AGILITY. A KEY TO THE OPERATIONAL ART

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FM 100-5, Operations, Identifies four, fundamental tenets necessary for successful implimentation of AirLand Battle doctrine. They are initiative, agility, depth, and synchronization. The purpose of this paper is to investigate the relative importance of the the tenet of agility to the practice of the operational art. The study begins with a brief discussion of both the operational level of war and the future battlefield to establish a genreal context for further discussion and analysis of the tenets. Agility is then analyzed in an effort to define it and establish its relationship with each of the other tenets within the context of the operational level of war. The study will then examine an historical case study, the Second World War's 1944-45 Ardennes campaign, in an effort to further illustrate the relationship of agility to the other ALB tenets. Finally, observations and conclusions with regards to agility (continued)

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ABSTRACT

AGILITY. A KEY TO THE OPERATIONAL ART by Major Albert Bryant Jr., USA, 59 pages.

FM 100-5 identifies four, fundamental tenets necessary for successful implementation of AirLand Battle doctrine. These tenets are initiative, agility, depth, and synchronization. The purpose of this paper is to investigate the relative importance of the AirLand tenet of agility to the practice of the operational art. The study will begin with a brief discussion of both the operational level of war and the future battlefield to establish a general context for further discussion and analysis of the AirLand Battle tenets. The tenet of agility will then be analyzed in an effort to define it and establish its relationship to each of the other tenets within the context of the operational level of war. This portion of the study will include a brief analysis of each of the four tenets and a look at the emphasis placed upon them by the U.S. Army within its doctrine and in practice in its warfighting. The study will then examine an historical case study, the Second World War's 1944-45 Ardennes campaign in an effort to further define and illustrate the relationship of agility both to the other AirLand battle tenets and the ability of a force to achieve battlefield success by controlling tempo. Finally, observations and conclusions with regards to agility and its role in the practice of operational art by the U.S. Army are stated.

This paper concludes that operational agility is a critical component for success at the operational level of war. Operational agility is a force capability composed of physical, structural, and cybernetic agility. Lastly, high levels of operational agility are required to generate the initiative, synchronization, and depth necessary for operational success.

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I. INTRODUCTION.

> *"An army's fundamental doctrine is the condensed expression of its approach to fighting campaigns, major operations, battles, and engagements. Tactics, techniques, procedures, organizations, support structure, equipment, and training must all derive from it."*
>
> *FM 100-5 Operations 1986*[1]

Doctrine is the foundation for success on the battlefield. History has shown that the military doctrine of a nation's armed forces will do much to decide their effectiveness at the outbreak of hostilities. In many cases, the initial battles lost for want of an effective doctrine, have, in fact, decided the war. A clear example of this was the 1940 failure of French army doctrine to successfully meet the doctrinal challenge of their day. The "*Battaille Conduite*" or Methodical Battle doctrine of the French Army was rooted in the belief that firepower had replaced maneuver as the decisive element of combat power. It ignored the changes in technology and military practices which indicated otherwise. As a result, during the Battle for France, the Army was unprepared for modern, mechanized warfare as practiced by Nazi Germany. Employed in accordance with their doctrine, French forces were ill-positioned, poorly organized, and ineptly handled. As a result, they were decisively defeated within days of the opening of hostilities at the critical battle of Sedan and never recovered.[2]

The primary source of operational and tactical doctrine for the U.S. Army is Field Manual 100-5 Operations. With the publication of the 1982 version of FM 100-5, the Army

adopted a revised approach to war fighting known as AirLand Battle doctrine. AirLand Battle doctrine is based on the aggressive exploitation of initiative to impose our will upon the enemy.[3] It presumes an operational environment that has been stretched in time, space, and resources to a degree unparalleled in military history. It expressly recognizes that the modern battlefield arena for the U.S. Army is three dimensional and that ground operations cannot be conducted in isolation of the air dimension.[4]

FM 100-5 identifies four fundamental tenets necessary for successful implementation of AirLand Battle doctrine. These tenets are initiative, agility, depth, and synchronization. The purpose of this paper is to investigate the relative importance of the AirLand tenet of agility to the practice of the operational art. The study will begin with a brief discussion of both the operational level of war and the future battlefield to establish a general context for further discussion and analysis of the AirLand Battle tenets. The tenet of agility will then be analyzed in an effort to define it and establish its relationship to each of the other tenets in the context of the operational level of war. This portion of the study will include a brief analysis of each of the four tenets and a look at the emphasis placed upon them by the U.S. Army within its doctrine and in practice in its war fighting. The study will then examine an historical case study, the Second World War's 1944-45 Ardennes campaign in an effort to further define and illustrate the relationship of agility both to the other AirLand battle tenets and the ability of a force to achieve battlefield success by controlling tempo. Finally, observations and conclusions with regards to agility and its role in the in the practice of operational art by the U.S. Army are stated.

II. AGILITY IN AN OPERATIONAL CONTEXT

"Success on the battlefield will depend on the Army's ability to fight in accordance with four basic tenets: depth, synchronization, initiative and agility."

FM 100-5 Operations May 1986[5]

AirLand Battle doctrine describes the army's approach to generating and applying combat power. It makes the objective of all operations the imposition of our will upon the enemy. It demands the maintenance of an offensive spirit in the conduct of all operations.[6] Most important of all, AirLand Battle doctrine distinguishes the operational level of war as different from the tactical or strategic levels. It is this recognition of the differences between the operational and tactical levels of war that causes us to assess if the tenets laid out in FM 100-5 apply differently at one level or the other. Any analysis of agility and the other tenets ot AirLand battle, therefore, must begin with an understanding of the operational level of war.

The Operational Level Of War[7]

The operational level of war involves the employment of military forces to attain strategic goals within a theater of war or theater of operations through the design, organization, and conduct of campaigns and major operations.[8] It involves the fundamental decisions concerning when and where to fight and whether to accept or decline battle. Whereas tactics focuses on the art of employing potential combat power to win battles and engagements, the operational level of war is more concerned with setting the objectives and patterns of

military activities.[9]

Defense analyst William S. Lind characterizes the relationship of the operational level of war with the tactical level in defining the operational art in his book "Maneuver Warfare Handbook.

> *"The operational art is the art of using tactical events -- battles or refusals to give battle - to strike directly at the enemy's strategic center of gravity. For the commander, it is the art of deciding where and when to fight on the basis of the strategic plan. Determining when and where to fight so a tactical victory has a strategic result is the operational art."*[10]

This definition discerns the critical distinction between the tactical and operational levels of war. While the tactical level of war is concerned with the direct application of combat power to control an enemy force, the essence of the operational art is controlling the tempo of operations. Used here, tempo is defined as the ability to set and affect changes in both the pace of battle, its speed and continuity, and its form, offensive, defensive, protracted or decisive. It is important to understand that tempo does not simply imply an ability to move physically or maneuver faster than your opponent. Tempo is not solely a function of technical capability to act or move. Rather, as demonstrated by the revolutionary warfare success of Mao Tse Tung, technologically inferior forces can control the operational tempo by *slowing* it and setting the conditions for battle. Ultimately, an army's ability to control the tempo of operations is fundamental to successful application of the operational art.

The Battlefield Environment

A second important consideration to understand prior to

addressing the tenets of AirLand Battle doctrine is the nature of the operational environment in which the doctrine must be applied. Future operations conducted at the operational level of war may be conducted under a wide set of geographic, environmental, and political conditions and may vary in intensity from continuous operations in a nuclear environment to short term contingency operations such as raids or rescue missions. U.S. Army doctrine must support operations across the entire spectrum of conflict, from high- to low-intensity warfare.

High intensity warfare is described in FM 100-5 as likely to be "*chaotic, intense,and highly destructive. They will probably extend across a wider space of air, land and sea than previously experienced.*"[11] It further describes a number of specific features which would dominate the battlefield. They include:

1. Fluid non-linear operations conducted at high speed by extremely mobile forces. Throughout the battle area, attack and defense will often take place simultaneously as each combatant attempts to mass, economize locally, and maneuver against his opponent.

2. Extremely accurate and lethal weapon systems capable of concentrating enormous combat power will dominate the battlefield.

3. Modern sensors and communications devices whose range and effectiveness will provide commanders the ability to see and attack enemy forces at unprecedented ranges and speeds thereby greatly increasing the scope of the battlefield.

4. The use of Nuclear, Chemical or Biological (NBC) weapons will potentially increase battlefield lethality, change operating tempos and further contribute to an increase in battlefield chaos.

5. The real possibility of conducting operations outnumbered against an enemy with potentially superior equipment and shorter Lines of Communications (LOCs) with austere support will have a marked affect on campaign planning.[12]

It is the combined effects of these and other characteristics of the high-intensity battlefield which make it a place of unrelenting challenge.

At the other end of the spectrum of conflict, the U.S. Army must be prepared to conduct low-intensity combat operations anywhere in the world. Such warfare will pit Army forces against irregular or unconventional forces conducting insurgent or guerrilla warfare, conventional light infantry forces conducting decentralized operations, or civilian groups conducting terrorist activities. Given the spread of technology, intervention into conflicts which might be characterized as low-intensity may take on the lethality and pace normally associated with mid- to high-intensity warfare. Regardless of its form, operations at the low intensity end of the spectrum of conflict will be fluid and require special force compositions and task organizations, rapid deployments, and restraint in the execution of military operations.[13]

Therefore, in viewing both ends of the spectrum of conflict we begin to see certain similarities in the battlefield environments to be encountered. Both will be characterized by chaotic conditions, fleeting opportunities, and increased lethality. Each environment will demand the ability to move quickly to mass or disperse combat power in response to opportunities or unforeseen dangers. Ultimately, regardless of the characteristic intensity of the campaign, success will depend on the ability U.S. forces to control the tempo of operations.

The Tenets of AirLand Battle Doctrine

Having examined the nature of the operational level of war and the battlefield conditions associated with it, we now turn our attention to the four tenets outlined in FM 100-5. It is beyond the scope of this paper to perform a detailed analysis of each of the tenets. As it is our stated purpose to examine the relative importance of the tenet of agility, it will receive the lion's share of attention. Each of the other tenets will be presented briefly and highlighted as it relates to agility and the operational level of war.

DEPTH

FM 100-5 defines depth as "*The extension of operations in space, time and resources.*"[14] The FM further asserts that it is through the proper application of depth that momentum in the attack and elasticity in the defense are achieved. At the operational level of war, the concept of depth is interpreted to imply a requirement to observe and, as required, fight throughout the depth of the theater to "*force the enemy to fight battles on friendly terms, to extend the advantages gained by tactical success, or to limit losses resulting from tactical reversals.*"

The U.S. army has long recognized the critical importance of conducting operations in depth at the operational level. During the Second World War, American and other allied nations continually demonstrated a grasp of its importance. The Normandy campaign provides a variety of clear examples of this appreciation of operations in depth. Allied air forces extended the battlefield both in depth and time by attacking both German reserve formations and air power. Likewise, Allied deception operations expanded the battlefield laterally, fixing enemy forces all along the the European coastline. This, in turn, created time for the allied landings and build up. Later in the campaign, a series of operationally deep ground maneuvers were used to

turn the German Army out of strong positions and rupture the continuity of the German defenses.

