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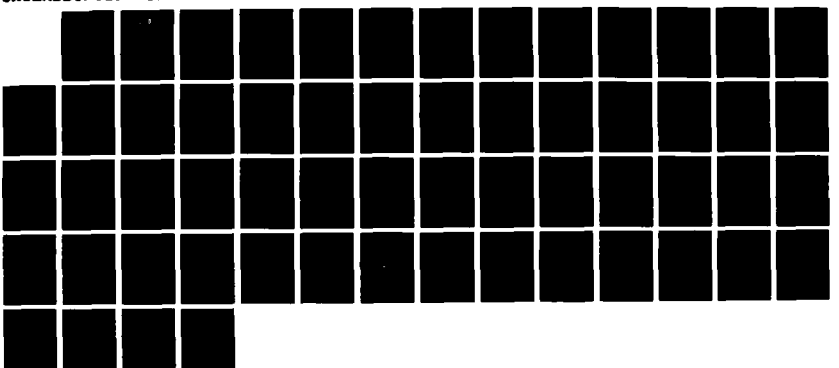

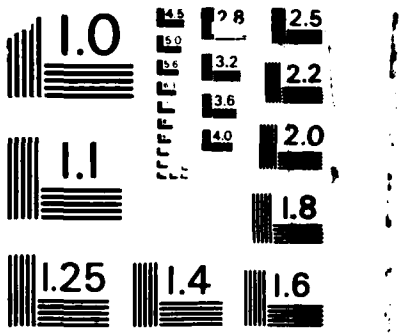

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A SENSE OF LOCALITY AND TACTICAL AGILITY

by

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This monograph examines the importance of a commander's ability to sense the terrain. The discussion relates this ability to the commander's ability to act faster than the enemy. This agility is critical to tactical success. As agility is one of the four tenets of the U.S. Army's fighting doctrine, it is important that the Army determine means to improve tactical agility. Developing a sense of locality is one way to improve tactical agility. This monograph examines the relationship between these two concepts and shows that a sense of locality is essential for tactical agility.

The discussion begins with consideration of the doctrinal and theoretical aspects of terrain, a sense of locality, tactics, and agility. It includes an examination of the elements of a sense of locality, a definition of tactical agility, and an analysis of the relationship between a sense of locality and tactical agility. To illustrate this relationship two

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Finally, the discussion presents suggestions for today's commanders on how to apply the noted lessons. The lessons reinforce the need for a thorough study of available information on the terrain and force capabilities, for personal reconnaissance, and for reflection prior to battle on use of the terrain during battle. Additionally, suggestions for training are presented; and the study suggests that commanders view the terrain in in terms of its offensive and defensive potential--as a weapon available to him or the enemy.

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ABSTRACT

A SENSE OF LOCALITY AND TACTICAL AGILITY by MAJ Don T. Riley, USA, 47 pages.

This monograph examines the importance of a commander's ability to sense the terrain and the discussion relates this ability to the commander's ability to act faster than the enemy. This agility is critical to tactical success. As agility is one of the four tenets of the U. S. Army's fighting doctrine it is important that the Army determine means to improve tactical agility. Developing a sense of locality is one way to promote tactical agility. This monograph examines the relationship between these two concepts and shows that a sense of locality is essential for tactical agility.

The discussion begins with consideration of the theoretical and doctrinal aspects of terrain, a sense of locality, tactics, and agility. It includes an examination of the elements of a sense of locality, a definition of tactical agility, and an analysis of the relationship between a sense of locality and tactical agility. To illustrate this relationship two historical battles are briefly described and examined: The first illustration is of Major General Thomas J. (Stonewall) Jackson at the Battle of Winchester during his Shenandoah Valley Campaign in the Spring of 1862. The second is of Major General Norman D. Cota at the Battle of Schmidt in November 1944. The discussion draws conclusions as to the commanders' exhibited senses of locality and tactical agility. Additionally, the discussion and illustrations provide valuable lessons on means of developing a sense of locality and promoting tactical agility.

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INTRODUCTION

> The ground is an open book. The commander who reads and heeds what it has to say is laying a solid foundation for tactical success.[1]

This word of advice came from Colonel (later General) George C. Marshall and the writers of Infantry in Battle as part of their analysis of operations in World War I. They observed the great influence that terrain had on the conduct of tactical operations. Their analysis showed that, in many cases, terrain considerations actually dictated tactical plans. They concluded that the commander's knowledge of the terrain and his ability to sense its value and act accordingly were essential to tactical success. This paper addresses this conclusion and seeks to determine what is required to "read and heed the open book" of terrain. In his classic theoretical analysis of war, On War, Carl von Clausewitz described the faculty of "quickly and accurately grasping the topography of an area" as " a sense of locality."[2] This paper employs this concept of a sense of locality to describe the ability of a commander to know the terrain and rapidly sense its value to his operations.

The U.S. Army, in its keystone doctrinal manual Field Manual (FM) 100-5, Operations, predicts the nature of warfare on high- and mid-intensity battlefields to be chaotic, intense, and highly destructive. The manual further states that, in the non-linear operations of future battle, "Army forces must prepare to fight campaigns of considerable movement, not only to reduce vulnerability, but also to obtain positional advantage over the enemy."[3] The pace of battle will be rapid, thus placing a premium on the abilities of commanders, staffs, and units to act quickly. The Army

recognizes this and bases its doctrine for fighting these battles on four tenets: initiative, agility, depth, and synchronization.

Agility--the "ability of friendly forces to act faster than the enemy"[4]--is difficult to achieve in fighting on such a turbulent and fluid battlefield. And both organizational and mental agility are required. Units must be flexible and have the ability to respond quickly to changes in the situation. Commanders must quickly grasp the essence of the situation, decide what response is necessary, and act. This mental agility of the commander is the quality addressed herein.

Many factors affect the ability of a commander to act quickly and decisively. These include the confidence of the commander in his own abilities and those of his unit, his knowledge of both enemy and friendly capabilities, and his willingness to take risks. In turn, the commander's knowledge of the battlefield has an impact upon each of these. Lacking a sense of the terrain and its effects on the forces, a commander calls to question each of the above factors. Unsure of his surroundings, the commander is less confident and less willing to take risks, and unsure of force capabilities which are dependent on terrain.

In studying warfare, one realizes the effects of terrain conditions on operations. Not only does terrain affect the agility of a force, but it affects the application of the other three doctrinal tenets as well--initiative, depth, and synchronization. Clausewitz described terrain as "decisive in the highest degree."[5] Commanders and staffs study the military value of terrain in their areas of operations to develop their concepts of operations. The organization, disposition, and employment of forces depend heavily on the terrain. And once chaotic battle begins, the commander must be able to adjust quickly. Terrain then takes on an even greater role. The commander

who knows the terrain well can seize the opportunities it offers and move without hesitation to deny those opportunities to the enemy.

The agility displayed by a commander is indeed related to his sense of locality. Frederick the Great recognized the role of terrain sense in improving a commander's ability to act without hesitation. In his Instructions for his Generals, Frederick stated: "The ability of a general to comprehend a situation and act promptly is the talent which great men have of conceiving in a moment all the advantages of the terrain and the use that they can make of it with their army."[6] What is the part played by a sense of locality in the ability to be tactically agile?

This paper addresses the role of a sense of locality in improving tactical agility. The intent is to improve our ability to read and heed the "open book" of terrain thereby increasing our combat effectiveness. First, a sense of locality and tactical agility are analyzed in theory and in doctrine. The discussion proceeds from the relation of terrain to warfare, to a definition of a sense of locality, to tactics and agility, and finally to the relationship between a sense of locality and tactical agility. To illustrate this relationship, two historical battles are described and examined in terms of the commanders' senses of locality and the agility they displayed. The first illustration is the Battle of Winchester during Thomas (Stonewall) Jackson's Valley Campaign in the Spring of 1862. The second is the Battle of Schmidt in the Fall of 1944. The paper concludes by considering methods which can be used to develop a sense of locality and enhance tactical agility.

TERRAIN AND WAR

Although changes in the scope and methods of warfare have altered the military value of terrain in operations, the influence of terrain on warfare has changed little. Clausewitz described the relationship between warfare and terrain as: (1) "a permanent factor", (2) important, because it is "decisive in the highest degree", and (3) pervasive, since "its influence may be felt in the smallest feature of the ground, but it can also dominate enormous areas"[7]. Terrain affects all aspects of warfare, from planning through execution. It is a major consideration in the movement, disposition, and employment of forces. Logistical support depends heavily on the terrain. Proper application of firepower depends on the terrain. Even the employment of high technology weapon systems designed to overcome terrain restrictions (such as fighter planes, attack helicopters, fiber optic and laser guided missiles) depends heavily on the terrain.

Sun Tzu recognized the importance of terrain by including it as one of "five fundamental factors of war"-- moral influence, weather, terrain, command, and doctrine. War, he wrote, is to be appraised in terms of these factors "so you may assess its essentials".[8] One readily sees that warfare cannot be conducted, nor can it even be studied properly, without consideration of the terrain. Terrain is so pervasive in its influence on combat that the commander who fails to know the terrain upon which he fights openly invites failure.

