directed at the point where the enemy's army is weakest..."¹⁶ This is still how maneuver is defined today, the movement of forces to place an enemy at a disadvantage, attacking strength against weakness.¹⁷

Frederick influenced the man many claim was the first to define the principles of war. That man was Henry Lloyd. Lloyd was a Welsh officer who served in the French and Prussian armies during the time Frederick was king. The axioms put forth by Lloyd were surely due to the influence of Frederick.¹⁸ Lloyd did not present the principles in a single numerical list, but rather several lists. Lloyd created three rules concerning firepower, two principles for determining camp locations, and three axioms concerning lines of operations.¹⁹ Lloyd's first two axioms address how to utilize interior lines of

operations while at the same time protecting them. In axiom number three Lloyd presents the principle of objective stating that every line of operation should lead to some essential objective.²⁰ Lloyd's three axioms on lines of operations are listed in Appendix A, Table A-IV. Lloyd never claimed that his list was complete, but he did present a list. This was a significant step in the evolution of the principles of war and one that would be built upon in the next century.

The Birth of Modern Warfare and the Expansion of Military Thought

The successes of Frederick the Great were soon dwarfed by the man some call the greatest military leader of all time. Napoleon fought more battles than Alexander, Hannibal, and Caesar combined.²¹ His methods revolutionized warfare and dominated military thinking for most of the nineteenth century. A few remarkable soldiers who fought for him and against him would emerge to become the great military theorists of the nineteenth and twentieth centuries.

The military exploits of Napoleon contributed greatly to the evolution of the principles of war. Napoleons success revolutionized warfare which begged for an explanation. The explanations that would follow would lead directly to maxims and principles that closely resemble the present day principles of war. Napoleon never wrote his theories on war, but his maxims were recorded and provide some insight to his genius.²²

Napoleon's maxims clearly illustrate what he thought to be important for victory in war. Napoleon points to discipline, leadership, momentum, maneuver, mass, firepower,

logistics, intelligence, morale, security, initiative, objective, and unity of command. The first eleven are embedded in his maxims and are repeated throughout his work. Unity of command is mentioned specifically stating, "Nothing is more important in war than unity of command."²³

The most influential theorist to interpret the successes of Napoleon was Antoine-Henri Jomini. Jomini perhaps did more for the principles of war than any theorist before him and he certainly became the catalyst for those who would follow. Some military professionals have labeled Jomini as the theorist who attempted to explain warfare as a science and not an art.²⁴ One reason for this distinction was a false translation of Jomini's early work in the United States which, when translated, added the word science and deleted the word art from the title.²⁵

In his later writings Jomini attempted to clarify his thoughts on war being an art or a science. He stated, "...war is a great drama, in which a thousand physical or moral causes operate more or less powerfully, and which cannot be reduced to mathematical calculations." Jomini followed this statement by claiming that his twenty years of experience led him to believe, "There exist 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 times crowned with success."²⁶

Those who argue against the principles state that there can be no check list, no prefabricated solution for complex tactical problems. Jomini would say that they are right, there is no check list to follow that will guarantee victory in war, but the principles that Jomini put forth were never meant to be used in such a way. In his own words Jomini

proclaims that war is an art and not an absolute science. Jomini clearly attempted to capture the commonalities of successful tactical operations and explain them in a way that would serve as a guide to future operations.²⁷

In 1807 Jomini published what he thought to be the general principles of the art of war. Jomini never claimed that his list was complete, he merely stated that, "I am going to try to point out all of them."²⁸ Jomini listed ten general principles which are found in Appendix A, Table A-V. The main points from Jomini's list of ten are; initiative, maneuver, objective, intelligence, deception, and morale. Later in his life Jomini would write in his *Summary of the Art of War* what he called the fundamental principle of war in his chapter on strategy. He described this principle to underlie all operations of war, and that it must be followed in all good combinations. Jomini defined this principle in four maxims. The first maxim describes how mass should be directed at decisive points, and against the enemy lines of communication, while all the time protecting your own. The second maxim is to maneuver with strength against enemy weakness. The third maxim is to throw the mass of force onto the enemy's decisive point. The fourth maxim is to mass force so it is not only used against the decisive point, but at the proper time with the proper amount of force. Jomini recognized that it is not always so simple to apply his four maxims and goes on to explain how these maxims are to be used.²⁹

The work of Jomini was a huge evolutionary leap for the principles of war. He never claimed to capture them all, and he certainly understood that they were not the end all solution for victory in battle, but he did simplify them and for the first time reduced

them from lengthy paragraph form to a shorter terse format. Perhaps most importantly Jomini inspired others to do the same, if only to disprove his theory.

The Principle Debate of the Nineteenth Century

The theories of Jomini spread to many countries in the nineteenth century. Along with Jominian theory, came the idea that there exists certain principles of war. The principles of war were challenged in some countries and embraced in others.

In Russia General G. A. Leyer was able to explain the importance of principles in relation to different situations and conditions of war.³⁰ Leyer's principles included, the principle of economy of force, the principle of concentration of forces on the decisive point, the principle of surprise, the principle of security, and the principle of initiative and dominance over the enemy's will and mind. Leyer felt that the principles of war were guides that needed to be equally weighed along with the situation presented prior to making a plan. Leyer's principles were not totally accepted and many Russians continued to argue against the existence of any principles.³¹ A similar debate took place in Germany.

The debate in Germany centered around Helmuth von Moltke. Moltke was an avid believer that in war there exist no principles or fixed rules. Moltke felt that every problem could be solved through a detailed plan designed for a specific situation.³²

Jominian ideas were kept alive in Germany by two military writers, Wilhelm Friedrich Rustow and Colmar von der Goltz. Rustow published what he believed to be the underlying laws of war. Rustow claimed that concentration of forces was the most important law but also important was objective, pursuit, and simplicity. Colmar von der

Goltz combined the ideas of both Jomini and Clausewitz in all his writings about war. Goltz claimed that the highest principle of war was to be strong at the decisive point, he also included economy of force, morale, and confidence as conditions for success. Later in his career, Goltz would refer to two principles of war. The first reflected Clausewitz' theory and stated that the primary objective in which all efforts should be directed, is the enemy's main army. The second principle reflected Jominian theory stating, that all possible power is to be concentrated at the hour of decision.³³

Though not embraced totally in Germany, Jomini's ideas were expanded into the British military doctrine. One man who was responsible was Patrick Leonard MacDougall who served as the superintendent of the Royal Military College. The idea of the principles of war became widely accepted by the British Military by 1860.³⁴ MacDougall's work would also influence military thinking in the United States.

The man who was most influential in bringing Jominian theory into U.S. doctrine was Henry Wager Halleck. Halleck wrote that no man should fail to study the principles, he claimed that they are not easily understood and would most likely never be popular.³⁵ Three men who were perhaps not influenced by Halleck but contributed to the evolution of the principles of war were, Generals, Jackson, Forrest, and Beauregard.

General Beauregard studied and admired Napoleon.³⁶ Beauregard also put forth three principles that he described should be used when evaluating every military plan.³⁷ His principles were, first, to operate mass against weakness, second, operate on the enemy interior lines, and third, utilize friendly interior lines for operations. (See Annex A, Table A-VI)

General Jackson's contribution to the principles did not come until years later when a distinguished British soldier author, Colonel G.F.R. Henderson published several books about General Jackson.³⁸ Building upon the work of Colonel Henderson an instructor at Fort Leavenworth published a few of Jackson's maxims in his book, *American Campaigns*. The instructor's name was Matthew F. Steele. Steele's list of Jackson's maxims are found in Appendix A, Table A-VII. In his maxims Jackson emphasized deception, momentum, maneuver, and initiative. Jackson's maxims are simply stated and illustrate clearly what Jackson felt to be important for success in war.³⁹

Nathan Bedford Forrest was perhaps the most remarkable soldier to fight in the war on either side, but his association with the Klu Klux Klan after the war, has made him a controversial figure. His principle was, "Get there first with the most."⁴⁰ This famous quote became popular after the war and with the growth in popularity, the phrase took on a meaning of its own. Forrest simply stated "get there first with the most men." The colorful phrases of *git*, *furst*, and the *mostest*, were added later to color the phrase.⁴¹ Forrest's statements about getting there first with the most men, hit the enemy on the end, and keep up the pressure, are easily understood military fundamentals.⁴² Despite the controversies which surround Forrest, his military exploits were remarkable and his principle remains popular.