Like those operations in Normandy, the proper exploitation of operational depth demands a force that is capable of extending its reach out into time and space while at the same time denying that capability to the enemy.

SYNCHRONIZATION

The second tenet identified by FM 100-5 is that of synchronization. The FM defines synchronization as

> *"The arrangement of battlefield activities in time, space and purpose to produce maximum relative combat power at the decisive point."*[16]

Whereas tactical synchronization tends to focus on the concentration of forces and fires at the point of decision, operational synchronization concerns itself with the sequencing of events which may be separated in time and space so that *"their combined consequences are felt at the decisive time and place."*[17] Synchronization will normally demand explicit coordination between the executing units, timely execution and an unambiguous of purpose within the *force.18*

Synchronization has always been heavily emphasized by U.S. forces in practice and has tended to dominate operational planning. Since the close of the Second World War, the U.S. Army's war experiences have been dominated by small unit, tactical actions. As the focus of tactical operations is upon concentrating combat power at a decisive point, tactical actions require extreme amounts of synchronization. Therefore, it is not surprising that the U.S. army, with its recent combat experiences grounded in tactical operations, should focus upon the function of synchronization in its force structure, weapons, and command and control systems.*19*

Despite its importance, history has shown that a fixation on tactical synchronization without a corresponding

appreciation of its operational implications can be fatal. French doctrine in 1940 centered upon tactical synchronization in its doctrine of massed, methodical attack. It ignored operational concerns. In its absence, the French Army simply extended tactical synchronization considerations to the operational level with the subsequent disastrous results.

The U.S. experienced a similar, if short lived, fixation with tactical synchronization with the publication of the 1976 version of FM 100-5 outlining what became known as the "Active Defense" doctrine. While the Active Defense doctrine stands as radical a departure from both its doctrinal predecessors and successors, it nevertheless reflected much of the reality of the U.S. Army's battlefield practices and experiences.

INITIATIVE

FM 100-5 places great emphasis on concept of initiative.

> "*ALB doctrine is based on securing or retaining the initiative and exercising it aggressively to accomplish the mission.*"[20]

The FM defines initiative as follows.

> "*Initiative means setting or changing the terms of battle by action... Applied to the force as a whole, initiative requires a constant effort to force the enemy to conform to our operational purpose and tempo while retaining our freedom of action.*"[21]

The maintenance of friendly initiative has been a common thread among successful armies throughout history. In the tactical arena, "setting the terms for battle" most often relates to being on the offensive, i.e. initiating action and choosing where and when to attack. Further it allows the attacker to determine the aim and scope of the action; whether its purpose is to seize terrain, to kill enemy scldiers, or to disrupt the enemy's ability to conduct his

own tactical offensive action. At the operational level, however, defining how one "sets the terms of battle" becomes much more difficult. Although FM 100-5 states that initiative "*implies an offensive spirit,*" [22] exercising operational initiative entails more than employing offensive action. It entails the ability to define the tempo of the campaign, to dictate the form of combat, and the ability to determine the sequencing of battles and operational pauses that define the campaign. Initiative at the operational level is not strictly tied to offensive action. While offensive action is surely the best means to control the tempo of battle, it is not the only way. History has witnessed numerous successful commanders who <u>chose</u> to fight defensively so long as it served their purposes. Rommel at Gazala and Manstein at Kharkov both serve as examples of commanders who chose defensive operations so to maintain the initiative. To presume that battle avoidance is purely a function of the physical weakness of a combatant is to ignore the indirect approach. One should only seek battle if it leads down the shortest route to victory. Jomini, in his work "<u>The Art of War</u>" commented upon this in saying:

> *"It seems plain that one of the greatest talent of a general is to know how to use (it may be alternately) these two systems (offensive and defense) and particularly to be able to take the initiative during the progress of a defensive war."*[23]

Therefore, operational initiative is not achieved solely through the offensive action. Rather, it is the ability to impose both pace and pattern of operations on the enemy that more accurately defines initiative at the operational level. So defined, initiative determines our ability to control the tempo of battle, a function at the heart of operational art.

<u>AGILITY</u>

> *"Move when it is advantageous and create changes in the situation by dispersal and concentration of forces."*
>
> *Sun Tzu*[24]

Contrary to the three previous tenets which tended to describe desired characteristics of military operations, agility is more a capability than a characteristic. FM 100-5 defines agility as "*The ability of forces to act faster than the enemy*" and identifies it as the first prerequisite for seizing and holding the initiative.[25] As indicated by the definition, agility is a relative term, measuring the differences in capabilities between two forces. At the tactical level of war, agility tends to be defined in terms of system and small unit mobility. At the operational level of war, agility can also be described as the ability to mass combat power quickly against a decisive point or enemy vulnerability or to disperse to reduce your own vulnerability to enemy attack. Stated another way agility is the *ability to flow from dispersion to concentration*. The capability to flow from dispersion to concentration and back again as required defines an army's ability to move between phases, branches, and sequels of a campaign and establishes its ability to control the tempo of operations.

Operational agility can be divided into three parts. These are physical, structural, and cybernetic agility. Physical agility is, in many respects, a tactical concept. It can be defined as the relative ability of systems or groups of systems to move rapidly across the theater. It is characterized by a variety of factors including the degree of motorization and mechanization existing within an army, its capacity for air mobile operations, the operating range and mechanical reliability of its systems. For centuries, the foot speed of a marching man or horse stood as the bench mark of an army's physical agility. Today, the fruits of industrialization have provided modern armies the machines necessary to increase the physical agility of the force exponentially. Whereas the capabilities of the marching soldier served for thousands of years a consistent measure of military mobility, the past fifty years of military

history has seen us move from muscle power through motorization and mechanization into what the late Richard Simpkin, British defense analyst, has termed the age of Air Mechanization dominated by air mobile vehicles.[26]

In contrast to physical agility, structural agility can be defined as the ability of an army to conduct operational maneuver. It measures the ability of an army to move operationally significant forces, with the attachments necessary for sustained combat operations, or to shift their line of operations as required without a significant loss of effectiveness. A variety of examples exist in recent military history to illustrate this concept. During World War I the U.S. Army employed what became known as the "square" division. Organized to provide sustained combat power while conducting trench warfare, the square division was composed of nearly 28,000 men organized into two brigades of four regiments each. As World War II approached with its demands for high mobility ably demonstrated by the German Army, the square division was found to be too cumbersome for rapid movement and was eliminated. In its place, the Army substituted the "triangular" division. In its basic form, the division consisted of 15,000 men organized into three regiments. In combat, the division could be further subdivided into three, all arms, regimental sized combat teams. In addition, systems not expected to be required daily such as anti-aircraft artillery and tank destroyers, as well as the bulk of logistical support were "pooled" at field army level to further streamline the division. As a result, the triangular division demonstrated tremendous improvements over its square counterpart in both its speed of movement and flexibility of employment.[27]

A second modern illustration of the concept of structural agility (or the lack there of) can be found in Major Peter S. Kindsvatter's monograph entitle "<u>An Appreciation For Moving the Heavy Corps - The First Step in</u>

Learning the Art of Operational Maneuver." In his discussion, Major Kindsvatter compares the time and space requirements for the tactical movement of the III U.S. Corps north into position prior to its attack towards Bastogne during the Ardennes campaign in 1944 with a similar move today involving a current U.S. corps. Some of Major Kindsvatter's findings were startling. Despite the significantly greater physical agility of modern systems, the movement rate of the modern corps was actually slower than its WWII equivalent. While a number of factors enter into this finding, primary among them are the dramatic growth in the number of vehicles assigned to a modern corps, the extremely large amount of road space required as a result to move the corps, and the presence within the corps sub-elements of a a number of systems whose lack of physical agility tends to drag the force's structural agility down to the lowest common denominator.[28]

The third component of operational agility might be described as cybernetic agility. It is both the mental ability of the command structure to recognize and alter its operational pattern in the face of changing operational conditions and the doctrinal, technical, organizational, and procedural where-with-all to execute changes in a timely fashion. History again provides examples of commanders demonstrating the mental flexibility necessary to maximize cybernetic agility. During the WWII North African Gazala campaign, German Field Marshal Rommel had completed a successful turning movement and had rolled-up a number of British formations. He had yet to encounter the bulk of British armor, however, and was beginning to experience supply problems. In recognition of the changing situation, Rommel voluntarily abandoned his offensive action and assumed a defensive posture in the area that became known as the "cauldron" and proceeded to resupply his forces. Shortly thereafter, the British attacked and were destroyed in a

skillfully conducted defense. Without hesitating, Rommel immediately ordered a general advance that ended only when German forces had reached El Alamein. Rommel's ability to rapidly change his operational design in the face of changing conditions is a tribute to his mental agility.[29]

The second portion of cybernetic agility is the ability of the command structure to process information quickly and implement desired actions. The focus of much of the current research and development effort within the U.S. Army is directed at developing the technology needed for this purpose. Technology, however, does not offer the only means of achieving improved cybernetic agility. The German army, for example, developed a system of command and control known as *Auftragstaktik*. This command system emphasized mission oriented orders which both allowed and demanded leader initiative in determining how the mission was to be accomplished. Leaders at all levels were expected to step forward and act promptly. Subordinate commanders were given sufficient resources, limiting restraints, coordinating information, and the commander's intent in a brief, normally verbal order and then left to execute the mission. Under extenuating circumstances, a subordinate could modify or abandon tasks if he could still satisfy the intent of his commander. The entire purpose of *Auftragstaktik* is to minimize the time required to make decisions and begin execution.[30] The effectiveness of this method of improving cybernetic agility was borne out by the effectiveness of the German army through out the Second World War.

It should be noted that much of the effectiveness of *Auftragstaktik* stemmed from the fact that it was a system of command rather than a system of control for combat operations. The distinction between the two appears to be critical in improving cybernetic agility. FC 101-55 Corps

and Division Command and Control, differentiates between command and control as follows:

> *Command is a process by which the will and intent of the commander is infused among subordinates. This process is directive. Control is a process by which inconsistent subordinate behavior is identified and corrected. This process is regulatory.*[31]

While both command and control are necessary for battlefield operations, command is clearly more important to agility than control. Command is tied to the initiation of a new action; control to the proper execution of an on-going action. As agility is manifested in the ability of a force to react to changing situations, those processes related to reducing reaction time are critical. Hence, command oriented systems such as *Auftragstaktik*, are designed to minimize the inertia present in any command structure. FM 100-5 recognizes that rapidity of action is critical to the execution of AirLand Battle doctrine.

