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THE NEED FOR CREATIVE DOCTRINE AND TACTICS

by

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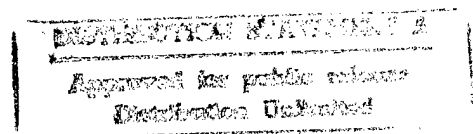
IN

FULFILLMENT OF THE CURRICULUM

REQUIREMENT

Advisor: Dr William Martel

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ABSTRACT

TITLE: The Need for Creative Doctrine and Tactics

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Doctrine and Tactics are fundamental elements of military science. As such, it is absolutely imperative they be suited to the nature of future threats. To ensure this occurs, doctrine and tactics must be balanced between the lessons of history and the creativity and vision of officers and NCOs. This balanced perspective may best be developed through the construction of a creative military culture designed to stimulate creative thinking. This creative culture can develop provided emphasis is placed on educational programs and on the removal of barriers to creative thought in the Department of Defense.

BIOGRAPHICAL SKETCH

Lieutenant Colonel Daniel P. Woodward is a Senior Pilot with more than 3,000 flying hours. He has held a variety of positions at the squadron and wing level in Air Education and Training Command and Strategic Air Command. Lieutenant Colonel Woodward is a graduate of Squadron Officer School and Air Command and Staff College and holds a Master's degree in Business Administration from Mississippi State University.

Mr. Robert Smith   Department of War
Baltimore Maryland   Washington, DC, 14 Dec 1862

Sir:

 I regret to inform you your son was killed in action yesterday afternoon in the distinguished service of the Union at Fredricksburg, Virginia. Ordinarily, this letter would end here with my deepest sympathy and assurance of your son's honored service to a grateful nation. However, conditions compel me to explain further this sad event. The facts are not pleasant in this circumstance, but I believe your preference for facts rather than pleasantries to be likely.

 As you know, President Lincoln recently replaced General McClellan as Commander-in-Chief with General Ambrose E. Burnside. I raise this point only to clarify the issue of responsibility in your mind. For in addition to having command of all Union forces, General Burnside was personally in charge and on the battlefield when your son died in Virginia.

 General Burnside's plan to take Fredricksburg and destroy General Lee's army of Northern Virginia proceeded smoothly until December 13th. At that point, the General had successfully crossed the Rappahannock River via a series of pontoon bridges and captured the city and surrounding valley. To his Southwest, General Lee occupied a series of small hills and ridges known as Marye's Heights.

 On the 13th, General Burnside ordered your son's division to attack the heights. As thousands of our Union's most honorable soldiers pushed forward and upward, they were cut down by gun fire from secure positions in the hills.

 Fredricksburg was a disaster for our forces and cost us 15,000 good men like your son. However, in defense of General Burnside, his battlefield tactics were entirely consistent with what we believe today as the most effective means to employ forces. That is, to apply a massive and overwhelming frontal attack and strike a single decisive blow, in this case, against the Army of Northern Virginia. Although the General applied these procedures on less than favorable ground, you must understand that in war, as in life, old habits die hard. Such are the facts as I know them.

 I trust you will take solace, as do I, in the fact that your son died proudly in the service of our great nation. It is with deepest sympathy I leave you now and return to the pressing affairs of our Union, lest he have died in vain.

 Respectfully, your obedient servant,

E. M. Stanton
Secretary of War

INTRODUCTION

This paper examines the concepts of doctrine and tactics as foundations for military action. As with the bloody slaughter at Fredricksburg, it maintains that on the battlefield, both are tightly linked to each other <u>and</u> to success or failure. Furthermore, it asserts that doctrine and tactics based solely on historical analysis are both dangerous and unnecessary, since they force upon us the most fundamental of errors. That of fighting tomorrow's wars as we fought the war's of yesterday.

The thesis of this paper is that effective doctrine and tactics must be developed from a <u>balance</u> between the lessons of history and a unique, <u>nurtured</u> element of leadership I call creative vision.

To examine this thesis, this paper first provides a survey of current philosophies regarding doctrine and tactics, including definitions and models of importance. In addition, three studies of "historically based doctrine" are briefly presented. The second section offers a model designed to help assess the balance between history and creativity in military doctrine, thereby asserting that this perspective is preferable to one that derives doctrine solely from the lessons of history. Furthermore, the model addresses the need for creative thinking as a method to manage the problems and challenges of the future. Finally, the paper concludes with a discussion of the importance of training officers and NCOs to think creatively and provides examples of methods proven effective in developing creative thinking among our military leaders.

SECTION ONE

UNDERSTANDING RELEVANT TERMINOLOGY AND HISTORY

Neither a wise man nor a brave man lies down on the tracks of history to wait for the train of the future to run over him.

Eisenhower

Terms Defined

Tactics, strategy, policy and doctrine are nebulous subjects. Difficult to precisely define, they continually push at each other and at the fringes of other important fundamental war fighting concepts in an effort to locate a niche. Thus, it is important to define these terms as clearly as possible before continuing with any discussion.

Tactics. *Army Field Manual 100-5* defines tactics as "the art and science of employing available means to win *battles and engagements*. Tactics is battlefield problem-solving--usually rapid and dynamic in nature."[1] *Naval Doctrine Publication 1* calls tactics "the art of selecting the right tools for the job. A technique describes a way systems or units can be *employed in combat*."[2] Furthermore, *Fleet Marine Corps Field Manual 1 (FMFM)* defines tactics as "the art and science of winning *engagements and battles*. It includes the use of firepower and maneuver, the integration of different arms, and the immediate exploitation of success to defeat the enemy"[3] (emphasis added throughout paragraph).

The unifying theme and the key point to remember regarding these definitions is that each emphasizes specific battlefield maneuver employed within a specific theater of operation and employed at a specific time. It is this employment focus that serves to discriminate between tactics and other terms.

Strategy. Perhaps most often confused with tactics, strategy lacks this employment focus.

> In simplest terms, strategy is a plan of action that organizes efforts to achieve objectives. The broad and complex modern context within which the strategist operates, however, means that simple definitions shed little light on the factors that make strategy the most fundamental and most difficult of all military arts. In the modern era, it is much more accurate and descriptive to consider strategy as a complex decision making process that connects the ends sought (objectives) with the ways and means of achieving those ends.[4]

Likewise, strategy has been defined as "a broad concept embracing an objective, resources, and a plan for using those resources to achieve the objective."[5] In a similar fashion, Clausewitz defines strategy as the "activity of planning and executing (these) engagements themselves, and of coordinating each of them with others in order to further the object of the war.[6]" Furthermore, he specifically differentiates between tactics and strategy by describing tactics as "the use of armed forces in the engagement,"[7] and strategy as "the use of engagement in the object of the war."[8]

Thus, in broad terms, it may be said that conventional wisdom describes strategy as application of military resources in a planned and coordinated method of executing engagements to achieve the objective(s) of the <u>war</u>, while tactics focuses more on the application of military resources in a planned and coordinated method to achieve the objective(s) of the <u>engagement</u>.

Policy. Likewise, policy is often confused with other important military terms. Policies are defined as "broad statements of intent with regard to goals"[9] and are general and ambiguous in nature. For example, a policy lacks specific objectives, plans, or resources, and does not describe "how" issues should be resolved. Instead, a policy will focus on a general frame of reference. Examples include "containment," "free trade," or "unconditional surrender."