In France the debate over the principles took a strange path. After the French defeat in the Franco-Prussian War the French began to re-look their thinking about war. The French failed to see their own faults in the war and gave credit instead to the German style of fighting. The strength of the defense was lost in this review.⁴³ French military

theory began to closely resemble German theory and moved away from Jominian theory. Jominian concepts would return but they would be mixed with the German approach to war. Three men who were instrumental in developing French theory during this period are L. Maillard, Henri Bonnal, and Ferdinand Foch.⁴⁴

Maillard was the first to bring back the idea of principles into French military thought. Maillard published a book on tactics that listed six principles for which he claimed were guides to the commander in the conduct of war. Bonnal expanded further the thoughts of Maillard but claimed that the principles put forth by Jomini did not capture the human element in war. Bonnal claimed that there were certain elements of doctrine that have been established throughout time. Bonnal never listed all of the elements he claimed but he did list the three he felt to be most important. Bonnal's three points of doctrine summarized are; 1) maintain freedom of action. 2) impose your will on the enemy. 3) economize your force. Bonnal stressed the given situation, or "concrete case", as it became labeled, much like the German approach by Moltke. Bonnal's acceptance of a few points of doctrine helped explain the usefulness of the French Principles.⁴⁵

Bonnal was succeeded by Ferdinand Foch. Foch was able to expand on both the views of Bonnal and of Jomini. Foch struggled with the morale and material factors of war and attempted to explain them by combining the two. Foch's ideas reflect the work of another great French soldier, Ardant du Picq, who wrote about the influence of morale and the human element in war.⁴⁶ Foch's ideas are credited by some historians to be the birth of the modern list of principles. Foch was able to combine the ideas from both sides of the debate over the principles of war into his theory, which he insisted to first consist of

a number of principles. Foch never claimed how many principles there were but he listed four, economy of force, freedom of action, free disposition of forces, and security. Foch's principles are also listed in Appendix A, Table A-VIII. Foch was criticized for not listing more principles but he was also criticized for oversimplifying the ones he did list.⁴⁷ The work of Foch could be described as the embryonic stage of the present day form. It was a significant evolutionary step for the principles of war, but Foch's own theories would soon be put to the test in World War I and Foch would be forced to reevaluate all he thought to be true about war.⁴⁸

The most significant development during the nineteenth century is the debate surrounding the existence of principles. As science made new discoveries in other academic disciplines many thought that war could now somehow be explained through science. The components of war are not constant and therefore could not be explained through scientific method. The largest component of war is perhaps its most unstable variable, and that is human nature. Any theory attempting to explain war would have to account for the impact of human nature as well as other variables that would not remain constant. By the end of the century most militaries may have felt that they were close to understanding the nature of war. World War I would disprove what most thought to be true and forced a reevaluation of the theories and principles of war. From this review of military thought would emerge the modern list of the principles of war.

World War I and the Birth of the Familiar Form

The massive amount of forces engaged in World War I presented command and control challenges unlike anytime before in the history of warfare. Militaries struggled attempting to devise ways to overcome this challenge.⁴⁹ Some evidence of this is seen in the field regulations of the various armies that participated. Germany published ten essential principles of the defense in 1915. Then in 1917 the Germans published four principles of command.⁵⁰ France published a manual in 1917 intended for all infantry platoon leaders. The manual listed four principles which were instructed to be known by all officers. The four principles the manual included are , energy, unity of action, surprise, and security. They included a short definition. (See Table A-IX)⁵¹ That same year Great Britain published what they called the principles of training. These works all seem to be in response to the hard lessons the militaries were learning during this time.

Prior to the war, the military manuals of both Great Britain and the United States made reference to the principles of war in some form. The British field service regulation of 1909 did not provide a list of principles but cited the need for them to be regarded and cautioned not to ignore them. In 1911 the U.S. Army drill regulations for infantry included a list of fourteen combat imperatives.⁵² (See Table A-X) Changes occurred throughout the war but it would not be until after the war that the principles were formally accepted, and that would occur first in Great Britain.

The British Army was forced to learn many hard lessons on the battlefields of World War I. A British soldier named J.F.C. Fuller was serving in the army

during the war and published what he called strategic and tactical principles in a magazine article. Though his work was published anonymously and was not recognized as an official military document, Fuller's ideas would influence the development of future doctrine in the United States and Great Britain.⁵³ When Fuller published his article discussing the problems that the British Army encountered in 1914-1915 he helped plant the seed for the birth of the modern list of principles. In this article Fuller listed eight strategic principles and three tactical principles.⁵⁴ None of the principles that Fuller used were original and his organization resembled Foch's list, but Fuller did propose more.

Fuller:

Strategic Principles: The principle of the objective, offensive, mass, economy of force, movement, surprise, security, cooperation.

Tactical Principles: The principle of demoralization, endurance, and shock.⁵⁵

Foch:

The principle of economy of forces, freedom of action, free disposition of forces, and security.⁵⁶

Fuller's principles are also found in Appendix A, Table A-XI. Fuller's strategic and tactical principles did not make an impact on British military doctrine until after the war was over. Fuller did not develop his principles of war to guide the British Army during the war, as stated in the 1986 version of FM 100-5.⁵⁷

World War I forced every country to review its doctrine in light of the costly lessons learned in the war. The principles of war again became the subject of debate in most major militaries. Great Britain appointed a committee to review the principles of war and what role they should have in doctrine. The committee was formed in 1919 and

among the invited guests to address the committee was J.F.C. Fuller. Fuller urged the committee to consider the inclusion of the principles into British military doctrine. Fuller definitely influenced the committee on the need to include the principles into doctrine and perhaps what form they should take. Fuller was not however, a member of the committee that was responsible for including the principles of war into British doctrine.⁵⁸

In 1920 the British Army published what they claimed to be the “principles of war.”⁵⁹ The eight principles included a title and a brief definition. They closely resembled Fuller’s principles of strategy, the difference was that the list was titled the principles of war, not of strategy or tactics. The titles of the eight principles are listed below and in Appendix A, Table A-XII.

Principles of War, Great Britain, 1920

Maintenance of the objective.

Offensive action.

Surprise.

Concentration.

Economy of Force

Security

Mobility

Cooperation.⁶⁰

The British Army did what no other military had done, they published a list claiming to be the principles of war in official military doctrine. This was not the origin of the principles of war, just as Fullers article was not the origin, but a definite mutation along their long evolutionary path. It was the emergence of the principles of war into accepted operational terminology, no longer just in theory, but doctrine. In the years that

followed, many militaries, including the United States, would adopt the principles of war into doctrine, but it was the British who did it first.

The Principles and Doctrine to Present Day

The United States Army published the principles of war into doctrine barely a year after the British Army. Like the British Army, the United States Army was also influenced by the work of J.F.C. Fuller. Unlike the British, who expanded on the list of J.F.C. Fuller, the United States adopted Fuller's list completely with only one exception. The United States added only the principle of simplicity to Fuller's list of strategic principles that were published in 1916. (See Table A-XI and A-XIII) The British included an explanation and description with each principle published in 1920. The British also included a statement claiming that the application of the principles cannot be made subject to rules. The principles as listed in the U.S. Army *Training Regulation 10-5* did not include an explanation but instead listed nine principles. An explanation came in the paragraph that followed stating that, "These principles are immutable.", and, "their proper application constitutes the true measure of military art," and that "it is the duty of all officers to acquire their true meaning." The paragraph concluded by stating that every military operation would be planned and executed in accordance with these principles.⁶¹

United States Army Principles of War, 1921

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.⁶²

The adoption of the list into U.S. doctrine was introduced by Major Erickson during a lecture at the General Staff College in April 1920. Erickson was an instructor at the staff college and discussed Fuller's eight principles in his lecture presenting the origin of some of the principles as well. Erickson claimed that the principle of objective may not have originated from Clausewitz but certainly was explained by him. Erickson credited Foch with the principle of security and used examples of the world war to justify the principle of cooperation.⁶³ Eight months later all eight of the principles Erickson presented were adopted into doctrine. The only addition was the principle of simplicity, which was an original idea introduced by Colonel William K. Naylor an instructor at Fort Leavenworth. Colonel Naylor suggested that the idea of simplicity came from the maxims of Napoleon. Naylor also used the complicated orders that the French issued in World War I as evidence for the need of the principle of simplicity.⁶⁴

The United States published a list of the principles of war into doctrine, but they would not remain there very long. In 1924 the next generation of field manual would be published and only traces of the principles from 1921 would be found. The principles of war found a wide acceptance in the United States but they also found resistance. The debate that followed focused not only on the existence of principles, but instead on which ones were chosen, and if they were indeed immutable, as stated in the regulation. Those who favored the principles used World War I to prove their point. Those who opposed them also used the war to prove that no principle is immutable. The main disagreements focused on the use of the word immutable in the 1921 regulation. The Infantry School thought that rules would lead to disaster in combat and they published their argument in

1934.⁶⁵ At Fort Leavenworth the principles were accepted as tools for instruction. There was confusion on how they would apply to tactical situations. The principle of objective, mass, and mobility were not clearly defined and therefore not understood.⁶⁶ This debate most likely developed due to the lack of study conducted by the United States Army prior to publishing the principles. This debate should have been conducted prior to the publishing of the 1921 regulation. It was not, and therefore the principles were not accepted as immutable by everyone in uniform. The field service regulation of 1924 reflects this view.