> *"In the chaos of battle, it is essential to decentralize decision authority to the lowest practical level because overcentralization slows action and leads to inertia. At the same time, decentralization risks some loss of precision in execution. The commander must constantly balance these competing risks, recognizing that loss of precision is usually preferable to inaction."*[32]

In summary, agility is a force capability. It exists as a combination of physical, structural, and cybernetic speed of action. Agility provides the mechanism by which a commander may gain a decisive advantage by operating within the decision cycle of his opponent. Agility is also a relative capability. It becomes meaningful only when measured in terms of the capabilities of the opposing forces. Similarly, both physical and structural agility can also be a function of appropriateness of an army's mobility systems or doctrine for the terrain and environment in which they are employed. As an example, the widespread use of

helicopters by U.S. forces in Vietnam provided them a significant physical and structural agility advantage over their opponents until the unit was positioned on the ground. Once on the ground, however, our tactical doctrine, techniques and procedures resulted in a shift of those advantages to the Viet Cong.[33]

From this discussion we see that the tenet of agility is different from those of initiative, synchronization, and depth. While the latter three tenets represent desired operational characteristics, agility can be best described as a relative, operational capability. This relationship of means to desired end defines the relationship between agility and the other AirLand battle doctrine tenets. This can be illustrated by examining he relationship of operational synchronization to agility. Richard Simpkin, in a work titled "Race to the Swift," describes a Soviet concept for operations he terms "simultaneity." The desired ends of this concept for operations is the simultaneous engagement of all enemy echelons throughout the depth of the enemy formation.[34] FM 100-5 expresses a similar concept as it relates to the need to synchronize close, deep, and rear operations.[35] As described by Simpkin and FM 100-5, however, each of these concepts is more appropriately part of the tactical rather than the operational level of war. Although the close, deep, and rear battles may be dispersed in space and time, properly synchronized they are bound together as part of a single major operation. To have greater operational significance, however, the concept of simultaneity needs to be expanded so to embrace the entire campaign. In this context it might be defined as the ability to synchronize the conduct of battles and major operations in such a manner as to collapse the time dimension of battle to the greatest degree possible. Hence in an operational context, the goal of the Soviet concept of simultaneity and the U.S. concept of depth becomes the sequencing of major operations and battles in such a manner that their effects

are felt in as close to a simultaneous manner as possible. In the absence of such overwhelming strength as to render the decision moot, it is operational agility that permits a force to shift its line of operations with the necessary speed to achieve operational simultaneity and depth. Similarly, agility provides a means of developing and maintaining both operational synchronization and initiative.

As previously discussed, the successful practice of the operational art requires the ability to control the tempo of operations by controlling the pace of battle, both its speed and continuity, and its form, offensive, defensive, protracted or decisive. The agility of a force determines its ability to perform the functions necessary to control battlefield tempo. An agile force is capable of flowing from phase to phase, assuming a defensive or offensive posture as required. Likewise, the anticipated battlefield environment would seem to place a premium on the agility of the force. The lethality of the battlefield environment requires that a force maintain its dispersion, yet at the same time, be able to concentrate sufficient combat power to be decisive when the time comes. In addition, the fog and friction associated with operations conducted on a non-linear, fluid battlefield dominated by electronic warfare, highly mobile forces, and weapons of mass destruction, will necessitate forces who are agile enough to move and respond to requirements on extremely short notice.

III. HISTORICAL CASE STUDY: THE ARDENNES CAMPAIGN 1944.

To gain further insights into the nature of operational agility and its relationship to the other AirLand battle tenets, an historical case study has been selected. The case study selected is the Ardennes campaign of World War II. The Ardennes campaign was conducted during the winter of 1944-45 and pitted the German army against U.S. forces. In December of 1944, Allied forces had completed a series of operations

which saw them poised on the borders of Germany preparing for the final offensives which would end the war. Within the next few weeks they were to experience strategic and tactical surprise as Hitler launched his desperate, last gamble to salvage victory in the west. The Allied forces were forced to transition from an offensive posture, fight a desperate defensive action against a determined enemy, and in turn, conduct a decisive counteroffensive to restore the situation. The Ardennes campaign provides a good example of mid- to high-intensity warfare involving large mechanized and air forces, in which operational agility played a decisive role.

Strategic Overview.[36]

The fall of 1944 saw the Allied forces on the offensive on all European fronts. In the west, the Anglo-American breakout from the Normandy beachhead and subsequent pursuit across France had Nazi Germany tottering on the brink of collapse by the early fall of 1944. German forces had suffered a series of defeats during which its formations suffered catastrophic casualties during their retreat back to the very borders of Germany itself. On the Eastern front, the Russian summer offensives drove the once mighty German Army behind the Vistula River in Poland, a mere 300 miles from Berlin. In recognition of the growing crisis, Chancellor Adolph Hitler began searching for a way to stabilize the situation. By halting the Allied advances, he sought to buy time for the further development and fielding of the "wonder weapons" which he hoped would reverse the fortunes of the war. To regain the initiative, Hitler felt that he must knock at least one of the Allies from the war, at least temporarily. Soviet political and military strength tended to preclude the possibility of a quick and strategically decisive action in the East.

Therefore, he turned to the western front and focused his attention on the the Anglo-American coalition opposing him there. Here the potential for success seemed much greater. Based on this reasoning, Hitler order that planning begin in late September for a bold counteroffensive designed to split the Anglo-American effort and encircle the British army. By doing so he hoped to force Britain from the war, eliminate the threat to the Ruhr industrial basin, disrupt the western Allies logistical base and regain the initiative in the west.[37]

In contrast to the universally declining fortunes of the Germans in the summer of 1944, the Allied effort in the west was riding a crest of unbroken success that held the promise of ending the war by Christmas. The confidence felt by allied commanders can be best summarized by Major General Leonard T. Gerow, commander of the V U.S. Corps. As his corps approached the German border, MG Gerow was temporarily called to Washington to testify before congress as part of the Pearl Harbor hearings. Before departing he confided to some of his subordinates that,

> *"It is probable that the war with Germany will be over before I am released to return to V Corps."*[38]

Contrary to MG Gerow's rosy assessment the situation in the west was in the process of turning against the allies. As the end of September neared, the euphoria which had surround allied operation in the west since the Normandy breakout began to fade as logistical and operational considerations began to slow and eventually stopped the allies advance.

The rapid advance of Allied forces had by late September extended the logistical support system to the point of breaking. The disruption of the formal lines of communications by the air force during their air interdiction campaign coupled with the unanticipated rapid advances made by friendly forces had rendered the Allied

distribution system totally inadequate by late September 1944. For example, the Allied logistical planners had anticipated that the Seine river would be reached by D plus 90. On D plus 90, the allies had moved sixteen divisions more than 150 miles beyond the Seine. When the allies reached the Aachen area some two weeks later they had reached their D plus 330 phase line. In the absence of rail or water based haul capability, the allies relied on a woefully inadequate truck based resupply network to haul the bulk of supplies over the hundreds of miles separating the ports from the user units.

Still another problem confronting allied commanders in the late summer was the growing inadequacy of their force. General Eisenhower had chosen to adopt a broad front strategy in his effort to defeat Germany in the west. As a result, Allied forces were dispersed across the continent of Europe from the English Channel to the Swiss border. As the Allied advance reached the borders of Germany, it occupied a line of nearly 500 miles with only 54 divisions on the continent.[39] In addition to the lack of units available for employment, the losses suffered in the summer campaigns consumed all available individual replacements. This was especially true in critical infantry specialties. As a result of being short both units and manpower, the Anglo-American armies operating in Europe were stretched thin and dangerously overextended.

September saw the end of the exhilarating, headlong rushes that had characterized the western campaign of the previous summer. German forces, though seriously hurt, survived and arrived at the west wall with the majority of its tactical and operational headquarters elements intact. Field Marshal Gerd von Rundstedt returned as commander of OB West with overall responsibility to restore order in the west. With German industrial output reaching peak production and full, if draconian, mobilization of German manpower, the "Miracle of the West" was achieved. Over the

next two months, the western front stabilized. The British Market-Garden offensive, Patton's thrust against Nancy/Metz, and Dever's offensive operations against the Colmar pocket were all halted in fierce fighting. Logistical and operational constraints had dictated that an operational pause be taken before resumption of the broad front advance that characterized the allied effort to date. Consequently, the operating tempo of Allied forces fell during late November. As their forces recovered their breath, the commanders of the Allies' two primary strike forces, Field Marshal Montgomery, commander of the 21st Army Group, and LTG George Patton, commander of the American Third Army, prepared plans and positioned forces to launch major offensives against the Ruhr and Saar industrial regions respectively.(Map 1)

With the relative paucity of forces and the need to rest, refit, and concentrate for future offensive action, allied commanders accepted risk in several places along the front. Given the difficulty of the terrain and the belief that German forces were neither positioned nor capable of conducting a major counteroffensive in the area, they chose the Ardennes portion of the 1st U.S. Army sector as one place in which to economize forces. MG Gerow's V corps occupied the central portion of the army's line with four divisions with Combat Command B, 9th Armored Division in reserve. The corps was preparing to conduct a new attack in support of First Army operations in the Aachen region beginning on 16 December. Major General Troy H. Middleton's VIII corps occupied the bulk of the Ardennes sector and linked First Army with Patton's Third Army. The corps deployed its 4 understrength divisions, the 4th, 28th,and 106th infantry divisions and the 9th Armored Division (-), and the 14th cavalry group across 90 miles of difficult terrain. The 28th and 4th divisions had been ravaged in fighting conducted in the Huertgen forest and were assigned

to the quiet Ardennes sector to rest and refit. Likewise, both the 106th and 9th Armored Division were newly assigned to the theater and been assigned to the area for training and seasoning.

The German Army identified Allied weaknesses in the Ardennes region quickly. These weaknesses dovetailed nicely with the concept of operations outlined by Hitler and the area was designated for the attack. After a series of delays caused by an inability to concentrate forces quickly enough and a desire to deny Allied forces full use of their overwhelming air superiority by attacking during poor weather, D-Day was set for 16 December 1944.

The final German plan called for an armor heavy attack on a narrow front to quickly overwhelm U.S. forces in the Ardennes region, cross the Meuse, and move through Belgium to the port of Antwerp (Map 2). Hitler assigned three armies under Field Marshal Model to conduct the attack. Model assigned the Sixth *Panzer* Army commanded by *Oberstgruppenfuher der Waffen-SS* Sepp Dietrich to attack in the north and designated it the main effort (Map 3). Dietrich employed three corps controlling five infantry and four *SS Panzer* divisions, heavily reinforced with artillery to conduct the attack. Following a short but extremely intense artillery preparation, LXVII Corps planned to attack in the vicinity of the village of Monschau with two infantry divisions to seize the high ground across the border and to establish blocking positions protecting the army's northern flank. The 1st *SS Panzer* Corps, the main effort, was to attack with its *Volksgrenadier* divisions leading to penetrate U.S. forward defenses. Two *SS Panzer* divisions would then pass through the *Volksgrenadier* divisions to secure crossings of the Meuse. The II *SS Panzer* Corps would follow to provide additional forces to exploit breaches of the Meuse towards Antwerp. The Sixth *Panzer* Army plan sought to synchronize its attack by massing fires and then forces

on a relatively narrow front to achieve a rapid breakthrough.