Doctrine. This discussion leads to the definition of doctrine as it pertains to military operations. Admittedly, as with tactics, strategy, and policy, literally hundreds of variations to the definition may be found, but most share several common attributes.

Joint Publication 1-01 defines doctrine as "fundamental principles by which military forces guide their actions in support of national objectives. It is authoritative, but requires judgment in application."[10] *Air Force Manual 1-1*, likewise, asserts that doctrine "provides the framework for understanding how to apply military power. It is what history has taught us works well in war, as well as what does not."[11] In addition, *Marine Corps Field Manual 1* describes doctrine as:

> a teaching advanced as the fundamental beliefs of the Marine Corps on the subject of war, from its nature and theory to its preparation and conduct. Doctrine establishes a particular way of thinking about war and a way of fighting, a philosophy for leading marines in combat, a mandate for professionalism, and a common language.[12]

Furthermore, *Army Field Manual 100-5* asserts that "doctrine builds on the collective knowledge and wisdom gained through recent conduct of operations."[13] However, the simplest definition is found in Drew and Snow's *Making Strategy*, where doctrine is defined as:

> what we believe about the best way to conduct military affairs. Its (doctrine) first function is to provide a tempered analysis of experience and a determination of beliefs. Its second function is to teach those beliefs to each succeeding generation. Its third function is to provide a common basis of knowledge and understanding that can provide guidance for actions.[14]

Terms Related. Clearly, tactics, strategy, policy, and doctrine each are terms with a special relevance. Yet, it is also clear that these terms may be related. To clarify this relationship, I offer the following model:
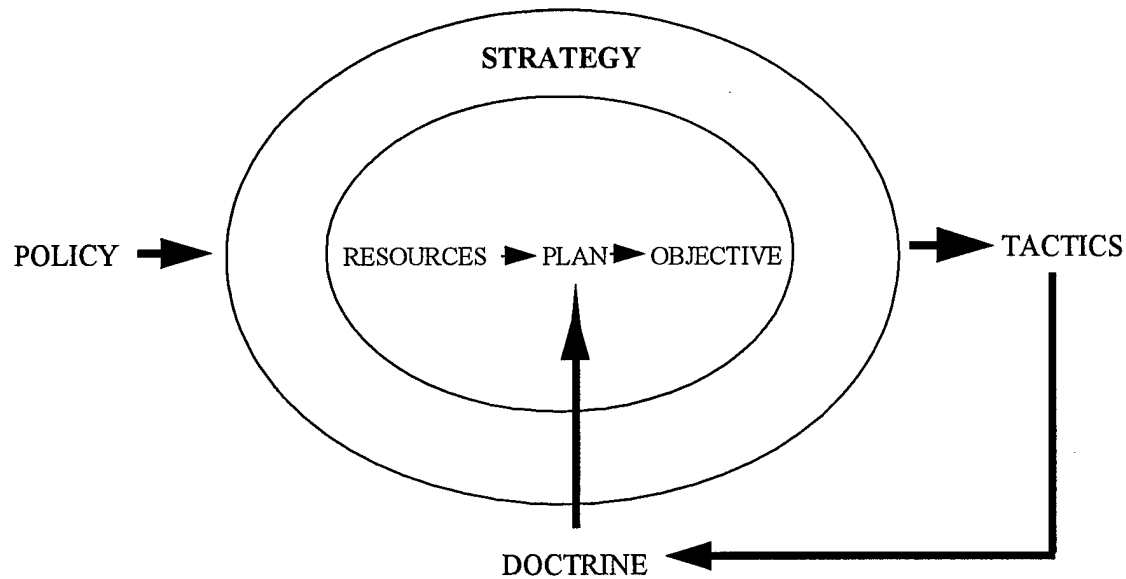
FIGURE 1

In this model, policy drives the development of specific strategies, which consist of resources, plans, and objectives. Doctrine enters the analysis through what we believe is the best way to conduct military operations, thereby directly influencing the type of plans developed.[15] From this, specific battlefield tactics are executed and the results funneled back into future doctrine through a feedback loop of perception.

Returning now, to the previous definitions of doctrine and using the model above (figure 1) as a frame of reference, it is clear that doctrine based on flawed perceptions will weaken the planning portion of strategy and ultimately undermine battlefield tactics. While *Joint Publication 1-01* offers the caveat that doctrine requires "judgment in application," like other sources referenced above, it fails to emphasize that effective doctrine must reflect a creative vision of the future. As a result, we are led to believe we may successfully walk toward tomorrow's wars, solely by looking backward!

Historical Examples

Fredricksberg Revisited. Consider Union doctrine during the American Civil War and more specifically at Fredricksburg as described in the following passage by military historian, B. H. Liddell Hart.

> The ineffectiveness of the strategy of direct approach which ruled throughout the second half of 1862 was appropriately sealed by the bloody repulse at Fredricksburg on the 13th of December. And the continuance of this strategy in 1863 led, not to a closer approach to Richmond, but to a Confederate invasion of Northern Territory--following the collapse of the Union Army's offensive.[16]

Recalling the notional letter used at the beginning of this paper, the question must be asked that had General Burnside rejected the concept of frontal assault at Fredricksburg, or at the very least, adjusted with maneuver to the staggering accumulation of losses he encountered throughout the battle, would the outcome have changed? Obviously, this is a hypothetical without answer, but it seems unlikely that application of an alternative course could have failed more completely.

Gettysburg. But disasters like Fredricksburg were not reserved for the Union alone. For as the following fictional conversation between Confederate General Longstreet (Lee's second in command) and Colonel Freemantle (a British observer assigned to the Confederate army) taken from *The Killer Angles* describes, just seven months after Fredricksburg, General Lee, as Confederate commander, faced an even more defining moment at Gettysburg.

> "God in Heaven," Longstreet said, and repeated it, "there's no strategy to this bloody war. What it is is old Napoleon and a hell of a lot of chivalry. That's all it is. What were the tactics at Chancellorsville, where we divided the army, *divided it*, so help me God, in the face of the enemy, and got away with it because Joe Hooker froze cold in his stomach? What were the tactics yesterday? What were they today? And what will the blessed tactics be tomorrow?"[17]

Of his failure at Gettysburg, Lee later wrote:

> No blame can be attached to the army for its failure to accomplish what was projected by me . . . I alone am to blame, in perhaps expecting too much of its

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prowess and valor . . . could I have foreseen that the attack on the last day would fail, I certainly would have tried some other course . . . but I do not know what better course I could have pursued.[18]

Lee "never again attempted a Napoleonic assault."[19]

Linebacker Two. Of course, neither were such failures reserved for the American Civil War. For as mentioned earlier, history is replete with doctrinal errors that produced tremendous tactical faults. For example, consider the final major American bombing campaign of the Vietnam War. Dubbed "Linebacker Two," this campaign was designed to bring the North Vietnamese back to peace negotiations through a series of punishing air strikes between the 18th and 29th of December 1972. During this period, thousands of sorties were flown by fighters, tankers, and bombers in an effort to crush North Vietnamese strategic targets. Maximum effort was placed against rail lines, repair facilities, power production, and petroleum stores.