The field service regulation of 1924 did not include the principles of war but instead published general principles of combat. The significance of the 1924 regulation is that it explained each principle in relation to a military operation. Many of the principles from the 1921 regulation were included in the definitions, mentioned specifically were; ultimate objective, concentration, offensive, and surprise. The definition of ultimate objective was described as the destruction of the enemies armed forces. This definition of the ultimate objective reflects the theory of Clausewitz.⁶⁷ Concentration was defined as superior forces on the ground and in the air, concentrated at the decisive place and time will create the conditions for decisive victory. The definition of concentration is very significant in that it mentions forces in the air, a definite lesson from World War I with the introduction of the airplane to warfare. This is an evolutionary change to the principles based on a change to warfare. The definition of concentration is also very significant because the regulation states that the concentration of superior forces is evidence of superior leadership. Other principles that were embedded in the definitions were economy

of force and simplicity. Described as key to overcoming superior enemy strength were, mobility, higher morale, and better leadership. The regulation specifically stated, "Superior leadership often enables a numerically inferior force to be stronger at the point of decisive action."⁶⁸

In the 1920's the man who influenced the U.S. the most in adopting the principles began to rethink his original theory. By 1926 J.F.C. Fuller published *The Foundation of Science and War*, where he presented his new views on the principles of war. Fuller claims in his book that there is one law of war, economy of force, and nine principles of war, direction, concentration, distribution, determination, surprise, endurance, mobility, offensive action, and security.⁶⁹

Fuller's ideas are well presented and will stimulate thought on the subject of war, but at the same time Fuller's theory borders on the outrageous and is extremely difficult to accept. Fuller attempted to explain war by using a scientific method. There is no doubt when reading the book that Fuller thought of himself as the Newton or Darwin of warfare.⁷⁰ Fuller's work was extreme and radical and may have impacted the ongoing debate on the principles of war.⁷¹

In 1934, the U.S. Army Infantry School published *Infantry in Battle*, the head of the school at the time was Colonel George C. Marshall. The very first chapter began by stating, "THE ART OF WAR has no traffic with rules, for the infinitely varied circumstances and conditions of combat never produce exactly the same situation twice." And goes on to say, "Thus, in battle, each situation is unique and must be solved on its own merits."⁷² U.S. doctrine would begin to reflect this view.

In 1939 the United States Army published Field Manual 100-5, *Field Service Regulations-Operations*, like the 1924 version, the 1939 version did not publish a list of the principles of war. It did however, include general principles in chapter three which was titled, conduct of war. The chapter began by defining the conduct of war as the art of employing the armed forces with measures of economic and political constraint for the purpose of influencing a satisfactory peace. The ultimate objective is again defined as the enemies armed forces, but the definition goes further than the 1924 regulation by stating that to obtain the ultimate objective, one or more intermediate objectives will have to be obtained. The regulation states that the intermediate objectives must be well defined and contribute directly towards obtaining the ultimate objective. This new definition of ultimate objective continues to reflect Clausewitz' theory but also includes the theory of British maritime strategist Corbett.⁷³ The subparagraph under concentration stated that, "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." The regulation also included a very similar paragraph that was found in the 1924 version, that superior numbers are defeated through mobility, more effective fire, higher morale, and better leadership.⁷⁴ The next edition was published in just two years.

In 1941 the field service regulation did not include general principles, but rather doctrines of combat. The doctrines of combat were listed in chapter four, titled the exercise of command. The definition of the conduct of war found in the 1939 manual was dropped. The doctrines of combat listed were, ultimate objective, simple and direct plans, unity of command, offensive action, concentration of superior forces, surprise, and

security. The definition of ultimate objective did not mention intermediate objectives, it only stated that the ability to select objectives that contribute decisively and quickly to the defeat of the enemy armed forces is one attribute of the able commander. Offensive action is defined as the commander's ability to exercise his initiative and preserve his freedom of action. This definition is very similar to the one found in the 1924 manual but not in 1939 manual. A separate section in the chapter addressed command and the importance of leadership.⁷⁵ The next version published in 1944 was very similar. This regulation published the doctrines of combat in a similar form as the 1941 edition. The only significant difference is that this time the doctrines of combat were found in chapter five instead of four.⁷⁶ Since 1924 the principles of war were embedded in U.S. doctrine. They would not return as principles of war until 1949, ironically, the influence would again come from Great Britain.

During World War II, one of the most famous leaders in the British Army was Field Marshall Bernard L. Montgomery. Montgomery's fame during the war insured his influence would be felt. During the war Montgomery published several pamphlets for his forces. In one pamphlet, Montgomery listed eight principles of war significantly different than any published at the time. Montgomery introduced air power, administration, and morale to the modern list, he also adopted the principle of simplicity. After the war Montgomery led the way to change the principles of war in British doctrine. The British adopted ten principles which have remained very similar to this day.⁷⁷ (See Table A-XIV) The United States would also review and republish the principles of war into doctrine.

In 1949 the principles of war returned to U.S. doctrine. The principles were similar to the first list published in 1921, but in many ways they were very different. Most of the description and explanation of the doctrines of combat from previous editions found their way into the principles of war in the 1949 edition.

The United States Army Principles of War, 1949

The Objective
Simplicity
Unity of Command
The Offensive
Maneuver
Mass
Economy of Forces
Surprise
Security⁷⁸

The new lists included nine principles of war, two were listed with different titles than the 1921 list. The principle of unity of command replaced cooperation, and maneuver replaced mobility. More importantly than the changes to the names, was how they were defined and presented. Each principle was listed in bold face type centered on top of a paragraph definition explaining the principle.⁷⁹ The principles had returned to U.S. doctrine but more changes would occur in the years that followed.

In 1954 the United States Army published another field service regulation. The principles of war were again listed in chapter four, but this time their order and definition changed. The first sentence of each definition was printed in italics in order to emphasize the significance of the principle mentioned. Many of the principles changed in meaning but not in name. For the first time the principle of mass was not defined as the concentration of superior forces, but was defined as the concentration of means at the

critical time. The meaning of the principle of mass is still debated today. It was in 1954 that the meaning changed but not the name. Many feel that the term mass is outdated, but others are comfortable with the new meaning. The first sentence under the principle of mass stated that maximum combat power must be applied at the point of decision. It is very difficult to believe that the term mass still meant the concentration of forces prior to 1954. This was a lesson learned in the Civil War, but yet almost one hundred years later, after two world wars, the invention of the airplane, and other major technological influences on the evolution of warfare, mass still meant massing forces at the proper place and time. The principle of mass still remains a principle of war today, the meaning today is very similar to the new meaning introduced in 1954. This example of changing the definition and not the name of the principle is a key evolutionary step for the principles of war in U.S. doctrine. It proves two things about the principles of war. The first is that the principles of war are not immutable, and secondly, since the principles are not immutable they have not passed the test of time, but instead evolved as warfare has evolved, but often not at the same time.

The 1954 manual also included a paragraph defining the principles of war. The first paragraph of the chapter began with, "*The principles of war are fundamental truths governing the prosecution of war.*" and concluded with, "The degree of application of any specific principle will vary with the situation and the application thereto of sound judgment and tactical sense."⁸⁰ The 1954 manual changed the definitions but not the names of the principles. The changes were needed as a result of lessons learned during World War II, Korea, and the atomic era. The principle of unity of command stated

specifically that Peal Harbor was an example of failure in organization for command.

Warfare had changed again, and lagging behind again, was the doctrine on how to fight in a new age. Why the names of the principles were not changed is unclear. Some changes and additions were called for, but none were adopted.⁸¹

The 1962 version of FM 100-5 was very similar to the to the 1954 edition. The principles of war were listed in chapter four instead of five. Some of the definitions were rewritten and the order they were listed in changed. The principle of simplicity moved from the number three principle listed to number nine. The definition of mass was described as the concentration of combat power at the critical place and time for a decisive purpose. Combat power is later defined as the combination of all physical means available to include the moral strength of the command. The definition of maneuver was added to include an explanation stating that maneuver is the antithesis of permanence of location and implies avoidance of stereotyped patterns of operation.⁸²

The next FM 100-5 was published in 1968. The 1968 version of the principles of war was almost identical to the 1962 version.⁸³ The lessons of Vietnam and the Cold War however would bring about drastic changes in army doctrine.

The next addition of FM 100-5 would not be published until 1976 and it would not include the principles of war. The exclusion of listing the principles of war was a deliberate decision made by the authors of the manual. General Starry commented in a speech given in 1979, that it was not the intent of the manual to ignore the principles of war but rather to apply them to the modern battlefield.⁸⁴ General Starry also stated in a letter in 1995 that it was his conviction that the principles of war needed a rewrite to

reflect the three levels of war.⁸⁵ The principles were embedded in the doctrine but they were never mentioned or referenced as the principles of war.⁸⁶

The 1976 manual ignited a doctrinal debate in the U.S. Army. The debate over the principles of war was small in comparison to the debate over the rest of the manual. The principle of war debate however, would be solved first by the creation of a new manual in 1978. In 1978 the Chief of Staff of the Army directed the publication of FM100-1 *The Army*. This manual returned the principles of war back to doctrine, however the list was very similar to the 1962 and 1968 version of FM 100-5.⁸⁷ The doctrinal debate over the 1976 FM 100-5 would continue to influence the development of a new FM100-5 and the return of the principles of war to this manual.