In considering terrain's effect on warfare, one must also evaluate the impact of weather. Weather greatly influences terrain and its military value. In many situations, changes in weather may dictate the employment of forces on the terrain. For example, fog will cause one to deploy his forces in closer order than in clear conditions; rain limits movement and

visibility; and extreme heat and cold place severe limits on soldiers, weapons, and vehicles on the terrain. Further, a rapid change in weather conditions may cause just as rapid a change in the use of terrain. The influences of weather and terrain are interdependent and one cannot be considered without the other. In the following discussion, although the effects of weather on terrain may go unstated, terrain is thought of as including the effects of weather.

Commanders and their staffs analyze several factors to determine the military value of terrain to the conduct of an operation. Clausewitz described the effects of terrain on operations as: (1) an obstacle to the approach, (2) an impediment to visibility, and (3) cover from fire.[9] Similarly, the U.S. Army lists the important factors as observation and fields of fire, cover and concealment, obstacles and movement, key terrain, and avenues of approach.[10] These factors reveal the impact of terrain on the development of a concept of operations. For example, intervisibility on the terrain affects positioning of forces and weapons. Protection offered by the terrain affects placement of command posts, logistics support bases, and defenses. Ease of movement on the terrain affects the task organization; important terrain features affect selection of objectives. Additionally, available space and soil conditions affect force size and speed of movement. To employ forces in combat properly, one must know the many influences of terrain.

Key terrain, decisive terrain, and the critical point are theoretical and practical concepts which have particularly important value to understanding a sense of locality and tactical agility. These concepts are all related. In defining the value of terrain features Sun Tzu wrote: "Ground equally advantageous for the enemy or me to occupy is key ground."[11] FM

100-5 defines key terrain as "any feature, locality, or area which affords a marked advantage to the combatant who controls it" and key terrain may be designated as decisive "if accomplishment of the mission *depends on* seizing or retaining it."[12] An appreciation for such key and decisive terrain is required for positive action at the critical point. The critical point is that point in time and space at which action is required to secure victory. An understanding of both force employment on the terrain and the significance of the terrain to the success of the operation is necessary to determine the critical point. In the following sections, this concept of the critical point is discussed in relation to a sense of locality and tactical agility. The importance of the influence of terrain on warfare compels us to consider the role of a sense of locality in tactics.

A SENSE OF LOCALITY

The successful commander knows the value of the terrain upon which he fights and how he can best use the terrain to his advantage. Frederick wrote of an intuitive ability of the commander, labeled by the French *coup d'oeil*:

> The clever general perceives the advantages of the terrain instantly; he gains advantage from the slightest hillock, from a tiny marsh; he advances or withdraws a wing to gain superiority; he strengthens either his right or his left, moves ahead or to the rear, and profits from the merest bagatelles.[13]

Clausewitz recognized this is difficult for the commander who fights on previously unseen terrain. He attributed such an ability to an exceptional quality and introduces, in his chapter "On Military Genius", the concept of a sense of locality:

> ...a commander must submit his work to a partner, space, which he can never completely reconnoiter, and which because of the constant movement and change to which he is subject he can never really come to know....the man with enough talent and experience to overcome it will have a real advantage....This problem is unique. To master it a special gift is needed, which is given the too restricted name of *a sense of locality*.[14]

Defined earlier as the ability to grasp quickly and accurately the topography of an area, the concept of a sense of locality embraces several thoughts. A sense of locality involves geometric relations--the spatial distribution of terrain features and forces on the terrain. To know one's surroundings requires a sense of distance between terrain features and the locations of those terrain features in relation to each other. It requires the ability to look across a stretch of terrain and accurately judge the distance to a position. It requires the ability to form a sketch in one's mind of the relative distribution of features in both the horizontal and the vertical. Additionally, it requires the ability to relate the horizontal to the vertical to obtain a sense of depth throughout the terrain. It gives one a sense of position.

In addition to these purely spatial relations, factors of time are also included. The commander must have a sense for time and space relationships for forces on the terrain. In tactics, decisions must be made quickly. In order to apply combat power at a desired time and place, the commander must know how long it takes for his forces to move across the terrain in his area. He must know the rates of movement for foot soldiers, for wheeled vehicles, for tracked vehicles, and for aviation assets. He must know how these rates vary for air, cross country, and road movement, and how changing weather conditions vary these rates. This requires a

knowledge of the trafficability of the terrain and the capabilities of his men and equipment to traverse such terrain. A sense of locality is not a matter of simple spatial factors. *Terrain, time, and force capabilities are all essential to a sense of locality.* Several benefits accrue to the commander who masters it.

A sense of locality gives the commander a better sense for task organization. A commander organizes his forces so that they are best suited to the terrain on which they must fight. For example, knowing the distances between terrain features and their positions in relation to each other, the commander can properly organize his forces for movement across the terrain. Knowing how the terrain restricts capabilities makes it possible for the commander to organize his forces to overcome these limitations. Knowing the protective capability of the terrain allows the commander to organize his forces more efficiently for defense of an area.

A sense of locality benefits the commander in the employment of his forces as well. A sense of locality gives the commander a better sense for the application of combined arms. For example, knowledge of distances assists the commander in positioning his firepower assets so that they are employed at their most effective ranges within the terrain. Knowing the spatial distribution of his forces and the time required for movement allows him to concentrate his forces and to synchronize the combat power of different arms. With a sense of depth within the battlefield the commander can foresee possible enemy routes and identify protected routes for his own movements. A sense for trafficability and protection better enables a commander to dispose his forces in areas which best suit their capabilities. Knowing the capabilities of his forces on the specific terrain allows him to exploit opportunities offered by the terrain. Finally, a sense

for the protection offered by the terrain improves his ability to achieve the complementary and reinforcing effects of combined arms.

In addition to this improvement in combined arms employment, one of the greatest benefits of a sense of locality is what it offers in relation to the enemy. A sense of locality improves the commander's ability to determine the capabilities of the enemy and anticipate enemy actions. Knowing the enemy's doctrine and the personalities of enemy commanders contributes to the forecast of enemy moves; but this knowledge must be combined with a sense of locality to be of any use. What the enemy might desire to do and what is possible on the terrain are two separate but interdependent questions. The terrain must be understood in order to determine what the enemy can do and foresee what he might do. In situations in which there is a paucity of information on the enemy, a sense of locality becomes doubly important. Again, Colonel Marshall offered this advice on terrain:

> If we have a clear idea of the enemy's dispositions, which will be seldom indeed, we will attack him, taking the terrain into consideration. If his dispositions are obscure and the situation vague, we can still solve the problem; for by attacking the terrain, we can effectively attack the enemy.[15]

A sense of locality gives the commander a feel for the best use of the terrain--how both he and the enemy could wisely employ their forces on the terrain. It can help compensate for a lack of enemy intelligence.

Clausewitz attributes this "gift" of a sense of locality to imagination:

> Things are perceived, of course, partly by the naked eye and partly by the mind, which fills the gaps with guesswork based on learning and experience, and thus constructs a whole out of the fragments that the eye can see; but if the whole is to be vividly present to the mind, imprinted like a picture, like a

> map, upon the brain, without fading or blurring in detail, *it can only be achieved by the mental gift that we call imagination.*[16]

Maps, sketches, and reports can give one knowledge of the features of the terrain; personal reconnaissance can help one to gain a feel for localities and the peculiarities of the terrain; and experience with force movements can give one a sense of time and distance factors. Powers of imagination are then required to imprint in the mind a picture of the whole. A question exists as to the extent natural talent plays in forming this picture of the whole. Is this "mental gift of imagination" only received by the "military genius" of whom Clausewitz writes?

Clausewitz's description of this quality undoubtedly had much to do with his observations of Napoleon. Napoleon was well known for his ability to form a picture of the terrain in his mind and recognize critical points. David Chandler described this as "an *acquired* eye for ground and an *imagination* that could conjure up an accurate picture of the terrain lying ahead from the sparse information contained on a map..."[17](emphasis added) While Napoleon's "eye for the ground" was acquired, there is little doubt that Napoleon worked hard to develop a mental picture for unseen ground as well. Chandler wrote of Napoleon's thorough preparation and study and his innumerable calculations on the map. Napoleon always made a complete study of the terrain in his area of operations prior to battle. Chandler portrayed the assistance provided by Napoleon's topographical engineer, Bacler d'Albe in this preparation:

> He was probably the most indispensable of all Napoleon's aides. He was responsible for performing all the staff duties connected with Napoleon's planning sessions. Bacler d'Albe undoubtedly helped the Emperor in his planning to a very real

> degree. Together they would crawl over the surface of the map.... Bacler would also be entrusted with important calculations of time and distance.[18]

d'Albe prepared maps in important detail and he color-coded his maps to make key features of the terrain more distinct. Topographical advice was an indispensable part of Napoleon's preparation. With little doubt, Napoleon's sense for the terrain had much to do with his inherent genius and powers of imagination; but his thorough study and preparation must have played a large part in his ability to form a picture of unseen terrain and to determine key features of the terrain.