The Fifth *Panzer* Army was to conduct a major supporting attack in the center of the sector. The Fifth *Panzer*, commanded by General Hasso von Manteuffel, consisted of seven divisions organized into three corps. Manteuffel's plan was to attack through St Vith, cross the Meuse near Namur, and attack northwest towards Brussels to protect the Sixth *Panzer* Army's flank (Map 4). The LXVI Corps, two infantry divisions, would attack to seize St Vith. The LVIII and XLVII *Panzer* Corps, each composed of an infantry and *panzer* division, were to seize the towns of Houffalize and Bastogne and then cross the Meuse near Namur. The *Panzer Lehr* division acted as army reserve. Unlike the Sixth *Panzer* Army, the Fifth's operational plan avoided mass attacks and employed infiltration tactics as a means of breaching forward allied positions.

The Seventh Army, commanded by General Erich Brandenberger, contained four infantry divisions organized into two corps. Its mission was to attack along the southern flank to seize sufficient terrain so as to protect against the expected allied response (Map 5). Both the LXXX and LXXXV corps were to attack the region south of Bastogne and establish blocking positions oriented to the south.

German Attack and Allied Reaction.

The German attack on the 16th achieved both tactical and strategic surprise. The German main attack by Dietrich's Sixth *Panzer* Army, bogged down quickly, however, as resistance by elements of V U.S. corps stiffened along the Elsenborn ridge. In the south, the Seventh Army successfully penetrated the forward defenses of the 4th and 28th Infantry Divisions but were forced to halt and assume a defensive posture on 19 December.

However, in the center, the German attack achieved its greatest success. Manteuffel's Fifth *Panzer* Army's attack isolated and surrounded the inexperienced 106th Infantry Division, mauled the already battered 28th Infantry Division and created a substantial gap between the VIII and V U.S. Corps. As a result of this gap, General Bradley found himself cut off from his First and Ninth armies. The Fifth *Panzer* Army's LXVI Corps accepted the surrender of two regiments of the 106th Division on 19 December and became heavily engaged with U.S. units as it advanced within the vicinity of the town of St. Vith. Meanwhile, LVIII *Panzer* Corps continued the attack towards the Belgium town of Houffalize while the XLVII *Panzer* Corps moved towards the key communications center of Bastogne.

Buoyed by the success of Manteuffel's forces and concerned about the failure of Dietrich's attack, Field Marshal Model recommended to Hitler that the main effort be switched from the north to the center and that the II *SS Panzer* Corps be committed in support of Mantueffel's efforts. Hitler refused to modify his plan, however, reasoning that insufficient time had passed to justify modification of the original plan.

In contrast to Hitler's reluctance to modify his plan based on early, unexpected success, General Eisenhower, the allied commander, quickly understood the situation and ordered the commitment of forces which eventually played a critical role in the days ahead. Despite assurances from both Bradley and Hodges that the German effort was only a spoiling attack and did not require any significant changes to the First Army's planned offensive towards the Roer Dams,[40] Eisenhower assessed the situation to be far more serious. Late on the evening of the 16th, he ordered the 7th Armored Division, assigned to the Ninth Army, and the 10th Armored Division of the Third Army to be shifted immediately to reinforce VIII Corps.[41] (Map 6) Likewise, on 17 December,

he committed his remaining theater reserve, the 101st and 82nd airborne divisions, to assist in defending the key communications hubs in the area.

Eisenhower's decision to reinforce the Ardennes paid immediate dividends. In the center, lead elements of the 7th Armored Division, reinforced with an odd mix of engineers and tank destroyer units, checked Mantueffel's advance outside the town of St. Vith. Brigadier General Bruce Clark's troops defended the vital cross roads from late on 17th until late on 22 December when they were ordered to withdraw. Their valiant defense, though costly, successfully disrupted the Fifth *Panzer* Army's timetable and nullified the German capture of the road junction at Houffalize on 19 December.[42]

The German advance was also halted outside of Bastogne by the 101st Airborne division who occupied the town just prior to the arrival of German forces. The airborne soldier's position in Bastogne dominated the Fifth *Panzer* army's primary line of communication. After initial attacks failed to dislodge Bastogne's defenders, the German operational requirement to continue its forward progress dictated that Bastogne be bypassed and reduced by subsequent German formations. As such, the German push for the Meuse river continued through the 20th of December. However, the resistance offered by scattered U.S. formation during the opening days of the onslaught coupled with the defensive actions fought at St. Vith and Bastogne had already bought the time necessary for the Allies to reorganize their command and control structure, to redirect the American Third Army north into the southern flank of the German penetration, and to reinforce the defenses of the northern shoulder.

Eisenhower directed Bradley to relinquish command of the U.S. First and Ninth armies to Field Marshal Montgomery on 19 December. This allowed command of operations on the

northern shoulder of the penetration to be unified under a single commander. Montgomery positioned his 21st Army Group reserve, XXX British Corps, to block any penetrations of the Meuse river and directed First Army to contain the northern shoulder of the German attack. Concurrently, First Army was to plan for a counterattack with VII and XVIII U.S. corps. Patton, with his planned offensive to the Rhine temporarily cancelled, began moving elements of his army north to reinforce the southern shoulder of the penetration and to conduct a counterattack into the German southern flank.

The Allied Counterattacks

By 20 December the situation in the Ardennes had begun to turn in favor of of the Allies. The decisions made by General Eisenhower and FM Montgomery to shift forces laterally began to bear fruit. In the First Army area the XIX Corps assumed control of VII Corps forces on the 20th and MG Collin's headquarters began the process of moving south to organize a counterattack into the northern edge of the penetration. Similarly, in the south, Third U.S. Army's III Corps began to position itself for its attack north towards Bastogne.

From the German perspective, the attack continued. The Sixth Panzer Army continued its attempt to expand the penetration in the north with little success. Losses were extremely heavy. The single Sixth *Panzer* Army unit to achieve success during the early fighting was an element of the 1st *SS Panzer* Division, specifically *Kampfgruppe* Peiper. This unit penetrated deep into the rear of First U.S. Army in the Ambleve river valley. By Christmas day, however, *Kampfgruppe* Peiper had all but been destroyed and the Sixth *Panzer* Army began to assume a defensive posture. By this time, Field Marshal Model had finally persuaded Hitler to shift the main effort to the Fifth *Panzer* Army and ordered

the II *SS Panzer* Corps to begin movement south behind Manteuffel's forces. Along the southern shoulder of the penetration, the Seventh Army found itself heavily engaged by the leading elements of Patton's army on the 22 December. FM Model reinforced Seventh Army at this time with the 79th *Volksgrenadier* Division and the *Fuehrer Grenadier* Brigade.

In the center, General Manteuffel's Fifth *Panzer* Army continued to make slow progress. Its LXVI Corps had succeeded in driving the defenders from St. Vith by the 21st. On the same day the XLVII *Panzer* Corps encircle the communications center of Bastogne after failing repeatedly to overwhelm the town's defenses. Few allied formations remained between the Germans and the Meuse river. However, Manteuffel was unable to exploit this success. The panzer units responsible for exploiting the break through stood idle for most of the 21st and 22nd of December while awaiting fuel. By the time these forces resumed forward movement, the gap had been filled with hastily assembled elements of XVIII Airborne and VII Corps (Map 7). As a result the continued attack made only slow and hard fought progress.

As a result of the danger posed by the German Fifth *Panzer* Army, Collin's VII Corps cancelled its counterattack plans and committed its divisions, the 84th and 75th Infantry divisions and the 2d Armored Division, into the defensive line as they arrived beginning on the 22nd. The next few days witnessed see-saw fighting as VII corps fed units into the line while German forces continued to probe for an opening. Hitler, in the meantime, further reinforced Manteuffel with a *Panzer* and *Panzergrenadier* division. On Sunday, 24 December, the II *SS Panzer* Corps achieved a limited breakthrough in the XVIII Airborne Corps sector. Under this pressure FM Montgomery and LTG Hodges became concerned about their ability to maintain a continuous front and abandoned the idea of conducting offensive action. LTG

Hodges became so concerned that he authorized VII Corps to fall back in an effort to shorten its defensive lines. MG Collins, however, thought that withdrawal would only continue to surrender the initiative to the Germans. Consequently, he directed his division commanders to conduct an "aggressive defense" to prevent German forces from massing for decisive action. Likewise, he ordered the 2d "Hell on Wheels" Armored Division to conduct a counterattack against the German 2d *Panzer* Division as it attempted to extend the German penetration. The 2d AD's attack succeeded in defeating the the 2d *Panzer*, destroying most of its armored strength. In addition, the weather cleared briefly on the 24th allowing the Allies to apply the weight of the their tactical air power against the salient. According to Field Marshal Montgomery the aircraft "*did tremendous execution in the enemy salient and behind it and... enabled the Allies to gradually turn the tide.*"[43]

Meanwhile to the south, Patton's Third Army conducted a steady but bloody advance north towards Bastogne against the reinforced German Seventh Army. Elements of the 4th Armor division eventually broke through to Bastogne on 26 December and opened a narrow and tenuous corridor to the 101st Airborne Division.

The Allied Counteroffensive.

After the successful link-up of elements of Third Army with the defenders of Bastogne on 26 December, Patton's army began preparations to conduct a multiple corps offensive against the southern shoulder of the German salient. While efforts continued to secure and enlarge the corridor to Bastogne, Patton prepared to attack with two corps, the III and VIII, north towards Houffalize on the 30 December.

In the north, Field Marshal Montgomery continued to conduct defensive operations during the last week in December in an effort to "tidy up" the battle area. He did this despite the protest of Generals Collins and Bradley that the German offensive had peaked and that the opportunity existed to go on the offensive to trap and destroy the bulk of German forces already committed. General Collins had gone so far as to submit plans for a counterattack by VII Corps as early as 27 December and had begun to relocate the elements of his corps in anticipation of offensive action. By 30 December, however, FM Montgomery felt secure that the German effort had been spent and agreed to launch his counteroffensive 3 January. The attack would, however, be oriented at cutting off the waist of the salient by linking up with Patton's forces near Houffalize. Subsequent operations would then "push" the remainder of German forces out of the Bulge frontally.

As Patton's forces kicked off their attack on 30 December (Map 8), they met elements of the Fifth *Panzer* Army as it made one last, desperate grab for Bastogne. The result was a classic meeting engagement, with neither side able to make much headway, given their inability to maneuver on the limited and still treacherous road network in that part of the Ardennes. The difficult fighting continued through the second week of January as Third Army made slow and painful progress towards Houffalize.