In 1983 a new FM 100-5 was published under the direction and guidance of General Starry. The manual was a monumental evolutionary step for U.S. Army doctrine. The airland battle concept was born. This manual listed the principles of objective, offensive, mass, economy of force, maneuver, unity of command, security, and surprise in Appendix B. The names remained the same but the definitions of the principles clearly changed. Each definition was more detailed and addressed how the principle applied to the strategic as well as the tactical dimension. The appendix began by describing the origins of the principles of war in the U.S. Army and stated that they have stood the test of analysis, experimentation and practice. It is extremely difficult to understand on what basis this statement is made. The changes made in the 1983 manual were much more than slight revisions. This manual clearly connected the relevance of each principle to a level of

war and to doctrine.⁸⁸ The next manual would continue this trend to include the operational level of war.

The Cold War taught the Army that the 1983 manual did not fully capture the operational level of war. The new manual, published in 1986 addressed the shortfalls of the 1983 version. The principles of war reflected this by addressing the operational level of war in the definition of the principles. As in the 1983 version, the 1986 manual listed the principles in an appendix. The major change was instead of simply addressing the tactical and strategic dimension, the definitions included the operational dimension.⁸⁹ The addition of the operational dimension and the relevance of the principles of war to that dimension, was another step along the evolutionary path of the principles of war.

The end of the Cold War and the execution of force projection missions in Panama and the Persian Gulf, required that the U.S. Army again rewrite FM 100-5. The 1993 version of FM 100-5 is the current doctrine for the U.S. Army at the time of this study. The U.S. Army currently recognizes the principles of war as the bedrock of doctrine. The principles of war are listed in chapter two under the foundations of army operations along with the tenets of army operations. The manual states that the nine principles of war provide general guidance for the conduct of war at the strategic, operational, and tactical levels.⁹⁰ The names of the principles remained the same but the definitions changed. The principle of objective addresses the full range of military operations. The definition of objective mentions specifically operations other than war. This is the first time this type of operation is mentioned in the principles of war.⁹¹ The current principles of war are listed

in Appendix A, Table A-XVI. In addition to being the current list of accepted principles of war for the Army, the list the Army recognizes is also included into joint doctrine.⁹²

The acceptance of the principles of war in Joint Doctrine marks the latest evolutionary step for the principles of war. This evolutionary process continues today. The principles of war will again be changed in the future doctrine of the Army. The revised final drafts of the future doctrine suggest that the principles of war provide a concise summary of successful operations and therefore their greatest value lies in the education of the military professional. The question remains, are the principles of war still relevant to tactical operations? The next section of this monograph will attempt to answer this question.

U.S.	Great Britain	Russia	China	France	Historical
Objective	Aim		Aim		Objective <i>Napoleon, Clausewitz</i>
Offensive	Offensive Action	Initiative	Offensive Action	Liberty of Action	Initiative <i>Saxe, Frederick, Napoleon</i>
Mass	Concentration of Force	Massing and Correlation of Force	Concentration of Force	Concentration of Effort	Mass <i>Napoleon, Jomini</i>
Economy of Force	Economy of Force	Economy and Sufficiency of Force			Economy of Force <i>Bonnal, Foch</i>
Maneuver	Flexibility	Mobility and Tempo	Initiative and Flexibility		Maneuver <i>Frederick, Napoleon Jomini</i>
Unity of Command	Cooperation		Coordination		Unity of Command <i>Napoleon</i>
Security	Security		Security		Intelligence <i>Sun Tzu, Saxe</i>
Surprise	Surprise	Surprise	Surprise	Surprise	Surprise <i>Jackson</i>
Simplicity					Simplicity <i>Napoleon</i>
	Maintenance of Morale	Preservation of Combat Effectiveness	Morale		Leadership Morale Discipline <i>Saxe, Frederick, Napoleon</i>
			Mobility		
		Simultaneous Attacks on all Levels	Political Mobilization	Liberty of Action	
		Interworking and Coordination	Freedom of Action		Logistics <i>Sun Tzu, Frederick Saxe, Napoleon</i>

Table II-1: Comparison of the principles of War.

III. Analysis

If the principles of war are relevant to tactical operations then they should be applicable or pertinent to the purpose of tactical operations. Tactical operations are those operations concerning the execution of engagements and battles. They are designed to accomplish military objectives through engagements and battles in order to achieve operational results. Tactics is defined as the art and science of employing available means to win battles and engagements.⁹³

Units assigned to accomplish a tactical mission will do so through military action. Several types of operations exist for which a unit may be assigned to accomplish a military action. The two most common types of military operations are offensive and defensive operations. Tactical operations are designed to either defeat the enemy or prevent the enemy from defeating friendly forces. The purposes of offensive and defensive operations provide the foundation for the execution of these operations. If the principles of war are relevant to tactical operations then they should be relevant to the purpose of offensive and defensive operations. Table III-1 and III-2 show a comparative analysis of the purpose of offensive (Table III-1) and defensive (Table III-2) operations and the principles of war.

Offensive operations are the means in which the commander imposes his will on the enemy. Offensive operations are conducted for several purposes as defined in FM 7-10, *The Infantry Rifle Company*. The primary purpose of the offense is to destroy the enemy by destroying his will and ability to resist. The purpose is also to destroy the enemy, seize decisive terrain, gain information, deceive the enemy, hold the enemy, and disrupt an enemy attack. To do this, FM 7-10 describes that the attacker must have

superior combat power at the decisive point and must use economy of force in order to apply combat power at other locations. Attacks should be designed to avoid enemy strengths. The goal of the offense is to strike the enemy with overwhelming power where and when the enemy least expects it. The characteristics of offensive operations are, surprise, speed, concentration, flexibility, and audacity.⁹⁴ The definitions of the purposes of offensive operations directly relate to some or all the principles of war as seen in Table III-1.

Purpose of Offensive Operations	Principle of War
To destroy enemy personnel equipment and resources.	Objective, Offensive, Mass, Simplicity.
To seize or secure decisive terrain.	Objective, Offensive, Mass, Simplicity.
To gain information.	Security, Simplicity.
To deceive and divert the enemy.	Maneuver, Surprise, Security, Offensive, Economy of Force, Simplicity.
To hold the enemy in position.	Offensive, Maneuver, Security, Surprise, Simplicity.
To disrupt the enemy attack.	Offensive, Maneuver, Mass, Surprise, Security, Simplicity.

Table III-1: Comparative analysis of the principles of war and the purpose of offensive operations.

The purpose of defensive operations is to cause the enemy attack to fail or to create the opportunity to conduct offensive operations. The purpose of defensive operations also include, gain time for preparation, allow for forces to be concentrated elsewhere, control key enemy forces, and retain key terrain. The characteristics of defensive operations are preparation, distribution, concentration, and flexibility. The purpose and the characteristics of the defense directly relate to some or all the principles of war as seen in Table III-2.

Purpose of Defensive Operations	Principles of War
To defeat an enemy attack.	Objective, Offensive, Mass, Surprise, Simplicity.
To gain time to prepare for other operations.	Objective, Offensive, Economy of Force, Security, Surprise, Simplicity.
To allow a higher commander to concentrate forces elsewhere.	Economy of Force, Security, Unity of Command, Surprise, Simplicity.
To control key enemy forces as a prelude to offensive operations.	Objective, Offensive, Economy of Force, Unity of Command, Simplicity.
To retain key or decisive terrain.	Objective, Mass, Security.

Table III-2: Comparative analysis of the principles of war and the purpose of defensive operations.

The fact that the principles of war directly relate to the purpose of offensive and defensive operations proves the relevance of the principles of war to current doctrine. It does not validate all the principles of war and it certainly does not address the need for

additional ones. The purposes of offensive and defensive operations were chosen for this study because they are very similar to the purposes of offensive and defensive operations described in the final drafts of future Army doctrine. If the purposes of offensive and defensive operations will remain the same in future doctrine, then the relevance of the principles of war will also remain the same. The question then remains, are all the principles of war relevant and are there any additional ones that need to be added?

To answer this question each principle must be addressed to determine how it is applicable to the purpose. The primary purpose of tactical operations is to achieve victory over the enemy in battles and engagements. Are the principles of war applicable to this purpose? Table III-3 shows which principles of war are, and are not applicable to the purpose of tactical operations. This study has shown that there are other principles that need to be considered. Additional principles and their relevance to the purpose of tactical operations are seen in Table III-4. The additional principles were taken from other militaries and from principles discussed in section two and illustrated in table II-1.