Ultimately, the primary objective of the Linebacker campaign was achieved.[20] The North Vietnamese returned to the peace talks and sued for peace. Furthermore, many historians consider Linebacker Two bombing results to be the best and most influential of the war, arguing away the two percent loss rate as understandable given the formidable North Vietnamese air defense system.[21]

Yet, the question must be asked: Why were 15 B-52s shot down during the campaign and in particular, why were nine shot down on December 20th alone? In many ways, December 20, 1972 resembled a modern day Fredricksburg . . . or Gettysburg . . . which was created as a result of tactics based solely on "history focused" doctrine. As Tilford writes:

> Linebacker Two was more of a throwback to World War II's era of B-29s ambling over their target cities in long bomber streams. The bomber streams during the first three nights of Linebacker Two were up to 70 miles in length. In three plane cells, the B-52s lumbered toward North Vietnam in what was described as "an

elephant walk," flying one after another into one of the world's best air defense systems.[22]

He continues:

> They (Strategic Air Command (SAC) planners) were accustomed to considering missions that would take the B-52s into the Soviet Union where defenses consisted of much more sophisticated missiles than old SA-2s given to North Vietnam. The critical differences were that B-52s would penetrate Soviet air space at low altitude, after US missiles presumably had already taken a toll on the Soviet Defenses. In contrast, the B-52s, with their large radar returns, would be flying at about 30,000 feet over North Vietnam and would fly within parameters that would allow the SA-2 to operate at maximum effectiveness. The oversight led to flawed tactics in North Vietnamese air space. Years of jungle bashing and the routines of planning for nuclear war had fostered a mind-set within SAC that nearly led to disaster.[23]

Undoubtedly linked to experience gained during the massive bombing formations of World War II historic American tactics employed against the unique circumstances of Vietnam failed to account for conflict differences. And not surprisingly, a review of the 1964 version of Air Force doctrine finds that it "focused upon the concepts of deterrence and flexible response in an age of nuclear parity."[24] In short, the American Air Force applied inappropriate doctrine and tactics that looked solely to history, at the expense of creativity, for answers to the air war during Linebacker Two.

SECTION TWO:

SHOOTING THE GAP: BALANCING CREATIVITY WITH HISTORY

You win by understanding the feeling at the end of your fingers.

Rommel

The Creative Side

Why Creativity. In war and peace, no element of military leadership compares with the importance of a creative vision. This vision requires both an understanding of the collective experiences of those who have gone before and the ability to think creatively about the concerns of the day and of tomorrow. It is this vision that gave Rommel the feeling at the end of his fingers and prompted B.H. Liddell Hart to write: "[A] vital faculty of generalship is the power of grasping instantly the picture of the ground and the situation, of relating the one to the other, and the local to the general."[25]

Because great military vision requires both a broad understanding of experience <u>and</u> a creative intellect, it is not common. Furthermore, while the development of a broad base of experience requires time, the development of a creative mind requires both time and training.

A creative mind has the unique ability to accumulate scraps of a diverse puzzle and make the intuitive leaps necessary to bridge inevitable gaps of knowledge . . . an ability clearly critical to decisive employment and relevant doctrine. As *Fleet Marine Field Manual (FMFM) 1* states: "(A) military decision is not merely a mathematical computation. Decision making requires both the intuitive skill to recognize and analyze the essence of a given problem and the creative ability to devise a practical solution. This ability is the product of experience, education, intelligence, boldness, perception, and character."[26]

It continues: "(W)e should base our decision on awareness rather than on mechanical habit. That is, we act on a keen appreciation for the essential factors that make each situation unique instead of from conditioned response."[27] Likewise, Clausewitz refers to an "indispensable" element of leadership as "an intellect that even in the darkest hour, retains some glimmerings of the inner light which leads to truth."[28] Thus, when we return to previously presented definitions of doctrine, we find a disturbing lack of forward looking perspective and an excessive focus on history.

Why the Focus on History. This paradigm of "history focused doctrine" developed for three reasons. First and foremost, it is legitimate to presume the lessons of history hold value for the challenges of tomorrow. For example, when General Schwarzkopf faced the Iraqi military in Desert Storm, his experiences from the Vietnam War greatly influenced his preparation and prosecution. Schwarzkopf's unrelenting efforts to prevent a repeat of the failures he encountered as a field commander in Vietnam provided tremendous insight. However, it was his ability to creatively apply these experiences that proved truly decisive.[29] Second, it is certainly safer to extrapolate data from a historical analysis than it is to speculate freely about the future. After all, the willingness to step forward and chance a singularly original opinion that may later be proven false beyond doubt, holds significantly greater political risk than does an opinion based in the pages of history. Such risk may stifle all but the very bold. And third, there is an overwhelming belief that historical material provides a more accurate basis for doctrine and tactics than creative judgments.

Because accurate assumptions are crucial to effective military employment, this third assertion is particularly influential. Unfortunately, it is also particularly false. After all, military history is clearly subject to conjecture and misinterpretation. From the moment it is recorded,

military history is influenced by individual judgments and philosophy in proportion to the

significance of the event. Writers and readers alike apply unique biases and interpretations to

even the most crystal clear of issues.

Consider, for example, the following quotations that refer to the defense spending policies

of President Reagan's administration:

> The Reagan Pentagon envisioned a total expenditure of 2.7 trillion on defense from
> 1982 through 1989, with a projected military budget of nearly $450 billion for
> fiscal year 1989. . . .Reagan sustained the largest buildup in peacetime history,
> which by many measures exceeded spending during the Korean and Vietnam
> wars.[30]

<div align="center">versus</div>

> . . . as a review of gross national product (GNP) and national defense spending
> indicates, defense spending in the Reagan-Bush era fell well within historical
> patterns established in previous administrations and, in fact, was less than many. . .
> (A)s a percentage of GNP, it averaged far lower than the 1960s, before Vietnam
> became a serious concern, and significantly lower than the peak years of the
> Vietnam War.[31]

With such diverse perspectives regarding easily verifiable statistical data, is it any wonder we have

difficulty relying on history alone to produce functional doctrine and tactics? Did the President,

as some assert, spend the Soviet Union into oblivion and end the "Cold War" with aggressive

defense programs, or was there a more important cause for the Soviet demise? And today, should

we deal with North Korean nuclear proliferation by building a regional defense posture designed

to bury their struggling economy in deficit spending, or should we seek another path. If we rely

on history alone for the answer, it may simply depend on the books that have been read.