In the North, the First Army's offensive began as scheduled on 3 January with VII Corps as its main effort. General Collins lead initially with his two armor divisions. After some initial success, they too met strong enemy resistance, and, hampered by the poor road and weather conditions, were unable to advance quickly. Eventually, General Collins was forced to commit his two remaining infantry divisions on line with his armored divisions to increase the strength of his attack. By the 10th of January,

General Collins withdrew the armored divisions for a two day maintenance halt. On the 12th, he recommitted his armor, and, with four divisions on line, continued the attack against strong resistance. After four more days of tough fighting, elements of the 2nd Armored Division linked up with elements of the Third Army near Houffalize.

Meanwhile, Hitler had finally been convinced of the error of continuing the Ardennes offensive. By 8 January he began to authorize limited withdrawals of certain *SS Panzer* formations east of the Our River. By 12 January, however, with the beginning of the Soviet winter offensive on the eastern front, he authorized a general withdrawal of German forces.

From the 17th of January until the official end of the Ardennes campaign 28 January, the First and Third armies continued to attack east to reduce the "bulge." With German units covering their withdrawal to the east of the Our river with skillfully employed obstacles, resistance to the allied advance diminished slowly. 28 January saw the official end of the campaign and Allied commanders again turned their attentions towards the heartland of Germany.

Analysis.

While many factors contributed to the defeat of the German offensive and the subsequent restoration of the Ardennes sector, central among them must be the operational agility demonstrated by allied forces. Conversely, the root cause for much of the German failure rests with their parallel lack of agility. This is clearly illustrated by analyzing of the events which constituted the Ardennes campaign with regards to the components of operational agility.

Physical agility played an important role in determining the outcome of the Ardennes campaign. Particularly impressive was the physical ability of allied formations to move rapidly either laterally or forward from theater reserve directly into the threatened sector. During the first four days of the campaign U.S. V and VIII Corps were reinforced by seven divisions. Each division moved up to 2,500 hundred vehicles and thousands of personnel 100 kms along icy roads to engage the enemy within 48 hours of alert. For example, infantry divisions from the First Army's V and VII Corps plus a division from Ninth U.S. Army quickly assembled in the vicinity of Elsenborn ridge to oppose Sepp Dietrich's main attack. VIII Corps was also reinforced with two armored divisions, the 10th and the 7th from Third and Ninth U.S. Armies respectively. Both of these divisions figured prominently in the defenses of Bastogne and St. Vith, which proved so critical to upsetting the German timetable. Likewise, the rapid movement of Eisenhower's theater reserves, the 82nd and 101st Airborne Divisions from rear areas to critical points in the line a 150 kms away within 36 hours is nothing short of remarkable.[44] In each case, U.S. forces benefited from tremendous number of trucks available in the European theater to the American Army and the extensive degree of mechanization present throughout the force.

In relative terms, the German Army of 1944 lacked physical agility, especially among its combat support and combat service support formations. In 1940, the German Army had achieved decisive results with only a small portion of their army mechanized. The air/ground team of Stuka dive bombers and light tanks had been sufficient to quickly overwhelm the Polish, French, and British Armies. The inherent mobility weaknesses of their foot mobile infantry and horse drawn artillery and support formations were never a factor as the armies opposing them were, for the most part

similarly equipped and organized. By 1944, however, the allied force they faced was fully motorized/ mechanized. As a result, German forces suffered from a severe lack of physical agility as compared to their opponents. This lack of vehicular mobility was further aggravated by the German Army's general lack of fuel throughout the campaign. As a result allied forces were always able to move substantial forces quickly enough to interdict German efforts before they were able to develop any significant momentum.

German force conducting operations also lacked structural agility. As previously mentioned its artillery and logistics support were, for the most part, horse drawn. As a result, forward deployed combat formation quickly outran their support losing the synergism associated with combined arms operations and, as a result, combat effectiveness. German operations began to fall into a pattern of a surge followed by an extended pause as artillery and log support slowly moved forward. German forces quickly lost the ability to control the tempo of the battle despite the overwhelming surprise they achieved initially.

On the allied side, the structural agility demonstrated by its formations was again, remarkable. Blessed with abundant physical agility, American divisions and corps with all of their combat support and service support assets were able to be withdraw in some cases, from a quiet portion of the line, moved into position and immediately engage the enemy with all assigned weapons and systems. The ability to shift large formations and employ them with significant amounts of massed artillery support was decisive in blunting the German offensive. Equally impressive and reflective of the structural agility possessed by the Allies was their ability to shift command relationships rapidly as evidenced by the reassignment of divisions and corps in midst of battle. The use of alternating headquarters

echelons without permanently assigned units, skip echelon logistics, and the creation of a commonly organized, self-contained unit of operational maneuver, the infantry division, provided the American Army unparalleled structural agility. This, in turn, allowed them to respond quickly to any crisis or opportunity with operationally significant forces. This is best illustrated by the rapid commitment of both III and VII Corps, each with newly assigned divisions, into the flanks of the German offensive. Likewise, ability and willingness of Allied forces to quickly shift operational command of the American Ninth and First Armies from Bradley's 12th Army Group to Montgomery's 21st Army Group greatly surprised the German high command and facilitated restoring order and Allied unity of effort on the critical northern shoulder of the penetration.

The Allies also demonstrated significant amount of cybernetic agility. The ability of the Allied high command to adjust their thinking rapidly from offensive to defensive and back again allowed them to recover from their initial surprise quickly and to control the tempo of the battle thereafter. Eisenhower's rapid analysis of the situation and quick decision on 17 December to commit two armored divisions and two airborne divisions to the battle helped seize the operational initiative from the Germans. The stalwart defenses of St. Vith and Bastogne were only possible as a result of the arrival of forces committed by Eisenhower. In assessing the reasons for German failure during the campaign, General Manteuffel asserted with typical German brevity that one of the reasons the Germans failed to achieve their ends was that "the Americans reacted more quickly than expected."[45]

Secondly, during this campaign, the command structure of the American Army demonstrated the professionalism of a mature, combat experienced force. After recovering from its initial surprise, commanders and their staffs at all levels

quickly assessed the situation and issued the orders necessary to stem the tide of German advances and then, to counterattack to destroy committed German forces. This was accomplished, despite significant disruption of communications systems brought on by German efforts and the weather conditions as well as the loss of certain headquarters elements during the initial German onslaught.

The operations of MG Collins and his VII Corps staff provide an excellent example of the mental agility demonstrated by U.S. commanders during this period. Prior to the attack, VII Corps had been preparing to conduct offensive operations north of the Roer Dams. On 19 December, First Army ordered VII Corps headquarters to release its assigned units, move south into the Ardennes area, assume command of divisions to be assigned later and prepare for an immediate counterattack to restore the situation. As the situation deteriorated, VII Corps abandoned its counterattack plan and, with three newly assigned divisions, conducted a desperate defense against the forward most Panzer formations of the German thrust. MG Collins and his staff fed divisions into the line as they arrived and affected coordination, planning, and issued orders on the fly. Throughout this period, Collins and his staff continually sought to secure the initiative by offensive action and conducted a major spoiling attack involving the 2d Armored Division to destroy the offensive capability of the German force. By 27 December, Collins and his staff correctly assessed that German forces had exceeded their culminating point and urged both FM Montgomery and LTG Hodges to allow him to execute the previously delayed counterattack. Although FM Montgomery denied permission to do so, Collins directed his staff to conduct the necessary preparations to shift the corps' units north into attack positions and to resume offensive action. When, subsequently, permission was given to begin a general

counteroffensive, VII Corps, now consisting of four divisions, attacked as the vanguard of First Army. VII Corps, after hard fighting, linked-up with Patton's Third Army at Houffalize and then participated in driving the remaining German forces out of the Bulge. Field Marshal Montgomery in his assessment of the Ardennes campaign singled out VII Corps for praise noting that its actions were carried out "*...in appalling weather against bitter opposition.*"[46] The efforts of MG Collins and his staff during this extremely stressful and chaotic period demonstrated the type of mental agility necessary for operational battlefield success.

Allied agility also allowed them to recapture the initiative quickly and, thereby, redefine the tempo of the campaign. German success was predicated upon their ability to rapidly penetrate Allied defenses and conduct a mobile offensive campaign. Allied operational agility, however, denied the Germans swift victory and forced them to conduct a battle of attrition wherein the numerical superiority of the Allies was decisive. Likewise, operational agility permitted the Allies to conduct sustained offensive operations with significant forces far sooner than German estimates had indicated. This forced the commitment of German operational reserves to help secure the flanks of the penetration rather than in exploitation as planned. Allied operational agility allowed them to seize control of both the pace and nature of combat operations dooming the German effort.

The similarities between the battlefield conditions present during the Ardennes campaign and those outlined in FM 100-5 are striking. The Ardennes campaign witnessed dispersed mechanized units operating on a nonlinear battlefield, severe combat losses, the rapid switch from offensive to defense and back again, the breakdown of communication and the degradation of command and control. Under those condition, the side with superior operational

agility triumphed.

IV. OBSERVATIONS AND CONCLUSIONS.

History has shown that the military doctrine of a nation's armed forces will often be the decisive factor during the opening phase of a war. Initial battles lost for want of an effective doctrine, have often decided the war. Prior to our involvement in the last two world wars, the United States enjoyed the luxury of being able to observe combat developments and adjust its doctrine accordingly. In any future conflict we may not be so lucky. Therefore, it is imperative that AirLand Battle doctrine provide us the operational framework necessary for battlefield success today.

AirLand Battle doctrine identifies four tenets as fundamental to its successful implementation. The purpose of this paper has been to investigate the relative importance of the AirLand battle tenet of agility to the successful practice of the operational art. A review of the nature of the operational art, the battlefield environment, and an historical case study leads to the conclusion that operational agility is a critical component for success at the operational level of war. Operational agility represents a force capability from which can be generated the initiative, synchronization, and depth necessary for operational success. In addition, operational agility is composed of physical, operational, and cybernetic agility.

The nature of the operational environment would seem to dictate that U.S. Army doctrine with its associated equipment, force structure, techniques and procedures be based on the principle of maximizing force agility. Major Stephen E. Runals in his monograph on the tactical command and control implications of the high intensity battlefield took a similar position in stating:

> *"The fundamental nature of high intensity warfare will always entail a high degree of uncertainty and chaos. A key element in an army's ability to consistently achieve ... success is a conscious decision to tailor its organizational and tactical C^2 principles, procedures, and techniques to best take advantage of these constants of warfare."*[47]

A similar view can be taken with regards to low intensity combat operations. A doctrine based on agility is equally applicable across the entire spectrum of conflict.

A detailed discussion of the changes in doctrine, force structure, or equipment required of an army which chooses to optimize its agility is beyond the scope of this paper. The process of designing doctrine, force structure, or equipment is extremely complex and subject to a wide variety of economic, political, and technological restraints, constraints, and influences. Likewise, the current policies, equipment, and organizations can not be wished away. In spite of this, a number of observations can be drawn from the historical importance of operational agility to battlefield success.