This analysis has shown which principles of war are relevant to tactical operations and which ones are not. The conclusions from this analysis indicate that change is needed to the principles of war. The principle of mass needs to be renamed or redefined. The principle of economy of force needs to be deleted. The principle of security needs to be redefined. The principle of offensive should be renamed the principle of initiative. The principles of leadership and morale, intelligence, and logistics should be considered for addition. (See Tables III-3 and III-4)

POW	Relevance to the purpose of tactical operations.
Objective	Directly relates to tactical operations. All engagement and battles must accomplish military objectives that will achieve operational results in support of the strategic aim.
Offensive	Does not always relate to the overall purpose. Purpose could be achieved by not going on the offensive. The term initiative better describes this principle.
Mass	Effects can be massed without concentrating forces. The ability to apply combat power is relevant to tactical operations. It does not mean, as it used to mean, mass forces. The name mass needs to be dropped and a more suitable one adopted. Tactical operations today require a commander to apply combat power over a wide area and to carefully select in both time and space where combat power needs to be applied.
Economy of Force	Is relevant to the application of combat power. Directly relates to the current definition of Mass. In order to mass effects, combat power must be used effectively.
Maneuver	Directly relevant to tactical operations. To win it is necessary to place forces where they can maximize friendly strength over enemy weakness. Maneuver allows the friendly force to maintain the initiative.
Unity of Command	Is relevant to objective and to tactical operations. To beat the enemy in battles and engagements unity of command is relevant. Unity of command ensures that combat power is directed to the same purpose.
Security	Is relevant to tactical operations. The definition of security is vague. If it is meant to include intelligence then the definition should say so. If it only means protection then the title should be changed to protection and intelligence be added.
Surprise	Is relevant to tactical operations. Perhaps no other principle says it better than this one.
Simplicity	Is relevant to tactical operations. Tactical operations will become more complex in the future, this principle will remain vital to Army operations.

Table III-3: The relevance of the principles of war to tactical operations.

Additional POWs	Relevance to the purpose of tactical operations.
Initiative (Russia)	Is relevant to tactical operations. Seizing and retaining the initiative creates the conditions for success. This principle has remained constant since Sun Tzu.
Morale (Saxe, Frederick, Napoleon)	Is relevant to tactical operations. Morale is a direct reflection of leadership and is crucial for success in military operations.
Discipline (Saxe, Frederick, Napoleon)	Is relevant to tactical operations. Discipline is also a direct reflection of leadership and is crucial for tactical success.
Leadership (Saxe, Frederick, Napoleon)	Is relevant to tactical operations. Quality leadership will ensure a well trained disciplined force with high morale. Morale and discipline are a subset of leadership and could be combined into one principle.
Logistics (Frederick, Napoleon)	Is relevant to tactical operations. No tactical operation should be executed unless it can be supported logistically. This is a fundamental truth and therefore meets the definition of principle.
Intelligence (Sun Tzu, Saxe)	Is relevant to tactical operations. No advantage can be exploited without good intelligence. Crucial to force projection operations.
Political Mobilization (China)	Indirectly relevant to tactical operations, but impacts more on the strategic level.
Simultaneous Attacks on all Levels (Russia)	Not relevant to tactical operations. Not every level needs to be attacked at the same but synchronized to achieve the desired effects. Closely resembles massed effects but on multiple targets or decisive points.

Table III-4: The relevance of other principles of war to tactical operations.

This section has proven the relevance of the principles of war to current doctrine. It has also proven that change is needed. To determine if the recommendations concluded in this study are valid they need to be analyzed in application. The next section will analyze the principles of war as well as the changes recommended in this study as they were applied in Operation Just Cause.

IV. Analysis of Application

On 20 December 1989 over twenty six thousand soldiers, sailors, airmen, and marines of the U.S. armed forces attacked Panama and neutralized the Panamanian Defense Forces. Operation Just Cause was the largest military action since Vietnam, but unlike Vietnam, Operation Just Cause was a success. Most of the objectives were accomplished in the first few hours of the operation. On 3 January 1990, General Manuel Noriega surrendered and Operation Just Cause was concluded. The Republic of Panama began again with its first freely elected government in twenty one years.⁹⁵

Operation Just Cause provides numerous lessons for future military operations. It was a force projection of the U.S. Military to intervene in a country in order to protect U.S. national interest abroad. The objectives were limited, the threat was asymmetrical, and the duration was short. This analysis of Operation Just Cause uses the principles of war discussed in the previous sections of this monograph in order to determine the relevance of the principles of war to future doctrine.

Objective. The overall political and strategic objectives of Operation Just Cause were to safeguard U.S. lives, protect the Panama Canal and U.S. defense sites, to assist in establishing a democratic government, neutralize the Panamanian Defense Force, and bring Manuel Noriega to justice.⁹⁶ The numerous tactical objectives that were derived from the strategic objectives were clearly defined and attainable. The tactical objectives directly supported accomplishment of the strategic objectives. Objectives were chosen to neutralize the PDF and to simultaneously secure the canal and U.S. lives. U.S. Forces were divided into numerous task forces consisting of conventional and unconventional

forces. The lesson that Just Cause illustrates is that force projection operations may require that many objectives be attacked at the same time. In Just Cause the military was successful in attacking numerous objectives at night simultaneously. The force projection army of the future will be required to do the same thing. The principle of objective has become more difficult to apply but it certainly remains valid.

Offensive. U.S. Forces clearly seized and maintained the initiative throughout the operation. This principle is titled offensive and therefore is often linked only to offensive operations. In Panama the initiative was seized by creating the conditions for the attack and forcing the PDF to react rather than act. Just Cause is a perfect example of seizing the initiative through the offensive, but the offensive is not the only way to force the enemy to react. Creating the conditions for military operations is the key. The execution of Operation Promote Liberty by U.S. civil affairs units in Panama is an example of retaining the initiative in this type of operation. The U.S. used civil affairs units to establish a police force, distribute food, restore the production of local newspapers, and help spread the word of the newly established democratic government.⁹⁷ Seizing and retaining the initiative remain a valid principle. It is important to note that the offense may not be the only way to seize the initiative. Initiative, not offensive, is the true principle.

Mass. Just Cause is a good example of applying synchronized overwhelming combat power where it could achieve a desired effect on the enemy. There may no longer exist a single tactical decisive point, where, if the effects of combat power are massed will force a decision. The lesson that Just Cause offers for the future is that there are often many tactical objectives that must be overwhelmed with combat power at the same time to

achieve a desired operational effect. This is more than massing effects, it is the synchronized distribution of combat power over time and space to force a decision or accomplish an operational objective. This demands that the tactical means must be joint. The distribution of forces and facilities in Panama forced units to accomplish several objectives at the same time. Task Force Bayonet, consisting mostly of the 193d Infantry Brigade, was tasked with numerous objectives in and around Panama City to include Fort Amador, the Comandancia, and the U.S. Embassy.⁹⁸ The commander of the task force could not simply mass overwhelming combat power on a single point, he was forced to mass the effects of combat power on several objectives at the same time. Operation Just Cause serves as a good example why the principle of mass needs to be redefined. Opposed entry operations in the future will require the Army to attack several objectives at the same time with an overwhelming joint force. A better name for this principle may be dispersed domination. The desired effect is to paralyze the enemy by applying combat power against numerous decision points spread over time and space.

Economy of Force. Just Cause is an example as to why this principle needs to be a subset of the above principle. In future operations combat power must be projected in the most efficient way possible. Just Cause is a good example of how combat power may be applied in the future, forces need to be distributed over many objectives simultaneously. Over 26,000 U.S. forces were deployed against 4,000 Panamanian combat troops in Operation Just Cause.⁹⁹ The U.S. forces were employed so that every commander clearly understood the purpose of the operation through mission type orders.¹⁰⁰ Combined with the above principle, economy of force will remain valid to future tactical operations.

Maneuver. Operation Just Cause is a perfect example of how maneuver might be applied in future operations. Many units were directly deployed to Panama from the states and conducted an opposed entry operation. It is extremely difficult to use movement to gain a positional advantage over the enemy during a forced entry operation. How to enter and where to enter become critical. Forces were placed where and when they were required, they came from air land and sea. The movement of forces was not predicable and allowed U.S. forces to place the enemy in a position of disadvantage.¹⁰¹

Unity of Command. Just Cause was a complex operation that included every branch of service, yet the chain of command was clearly understood from the top to the lowest level. General Thurman turned over planning for the operation to General Stiner and held Stiner responsible for the Panama plan.¹⁰² General Thurman also stated to the Joint Chiefs of Staff that all forces in Panama work for Carl Stiner.¹⁰³ This act ensured unity of command and unity of effort. General Stiner reworked the plan and ensured every task force understood who they worked for.¹⁰⁴ Without a doubt this principle will remain crucial to future force projection operations.

Security. Just Cause is an example of how difficult it will be to prevent the enemy from acquiring an unexpected advantage in the future. This principle is defined as measures taken by the commander to protect the force. Operational security was extremely well executed for an operation of this magnitude. Secrecy of the mission was closely guarded. Troops were built up and major deployments were underway before the press or the PDF knew what was occurring.¹⁰⁵ What this principle does not stress is the importance of intelligence. The massive amount of intelligence collected prior to this

operation was key to the success of it. Every PDF unit location was known and estimates were made as to how each unit would respond. For months prior to the invasion U.S. forces conducted exercises to estimate what the response of certain PDF units might be.¹⁰⁶ Intelligence sources intercepted evidence that the PDF knew the time the invasion would take place, but when PDF did not exercise a full alert posture the invasion remained on.¹⁰⁷ Panama was a unique situation, U.S. forces had lived and worked in the country since the opening of the canal in 1914. Major General Cisneros, the commander of United States Army South, served in Panama several years before taking command of USARSO, he had many Panamanian friends including members of the PDF.¹⁰⁸ The amount of intelligence required for this operation was incredibly large, future operations will require no less.