A Balanced Approach

A Simple Model. Again, this is not to say a knowledge of history is unimportant in the development of doctrine and tactics. On the contrary, history, accurately recorded, like experience accurately perceived, is undeniably critical. But truly effective doctrine and subsequent tactics are derived as much from an imaginative and creative mind with a vision of the future as they are from a study of the past. Therefore I offer the following model:

BALANCED DOCTRINE

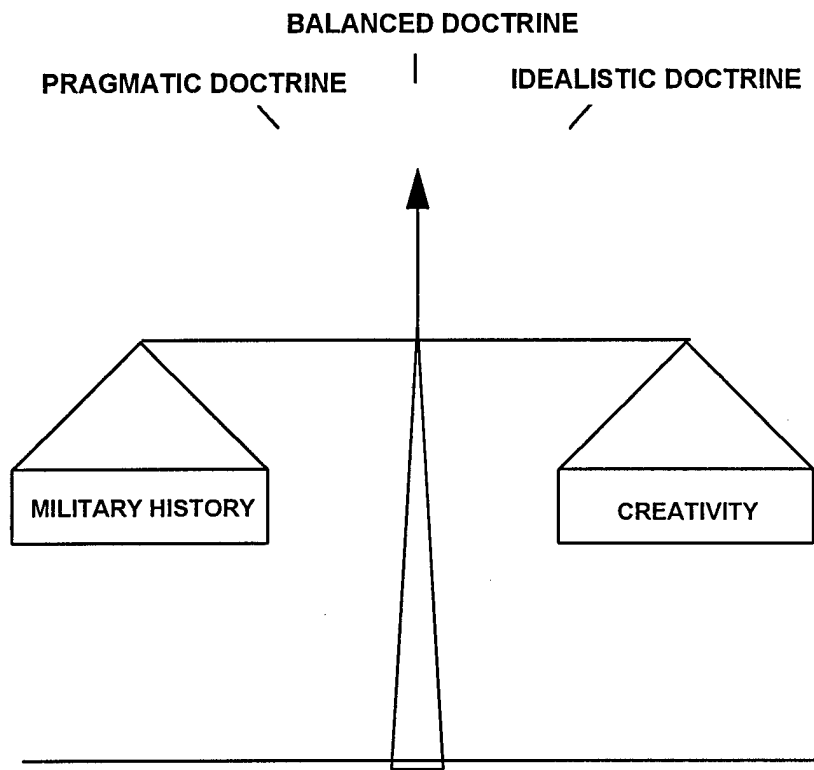**PRAGMATIC DOCTRINE** | **IDEALISTIC DOCTRINE**

Figure 2

In this model, doctrine is balanced between the foggy idealism of a purely imaginative perspective and the simplistic pragmatism of a purely historical perspective. The result is doctrine which integrates the lessons of military history with the creative vision necessary to be credible in tomorrow's war.

Examples of this integrated orientation are at least occasionally applied in the field. For example, at the strategic level, a former Secretary of Defense recently emphasized the need for visionary approaches to our defense posture and cited President Reagan's "Star Wars" missile defense system as a product of such thought. Likewise, some argue that the application of stealth technology and "stand off" weapons during Operation Desert Storm represent visionary operational doctrine without historical precedent. And at the tactical level, one commander in the Gulf War recently explained that he hired "an extremely bright Captain" to do nothing but think ahead and anticipate problems in Desert Storm logistics before they materialized.

Thus, the point is not so much that we fail to exploit pockets of creativity and imagination; it is that we fail to *institutionalize* an emphasis on vision by instructing techniques designed to foster creativity and imagination in our officers and NCOs. As a result, we continue to find preventable examples of less effective, "pragmatic doctrine" and tactics, which lack the creative punch that may be necessary in the future.

An Urgent Issue. A creative balance is becoming more critical with each passing day. As history points out, the tools of warfare Napoleon employed varied little from those employed hundreds of years earlier; yet, the tools employed during Desert Storm varied dramatically from those of Vietnam. Tomahawk cruise missiles, stealth fighters, and information warfare are the tools of war in what Toffler referred to as the "Third Wave Society."[32] What we believe to be true about "the best way to conduct military affairs" will be bombarded by changing technology, environment, economics, international law, politics, and a host of other forces demanding immediate attention. Unless we force ourselves to continually seek creative and imaginative efficiencies, we may find ourselves overtaken by the past.

For a number of social, political, and technological reasons, the United States is far less likely today, than at any time in the past, to engage in a protracted conflict. No longer will American planners have the luxury of a long-term war that provides opportunities for doctrine to be adapted to battlefield results. Instead, more often, we will face short term conflicts that favor a "balanced doctrine," one that produces a force best trained, organized, and equipped to immediately meet the anticipated threat. Therefore, forethought designed to balance our doctrine and operations with creative approaches designed to fit unique circumstances will dramatically enhance the prospect for success in a short war.

How Much Vision?

Practically speaking, few at this point would argue with the premise that a balanced approach to doctrine and tactics--balanced between the lessons of history and a creative vision of the future--lacks credibility. Yet, again practically speaking, a crucial consideration must be: how distant should a creative vision carry forward. After all, a view of the year 2050 may bear little relevance to the military of 1995.[33] Furthermore, it would be ridiculous to attempt to isolate specific situations or even broad categories of situations within a specific formula designed to produce the "correct amount of creativity." Therefore, I offer the following as a simple model of perspective on the level of creative vision and knowledge of history required in military officers and NCOs.
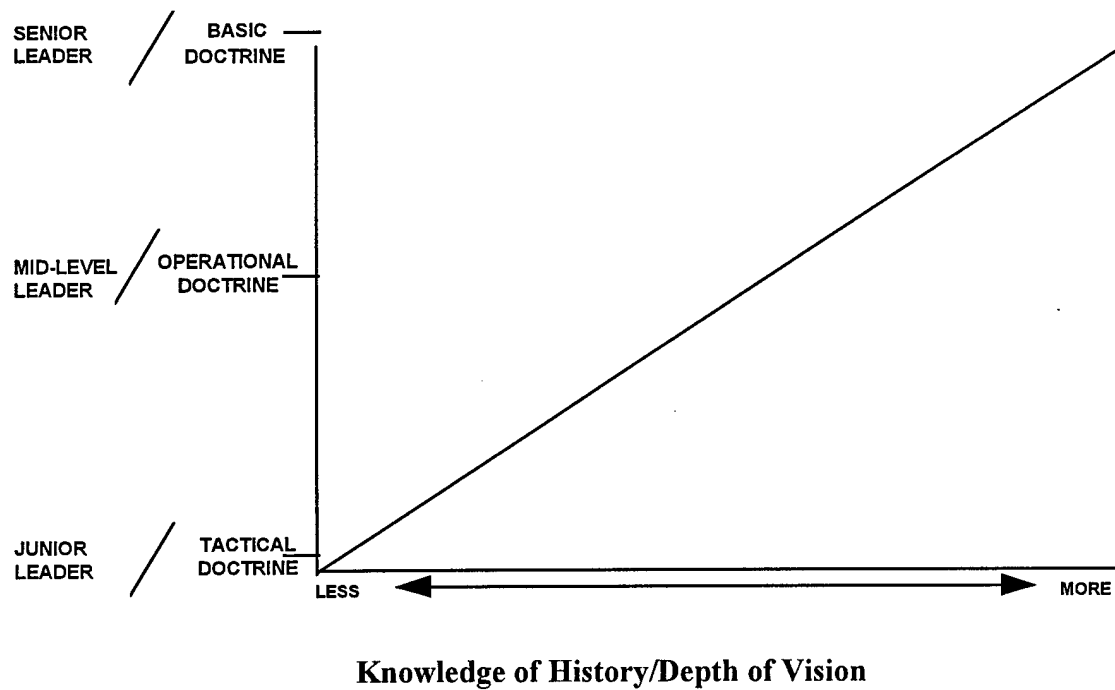
SENIOR
LEADER
／ BASIC ──
DOCTRINE

MID-LEVEL ／ OPERATIONAL
LEADER ／ DOCTRINE

JUNIOR ／ TACTICAL
LEADER ／ DOCTRINE

LESS ◄──────────────────► MORE

Knowledge of History/Depth of Vision

Figure 3

This model describes the relationship between the need for knowledge of military history, the depth of creative vision required, and the level of leadership responsibilities carried by specific NCOs and officers. For example, using this model, one might expect limited knowledge of history to be balanced with limited depth of vision in our young NCO's and company grade officers. However, as officers and NCOs move higher in leadership and responsibility, it becomes critical for them to take a broader view of history's lessons and balance this perspective with a more long term and broad view of the future. And although this does not answer the specific question of how much vision is appropriate to a given circumstance, it does provide a general frame of reference.