First, the need for physical agility within the force should cause us to review both the types of combat, combat support, and combat service support systems we procure and the characteristics that these systems possess. For example, our current main battle tank, the M1A1 Abrams, possesses superior speed and cross country mobility. Yet its fuel consumption rate is so high that its effective operational range is limited to less than 100 miles and its weight, nearly seventy tons, exceeds the capacity of the vast majority of bridges in Europe. This simple example illustrates that speed alone is an insufficient criteria for establishing physical agility.

Secondly, the need for structural agility in our forces tends to indicate that our current force structure is inappropriate. It is certain that our current units of

operational maneuver, the corps and division, are too large and complex to be truly agile. As indicated by Major Kindsvatter's study, they are simply require too much space and time to provide current operational commanders with a useful maneuver tool. Much as the ponderous 1918 "square" division gave way to the sleek and maneuverable triangular division of 1940, so it appears that the equally large "Division 86/ Army of Excellence" force structure, designed to slug it out in the trenches of the active defense, needs to be modified to make it more agile and responsive for todays battlefield requirements.

There are a number of ways this might be accomplished. The increase capabilities of our current weapon systems and small units suggest that corps and division size forces are no longer required to achieve operational effect. As an example, during the 1973 Yom Kippur war in the Middle East, a single Israeli brigade operating in the Golan Heights with fewer than eighty tanks, destroyed more than two Syrian divisions 'including hundreds of tanks and other armored systems, and, subsequently conducted a major counterattack which unhinged the Syrian's defensive line and opening an axis of advance to Damascus, the Syrian capital.[48] It may well be that the brigade is a more appropriate choice as a unit of maneuver today. Still another means of increasing structural agility might be the deletion of combat support and combat service support elements from maneuver units and the employment of pooling and skip echelon support techniques similar to those used during World War II. These suggestions are by no means the only possibilities. Nor are they the most important ones. There exist a variety of other possible solutions. Regardless of those selected for implementation, the need for improved structural agility within the U.S. Army must be satisfied.

Cybernetic agility is difficult to measure. It is function of the personality of the commander (thereby a function of the military personnel selection system),

training, and command and control structure and doctrine. General Depuy, in a presentation to the U.S. Army School for Advanced Military Studies, asserted that the structure and procedures associated with our current command and control system have been created in an effort to perform both horizontal, across function, and vertical, across echelons, synchronization to achieve the maximum possible combat power. At the same time he stated that the complexity of the task was beginning to overload the system.[49] If General Depuy is correct in his assessments that the U.S. Army's command and control system is designed to maximize synchronization and that it is currently being overloaded, it raises a number of questions concerning the system's capability to maximize cybernetic agility. Inevitably such a system is heavy with procedures and formal lines of communications. In practice, such systems are rarely responsive and quick to act.

As with the other elements of operational agility, there are variety of ways available to improve the cybernetic agility of the Army. Training emphasis must be placed upon the ability of leaders at all levels to act quickly and decisively, especially in the absence of quidance from higher headquarters. Improved communications technologies and architectures might speed the passing and processing of orders and information. Command procedures such as the format and content of the operations order might be revised.[50] More radical steps such as the elimination of command echelons are also possible. Regardless of its form, improvements in cybernetic agility offer the Army the greatest potential operational agility payoff.

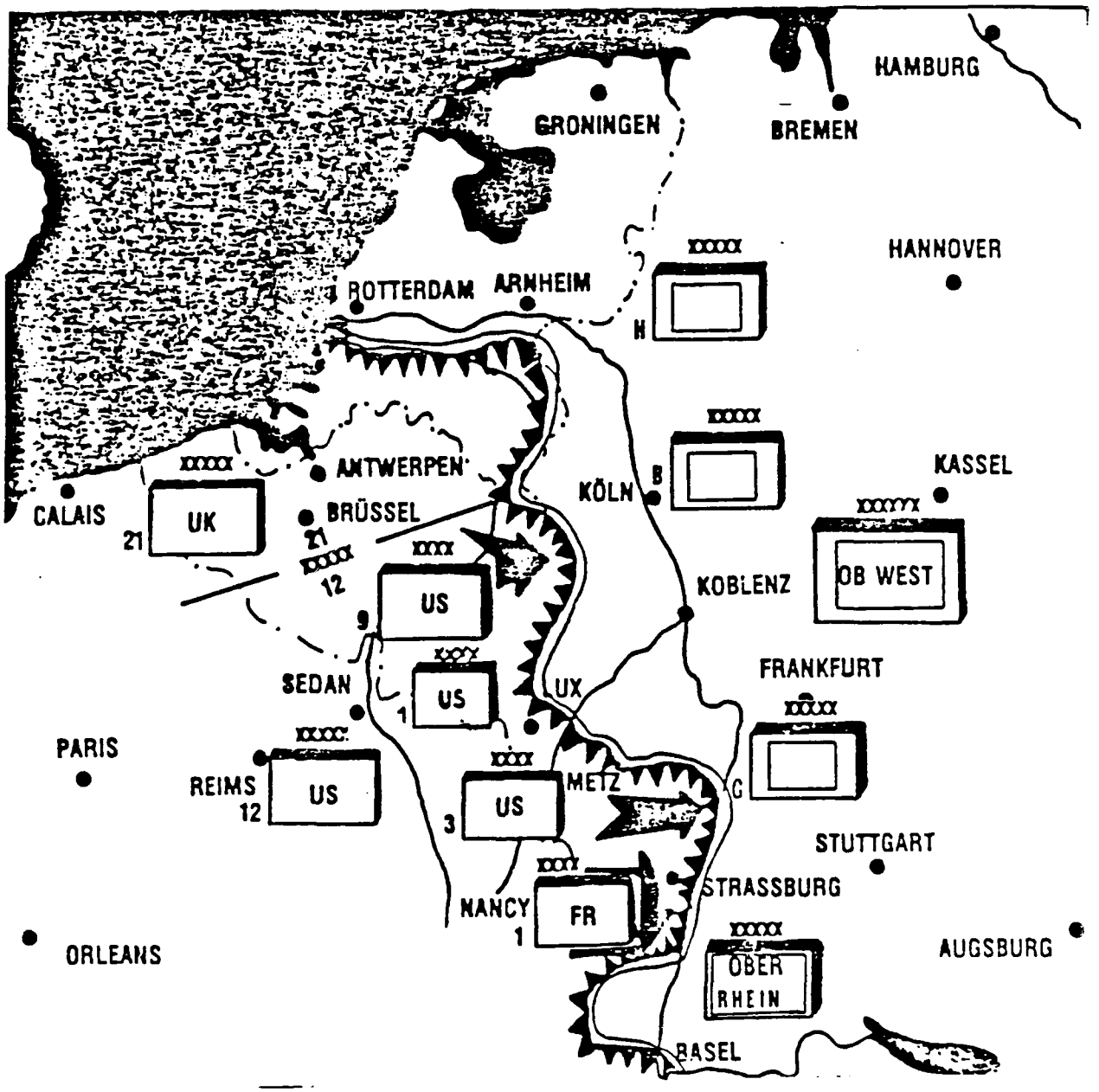
It has not been the purpose of the previous paragraphs to propose a comprehensive plan for maximizing U.S. operational agility. None of the ideas presented reflected new or original thinking. Rather, the purpose of the presentation has been to demonstrate the wide range of

options currently available to improve our operational agility. Regardless of the nature of the changes made, one thing is clear. Improvements in operational agility cannot fail to help increase our war-fighting capability.

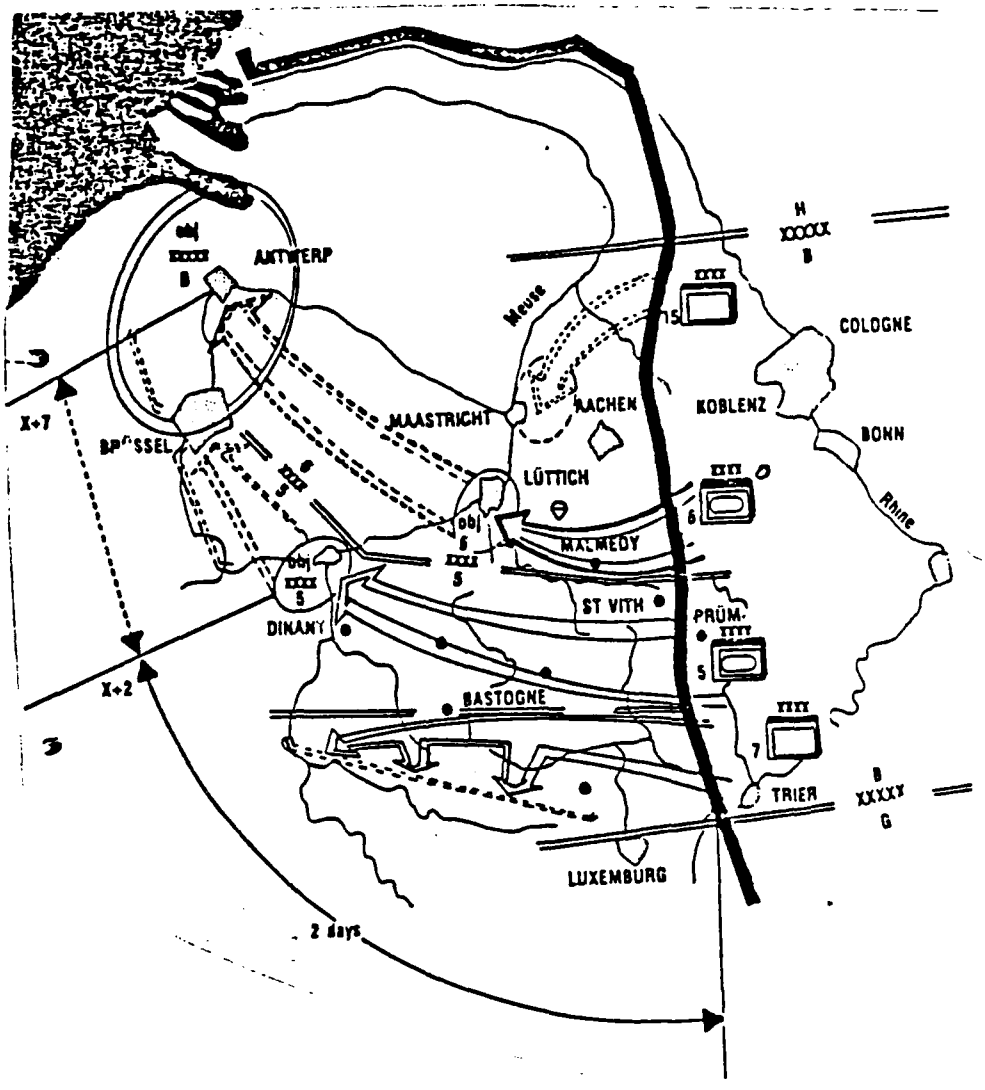
During the 1930's, the German Army was able to develop the most agile military force in the world. The German Army was successful in creating physical agility by exploiting the mobility advantages offered by mechanization and air power to a far greater degree than other armies of the period. Structural agility was created by grouping these highly mobile forces into operationally decisive sized units and accepting the risk of employing these units at extended ranges from the rest of the army. Mental agility was obtained by combining a command and control system, *Auftragstaktik*, with a new doctrine of employment, now known to the world as "*Blitzkrieg*." The result was an operational juggernaught that overran most of Europe from 1939 to 1943. It was not until their opponents developed superior physical and structural agility that the German tide was rolled back.