Surprise. Intelligence sources indicated that several leaks occurred prior to the invasion. General Stiner felt that he lost tactical surprise due to the breaches in security.¹⁰⁹ It is extremely difficult to achieve total surprise in war. In the future it is reasonable to expect that surprise will be more difficult to achieve due to increases in technology. As stated in FM 100-5, the enemy need not be taken totally by surprise, but only become aware too late.¹¹⁰ This principle has become increasingly more difficult to apply but will remain vital to future military operations.

Simplicity. Operation Just Cause is a perfect example of just how complex operations will be in the future. FM 100-5 states that war is very simple, but the simple thing is very difficult.¹¹¹ The ability of the U.S. to conduct complex operations is one reason why Operation Just Cause was a success. The difficulty with this principle may be

in how some professionals interpret it. The definition should read, nothing in war is simple, and therefor there is no easy plan. The challenge is to control complexity. This is done by translating complex tasks into a simple and clearly understood plan. Just Cause is an excellent example of this. The plan gave all units mission type orders with a clearly defined task and purpose.¹¹² This doctrinal requirement of task and purpose along with the commanders intent, is how the principle of simplicity is applied. Unfortunately, there is nothing simple about preparing clear and uncomplicated plans.

Intelligence. All the great military commanders reviewed in this study indicated the importance of intelligence. For this reason, Intelligence needs to be a principle of war. The importance of intelligence to this operation was analyzed under security.

Logistics. Frederick the Great stressed the importance of logistics. Operation Just Cause proves that logistics is a fundamental rule in war. Without the massive transportation and logistics assets the United States Armed Forces would never have been able to conduct the invasion of Panama. Military actions in the future will only require a greater demand for logistics. The capabilities of the United States Military is limited by logistics. This is a fundamental truth about militaries throughout history but the principle has not been recognized.

Leadership and Morale. High morale is a product of good leadership without it an army loses lethality. As long as humans are involved in warfare, morale will be essential. After Operation Just Cause General Stiner commented that the operation validated what the military was doing right. Stiner credited the well trained and disciplined forces as the reason for the operations success.¹¹³

This section analyzed the principles of war recognized by the United States Army as well as others derived from past commanders. The purpose of this analysis was to determine if the principles of war will be relevant to future tactical operations. The answer is clearly yes, the principles of war will remain relevant to future operations and should be incorporated in future doctrinal manuals of the U.S. Army.

V. Conclusion

This study has shown that the principles of war are still relevant to tactical operations. This study answered the research question by analyzing the origin and evolution of the principles of war, the relevance of the principles to present day doctrine, and finally, how the principles were applied in a recent operation. This methodology proved the relevance of the principles and indicated that some need to be changed, deleted and added. The recommended changes to the principles of war are seen in Table V-1. This study only addressed tactical operations. Further review is necessary for the operational and strategic levels of war.

The principles of war are not laws, they are guides to allow a student of the military profession to better understand the past in order to determine what might work in the future. They are the thread that runs from history through theory, through doctrine, all the way to application. For the principles to remain relevant they must be subject to constant objective analysis. They are not written in stone, they never have been and they never should be. They are a tools for analyzing the past and guides for writing and applying doctrine in the future. They must be pushed constantly for their relevance. They

are not a checklist but they can be used for evaluation. Adherence will not guarantee victory, nor will omitting them guarantee defeat, their relevance is in guiding the military commander in determining the best way to apply doctrine.

Current Principles	Recommended Principles
Objective	Objective
Offensive	Initiative (changed)
Mass	Dispersed Domination (changed)
Economy of Force	(deleted/added to above)
Maneuver	Maneuver
Unity of Command	Unity of Command
Security	Security
Surprise	Surprise
Simplicity	Simplicity
	Intelligence
	Logistics
	Morale

Table V-1: Recommended Principles of War.

Military doctrine must gain its backbone from military theory and history but it must not become trapped in the past and emotionally tied to sentimental ideas. It should not be a revolutionary idea to suggest that the principles should be changed. The principles of war should be constantly reviewed to test their purpose and relevance to

current and future doctrine. To do this a collective review is necessary. No one person will get it right, collective critical review and debate of the principles of war are necessary before a refined list will be produced that will be capable of guiding the Army in the future.

APPENDIX A
Evolution of the Principles of War

Table A-I
Sun TZU

Sun Tzu described the ways that the military strategists are victorious.

1. Display profits to entice them. Create disorder in their forces and take them. Deception.
2. If they are substantial, prepare for them; if they are strong, avoid them. Intelligence Initiative.
3. If they are angry, perturb them; be differential to foster their arrogance. Initiative.
4. If they are rested, force them to exert themselves. Initiative.
5. If they are united force them to be separated. Create favorable conditions, initiative.
6. Attack where they are unprepared. Maneuver, intelligence.
7. Go forth where they will not expect it. Maneuver, intelligence.
8. These are the ways military strategists are victorious. They cannot be spoken of in advance. Operational Security and Intelligence.¹¹⁴

Table A-II
Niccolo Machiavelli

“And now, gentlemen, I think I have but little more to add to what I have said upon this subject, except to lay down some general rules of military discipline which nevertheless you may probably think very obvious and common. You must know, then, that:

1. What ever is of service to the enemy must be prejudicial to you; whatever is prejudicial to him must be of service to you.
2. He who is most careful to observe the motions and designs of the enemy and takes the most care in drilling and disciplining his army, will be least exposed to danger and will have the most reason to expect success in his undertakings.
3. Never come to an engagement until you have inspired your men with courage and see them in good order and eager to fight, nor hazard a battle until they seem confident of victory.
4. It is better to subdue an enemy by famine than by sword, for in battle, *fortuna* has often a much greater share than *virtu*.
5. No enterprise is more likely to succeed than one concealed from the enemy until it is ripe for execution.
6. Nothing is of greater importance in time of war than knowing how to make the best use of a fair opportunity when it is offered.
7. Few men are brave by nature, but good discipline and experience make many so.
8. Good order and discipline in an army are more to be depended upon than ferocity.
9. If any of the enemy's troops desert him and come over to you, it is a great acquisition-provided they prove faithful; for their loss will be more felt than that of those killed in

- battle, although deserters will always be suspected by their new friends and odious to their old ones.
10. In drawing up an army in order of battle, it is better to keep a sufficient reserve to support your front line than to extend it so as to make only one rank, as it were, of your army.
 11. If a general knows his own strength and that of the enemy perfectly, he can hardly miscarry.
 12. The *virtu* of your soldiers is of more consequence than their number; sometimes the location of the place is of greater advantage and security than the *virtu* of your soldiers.
 13. Sudden and unexpected accidents often throw an army into confusion, but things that are familiar and have come on gradually are little regard; therefore, when you have a new enemy to deal with, it is best to accustom your men to their sight as often as you can by slight skirmishes before you come to a general engagement with them.
 14. He whose troops are in disorder while pursuing a routed enemy will most probably lose the advantage he had previously gained and be routed in his turn.
 15. Whoever has not taken care to furnish himself with a sufficient stock of provisions and ammunition bids fair to be vanquished without striking a stroke.
 16. He who is stronger in infantry than cavalry, or in cavalry than infantry, must choose his ground accordingly.
 17. If you would know whether you have any spies in your camp during the day, you have nothing more to do than to order every man to his tent.
 18. When you are aware that the enemy is acquainted with your designs, you must change them.
 19. After you have consulted with many about what you ought to do, confer with very few concerning what you are actually resolved to do.
 20. While your men are in quarters, you must keep them in good order by fear and punishment; but when they are in the field, by hopes and rewards.
 21. Good commanders never come to an engagement unless they are compelled to by absolute necessity, or occasion calls for it.
 22. Take great care that the enemy may not be apprised of the order in which you design to draw up your army for battle; make such a disposition that your first line may fall back with ease and convenience into the second, and both of them into the third.
 23. In time of action be sure not to call off any of your battalions to a service different from what they were destined to do at first, lest you should occasion disorder and confusion in your army.
 24. Unexpected accidents cannot be easily prevented, but those foreseen may easily be obviated or remedied.
 25. Men, arms, money, and provisions are the sinews of war, but of these four, the first two are the most necessary; for men and arms will always find money and provisions, but money and provisions cannot always raise men and arms.
 26. A rich man without arms must be prey to a poor soldier well armed.
 27. Accustom your soldiers to abhor fastidious living and luxurious dress.
- Let these general rules suffice at present as altogether necessary to be remembered.”¹¹⁵

Table A-III
Henry the Duke of Rohan

Henry Duke of Rohan published a list of seven guides for the general who wishes to engage in war in his military memoirs. This list of seven guides was later published in 1644, more than six years after Rohan's death.