A sense of locality involves more than physical knowledge of the terrain, and more than knowledge of time and distance factors. It requires the formation of mental pictures and a sense for the value of the terrain features. Both intensive preparation and natural talent are part of this. With this view of a sense of locality and the benefits it offers the tactical commander, the discussion now proceeds with consideration of tactical agility and its relationship with a sense of locality.

TACTICS AND AGILITY

Tactics is defined in FM 100-5 as "the art by which corps and smaller unit commmanders translate potential combat power into victorious battles and engagements."[19] The evidence of the above discussion relates the importance of terrain to the translation of combat power. Baron de Jomini's definition of grand tactics more clearly reveals the influence of terrain in tactics:

> Grand tactics is the art of posting troops upon the battlefield according to the accidents of the ground, of bringing them into

> action, and the art of fighting upon the ground, in contradistinction to fighting on a map.[20]

In further defining grand tactics he recognized a difference in the value of certain features of the terrain:

> The guiding principle in tactical combinations, as in those of strategy, is to bring the mass of the force in hand against a part of the opposing army, and upon that point the possession of which promises the most important results.[21]

The art of tactical warfare depends upon a thorough knowledge of the terrain. Additionally, the commander must *identify* the key points of terrain, *decide* what action to take, and then *act* resolutely. Only with a confidence in his sense of his surroundings can he do this.

As one of the four tenets of the Army's fighting doctrine, agility is identified as critical to the execution of tactical operations. Agility is defined as "the ability to act faster than the enemy" and "permits the rapid concentration of friendly strengths against enemy vulnerabilities."[22] Concerning the mental aspect of agility, leaders must be flexible. They must think ahead and be ready to react to changes in the situation. Agility requires both knowledge and skill.

Tactical agility requires an understanding of the time and space relations involved in the movement of friendly and enemy forces on the terrain. To act quicker than his enemy, the commander must first have a knowledge of the distance between localities and the time required by forces to traverse the distances. Implicit in this is a required knowledge of routes, their trafficability, and their relative value. His decision whether to disperse or concentrate depends on his confidence in the mobility of his forces over the terrain. Likewise, his ability to identify enemy vulnerabilities depends on his knowledge of enemy capabilities to maneuver

over the terrain. Furthermore, agility requires an ability to synchronize the concentration of several forces in space and time. However, like a sense of locality, tactical agility requires more than just an understanding of time and space factors.

Tactical agility requires an ability to assimilate facts rapidly, reduce the problem to its essence, and act. In a confused and pressured situation in combat, numerous facts are known and new information is received; perceptions bombard the senses; and human nature tends to imagine the worst. The commander must remain calm in order to act properly. He must be able to recognize the important information and disregard the non-essential. He must be able to synthesize the critical perceptions and form a picture of the whole, recognizing it for what it is. Finally, he must have the presence of mind and flexibility of mind to determine what must be done, then act. This process is embodied in the concept mentioned earlier, *coup d'oeil*. Clausewitz described the evolution of this term in his chapter "On Military Genius". Initially it referred to the physical eye, as it was attributed to the ability to make a quick and accurate decision based on observations of time and space.

> "But soon it was also used of any sound decision taken in the midst of action--such as recognizing the right point to attack, etc. *Coup d'oeil* therefore refers not alone to the physical but, more commonly, to the inward eye....Stripped of metaphor and of the restrictions imposed on it by the phrase, the concept merely refers to *the quick recognition of a truth that the mind would ordinarily miss or would perceive only after long study and reflection*"[23] (emphasis added)

The ability to act faster than the enemy requires an inward eye capable of "quick recognition of a truth." This "inward eye" or *coup d'oeil* is due as much to an acquired sense of the situation as it is to an innate

ability. Only the commander who has thoroughly prepared himself by studying his enemy, by completely knowing his unit's capabilities, and by knowing and understanding his surroundings is able to recognize quickly the essence of the situation. Once he identifies the true problem, his decision to act is likewise based on a knowledge of the enemy, his unit, and the terrain. And as discussed earlier, this knowledge is also required for a sense of locality.

AGILITY AND A SENSE OF LOCALITY

A sense of locality is similar in *process* to that of tactical agility. A sense of locality is the ability to (1) look at, and remember, a number of facts about the terrain; (2) synthesize this information and form a picture of the whole; then (3) grasp without hesitation the important military value of the terrain. Agility requires (1) absorbing numerous facts and perceptions of the situation; (2) synthesizing this information into a whole; and (3) grasping the essence of the whole. It is identifying the critical point and deciding what action is necessary. Because, in large part, of this similarity in process, *a sense of locality reaps its greatest benefits in improving the commander's ability to identify quickly the critical point and to be decisive in action.*

In order to identify the critical point for action, the commander needs a sense of locality. The critical point for action may require seizure of decisive terrain. It may require disruption of an enemy counterattack. Or it may require exploitation of a penetration. Whatever action is required, identification of the critical point is based on those same elements entailed in a sense of locality--a sense of distances and relative positioning of localities on the terrain; a sense of the time and space relations of both

forces relative to the specific terrain; and a sense of the military value of the terrain. Identification of the critical point requires knowledge of other factors, but without a confident sense of locality, knowledge of these other factors is for naught.

Deciding what action is necessary to concentrate combat power at the critical point requires a sense of locality. To be decisive the commander must be confident in his sense of the terrain. He must have a sense for the current disposition of his forces on the terrain and their respective areas of influence. He must have a knowledge of routes and the risks involved with each. He must know the ability of his units to act on, and to move over, the particular terrain and the length of time it will take them. A lack of confidence in his surroundings will only lead to indecisiveness. A sense of locality improves the ability to take quick, resolute action.

Tactical agility depends on a sense of locality. It is hard to consider one without the other. It is now appropriate to consider these two concepts in action. To illustrate this relationship between tactical agility and a sense of locality, two historical examples are presented. The demonstrated abilities of Major General Thomas J. (Stonewall) Jackson offer the first illustration. Specifically his actions at the head of the Army of the Valley in the Battle of Winchester during his Valley Campaign are considered. The second illustration is that of Major General Norman D. Cota, commanding general of the 28th Infantry Division during the Battle of Schmidt in November, 1944.

THE BATTLE OF WINCHESTER

Jackson's overall mission in the Shenandoah Valley was strategic--to draw strength from Major General George B. McClellan's advance on Richmond by threatening Washington. Jackson had completed the first phase of his Valley Campaign by May 1862. At that time, Union Major General Nathaniel P. Banks remained at Strasburg with a force of 8,000. (See sketch at Enclosure 1) Operationally, Jackson wanted to deceive Banks by making Banks think he would move toward Strasburg from Harrisonburg; but Jackson was to take a more circuitous route. To hide his movements, Jackson screened with his cavalry. He started up the north fork of the Shenandoah River and then turned through the New Market Gap in the Massanuttens. He then used a little known route to move on Front Royal, rapidly defeating the small Federal garrison there on May 23.[24]

As Jackson studied the Valley's topography he saw his operational problem as threefold:

> ...how could he dispose his troops in such a manner that he could (1) attack Strasburg if Banks stayed there, (2) thwart an attempt by Banks to slip past the rear and pass over the Blue Ridge, (3) strike in force any Federal column moving on Winchester and (4) advance his own troops to that town swiftly? The immediate essential was to watch both lines of possible retreat and, whether Banks retreated or not, to be in position to attack him at once....The roads, which Jackson knew well, offered an opportunity of doing this.[25]

Jackson's operational plans were heavily dependent on the terrain.

Jackson's use of the terrain was also key to his tactical success. Banks made his move by withdrawing towards Winchester. Jackson then acted quickly. His soldiers were tired after the action at Front Royal, but he pushed his Army hard. However, he missed the enemy main force, hitting the rear of Banks' column at Middletown. The exhausted state of his soldiers

and the pillaging by his cavalrymen delayed the pursuit. Still, he continued to push towards Winchester at night:

> The General's thoughts were on the high ground around Winchester. He recalled the withering fire from the Union battery on Pritchard's Hill during the Battle of Kernstown and wanted no repetition. When the Valley Army passed Pritchard's, Jackson knew that Banks had only one other possible defensive position, a series of hills running north-south along Winchester's western limit. If Stonewall could secure these hills, Winchester would be free.[26]

Jackson's quick movements were all predicated on a knowledge of the terrain and its military value.

Jackson's first actions at Winchester on 25 May (see sketch at Enclosure 2) were to reconnoiter the battlefield and quickly issue orders with regard to seizure of decisive terrain. In position to observe the movement of his forces and watch Federal dispositions, Jackson issued his order to the commander of the Stonewall Brigade, Brigadier General Charles S. Winder, in five words: "You must occupy that hill."[27] Jackson disposed the remainder of his force without hesitation and the movements were made rapidly. As the battle began at dawn, Jackson remained close to the attacking brigades.