So the question remains, how do we foster creativity, imagination, and the proper balance of historical knowledge in our young officers and NCOs so that they gain the perspective necessary to be effective senior leaders? The next section addresses this issue.

SECTION THREE

DEVELOPING A CREATIVE CULTURE

Innovation requires an organization specifically designed for the purpose, that is, such an organization's structure, processes, rewards, and people must be combined in a special way to create an innovating organization.

Jay R. Galbraith

Section One emphasized the premise that "historically focused" doctrine and tactics have not served American soldiers particularly well. Section Two provided an alternative, offering the argument that doctrine and tactics should be based on a <u>balance</u> between the lessons of history and creative vision. This section addresses the practicality of a balanced approach, beginning with a series of definitions for creativity and concluding with a discussion of methods to increase creative thought in the military.

Creativity Defined

As with other terms, creativity is difficult to clearly define. One author cites the definition of researcher John C. Flanagan, who claims creativity is the act of "evoking something new into being." According to Flanagan, "[T]he emphasis is on the newness and lack of previous existence of the idea or product."[34] Another claims creativity is the development of "novel ideas that transcend generative rules."[35] Still a third author defines creativity as "making and communicating meaningful new connections--

- to help us think of many possibilities;
- to help us think and experience in varied ways and using different points of view;
- to help us think of new and unusual possibilities;
- to guide us in generating and selecting alternatives."[36]

However, perhaps the simplest and most clear of all definitions may be found in *Army Field Manual 22-103* which calls creativity "the ability to find workable, original, and novel solutions to problems."[37]

Learning to Think Creatively

As mentioned earlier, the argument that we need to develop more creative military thinkers must be practical...and to be practical, there must be an effective means to stimulate creative military thought, just as we stimulate the study of military history. In truth, this means there must be a way to construct a <u>creative military culture</u> such that unique and effective approaches to tough problems are sought.

But if creativity is an "act . . . of creation," or an "ability . . . to make and communicate meaningful new connections," can it be taught as a skill or is it simply innate? Here again, there is debate.

For example:

> It has been said that there are three types of people: a small fraction which is truly creative, a larger number who may or may not be creative depending on opportunities and their work environments, and the majority who rarely have a creative thought--and who seek strongly to neither adapt nor innovate but to perpetuate the status quo.[38]

Still others have researched the possibility that certain characteristics of personality produce a creative nature. In these instances,

> [T]he major empirical methodologies [involved] utilizing readily identified "creators" and attempting to distill their attributes. The end products of these investigations are lists and tests of characteristics and traits that have something to do with being creative.[39]

Yet, recent psychological studies support premise that benefits may be derived from the application of techniques to improve and enhance creativity. Thus, the idea that people fall into

specific categories, or possess fundamental characteristics that make creativity training of little

value, is contrary to the preponderance of evidence.

> Neither educational nor organizational psychology really needs any more master's
> theses or doctoral dissertations on the simple question: can we, through some
> deliberate instructional or training program, enhance peoples performance on some
> specified measure of creativity? The answer, unequivocally is, if you devise and
> carry out a reasonable treatment, and chose variables carefully to represent a
> realistic operational definition of creativity, yes, you can enhance subjects
> performance significantly. Research supporting this assertion has accumulated
> very extensively (e.g., Parnes, 1987; Torrence, 1972, 1987; Van Gundy, 1987).[40]

The Training Issue

> All of us who know the air as a profession have long been conscious of the
> compelling need for time--time free from other duties; time to study; time to think
> into the future. We want to see the world not only as it is, but as it will be in five
> years' time or a decade.[42]

Although General Spaatz was referring primarily to time spent in professional military

education, this thinking may also be applied to other military training as well. However, the

assertion that time and opportunity are the most important requirements for creative thought, is

fundamentally flawed. Certainly, the opportunity for reflection regarding issues of importance is

critical to thinking creatively about their solutions. But opportunities are simply lost without the

application of a specific creative process and a concerted effort. Only if individuals have been

properly schooled in creative techniques will they take full advantage of opportunities for creative

thought. Thus, the key is not in providing time for creative thought, so much as it is in providing

training designed to stimulate creative thought within available time. Only by providing necessary

training, will we develop the type of creative culture so necessary to meet tomorrow's challenges.

As may be expected, this realization is not new. For example, in one 1984

Industrial College of the Armed Forces study, a call was made "for Defense Service

Schools and other training institutions [to] establish instruction in defense creativity and

innovation and [have them] create educational environments that encourage innovation as well as adaption."[42]

Toward a Culture. Perhaps one of the earliest efforts at stimulating military genius and creativity may be found in the development of the German General Staff Corps, created in the early nineteenth century. This corps, developed in response to the marginal performance of monarchs as commanders-in-chief, "permitted the aristocracy to maintain its position, while professional military men could count on each noble having his own military genius whispering in his ear."[43]

In developing this corps, emphasis was placed on competition and evaluation as a means to identify individual officers with the creative genius appropriate for promotion. An example of the process follows:

> . . . a tactical problem would be presented by the training officer who would answer any questions about it . . . each of the students were expected to have a "workable" answer within two minutes. The instructor would listen, then pick one [student] as "gruppenfeuher" and have the class act out the proposed tactics immediately. Criticism was both harsh and freely made by both the instructors and the [student's] peers. However, one element was seldom criticized. A student was almost never chastised for the exhibition of élan. Furthermore, quick decisions, even if wrong, were constantly encouraged.[44]

In the hundred or so years that followed, this process gradually evolved into the German War College, ultimately responsible for training much of the Nazi staff that would prove so capable during World War II. According to one student, requirements for graduation included:

> . . . general intellectual capacity, quick comprehension, ability to think logically and correctly, quickness in decision making, an eye for the essentials and for the big picture, the ability to become creatively active himself and not remain glued to what had already been spelled out.[45]

Furthermore, "[O]ne of the earliest descriptions of the creative process was provided by Wallas (1926). He described four stages of this process including:

preparation, incubation, illumination, and verification." Even a surface level understanding

of this process may help stimulate creative thought.

In addition, more modern examples of efforts to develop creative thought may be found in

the hundreds of training programs currently in place in schools and business. For example, the

following process is just one of many that has proven effective in developing creative thought.

- Mess-Finding: Involves probing interests, experiences, or concerns to consider a number of general topics as possible starting points for creative exercise.
- Data-Finding: Involves gathering all available information, knowledge, facts, and feelings about the general topic being considered.
- Problem-Finding: Involves stretching the imagination to develop multiple statements of the problem.
- Idea-Finding: Involves searching for as many solutions to identified problems as possible.
- Solution-Finding: Involves selection of criteria for determining strengths and weaknesses of possible ideas.
- Acceptance-Finding: Involves developing techniques to ensure promising solutions are implemented.[46]

Obviously, the creative problem solving process is significantly more complex than the

above short summary implies; however, conceptually this approach provides a unique structure

through which creativity in an organization may be encouraged.