1. Never allow yourself to be forced to combat against your will.
2. Chose a field of battle according to the number of your troops, their quality, and the type of engagement you wish to undertake.
3. Arrange your army in battle in a manner that enables you to renew the fighting several times with ordered troops.
4. Have good leaders at the head of each principle corps.
5. Place the different lines in such a manner that can sustain each other; without it the overthrow of one leads to the overthrow of the others.
6. Put the best troops on the wings and attack with the wing that is the strongest.
7. Do not allow pillage, but pursue until the enemy is completely beaten.¹¹⁶

Table A-IV
Henry Lloyd, Axioms on the Line of Operation, 1781.

1. When the nature of the frontier that you wish to attack and the position of your depots affords you the freedom, it is necessary to choose the shortest and least difficult line of operations.
2. Your direction must be such that the enemy is not able to act on your flanks and consequently on your line of operations. That would happen if the enemy were the master of the provinces that are found on the right and left of your march because then, the more you advance into the country, the more you assure your defeat; soon you would no longer have communications with your depots; your line would be destroyed; you would be entirely enveloped and defeated.
3. It is necessary that this line of operation lead you to some essential objective, otherwise ten campaigns, although extremely successful, would produce nothing useful.¹¹⁷

Table A-V
Jomini's General Principles of the Art of War

“ 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 a 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 lines of communications between the enemy force and his base of operations.
3. The result of the proceeding 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 as 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 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 counter attack....
8. If the art of war consist 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."¹¹⁸

Table A-VI
General Beauregard Principles

The whole science of war may be briefly defined as the art of placing in the right position, at the right time, a mass of troops greater than your enemy can there oppose to you.

Principle No. 1. To place masses of your army in contact with fractions of your enemy.

Principle No. 2. To operate as much as possible on the interior lines of your enemy without exposing your own.

Principle No. 3. To operate always on interior lines (or shorter ones in point of time).¹¹⁹

Table A-VII
“A Few of Jackson’s Maxims”

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.¹²⁰

Table A-VIII
Ferdinand Foch

The principle of economy of forces.

The principle of freedom of action.

The principle of free disposition of forces.

The principle of security, etc.

The use of etc. brought severe criticism to Foch, but he most likely was simply stating that he did not list nor attempt to list all the principles of war.¹²¹

Table A-IX
France, "Principles Which Should Be Known To All." 1917

Energy. Energy is the most important of soldierly qualities. From it spring bravery, fortitude, self sacrifice, discipline, and the devotion to duty. It is the energy of the leader and of his men which enables them to carry a fight to a finish. And which brings forth the highest acts of heroism. When the leader is considering various courses of action he will be sure to be right if he decides upon the most energetic.

Unity of Action. In order to defeat the enemy we must strike hard, as hard as possible and all together. One can never be too strong, either in attack or in defense. A good chief of platoon gets all of his men into action and leaves none of them idle during critical moments. If he loses touch with adjoining troops and has no orders, he will go wherever fighting is going on and place his platoon at the disposition of the commander.

Surprise. An attacking force will attain the greater results in proportion as its action is unexpected by the enemy. The advantage of surprise should always be sought for. Surprise is obtained by a combination of two essential conditions—secrecy in preparation and celerity in execution.

Security. On the other hand, we must avoid being surprised. It is a fundamental duty of the commander to provide for the security of his men in every direction in which the enemy may appear.¹²²

Table A-X
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 the 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.¹²³

Table A-XI
J.F.C. Fuller, Strategic Principles and Tactical Principles

Strategic Principles:

These fundamental principles are:

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 movement.
6. The principle of surprise.
7. The principle of security.
8. The principle of cooperation.

Tactical Principles:

These principles are:

1. The principle of demoralization.
2. The principle of endurance.
3. The principle of shock.¹²⁴

Table A-XII
Principles of War, Great Britain, 1920

Maintenance of the objective.

Offensive action.

Surprise.

Concentration.

Economy of Force

Security

Mobility

Cooperation.¹²⁵

Table A-XIII
United States Army Principles of War, 1921

Principles of war.-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.¹²⁶

Table A-XIV
Great Britain, The Principles of War, 1945

- a. Administration
- b. Maintenance of morale.
- c. Selection and maintenance of the aim.
- d. Flexibility.
- e. Economy of effort.
- f. Concentration of force.
- g. Offensive action.
- h. Surprise.
- i. Security.
- j. Cooperation.¹²⁷

Table A-XV
The United States Army Principles of War, 1949

The Objective
Simplicity
Unity of Command
The Offensive
Maneuver
Mass
Economy of Forces
Surprise
Security¹²⁸

Table A-XVI
The United States Army Principles of War, 1993 (present)

Objective

Direct every military operation toward a clearly defined, decisive, and attainable objective.

Offensive

Seize, retain, and exploit the initiative.

Mass

Mass effects of overwhelming combat power at the decisive place and time.

Economy of Force

Employ all combat power available in the most effective way possible; allocate minimum essential combat power to secondary efforts.

Maneuver

Place the enemy in a position of disadvantage through the flexible application of combat power.

Unity of Command

For every objective, seek unity of command and unity of effort.

Security

Never permit the enemy to acquire unexpected advantage.

Surprise

Strike the enemy at a time and place or in a manner for which he is unprepared.

Simplicity

Prepare clear, uncomplicated plans and concise orders to ensure thorough understanding.¹²⁹

(U.S. Army FM 100-5, Operations 1993, 2-4-2-6)

NOTES

¹ *Operations*, FM 100-5 (Washington, D.C.: Headquarters, Department of the Army, 14 June 1993), 2-4.

² *Operations*, FM 100-5 (1993), 2-4 - 2-6.

³ *Infantry Rifle Company*, FM 7-10 (Washington D.C.: Headquarters Department of the Army, 14 December 1990), 4-5, 5-3.

⁴ *Operations, FM 100-5* (Washington, D.C.: Headquarters Department of the Army, 1983), B-1.

⁵ Sun Tzu, *The Art of War*, translated by Ralph D. Sawyer (Boulder, CO: Westview Press, 1994), 79-84.

⁶ *Ibid.*, 179.

⁷ Brig. Gen. T. R. Phillips, *Roots of Strategy, The Five Greatest Military Classics of All Time* (Harrisburg, PA: Stackpole Books, 1985), 67-74.

⁸ *Ibid.*, 171-175.

⁹ Niccolo Machiavelli, *The Art of War*, with introduction by Neal Wood (New York: Da Capo Press, 1990), xviii.

¹⁰ *Ibid.*, 202-204.

¹¹ John I. Alger, *The Quest for Victory* (Westport, Conn.: Greenwood Press, 1982), 11. A study on the origins of the principles of war must begin with John Alger. His book is a detailed work of the origins and evolution of the principles of war.

¹² Phillips, 179-188.

¹³ *Ibid.*, 189-192.

¹⁴ *Ibid.*, 294-300.

¹⁵ Frederick the Great, *Instructions For His Generals*, translated by Brigadier General Thomas R. Phillips (Harrisburg, PA: Military service Publishing Co., 1944), 25.

¹⁶ *Ibid.*, 84.

¹⁷ FM 100-5 (1993), 2-10.

¹⁸ Alger, 12-13.

¹⁹ *Ibid.*, 13.

²⁰ *Ibid.*, 201.

²¹ Phillips, 403.

²² Alger, 16.

²³ Phillips, 427.

²⁴ Antoine Henri Jomini, *Jomini and His Summary of The Art of War*, edited by Brig. Gen. J. D. Little, found in *Roots of Strategy Book 2, Three Military Classics* (Harrisburg, PA: Stackpole Books, 1987), 409. A popular misconception of Jomini during the time that he lived and that remains today is that he thought of war in terms of geometrical formations and absolute rules.

²⁵ Alger, 41-44. One reason that this false distinction was attached to Jomini is due to a false translation. When Jomini's book, *Elementary Treaty on the Military Art and Fortification* was first introduced in the United States it was translated incorrectly to read, *A Treatise on the Science of War*. This translation was soon being taught at the United States Military Academy, and Jomini's chapter on the principles of war was interpreted to be scientific principles. One reason that this false distinction was attached to Jomini is due to a false translation. When Jomini's book, *Elementary Treaty on the Military Art and Fortification* was first introduced in the United States it was translated incorrectly to read, *A Treatise on the Science of War*. This translation was soon being taught at the United States Military Academy, and Jomini's chapter on the principles of war was interpreted to be scientific principles.

²⁶ Jomini, 437.

²⁷ *Ibid.*, 433-438.

²⁸ Alger, 21-23.

²⁹ Jomini, 461-462.

³⁰ Alger, 63.

³¹ *Ibid.*, 63.

³² Fuller, J.F.C. Major-General, *The Conduct of War 1789-1961* (New York: Da Capo Press, 1992), 113-121.

³³ Alger, 60-63.

³⁴ *Ibid.*, 38-41.

³⁵ *Ibid.*, 44-46.

³⁶ T. Harry Williams, *P.G.T. Beauregard, Napoleon in Gray* (Baton Rouge LA: Louisiana State University Press, 1955), 1-13

³⁷ Alger, 53-54.