During the heat of the battle, Jackson continued his reconnaissance and he reacted without hesitation when dangerous situations occurred:

> Eagerly he studied the ground before him. Swiftly his eye ran to the left, where a stone wall ran obliquely from a crossroad and almost at right angles to the line the Confederates were taking. Dangerous cover that was, if the Federals should throw a force behind it![28]

In the midst of a deadly artillery duel, Jackson observed the Federal infantry move behind the stone wall. He quickly knew what he had to do to

seize the initiative. It was now about 6:00 a.m. He rode to the Thirty-third Virginia and spoke with its commander: "I expect the enemy to bring artillery to this hill, and they must not do it! Do you understand me, sir? They must not do it!"[29] Jackson quickly moved on to Colonel Walter H. Taylor's Louisiana Brigade, moving up a covered and concealed route. He realized that Taylor must turn the Federal right flank. "One gesture and one sentence covered orders. Jackson pointed to the ridge on the left: 'You must carry it'"[30] At about 7:30 a.m., Taylor's Brigade took the ridge as Major General Richard S. Ewell's division attacked in support on the right. The Federals retreated. Jackson's pursuit was weakenend by the late arrival of the cavalry, but the victory at Winchester was won--and he forced Banks out of the Valley.

Examination of this battle reveals Jackson's superb knowledge of the terrain and of his and the enemy's ability to move and fight over this terrain. In preparation for the battle Jackson studied sketches and maps expressly made for his purposes. His topographical engineer, Major Jedediah Hotchkiss wrote later:

> ...Jackson not only studied the general maps of the country,but made a particular study of those of any district where he expected to march or fight, constantly using sketch maps made upon the ground to inform him as to the portions of the field of operations that did not immediately come under his own observation.[31]

With knowledge of the terrain as a background, Jackson continued to reflect on the value of specific aspects of the terrain. He mentally placed himself in Banks' position and determined Banks' alternatives; then he mentally developed means of countering Banks' moves. In current terms, he war-gamed the situation. He understood time and space relationships. To assist

him in this he had tables prepared showing the distances between any two points in the Valley.[32] Finally, his personal, up-front reconnaissances during battle were just as important as his prior preparation. All this contributed to Jackson's sense of locality which, in turn, improved his tactical agility.

Jackson's preparation and his sense of the terrain fostered a better use of combined arms and allowed him to rapidly *identify* the critical point and take *decisive action*. He considered the terrain not only in terms of the restrictions it placed upon him, but in terms of the opportunities it offered. He knew the importance of the hills west of Winchester, and he quickly grasped the value of the stone wall. He knew where to place his artillery and what ground his infantry must seize. His orders were terse and decisive. One imagines upon reading accounts of the battle that Jackson had fought this battle before. Well he might have--enroute to the battlefield envisioning in his mind the terrain and how the battle might play out. Thus, on the battlefield he was prepared to act when he saw such danger as a Federal force behind the stone wall.

The assistance provided by Hotchkiss assisted Jackson greatly in gaining a sense of locality and improving his tactical agility. At Jackson's first meeting with Hotchkiss his request was simple: "'I want you to make me a map of the Valley from Harpers Ferry to Lexington, showing all the points of offense and defense between those points.'...Thus... began the making of the maps which were to contribute to the sureness, and thereby to the speed and boldness of all Jackson's future operations in the Valley."[33] This assistance provided by Hotchkiss is similar to that assistance, mentioned earlier, provided by d'Albe to Napoleon. This similarity with Napoleon was not coincidental. Hotchkiss wrote in his diary:

> It could readily be seen...that in the preparations (Jackson) made for securing success he had fully in mind what Napoleon had done under similar circumstances; resembling Napoleon especially in this, that he was very particular in securing maps, and in acquiring topographical information.[34]

Expert topographical advice was essential to Jackson's thorough preparation and his sense of locality.

Although Jackson's ability to remember all the details of the Valley's geography was questioned, his ability to sense his tactical surroundings was sure. Douglas Southall Freeman appraised Jackson's superior qualities. One of these was his quick and sure sense of position. Freeman wrote: "For military geography, in its larger aspects, or even for fashioning an accurate mental picture of ground he had not seen, Jackson had shown no special aptitude."[35] Freeman goes on to relate instances of confusion and forgetfulness concerning the geography of the Valley. He concludes that,

> Jackson's insistent demand for maps may have indicated a conciousness of special personal need as surely as it reflected the thorough, professional study of the trained soldier. Once Jackson learned the geography of an area, his interpretation of it was strategical; and when he came to a field of battle, his sense of position was sure, unhesitating and quickly displayed.[36]

Hotchkiss, who observed Jackson closely, had a slightly different opinion of Jackson's talents, but his conclusion was the same:

> I do not think he had an accurate knowledge of the Valley previous to the War....As a rule he did not refer to maps in the field, making his study of them in advance. He undoubtedly had the power of retaining the topography of a country in his imagination....He was quick in comprehending topographical features. I made it a point, nevertheless, to be always ready to give him a geographic representation of any particular point of the region where operations were going on,

> making a rapid sketch of the topography in his presence, and using different colored pencils for greater clearness in the definition of surface features.[37]

Jackson worked hard to develop his knowledge of the terrain and its military value. Whether or not he could have had his superb sense of locality without this preparation is questionable. In light of Jackson's successes, it is now appropriate to look at an example of battlefield failure and what part tactical agility and a sense of locality played in the outcome.

THE BATTLE OF SCHMIDT

In the Fall of 1944, the Allied armies pushed across France and into Germany. The First U. S. Army's main objective was the Rhine and its first main effort was the capture of Deuren (see Enclosure 3). VII Corps was to make the main attack on 5 November, with the supporting attack launched first by V Corps on 2 November. The supporting attack was to attract enemy reserves and to secure the right flank of VII Corps. The 28th Division comanded by Major General Norman D. Cota was to make the V Corps main attack, with the town of Schmidt as its initial objective. The V Corps Commander, Lieutenant General Leonard T. Gerow, assigned the 28th three separate missions. The 28th then assigned each of these missions to its three regiments, respectively. The 109th would attack towards Heurtgen in the north; the 110th would attack to the southeast towards Strauch, and the 112th as the Division's main effort would seize Schmidt[38] (see Enclosure 4). This account of the battle concentrates on the action of the 112th.

Cota's knowledge of the terrain and the enemy situation was limited. The terrain in the Schmidt area was some of the most difficult terrain encountered by the Allies in all of Central Europe. Charles B. MacDonald described it this way:

> The overbearing factor about the terrain in this region is its startingly assertive nature. Ridges, valleys, and gorges are sharply defined....the little Kall River....cut a deep swath diagonally across the 28th Division's zone of attack....[39]

Aerial photographs were taken and studied, but because of the density of the many wooded areas it was difficult to determine the extent of trails or trafficability conditions throughout the area. The terrain begged for further reconnaissance. The severity of the terrain had an extreme effect on the operation. Vossenack, Kommerscheidt, and Schmidt were all situated on open ridges. And these ridges were overlooked by the enemy-held ridgeline just east of the Roer River. Enemy artillery fire from this ridgeline greatly hampered movement in the main objective areas. Also, the Kall trail was to be the lifeline for the Division's main attack; yet a thorough study of the map and aerial photographs could not verify if the trail did continue across the Kall gorge to Vossenack. No reconnaissance was ordered to determine whether or not the trail was passable.[40]

The attack began on 2 November and the 112th gained immediate although only partial success with the capture of Vossenack. The 112th succeeded in its mission the following day by taking Schmidt with its 3rd Battalion and Kommerscheidt with the 1st Battalion. On the 4th, the expected German counterattack came. With surprising speed, the Germans attacked with both infantry and armor and forced the 3rd Battalion out of Schmidt that day. The Kall trail was now vital to the success of the 28th--as armor was needed in the battle to retake Schmidt.

Both engineers and crafty tank crews attempted to widen and negotiate the trail, but because "no one during the original planning had believed that vehicles could get as far as the Kall, the engineers had with

them only hand tools."[41] The engineers sent one bulldozer to widen the trail and remove several rock outcroppings but it soon broke down. On the 4th, the Division made minimal effort to open the trail, but part of the "reason for the dalliance no doubt lay in the fact that General Cota all day long was ill-informed about the condition of his vital main supply route across the Kall. Most reports reaching 28th Division headquarters repeatedly asserted that the trail was open."[42] Only a platoon of tanks made it across in the succeeding days, and the Germans took Kommerscheidt on 7 November. The 109th completed its withdrawal across the Kall gorge on the 8th.

This mission failed for many reasons. These included poor weather, unexpected enemy reinforcements in the area, the difficult and divergent missions directed by Corps, overconfidence gained through previous successes, and lack of progress across the First Army front. But for the purposes of this analysis, only those factors of terrain and agility which contributed to mission failure are considered. Looking back at the battle, one can see how the lack of a sense for the terrain contributed to a lethargy in the 28th's actions.

The corps and division knew of the difficulties of the terrain, but the division made little effort to compensate for them. Although the 9th Division discovered the deadly nature of the Heurtgen Forest during the previous month, little evidence suggests that the 28th did much to gather detailed information on the area. V Corps helped redress the situation by heavily reinforcing the 28th. These reinforcements included an engineer group with three engineer combat battalions. But the division failed to effectively use all their available forces, largely because of a lack of appreciation for the terrain. Evidence from aerial photography raised

questions about the terrain, but Cota ordered no reconnaissance to fill the gaps in information.