Yet their clearly remains room to apply this or other approaches more effectively

in American military training. In the words of General Fuller:

> When we study the lives of great captains, and not merely their victories and defeats, what do we discover? That the mainspring within them was originality, outwardly expressing itself in unexpected actions. It is in the mental past in which most battles are lost, and lost conventionally, and our system teaches us how to lose them, because in the schoolroom it will not transcend the conventional. The soldier who thinks ahead is considered, to put it bluntly, a damned nuisance.[47]

While I do not share the pessimism of General Fuller, I must confess that his concern over the

lack of emphasis on creative thinking in military education is still applicable. Admittedly, a post-

Vietnam War commitment to training and tactics reform produced some impressive improvements. For example, the Air Force's Fighter Weapons School, counterpart to the Navy's "Top Gun;" the Army's National Training Center, the Marine Corps land-warfare desert training center and the Marine Crops Air Ground Combat Center all provide soldiers with a mechanism for progressive thought.[48]

Yet, even these schools continue to focus more on the immediate threat, the immediate solution, and the near term issue. Furthermore, there are literally thousands of technical and professional military training programs that never address the question of tomorrow's environment and the need for creative and innovative ideas.

Such an emphasis on creativity is precisely what is needed to provide officers and NCOs with the tools to balance our doctrine and tactics with our current emphasis on history.

Some may argue that there is no guarantee any training program will produce a better decision. Furthermore, it would undoubtedly be quite a leap to propose that the doctrine and tactics of Burnside, Lee, or Linebacker Two bombing planners would have changed significantly had such creative techniques been part of their second nature--part of a creative military culture. However, it would undoubtedly be just as great as a leap to propose that the actions of Burnside, Lee, or Linebacker Two planners would have been significantly more disastrous had they balanced their historical perspective with creative vision.

Still others may argue that the development of a creative culture is too difficult to accomplish. However, I counter that many of the tools necessary to construct a creative culture already exist in the military. Admittedly some may need to be refined and others completely overhauled, yet the foundation is clearly in place. Take, for example, current "quality leadership" programs.

Although the services have varying commitments to the integration of quality leadership principles, each has at least a basic program, which could easily serve as a focal point for a creative training effort. In fact, current quality programs already contain the basis for stimulating creativity but require more emphasis in this area. Consider the following:

> Quality Air Force is a leadership commitment and operating style that inspires trust, teamwork, and <u>continuous improvement</u> everywhere in the Air Force.[49]

An emphasis on continuous improvement, brainstorming, professional competence, and the generation of new ideas and concepts by "empowered people" are all part of the quality approach--yet there is little emphasis on teaching the creative process. Thus, I propose the following:

> **RECOMMENDATION:** Quality programs, coupled with professional military education, be improved to emphasize techniques to develop, integrate, and implement creative thought so that the term "Quality Culture" becomes synonymous with "Creative Culture."[50]

By focusing on the training of our people and their creative potential, we will help ensure success in meeting the challenges of tomorrow.

BUREAUCRACY AND CREATIVITY

The Great Wall. Of all the things that tend to block creativity in the military, perhaps the most monolithic and all encompassing is "the great wall" of our bureaucratic structure. The tendency to rely on top-down directives, strict lines of command, excessive paperwork, vast volumes of rules and policy, and what we have done in the past, all stifle creativity in a organization. As Admiral Joseph Metcalf said when confronted with the 20 tons of paper and file cabinets aboard the Navy's newest frigates: "I find it mind boggling. We do not shoot paper at the enemy."[51]

Although significant differences between effective military and corporate structures exists, it is valid to assume that many lessons from business may be applicable to the military. After all, much of the process by which the Department of Defense manages budgets, allocates resources, and procures equipment today is rooted in the business-oriented revolution of the McNamara era.

As early as 1982, Tom Peters and Robert Waterman, Jr., wrote of the need for a lean staff, a flat organization with little middle management, and three pillars of an effective organization that included a willingness for "habit breaking."[52] Such an approach might help, it was argued, keep an organization vibrant an flourishing in an environment of change. Peters later outlined a "practical agenda" for bureaucratic waste cutting that contains the following basic tenants. First, limit the size and number of reports, eliminate memos, and rely on personal contact instead. Second, root out and eliminate unnecessary and irritating rules and regulations. Third, cut procedures and rules in half every year. Forth, treat people with respect and dignity. And fifth, create a clean and physically appealing work environment.[53]

Likewise, researcher Brian C.Twiss in 1974 identified creative organizations as ones that ensure:

> individual challenges are provided on specific undertakings, realistic goal setting is accomplished by management, immediate feedback is provided for good and bad performance, a reward system is in place to encourage and recognize creativity, openness and tolerance of conflict is present, cross-fertilization of ideas between specialties is encouraged, job enlargement is present in that individuals follow an idea from conception to practical realization, emphasis is on involvement rather than immediate satisfaction, organizational boundaries are porous, and diversity rather than conformity is encouraged.[54]

Management specialist, Peter Drucker, takes a different but complimentary tact, when he asserts that the real key to creativity in an organization rests in the

> . . . top management and especially the chief executive officer. It is not what he does that matters so much. It is primarily his attitude. The chief executive

who...forces himself into the right positive attitude towards ideas for the new and different will create, through his organization, the attitude and the receptivity that makes innovation possible.[55]

And, although each of these tenets have many other potential benefits, they clearly focus on providing opportunity for individual creativity and judgment as the best means by which to execute the mission.

An example of success with this type of approach may be found in Carr and Littman's "Excellence in Government." Discussing the need to reduce "red tape," they explain that "[T]he Forest Service found that lifting bureaucratic burdens freed staff to spend more time 'on the ground.' New projects developed, customer service improved, and the culture now reflects an ethic of faith and trust in the employee."[56]

In the Air Force, and to a lesser degree in other services, there are some positive signs. The initiatives of former Chief of Staff, General McPeak-in cutting regulations and rules-in reducing the size of staffs-at pushing responsibility to the lowest possible echelon-cutting middle management and organizational layers-all fit Peter's agenda. Yet, more remains to be done if we truly expect to be the dominant military force in the next century. Only by continuing with these initiatives and expanding them throughout the Department of Defense, will we have a chance at truly unlocking the creative genius within our human resources.

As a result of all these issues, one author proposed the following:

Defense managers (especially those in R&D and planning) should act quickly and effectively to create organizational climates that foster creativity and innovation. There should be incentives to encourage and reward creative work. Defense managers should continue to emphasize the need for more creative and innovative efforts in defense planning, doctrine and force structure determination as well as technology development. And they should appreciate better the inherent inertia to perpetuate the status quo.

Defense managers should reexamine organizational structures while keeping in mind that bigger is probably not better. The trend should be toward more autonomous, decentralized units with improved and stronger coupling and better transition mechanisms with other organizations. The art and science of designing innovating organizations should be widely studied.[57]

I agree and propose the following:

> **RECOMMENDATION:** Efforts to cut regulatory guidance, staff, and middle management, as well as push responsibility and authority to the lowest possible level should be expanded and endorsed throughout the Department of Defense.