³⁸ Henderson, G.F.R. Colonel, *The Science of War A Collection of Essays and Lectures 1891-1903* (New York: Longmans, Green, and Co. 1919), 41-43.

³⁹ Alger, 85-87.

⁴⁰ Robert Selph Henry, *"First With the Most" Forrest* (Jackson Tenn: McCowat-Mercer Press Inc. 1969), 13.

⁴¹ *Ibid.*, 13-21.

⁴² Geoffrey C. Ward, Ric Burns, and Ken Burns, *The Civil War, an Illustrated History* (New York: Alfred A. Knopf Inc., 1991), 266. Comments about Forrest were made by Shelby Foote in an interview published in the book and seen in Burns documentary series on the Civil War.

⁴³ Fuller, J.F.C., *The Conduct of War 1789-1961*, 121-122.

⁴⁴ Alger, 66-68.

⁴⁵ *Ibid.*, 66-68.

⁴⁶ Colonel Ardant du Picq, *Battle Studies Ancient and Modern Battle*, translated by Colonel John N. Greely and Major Robert C. Cotton, found in *Roots of Strategy Book 2, Three Military Classics* (Harrisburg, PA: Stackpole Books, 1987), 17-54.

⁴⁷ Alger, 68-70.

⁴⁸ George Aston, *The Biography of the Late Marshall Foch*, (New York: The MacMillan Co., 1932), 82-83.

⁴⁹ Martin Van Crevald, *Command in War*, (Cambridge, MA: Harvard University Press, 1985), 183-188.

⁵⁰ Alger, 228-233.

⁵¹ *Ibid.*, 107-108.

⁵² United States Army, *Infantry Drill Regulations* (Washington D.C.: 1911), 122.

⁵³ Alger, 105-117. Rustow published his list in his book, *The Art of Field Service in the Nineteenth Century*.

⁵⁴ *Ibid.*, 115.

⁵⁵ *Ibid.*, 232-233.

⁵⁶ *Ibid.*, 69.

⁵⁷ United States Army, FM 100-5, *Operations* (Washington, D.C.: U.S. Gov. 1986), 173.

⁵⁸ Alger, 120-121.

⁵⁹ *Ibid.*, 121-122.

⁶⁰ *Ibid.*, 240.

⁶¹ United States army TR 10-5, *Doctrines, Principles, and Methods*, (Washington D.C.: 23 December 1921), 2.

⁶² *Ibid.*, 2.

⁶³ Alger, 138.

⁶⁴ *Ibid.*, 135-140.

⁶⁵ United States Army, *Infantry in Battle* 2nd ed. (Washington, D.C.: The Infantry Journal, Incorporated, 1939), The first edition was published in 1934 by then Chief of the Infantry School, General George C. Marshall.

⁶⁶ Alger, 138-145.

⁶⁷ Carl von Clausewitz, *On War* edited by Michael Howard and Peter Paret (Princeton NJ: Princeton University Press, 1989), 92.

⁶⁸ United States Army, *Field Service Regulation* (Washington D.C.: U.S. Gov., 1924), 77-78.

⁶⁹ J.F.C. Fuller, *The Foundations of the Science of War*, (Fort Leavenworth, Kansas: U.S. Army Command and General Staff College, CGSC Press, 1991), 221.

⁷⁰ *Ibid.*, 1-208.

⁷¹ Alger, 124.

⁷² United States Army, *Infantry in Battle* 2nd ed. (1939), 1.

⁷³ Julian S. Corbett, *Some Principles of Maritime Strategy* (Annapolis, Maryland: Naval Institute Press, 1989), 307-321. Corbett's book was first published in 1911, he may have directly influenced U.S. doctrine or the influence may have simply been indirect or co-evolutionary.

⁷⁴ FM 100-5, *Field Service Regulation-Operations* (Washington D.C.: U.S. Gov., 1939), 27-29.

⁷⁵ United States Army, FM 100-5, *Field Service Regulation-Operations* (Washington, D.C.: U.S. Gov. 1941), 22-24.

⁷⁶ United States Army, FM 100-5, *Field Service Regulation-Operations* (Washington, D.C.: U.S. Gov. 1944), 32-35.

⁷⁷ Alger, 150-152.

⁷⁸ United States Army, FM 100-5, *Field Service Regulations-Operations* (Washington D.C.: 1949), 21-23.

⁷⁹ FM 100-5, (1949), 21-23.

⁸⁰ United States Army, FM 100-5, *Field Service Regulation-Operations* (Washington, D.C.: U.S. Gov. 1954), 25-27. Italics found in original manual.

- ⁸¹ Alger, 164-165.
- ⁸² United States Army, FM 100-5, *Field Service Regulation-Operations* (Washington, D.C.: U.S. Gov. 1962), 46-48.
- ⁸³ United States Army, FM 100-5, *Operations of Army Forces in the Field* (Washington, D.C.: U.S. Gov. 1968), 5-1,5-2.
- ⁸⁴ Alger, 168-169.
- ⁸⁵ Donn A. Starry, Letter to from Starry to Dr. Richard Swain, School of Advanced Military Studies. Dated 7 June 1995. 18-19.
- ⁸⁶ United States Army, FM 100-5, *Operations* (Washington, D.C.: U.S. Gov. 1976)
- ⁸⁷ United States Army, FM 100-1, *The Army* (Washington, D.C.: U.S. Gov. 1978), 14-16.
- ⁸⁸ United States Army, FM 100-5, *Operations* (Washington, D.C.: U.S. Gov. 1983), B-1 -B-5.
- ⁸⁹ United States Army, FM 100-5, *Operations* (Washington, D.C.: U.S. Gov. 1986), 173-177.
- ⁹⁰ United States Army, FM 100-5, *Operations* (Washington, D.C.: U.S. Gov. 1993), 2-4.
- ⁹¹ FM 100-5, (1993), 2-4.
- ⁹² Department of Defense, Joint Pub 3-0 *Doctrine for Joint Operations*, (Washington D.C.: U.S. Government Printing Office, May 1997), II-1.
- ⁹³ FM 100-5, (1993), 6-3.
- ⁹⁴ FM 7-10, 4-5, 4-6.
- ⁹⁵ Donnelly, Roth and Baker, *Operation Just Cause, The Storming of Panama*, (New York: Lexington Books, 199), Taken from the forward of this book which was written by General Maxwell Thurman, CINCSOUTHCOM during Operation Just Cause.
- ⁹⁶ Department of Defense, Office of the Chairman of the Joint Chiefs of Staff, *Operation Just Cause Panama* (Washington, D.C.: U.S. Government Printing Office, 1995), 29.
- ⁹⁷ *Ibid.*, 53.
- ⁹⁸ Donnelly, Roth and Baker, 80.
- ⁹⁹ Department of Defense, *Operation Just Cause Panama*, 37.
- ¹⁰⁰ Donnelly, Roth and Baker, 80.
- ¹⁰¹ *Ibid.*, 104-160. Chapters 7 and 8 explain the complex initial movement of forces into position in Panama.

- ¹⁰² Donnelly, Roth and Baker, 55-56.
- ¹⁰³ *Ibid.*, 89.
- ¹⁰⁴ *Ibid.*, 56.
- ¹⁰⁵ *Ibid.*, 101-103.
- ¹⁰⁶ *Ibid.*, 49-51. One such exercise was called Operation Sand Flea and was designed to judge the reaction plan of the PDF.
- ¹⁰⁷ Department of Defense, *Operation Just Cause Panama*, 34-35.
- ¹⁰⁸ Donnelly, Roth and Baker, 68.
- ¹⁰⁹ Department of Defense, *Operation Just Cause Panama*, 34-35.
- ¹¹⁰ FM 100-5, (1993), 2-5.
- ¹¹¹ *Ibid.*, 2-6.
- ¹¹² *Ibid.*, 6-4, 6-5.
- ¹¹³ Department of Defense, *Operation Just Cause Panama*, 71-72.
- ¹¹⁴ Sun Tzu, 168. Numbers are mine.
- ¹¹⁵ Machiavelli, 202-204.
- ¹¹⁶ Alger, 199-200.
- ¹¹⁷ *Ibid.*, 201.
- ¹¹⁸ *Ibid.*, 22-23.
- ¹¹⁹ *Ibid.*, 53-54.
- ¹²⁰ *Ibid.*, 224.
- ¹²¹ *Ibid.*, 69.
- ¹²² France, Minister of War. *Manual for Commanders of Infantry Platoons*, trans. By U.S. Army War College (Washington D.C.: 1917), 157-158.
- ¹²³ United States Army. *Infantry Drill Regulations* (Washington D.C.: 1911), 122.
- ¹²⁴ Alger, 232-233.
- ¹²⁵ *Ibid.*, 240.
- ¹²⁶ TR 10-5, (1921), 2.

¹²⁷ Alger, 152.

¹²⁸ FM 100-5, (1949), 21-23.

¹²⁹ FM 100-5, (1993), 2-4-2-6.