Contributing to his lack of knowledge of the terrain, Cota remained at his command post in Rott, six miles to the rear of the line of departure. He did send his Assistant Division Commander, Brigadier General George A. Davis, forward on the 4th to determine the status of his units. Davis then walked the Kall trail towards Kommerscheidt and reported to Cota that evening; but "Cota had been out of touch with developments in his own units all day."[43] Cota did not go forward on any personal reconnaissance until 8 November, the day after losing Kommerscheidt. This was his only recorded visit forward during the battle.[44]

The apparent vagueness in Cota's sensing of the terrain and knowledge of the enemy situation contributed to his lethargy in identifying any critical point for action. Even though the situation changed drastically on the 4th, the day of the German counterattack, Cota took little action. He displayed a lack of decisiveness. Cota ordered no changes in the dispositions of his forces until late on the 7th. "Unwilling to rely on his own judgement, Cota turned to General Davis, who had seen the battlefield firsthand. He asked his Assisant Division Commander if he had any recommendations."[45] He decided to withdraw.

Apparently, Cota's engineers provided him little assistance with advice on the terrain. Engineer reconnaissance during the battle miscalculated the suitability of the trail. Colonel Edmund K. Daley, Comander of the 1171st Engineer Combat Group, gave the 20th Engineer Combat Battalion responsibility for maintenance and security of the Kall supply route. Daley thought that tanks could carefully negotiate the trail. But "Cota's staff at Rott informed Daley that tankers did not agree with

engineer estimates and were very concerned about those rock outcroppings."[46] Although there were a large number of engineers available, the Division made no effort to forge another trail and made only minimal effort to improve the existing trail.

The evidence suggests that Cota lacked a sense of locality. Contributing to his difficulties with the terrain were the three mission requirements from corps. Gerow, by dictating three divergent missions, precluded Cota from forming a strong reserve, and made mutual reinforcement by his regiments practically impossible. But given these requirements, Cota seemed to have little appreciation for the position in which he was placing the 112th Regiment. A skilled sense for spatial relations would have made him realize the danger of the extended position of the 112th elements in Schmidt. These forces would be without flank support. Without a secure line of communication, the Division could do little to provide the necessary reinforcements. Therefore, maintenance and security of the supply line was critical; but little appreciation was shown for what it takes to secure a road through a heavily wooded area and across a gorge with enemy on its flanks. Cota assigned the security mission to the engineers who were responsible for enlarging and maintaining the route. Finally, Cota appeared to have viewed the terrain solely as restrictive and not in terms of opportunities to exploit. The severe terrain constrained his options but it also offered routes for covered and concealed movement. These could provide protection from the devastating enemy artillery fire and provide possible opportunity for surprise. The terrain could be used to choke off enemy armor as well as it restricted the use of friendly armor. The plan and its execution revealed a lack of appreciation for the military

value of terrain. This account of the 28th Division offers a stark comparison with the actions of Jackson's Army of the Valley.

WINCHESTER AND SCHMIDT COMPARED

These historical illustrations have shown only the effects of terrain and the commanders' senses of locality on the conduct of two dissimilar operations. But in many battles, the commander's sense of locality often has been critical to battlefield success. In the 1985 West Point study, "Leadership in Combat: An Historical Appraisal", the authors reviewed the accounts of numerous battles and found:

> The successful leader somehow had the ability always to be at the decisive point on the ground at the time he was most needed to influence the action. This was probably a function of his knowledge of terrain, as an appreciation for the ground on which he engaged in combat was a strong point in almost every success story, and a failure to appreciate terrain was an ingredient which led to disaster on more than one occasion. The successful leader made a fetish of properly conducting personal reconnaissances, to the extent of more than once moving into enemy-held territory to view his own lines as the enemy would see them.[47]

A comparison of leadership actions at Winchester and Schmidt adds credence to this conclusion.

Before comparing the two leaders and battles, it is acknowledged that any comparison is somewhat unfair. Jackson was familiar with his area of operations prior to battle, Cota was not. The terrain at Schmidt was measurably more difficult than at Winchester. The capabilities of the forces involved were strikingly different. Finally, more information is available on Jackson's actions than Cota's. So this examination must not be taken as a critique of Cota's leadership, but as an analysis of the

commanders' and their staffs' *demonstrated* senses of locality and tactical agility.

In both battles, terrain proved to be "decisive in the highest degree." The influence of terrain had such a grip on both operations that it practically dictated the course of events. At Winchester, Jackson recognized the dangers of the terrain and moved quickly to overcome them. He saw the advantages offered by the terrain and he acted without hesitation to seize them. At Schmidt, the dangers of the terrain may have been recognized, but Cota took little action to surmount them; and he used few of the advantages offered by the terrain. The higher technology of mapping and aerial photography were available to the 28th Division to learn more about the terrain, but an apparent lack of terrain sense prevailed. Technological increases in weaponry and vehicles provided greater capabilities at Schmidt, but failure to make proper use of them within the confines of the terrain negated their value. The influence of terrain on the conduct of the battles was great but only one commander worked to seize its opportunities.

Jackson studied the terrain and the enemy's capabilities and possible movements. It is not evident that Cota did much of this at all; but a thorough study of the terrain information would likely have raised the need for further terrain reconnaissance by the 28th Division. Jackson studied the maps prior to battle and he constantly had sketches available to help him visualize the important features. He war-gamed the enemy's alternatives and what he would do to counter them. Jackson's preparation was thorough. Said one of his staff officers after the battle at Winchester, "Every movement throughout the whole period was the result of profound

calculation."[48] But Jackson did not stop at the study of information presented to him by his staff.

Jackson conducted personal reconnaissance during the battle; Cota did not until it was too late. Jackson went to the extent of placing himself on a ridge under enemy fire so he could observe the terrain and the unfolding situation. He knew he could best direct action with firsthand knowledge. Although Cota's forces were spread out over a larger area and in divergent directions, he did not even move up to observe his main effort but remained six miles to the rear of the line of departure until after the loss of Schmidt and Kommerscheidt.

Jackson had excellent topographic advice; Cota apparently did not. Hotchkiss was a professional mapmaker and he soon demonstrated his reliability. He made detailed maps and he could rapidly sketch and highlight the important features of critical areas. Jackson, like Napoleon, made his topographical engineer a principal advisor. Judging from the results of the battle, it is not apparent that Cota's engineer or G2 adequately advised him of the difficulties of the terrain nor of ways to exploit the opportunities offered by the terrain.

Jackson was agile; Cota was lethargic. In the action prior to Winchester and during the battle itself, Jackson reacted to many of Banks' moves. Even though he was reacting and not dictating Banks' actions, he reacted without hesitation. His prior preparation and his sense for the advantages and dangers presented by the terrain enabled him to be decisive. He ordered several major moves during the period of a few hours. Cota displayed a notable lack of decisiveness, ordering few changes over the course of six days. He relied on his Assistant Division Commander for his

"personal" reconnaissance and on confusing reports from the front lines. Jackson had a sense of locality; evidence suggests that Cota did not.

CONCLUSIONS

The importance of a sense of locality to tactical agility is evident. Terrain has a decisive impact on the conduct of warfare. As such, the military value of terrain and the effects of weather upon it must be determined to develop a viable concept of operations. Terrain influences all operations to such a degree that it cannot be regarded lightly. In tactics, the commander applies combat power within the confines of the ground. To act resolutely at the critical point, he must know the terrain, know its value to his operation, and form a picture in his mind of his position and the surrounding localities.

A sense of locality does this for the commander. It gives him sense of position. It gives him a sense of time and space relations involved in the movement of his forces. It gives him a better sense for task organization and the application of combined arms. It gives him a better sense for the capabilities of the enemy. Finally, it improves his ability to *identify* quickly the critical point and resolutely *decide* what action is necessary.

A sense of locality forms the basis for tactical agility. The two are similar in process. They both require forming a picture in one's mind of the whole-- a picture of the terrain in one and a picture of the problem in all its aspects in the other. They both then require identifying the essence. A sense of locality requires a grasp of the important aspects of the terrain. Agility requires a distillation of the problem to its very substance. The skills correspond, and it is not surprising that one improves the execution of the other.

The historical examples illustrate the necessity for a commander to read and heed the "open book" of terrain. Jackson prepared himself well. He thoroughly studied the ground upon which he was to fight. He used time/distance tables. He had multi-colored sketches prepared, highlighting the key and decisive terrain. He war-gamed the enemy's options. He pictured in his mind the terrain ahead of him. Finally, he reflected upon the actions he wanted to take. The evidence leads to no conclusion as to the importance of natural talent and the "gift of imagination" in developing a sense of locality; Jackson may or may not have had a natural talent for terrain sense. But one thing is sure, he left as little to the imagination as possible. He sought all the information he could to develop a sense of locality, and then he studied and reflected. Again, he was similar to Napoleon in this. Known for his terrain sense, Napoleon attributed much of his success to thorough preparation:

> If I appear to be always ready to reply to everything, it is because, before undertaking anything, I have meditated for a long time--I have foreseen what might happen. It is not a spirit which suddenly reveals to me what I have to say or do in a circumstance unexpected by others--it is reflection, meditation.[49]

The evidence of Cota preparing as thoroughly is lacking. One can only judge from the conduct and the results of the battle that Cota's effort to develop a sense of locality for the terrain around Schmidt was deficient. Jackson's sense of locality enabled him to identify quickly the key terrain and act without hesitation to secure its advantages for himself. We seek this today.