Such an effort, coupled with appropriate training, will produce precisely the balance between our

knowledge of history and our vision of the future necessary to meet the challenges of tomorrow.

CONCLUSION

This paper discussed the need for creativity, imagination, and vision in the military. It was separated into three sections, each designed to support the premise that doctrine and tactics should and must be balanced between the lessons of history and the creative vision of officers and NCOs. Section One defined key terms and provided examples of "history focused" doctrine that evolved into poor tactical application on the battlefield. The consequences of these examples collectively were the deaths of thousands. Section Two offered an alternative to "history focused" doctrine. It emphasized the need for creative thought . . . for a vision in doctrinal development and employment. Section Three described creativity and military genius, and offered two examples of techniques to stimulate creative thinking. Furthermore, this chapter emphasized the need to foster creative thinking in our human resources and to break down bureaucratic barriers that tend to restrict imagination.

In closing, I offer the following brief manipulation of history for consideration:

General Ambrose E. Burnside   Department of War
Commander-in-Chief   Washington, DC
                                               14 December 1862

Sir:

On behalf of the President and a grateful nation, please accept congratulations on your stunning victory at Fredricksburg.

President Lincoln and I just completed review of yesterday's events in Virginia. Undoubtedly, preliminary descriptions of maneuvers and tactics employed by soldiers in your command cannot do true justice to the circumstances. Yet, even brief review gives us trust we have found the proper general to carry the burden of our great cause.

Your decision to hold the enemy with deception while maneuvering to flank and pursue was brilliant. Never before have we seen such an example of battlefield vision. Your willingness to depart from past lessons when faced with circumstances unique to the field you faced gives us great hope for a swift Union victory.

Again, the President and I offer our heartiest congratulations. Your success at Fredricksburg will serve as an example for generals of the field for years to come.

I am, respectfully, your obedient servant,

E. M. Stanton
Secretary of War

END NOTES

1. *Army Field Manual 100-5, Operations,* June 1993, p. 6-3.

2. *Naval Doctrine Publication 1, Naval Warfare,* March 1994, p. 51.

3. *FMFM1, Warfighting,* March 1989, p. 23

4. Colonel Dennis M. Drew and Dr. Donald M. Snow, *Making Strategy* (Maxwell Air Force Base, Alabama: Air University Press, 1988), p. 13.

5. William P. Snyder, "Strategy: Defining It, Understanding It, and Making It," as printed with permission of the author in the Air War College Military Studies Course: Book 1, AY 1994-1995, pp. 78-83.

6. Carl Von Clausewitz, *On War* (Princeton, New Jersey: Princeton University Press) as edited and translated by Michael Howard and Peter Paret, 1984, p. 128.

7. Ibid.

8. Ibid., p. 103.

9. Snyder, pp. 78-79.

10. *Armed Forces Staff College Publication 1, The Joint Staff Officers Guide 1993,* p. 1-13.

11. *Air Forces Manual 1-1, Basic Aerospace Doctrine of the United States Air Force,* March 1992, p. vii.

12. *FMFM1,* p. 37.

13. *Army Field Manual,* p. iv.

14. Drew and Snow, p. 171. See also, p. 171 for discussion of "Doctrine Tree," a model they use to clearify their definition. This model emphasises that all doctrine is rooted in the fundamental lessons of military history.

15. While this model is my perspective of the relationship between policy, strategy, tactics, and doctrine, the idea that strategy consists of resources, objectives, and plans belongs to Dr. Snyder as cited earlier. It is true that doctrine may influence resources procured or objectives sought; however, the preponderance of doctrinal influence on strategy will be through plans formulated and tactically employed.

16. B. H. Liddell Hart, *Strategy, Second Revised Edition* (New York, New York: Penguin Group, 1991), p. 128. B.H. Liddell Hart uses the term strategy as I would use the term doctrine. The concept of the direct approach is widly attributed to the thoughts of french strategist, Jomini lack the elements of resources, objectives, and plans necessary to be considered strategy as defined earlier in this paper.

17. Michael Shaara, *The Killer Angels* (New York, New York: Random House, 1974), p. 251.

18. Ibid., p. 349.

19. Ibid.

20. Air Vice Marshal R. A. Mason, *War in the Third Dimension, Essays in Contemporary Air Power* (London: Brassey's Defence Publications, 1986). See section devoted to Linebacker Two operations.

21. Herman L. Gilster, *The Air War in Southeast Asia, Case Studies of Selected Campaigns* (Washington, DC, US Government Printing Office, 1992) Chapter 5. See also, Vice Marshal R. A. Mason's cited above; p. 56.

22. Earl H. Tilford Jr., *Setup* (Maxwell Air Force Base: Air University Press, 1991), pp. 256-257.

23. Ibid., p. 256.

24. William Short, Commander, US Navy, "The Concept of Doctrine, Important but Often Misunderstood," research paper submitted to faculty, Naval War College, p. 65.

25. Robert Debs Heinl, Jr., *Dictionary of Military and Naval Quotations* (Annapolis, Maryland: United States Naval Institute, 1966), p. 70.

26. *FMFM 1*, p. 69.

27. Ibid.

28. Clausewitz, p. 102.

29. H. Norman Schwarzkopf and Peter Petre, *It Doesn t Take a Hero* (New York, New York: Bantam Books, 1993). Lessons discussed throughout.

30. Daniel Wirls, "Military Policy and the Reagan Revolution," Chapter Two of *Buildup: The Politics of Defense in The Reagan Era,* as reprinted with permission of the publisher in the Air War College Department of National Security Studies, Book 1, AY 1995, p. 161.

31. Richard P. Hallion, *Storm Over Iraq* (Washington, DC: Smithsonian Institution Press, 1992), p. 92.

32. Alvin and Heidi Toffler, *War and Anti-War, Survival at the Dawn of the 21st Century* (Boston, MA: Little Brown and Company, 1993). The Toffler's discuss in their 1980 book, *The Third Wave* and in *War and Anti War* the concept of a "revolutionary Third Wave civilization with its own economy, its own family forms, media, and politics." This third wave will be founded in the power of information and knowledge.

33. In the course of review for this paper, I interviewed Colonel Dennis Drew (of the Drew and Snow team), primary author/editor of recent USAF Basic Doctrine. Colonel Drew expressed concern over my premise that creative vision should balance history as foundation for doctrine. Perhaps his major concern centered on determining the depth (in years) we should be expected to successfully forecast and anticipate. Thus, my discussion.

34. Edward V. von Gohren, Major, USAF, "Encouragement of Creativity in the Air Force" (Maxwell Air Force Base: Air University, Air Command and Staff College Research Report, May 1969), p. 4.

35. Ronald D. Daniel, " Creativity and Strategic Vision: The Key to the Army's Future" (Carlisle Barracks, Pennsylvania: US Army War College Individual Study Project), p. 4.

36. Scott G. Isaksen and Donald J. Treffinger, *Creative Problem Solving: The Basic Course* (Buffalo, New York: Bearly Limited, 1989), p. 2-1.

37. Daniel, p. 5.

38. James P. Lang, "Creativity and Innovation in Defense Technology and Strategy," (Washington, DC: Defense Technical Information Center, 1983), p. 42.