Today, at either end of the spectrum of conflict, we will likely face opponents who understand the need for superior agility. If we are to be successful, we must possess superior agility ourselves. We would be well served to accept the quidance of J.F.C. Fuller in this regard.

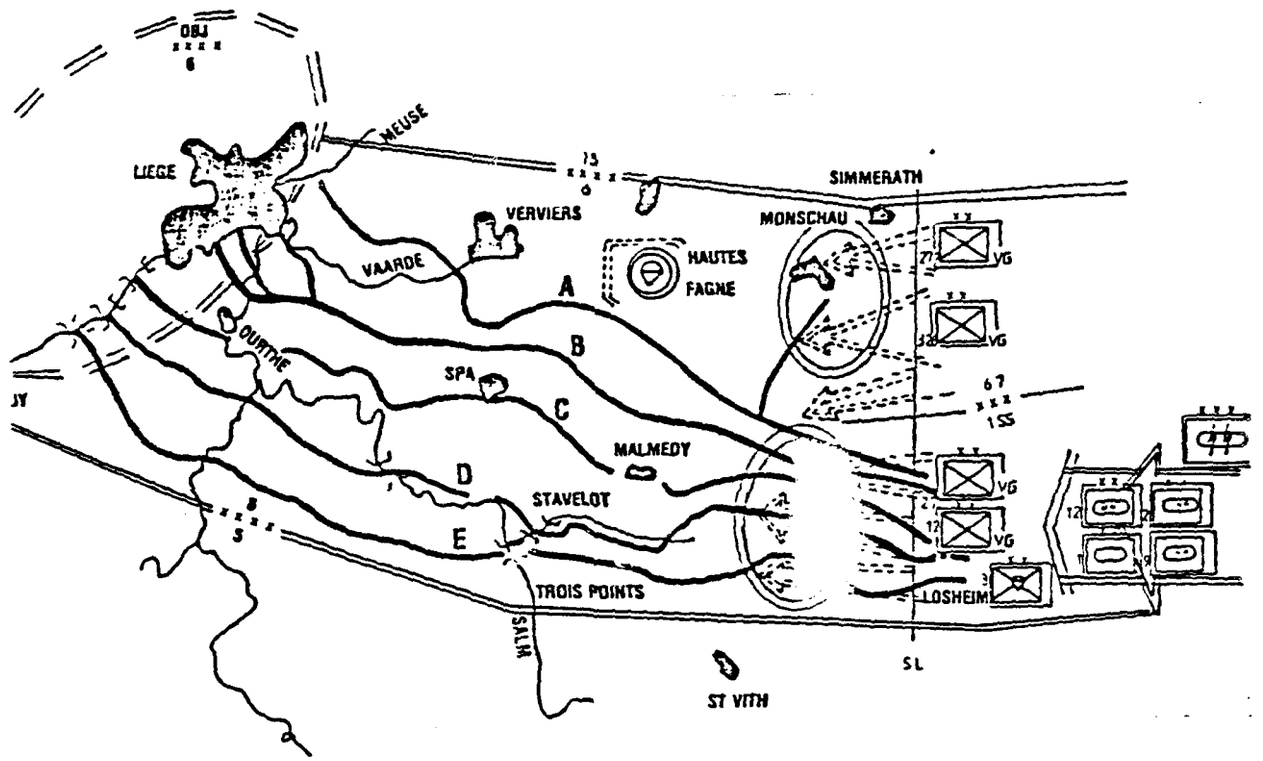
> *"Therefore, being compelled during peacetime to maintain a small army, we should not leave a stone unturned to make it as powerful as possible. What does power demand? Above all things rapidity of movement, ... Strategically, time and space are relative, and as the history of war has shown again and again, a handful of of men at a certain spot at a certain hour is frequently a far more powerful instrument of war than ten times the number on the same spot twenty four hours later."*
>
> *J.F.C. Fuller - 1943*



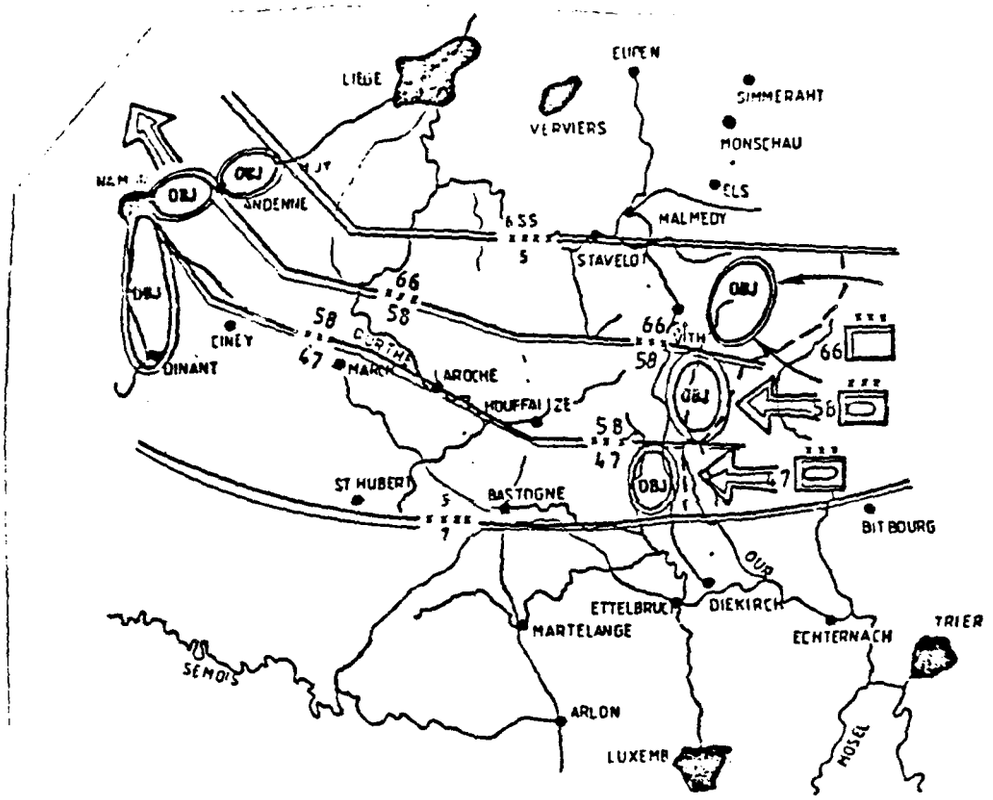
Map 1. Overall Situation - December, 1944.



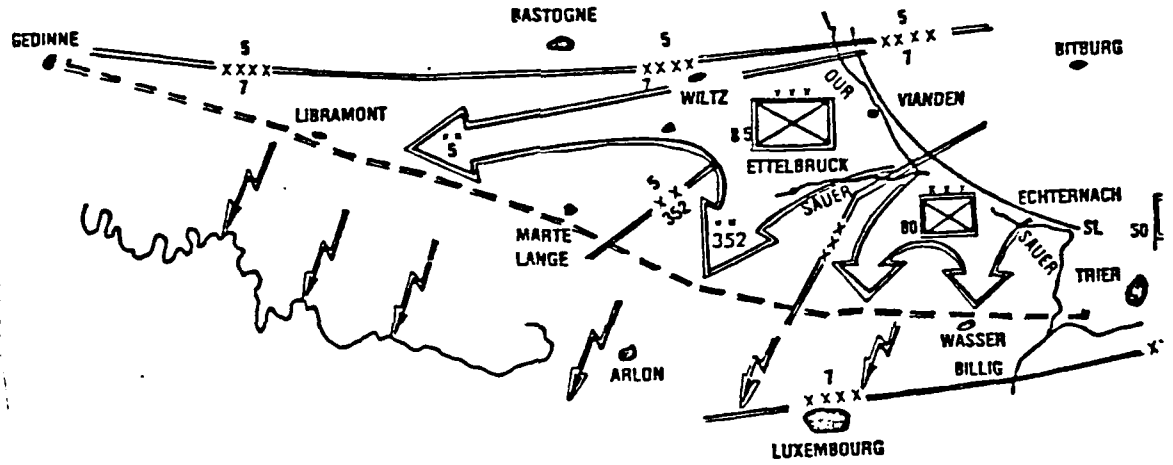
Map 2. Army Group "B" Operations Plan - Ardennes Offensive.



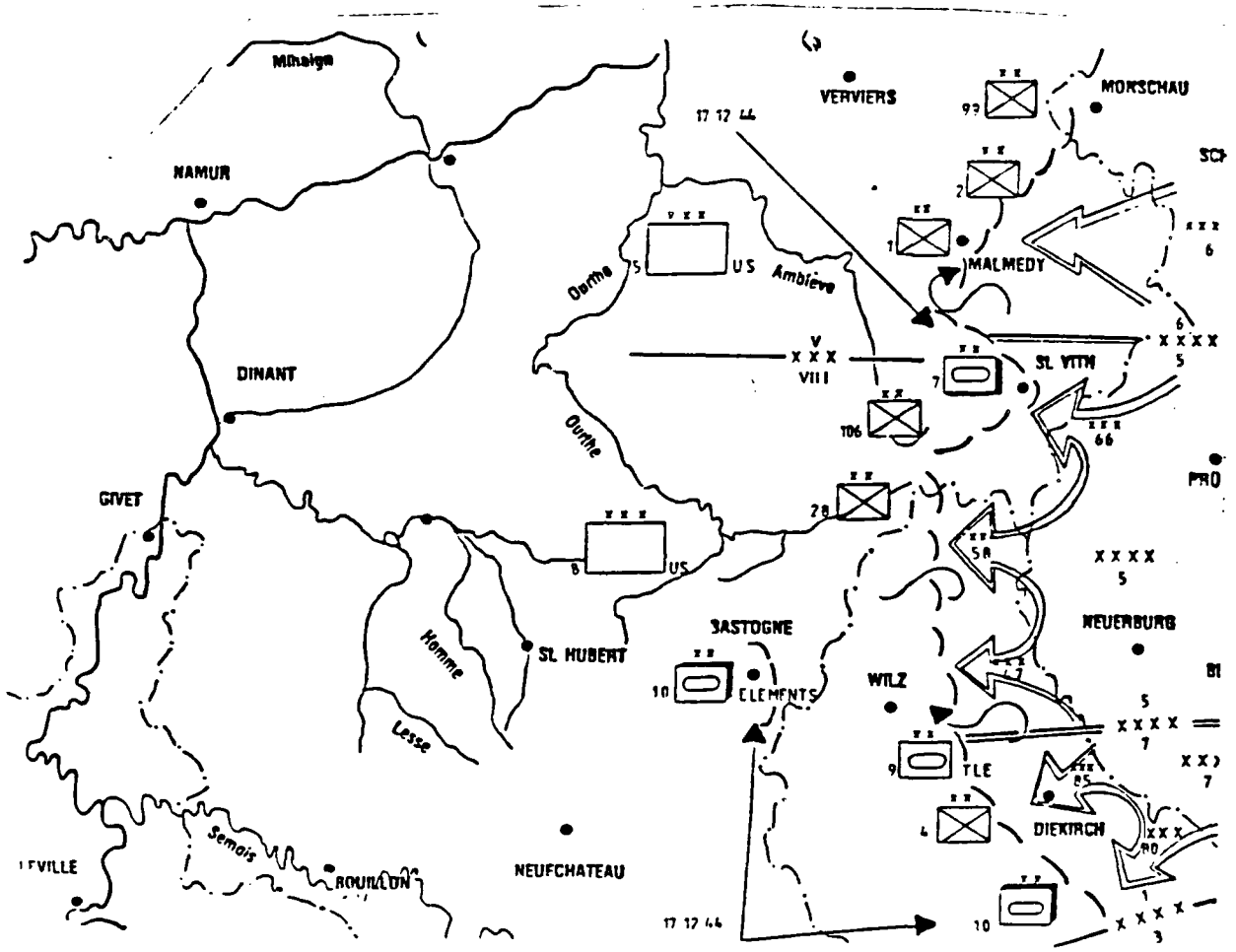
Map 3. 6th *Panzer* Army Operations Plan - Ardennes Offensive.