In the chaotic and fluid battlefield of the future, a sense of locality is doubly important. The ability "to grasp quickly and accurately the topography of an area" is needed to identify the essence of a situation, to

decide resolutely, and act without hesitation. *A sense of locality is essential to tactical agility.*

With this look at theory, doctrine, and history it is now only appropriate to consider the problem in the present. What can today's commander, naturally talented or not, do to develop a sense of locality, enabling him to act faster than the enemy?

TODAY'S COMMANDER

Before proceeding with suggestions for today's commander, one more point from theory is offered. Clausewitz recognized the ability of friction to impede agility. He asked, "Is there any lubricant that will reduce this abrasion?" He answered, "Only one, and a commander and his army will not always have it readily available: combat experience."[50] So the suggestions are presented with this knowledge--combat experience is the best means of developing a sense of locality. Absent combat experience, it is our job to find means to prepare the uninitiated for battle. These suggestions apply to all, combat experienced or not. Finally, these suggestions in themselves offer nothing new. Their importance lies in what they accomplish. The commander who follows these suggestions to develop a sense of locality is taking a significant step in gaining tactical agility.

The first prerequisite to gaining a sense of locality is a thorough study of the area of operations. The commander should use all available information provided by both high- and low-technology means. New automated terrain analysis aids are being fielded which can provide line-of-sight profiles, weapons/sensors masking plots, color-tinted elevation maps (air avenues of approach), slope maps (ground avenues of approach), and oblique views.[51] The Defense Advanced Research Projects Agency (DARPA) is

experimenting with "talking" computer-generated movie maps. Video disc maps have been developed. Even interactive maps have been projected for the near future--maps which may recommend routes and movement times.[52] All of these can be helpful in developing a sense of locality. Additionally, the area should be studied as a whole to get a sense for the major features in relation to each other. It should also be studied in detail to determine specifics such as trafficability, cover and concealment offered, and weather effects. Time/distance factors for both friendly and enemy forces should be studied to gain a sense for movement capabilities.

Simple means should also be employed to develop a sense of locality. Sketching is a valuable way to gain immediate information and can assist the imagination in developing an accurate picture of the terrain. Prior to his operations, Field Marshal Sir William Slim would make a rough sketch of his area, noting the distances between major features. This would help him to form a picture in his mind of the basic structure of the terrain, upon which he could then build a more complete picture when additional information was received.[53] Panoramic sketches are perhaps the most valuable in forming a mental picture. They are easy to prepare and it is a simple matter to train a member of the staff in panoramic sketching. In World War II, U. S. Army field manuals specified which individuals in the company and battalion would perform panoramic sketching.[54] This would help the commander to form a picture of the area in his mind, and thereby be more sure of his plans. Our current field manual FM 21-26, Map Reading has a sufficient section on field sketching to include panoramic sketching.[55] Field sketching should be common practice in our units today. With all this, the commander needs to form a picture in his mind of the area and of forces in it. Baron Freytag von Loringhoven wrote in 1911:

> The idea of "mental maps" was mentioned long ago by Berenhorst, who said an officer's head should be full of maps. Today an accurate sense of locality is just as important as ever despite our improved maps. Maps merely give us more accurate information to fill in gaps in our visual picture, and lead us to better end results....All the higher commanders are now in a position to form long range estimates of the difficulties they will encounter, and can act with greater assurance.[56]

To form these "mental maps" the commander still needs further preparation. A study of terrain and enemy information *must* be supplemented by personal reconnaissance to gain an appreciation, or *sense*, of both the area as a whole and of the details of visibility and trafficability One of the dangers of high technology is that it pulls the commander away from the terrain and into his automated command post. Modern commanders will tend to lose their feel for the terrain. In today's highly lethal battlefield, personal reconnaissance is extremely dangerous, yet it is still a necessity. FM 100-5 states, "One of the best investments of the commander's time before battle is an intensive, personal reconnaissance of the terrain."[57] The Chief of Staff of the Army, General John A. Wickham Jr., recently stated, "A commander, even at the risk of his life, must get up to the front lines...and get a feel for the terrain."[58] As a minimum, the tactical commander must get out on the ground throughout friendly-controlled territory. This serves to give him, for example, knowledge of specific soil and vegetation conditions, an idea of the roughness of the terrain, and a feel for the protection offered by the terrain. This, combined with the information he has studied, will help him to form a picture in his mind of unseen terrain in enemy territory. If possible, viewing the area of operations from the air is a valuable supplement to ground reconnaissance. (This is not a recommendation for *command and control* from the air--a

dangerous practice on today's battlefield.) The most important benefit of aerial reconnaissance is in giving one a sense of the spatial relations of localities. Additionally, the reconnaissance must be conducted with map in hand. Thereby, the map and the reconnaissance reinforce each other. The reconnaissance fills in gaps left by the map, and vice versa. In this way, one also can relate what he sees on the ground to the tool he uses in planning.

This thorough preparation can be supplemented even further to develop a sense of locality. The commander should war-game his concept, considering possible enemy courses of action and friendly reactions. This process of war-gaming gives him a better sense for all of the possible uses of the terrain. It implants the picture of the terrain in his mind more firmly. And it gives him a sense of the time and space relationships involved in the movement of forces across the terrain. This process also goes far in enhancing the commander's tactical agility. Frederick the Great wrote:

> ...put yourself in the place of the enemy, and all the hindrances which you will have imagined and which he will not make for you, when war comes, will be just so many things that will facilitate your operations. Good dancers often go through steps in sabots and they become more agile when they are in pumps. An examination of this nature needs to be made with reflection.[59]

The previous discussion demonstrated the close relationship between tactical agility and a sense of locality; the practice of war-gaming reinforces both. The vicarious experience offered through war-gaming can help to improve one's ability to sense quickly the terrain once on the ground in that area. It can help also to improve one's ability to grasp the essence

of a situation in battle, if one has already played out a similar scenario previously in his mind. In peacetime, this becomes doubly important.

In wearing his "sabots" in training before the war, the commander must also envision the impact of technological changes on the military value of terrain. Increasingly sophisticated technology; the employment of aviation, remotely piloted vehicles, and satellites; and the greater ability to see at night will change the value of terrain to warfare in many ways we have yet to experience. Increased capabilities of observation and of controlled non-line of sight weapons increase the protective value of terrain. Increased speed of movement alters time and space factors. Ground support aviation gives commanders the ability to overcome terrain restrictions, but terrain still remains critical to the protection of close support aircraft. Night operations influence all the factors of terrain mentioned earlier. In future warfare, much of a commander's sense of locality and tactical agility will depend on how well he has mentally experienced battle in training. And this mental exercise must be supplemented with physical exercise.

To help develop his sense of locality the commander should practice actual unit movements. He should walk with his foot soldiers and ride in wheeled and tracked vehicles; and he should fly over his units during movement. He should do this over varied terrain, including the worst terrain possible, and under various weather conditions. This will give him a sense for where and under what conditions his units (and the enemy's) can move. By experiencing this personally he can make increased use of difficult routes with greater confidence. He should observe these movements from a vantage point on the ground, and from the air if possible. This will give him a sense of the spatial distribution of his forces in relation to localities. It

will also give him a sense of time and space relations for his forces. The observations should be recorded and studied. By reflecting upon what he has seen, the commander will more firmly develop his capacity to form "mental maps".

But the commander is not the only player. The commander must train his staff and subordinate commanders in these methods as well. Command Post Exercises (CPX) which incorporate Map Exercises (MAPEX), tactical exercises without troops (TEWT), terrain walks, and staff rides are all valuable means for developing a sense of locality. A CPX/MAPEX gives the player a good sense for movement times and the effects of these various times on the operation. Exercises on the terrain then reinforce the MAPEX and help the players to form their "mental maps" and get a feel for the details of the terrain. During training, S2s and G2s should ride with their scouts to compare what the scouts report to what they both see. This enables the staff officer then, when he is in the headquarters, to form a more accurate picture in his mind from the reports he receives from the scouts. Finally, the engineer should be the commander's expert on terrain. He is the primary advisor on all aspects of the terrain, especially for mobility, countermobility, and survivability. He should be well-versed at field sketching and should be able to point out the most favorable areas for attacking and defending. He, more than anyone else, should be ready to assist the commander in developing a sense of locality.