39. Scott G. Isaksen, et. al., *Nurturing and Developing Creativity* (Norwood, New Jersey: Ablex Publishing Company, 1993), p. 10.

40. Ibid., p. 13.

41. Quote is from General Spaatz as found in Lieutenant General Ralph P. Swafford, Jr., "Pattern for Professionalism," *Aerospace Historian, XII,* Oct., 1965, p. 122; cited in Wayne C. Pittman's Air War College Research Report, Why PME? The Purpose of Professional Military Education, April 1980.

42. Lang, p. 52.

43. The idea of the German General Staff as an example of training for Military Genius is well described in Jon S. Cleaves, Captain, US Army, Master of Science of Strategic Intelligence Research Paper: "No More Napoleons: The Failure of the US Army Officer Education System to Institutionalize Military Genius. Captain Cleaves gives great credit and often quotes Colonel T. N. Dupuy's work "The German General Staff: An Exploratory Monograph."

44. Ibid., pp. 52, 53. Cleaves credits Dupuy's "Monograph," p. 134.

45. Ibid., p. 54. "Monograph," C-4.

46. Scott G. Isaksen and Donald J. Treffinger, *Creative Problem Solving: The Basic Course,* pp. 2-4, 2-5.

47. J. F. C. Fuller, Major General, *Generalship: Its Diseases and Their Cure* (Harrisburg, Pennsylvania: Military Service Publishing Company, 1936), p. 80.

48. Hallion, p. 33.

49. Susan Holmes, MSgt, USAF, *The Quality Approach: Second Edition* (Maxwell Air Force Base: Air University Press, 1994), p. 1.

50. Ibid. This and other books regarding quality emphasize techniques possibly useful to creative instruction.

51. Tom Peters, *Thriving on Chaos* (New York, New York: Harper Perennial, 1987), p. 453. Peters credits quote to *Newsweek,* May 1987.

52. Tom Peters and Robert H. Waterman, Jr., *In Search of Excellence* (New York, New York: Warner Books, 1982), p. 314-317.

53. Ibid. Peters, *Thriving on Chaos.* pp. 457-464.

54. Lang, p. 46.

55. Ibid., p. 47.

56. David K. Carr and Ian P. Litman, *Excellence In Government* (Arlington, Virginia: Coopers and Lybrand, 1993), p. 194.

57. Lang, p. 52.

BIBLIOGRAPHY

Adams, James L. *The Care and Feeding of Ideas*. Reading, MA: Addison Wesley Publishing Company, 1986.

Carr, David K. and Littman, Ian D. *Excellence in Government*. Arlington, VA: Coopers and Lybrand, 1993.

Clausewitz, Carl Von. *On War*. Princeton, NJ: Princeton University Press, 1976.

Donadio, Stephen, et. al. *The Team Handbook*. Madison, WI: Joiner Associates, 1988.

Drew, Dennis M. and Snow, Donald M. *Making Strategy*. Maxwell Air Force Base: Air University Press, 1988.

Dupuy, T. N. *A Genius For War*. McLean, VA: Nova Publications, 1977.

Forester, C. S. *The General*. Baltimore, MD: The Nautical and Aviation Publication Company of America, 1982.

Fuller, J. F. C. *Generalship*. Harrisburg, PA: Military Service Publishing Company, 1936.

Gilster, Herman L. *The Air War in Southeast Asia*. Maxwell Air Force Base, AL: Air University Press, 1993.

Hallion, Richard P. *Storm Over Iraq*. Washington DC: National Defense University Press, 1988.

Hammer, Michael and Champy, James. *Reengineering The Corporation*. New York, NY: Harper Collins Publishers, 1993.

Hart, B. H. Liddell. *Strategy*. New York, NY: Meridian Publishing, 1954.

Hattaway, Herman and Jones, Archer. *How the North Won*. Urbana, IL: University of Illinois Press, 1983.

Herring, George C. *America s Longest War*. New York, NY: Random House.

Isakson, Scott, G. and Treffinger, Donald . *Creative Problem Solving: The Basic Course*. Buffalo, NY: Bearly Limited, 1985.

Isakson, Scott, G. *Frontiers of Creativity Research*. Buffalo, NY: Bearly Limited, 1985.

Isakson, Scott, G. et. al. *Nurturing and Developing Creativity: The Emergence of a Discipline*. Norwood, NJ: Ablex Publishing Corporation, 1993.

Mason, R. A. *War in the Third Dimension*. London: Barssey's Defense Publishers, 1986.

Paret, Peter. *Makers of Modern Strategy*. Princeton, NJ: Princeton University Press, 1976.

Peters, Thomas J. and Waterman, Robert H., Jr. *In Search of Excellence*. New York, NY: Warner Books, 1985.

Peters, Tom. *Thriving on Chaos*. New York, NY: Harper Collins Publishers, 1988.

Scholtes, Peter R., et. al. *The Team handbook*. Madison, WI: Jointer Associates, 1988.

Shaara, Michael. *The Killer Angles*. New York, NY: Ballantine Books, 1974.

Smith, Perry M. *Taking Charge*. Washington, DC: National Defense University Press, 1986.

Sternberg, Robert J. *Thinking and Problem Solving*. San Diego, CA: Academic Press, 1994.

Taylor, Robert L. and Rosenbach, William E. *Military Leadership*. San Francisco, CA: Westview Press, 1984.

Tilford, Earl H. *Setup*. Maxwell Air Force Base, AL: Air University Press, 1991.

Toffler, Alvin and Toffler, Heidi. *War and Anti-War*. Boston: 1993.

Watts, Barry D. *Foundations of US Air Doctrine*. Maxwell Air Force Base, AL: Air University Press, 1984.

Willmott, H. P. *The Great Crusade*. New York, NY: MacMillian Inc., 1989

Government Publications

Air Force Manual 1-1. *The Aerospace Doctrine of the United States Air Force*. 1992.

Air War College, Department of Military Studies, Book 1, Air University Press, 1994.

Air War College, Department of Military Studies, Book 2, Air University Press, 1994.

Air War College, Department of National Security Studies, Resident Studies Book 1, Air University Press, 1994.

Army Field Manual 100-5. *Operations*. 1993.

Fleet Marine Field Manual 1. *Warfighting*. 1989.

Naval Doctrine Publications 1. *Naval Warfare*. 1994.

The Quality Approach, Second Edition. The Air Force Quality Institute. 1994.

The United States Strategic Bombing Surveys. Air University Press. 1987.

Technical Reports and Articles

Cleaves, Jon Sharrock, "No More Napoleons, Defense Intelligence College, 1989.

Daniel, Ronald M. "Creativity and Strategic Vision: The Key to the Army's Future," US Army War College, 1989.

Geralds, Robert A. "The Basics of Doctrine," Air Command and Staff College, 1965.

Lang, James P. "Creativity and Innovation in Defense Technology and Strategy," Defense Technical Information Center, 1983.

McJoynt, Albert D. "Creativity in United States Military Decision-Making," Air Command and Staff College, 1966.

Papaccio, Phillip N. "Cultivation of Creativity in the Air Force," Air Command and Staff College, 1969.

Pittman, Wayne C. Jr. "Why PME? The Purpose of Professional Military Education," Air War College, 1980.