In combat, the commander can help ensure a common sense of locality by issuing his orders from a vantage point on the ground. In this manner, his staff and subordinate commanders will see what he sees, thereby reducing possible confusion and reaching agreement on the value of the terrain. This practice is also beneficial to clarify that which may have been vague as a

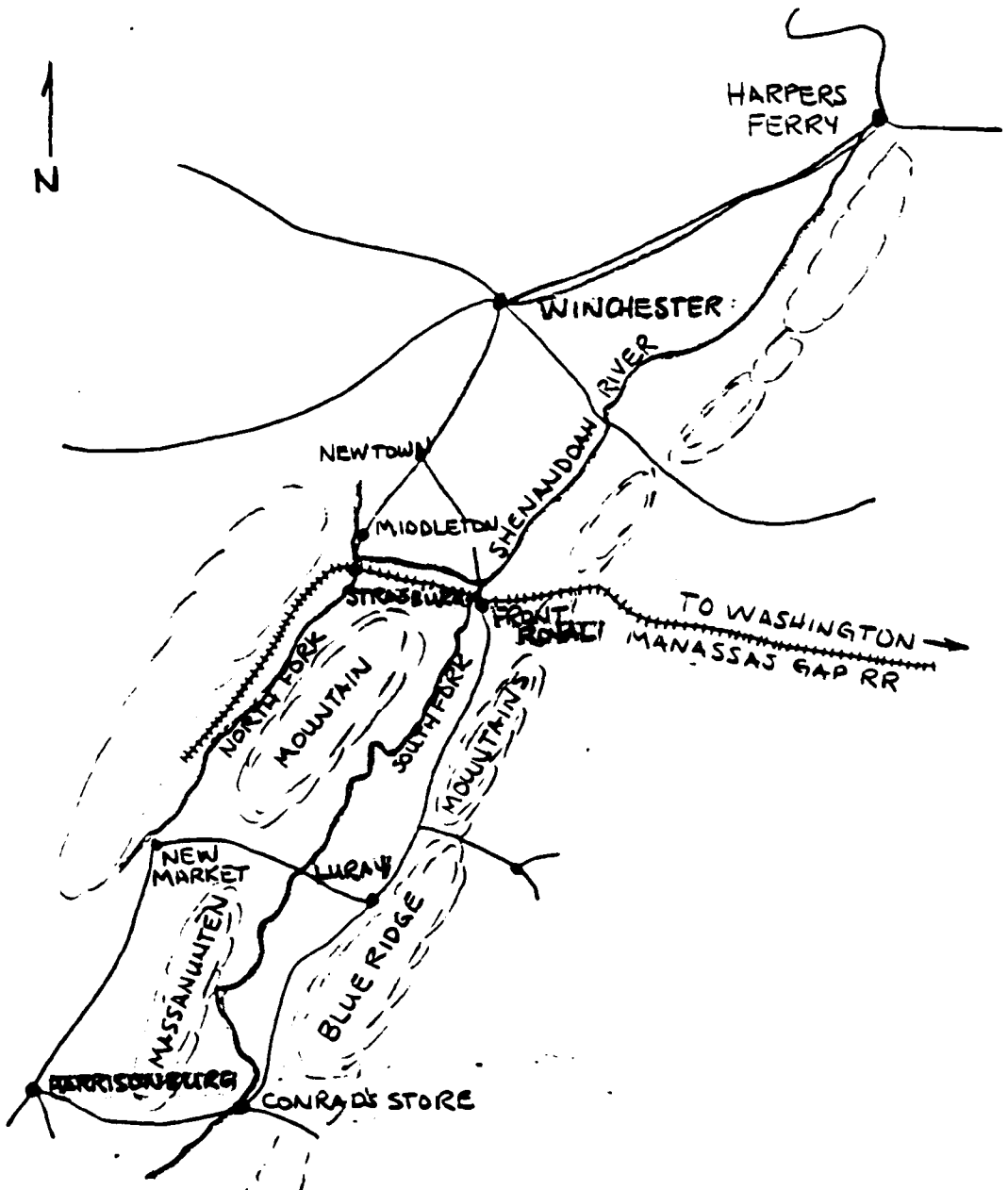
result of map planning. The commander may then revise terrain dependent aspects of his concept of operations to reflect the more accurate, first-hand information.

The final suggestion is perhaps the most notable. It concerns a way of thinking of terrain. Much of our current planning process tends to focus on the restrictive aspects of terrain. One of the first steps of our intelligence preparation of the battlefield process is to identify "no-go" and "slow-go" terrain.[60] This then leads to a tendency by unwary planners to ignore difficult terrain; and any thought of exploiting advantages offered by unlikely avenues of approach is seldom raised. General Bruce C. Clarke, one of our most successful armor commanders in World War II, learned to make maps early in his career as an engineer. This helped to give him a good sense of terrain. He wrote: "I always considered terrain as an offensive or defensive weapon."[61] By considering terrain as a weapon, one then views it in terms of its destructive and protective effects. One views it in terms of opportunities to exploit, not simply restrictions which must be overcome. One senses the feasibility of unexpected avenues of approach and the difficulties inherent in such an approach. One visualizes the capabilities it offers the enemy. By considering terrain as an offensive or defensive weapon, one views it not like Norman Cota, but like Stonewall Jackson.

A sense of locality is perhaps one of the most important steps in gaining tactical agility. It reaps its greatest reward in improving the ability of the commander to act faster than the enemy. Today's commander has more tools available than did commanders of the past; and because of the rapid pace and lethality of today's battlefield, he has a greater responsibility to develop a sense of locality. He cannot rely wholly on natural talent, but must work with persistent thoroughness in preparation

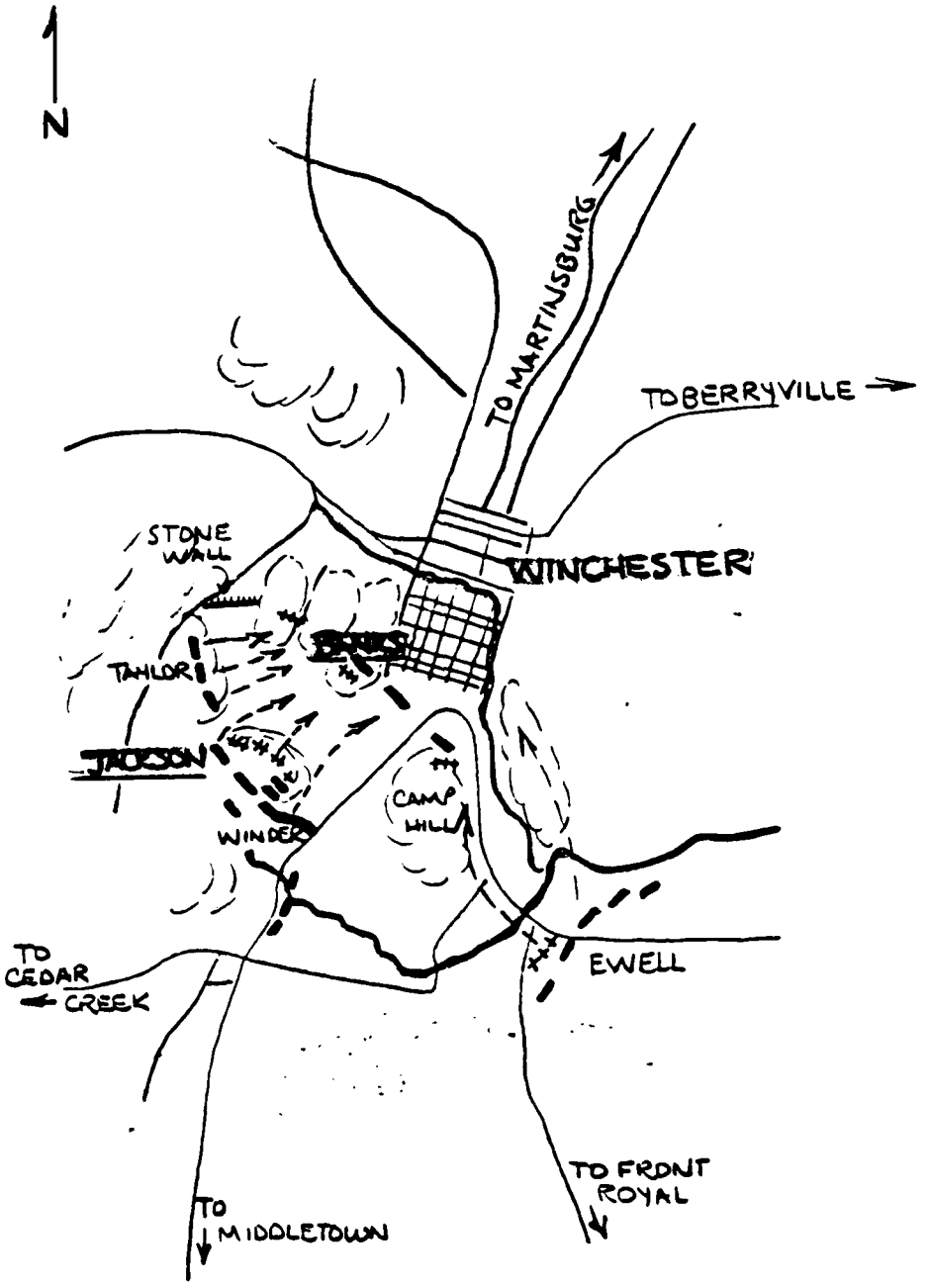
to develop a sense of locality. This will help give him the confidence and decisiveness he needs to act faster than the enemy.

SHENANDOAH RIVER VALLEY



ENCLOSURE 1

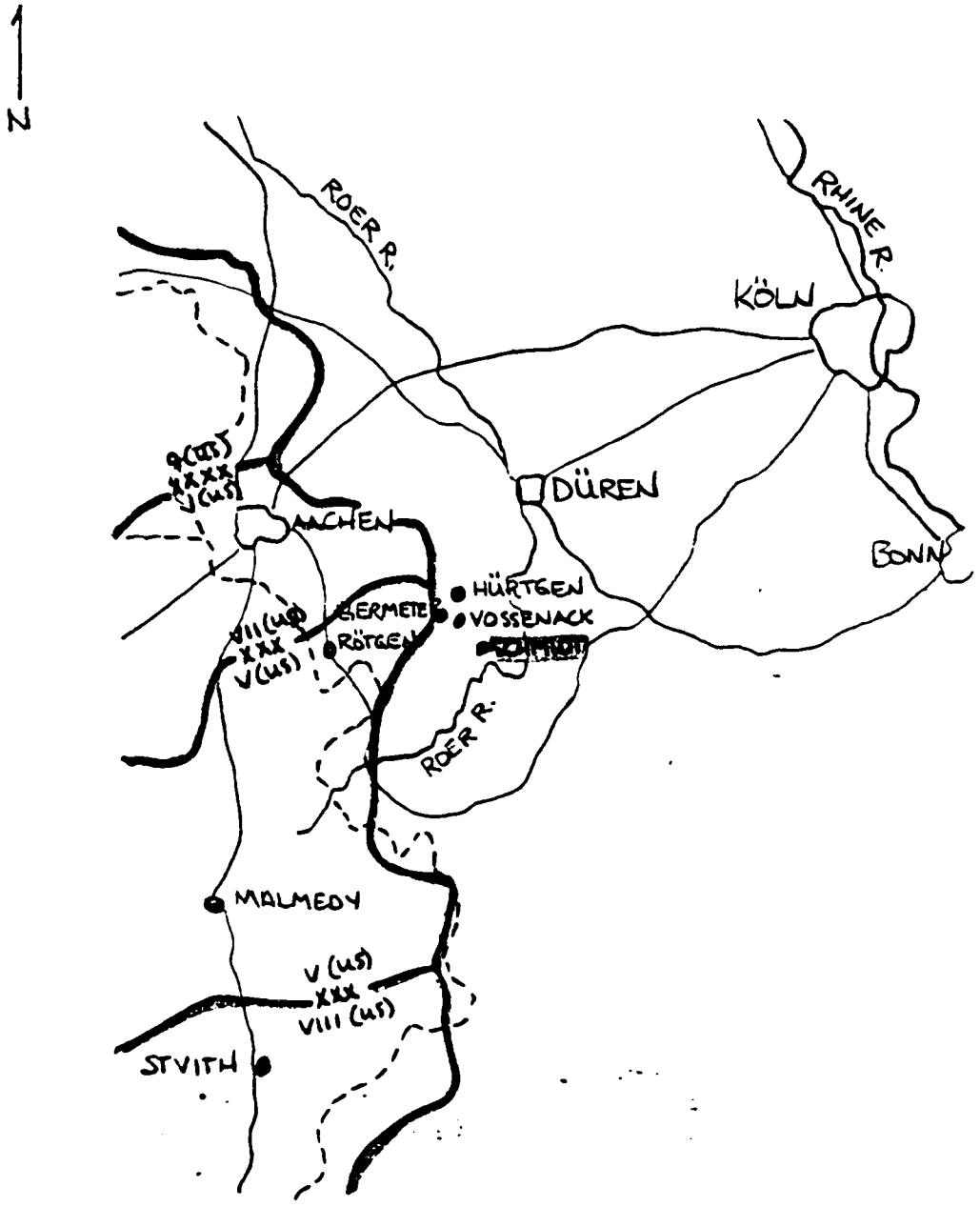
BATTLE OF WINCHESTER
25 MAY 1862



(From Robert G. Tanner's Stonewall in the Valley)

ENCLOSURE 2

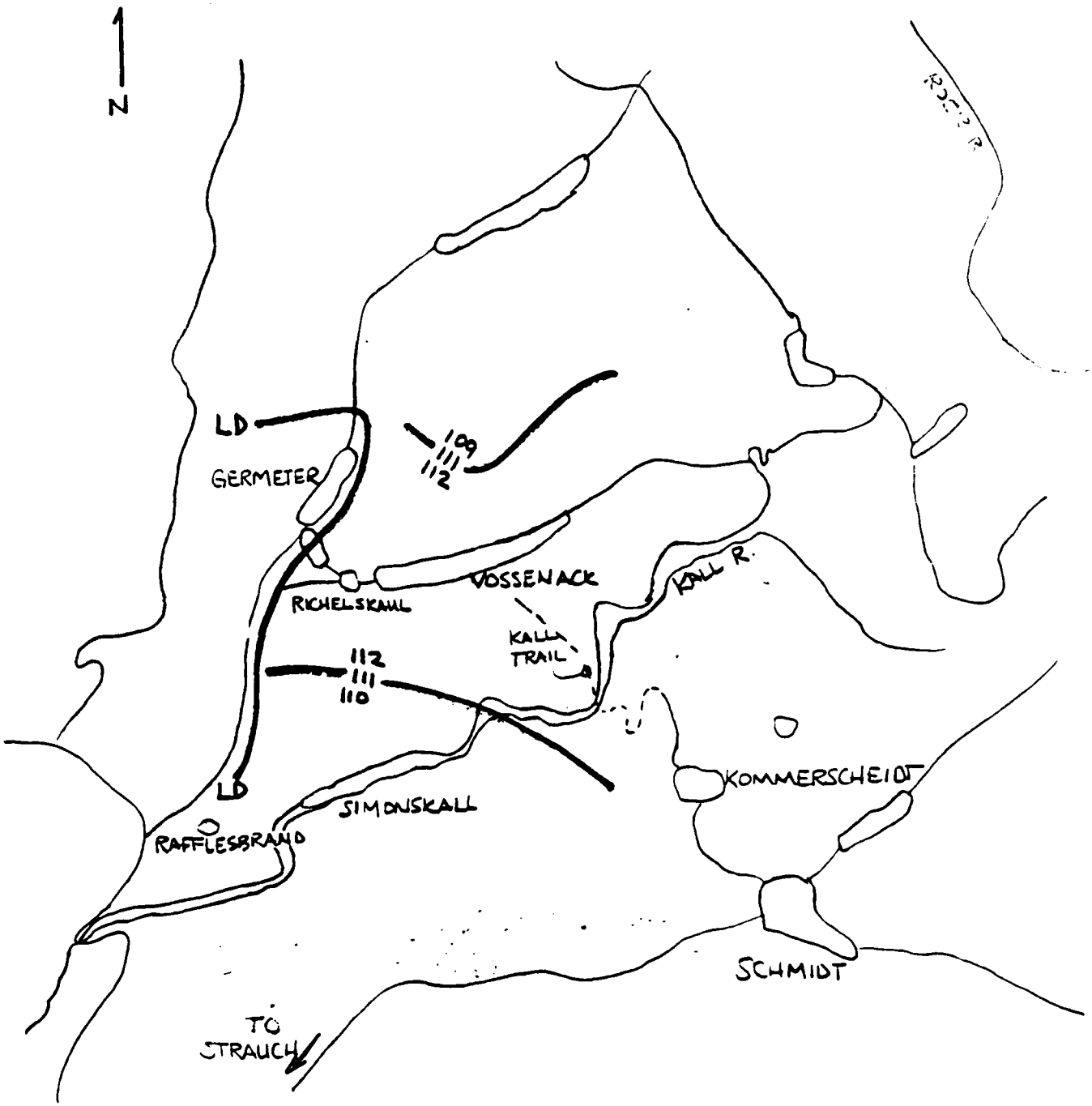
THE FRONT LINE 2 NOVEMBER 1944



(FROM CECIL B. CURREY'S FOLLOW ME AND DIE)

ENCLOSURE 3

28TH DIVISION FRONT
EVENING, 2 NOVEMBER 1944



(FROM CHARLES B. MACDONALD'S THREE BATTLES: ARNAVILLE, ALTUZZO, AND SCHMIDT)

ENCLOSURE 4

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1. George C. Marshall, Infantry in Battle, p 69.
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3. U. S. Army, Field Manual 100-5, Operations, p 2.
4. Ibid., p 16.
5. Howard, op. cit., p 109.
6. Frederick the Great, King of Prussia, Instructions for his Generals, p 49.
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11. Griffin, op. cit., p 130.
12. U. S. Army, op. cit., p 50.
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33. Ibid., pp 321-2.

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43. Currey, op. cit., p 136.

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47. U. S. Military Academy, "Leadership in Combat: An Historical Appraisal", p 3.

48. Henderson, op. cit., p 236.

49. William S. Lind, Maneuver Warfare Handbook, p 129.

50. Howard, op. cit., p 122.

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53. Field Marshal Sir William Slim, Defeat Into Victory, pp 19-20.

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