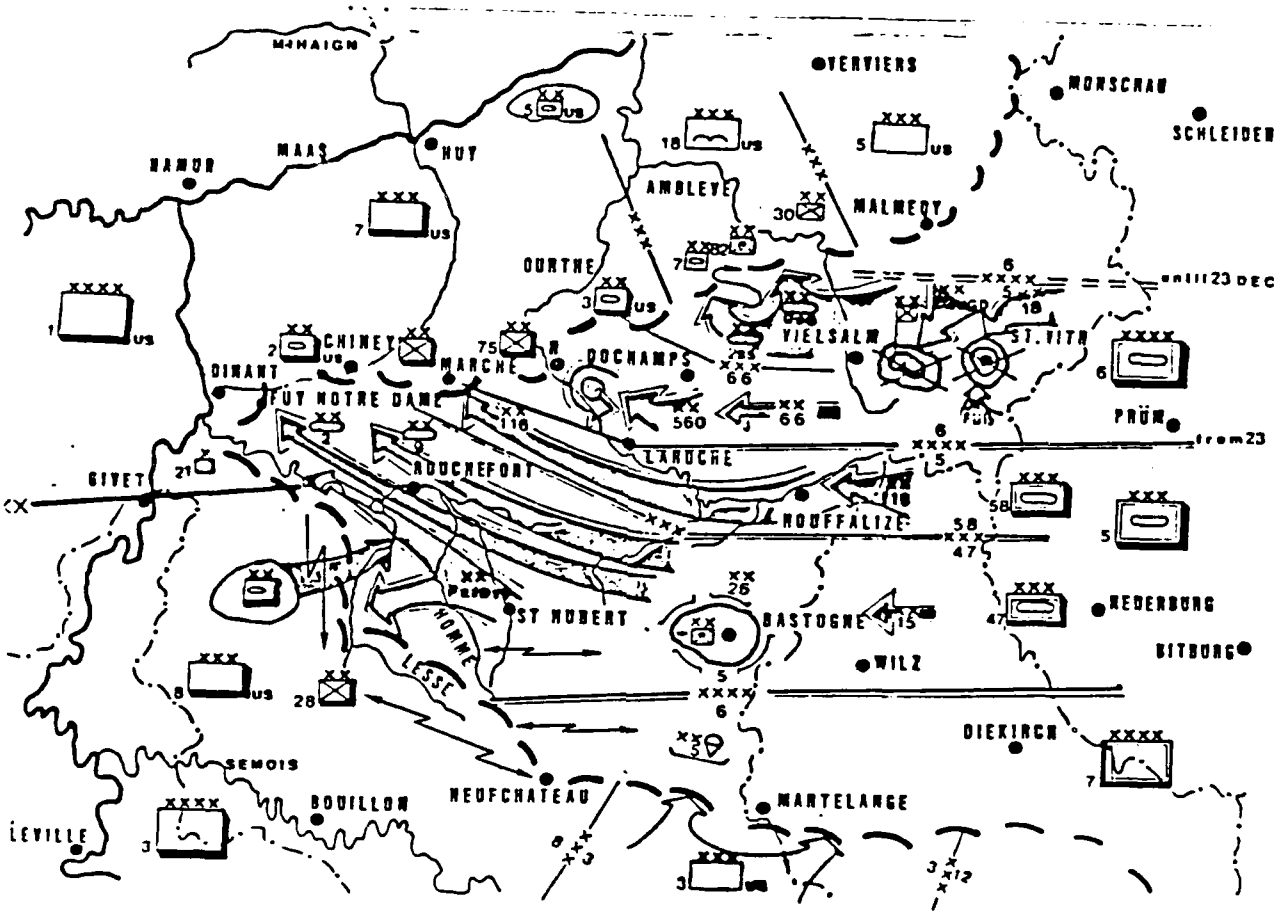
Map 4. 5th *Panzer* Army Operations Plan - Ardennes Offensive.



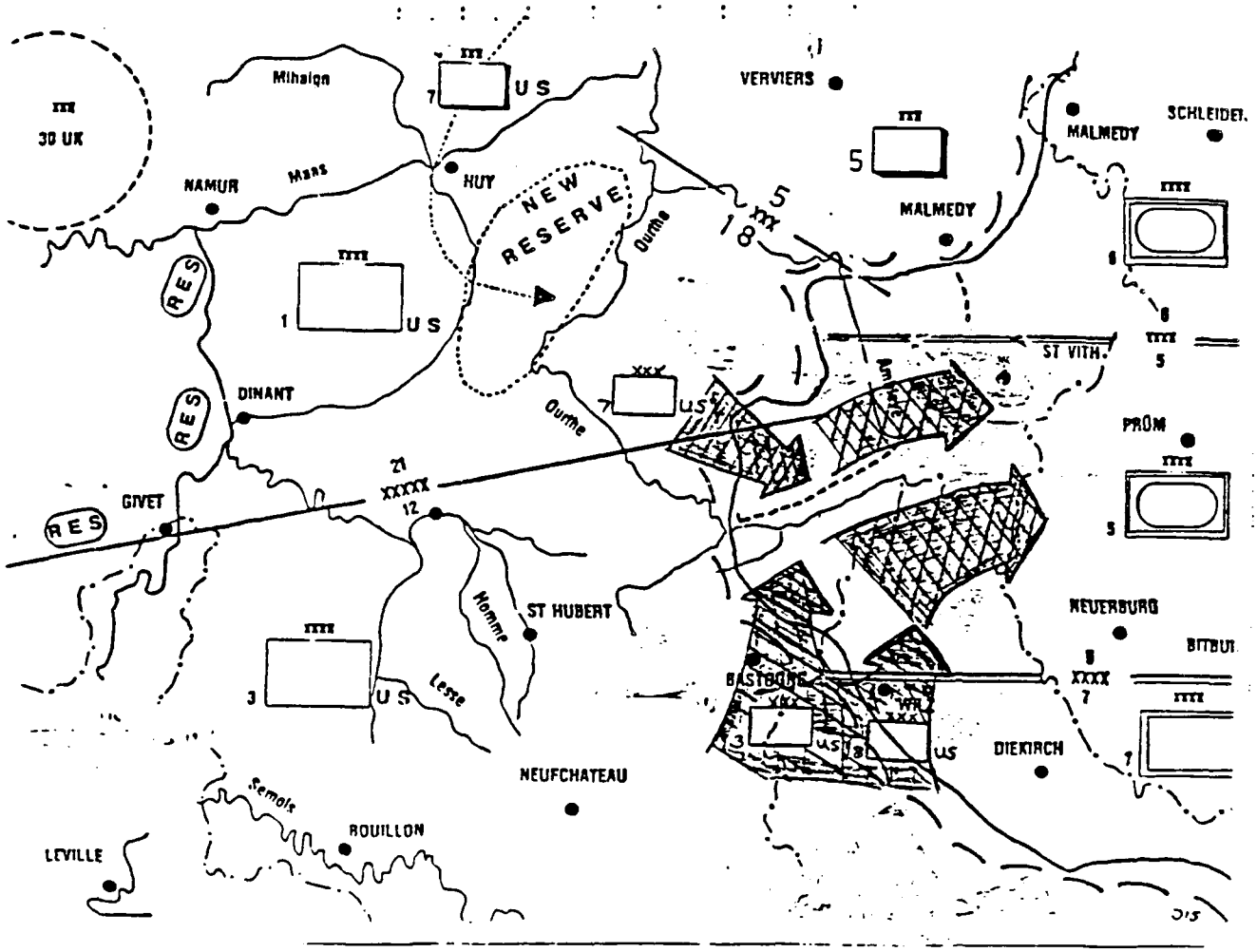
Map 5. 7th Army (GE) Operations Plan - Ardennes Offensive.



Map 6. U.S. Reaction 16-17 December 1944.



Map 7. Operations of 5th Panzer Army 20-24 December 1944.



Map 8. Allied Reaction and Counteroffensive Dec - Jan 1944.

ENDNOTES

1. U.S. Army, Field Manual 100-5 Operations, (Washington D.C.: Department of the Army, 5 May 1986). p. 6.

2. These ideas are based in general on the ideas expressed by Robert Doughty in his book The Seeds of Disaster: The Development of French Army Doctrine 1919-1939, published by Archon Books in 1985.

3. Field Manual 100-5 Operations, p. 14.

4. Ibid., p. 9.

5. The specific order of the tenets as presented in FM 100-5 is initiative, agility, depth, and synchronization. The order has been amended to match the order in which they will be discussed in the text.

6. Field Manual 100-5, Operations, pp. 14-15.

7. For ease of writing, the term "operational art" will be used interchangeably with the the term "operational level of war."

8. Field Manual 100-5, Operations, p. 10.

9. Ibid.

10. William S. Lind. Maneuver Warfare Handbook, (Boulder, Colorado: Westview Press, 1985), p. 24.

11. Field Manual 100-5, Operations, p. 2.

12. Ibid., pp. 2-4.

13. Ibid., p. 4.

14. Ibid., p. 16.

15. Ibid., p. 17.

16. Ibid.

17. Ibid.

18. Ibid., pp. 17-18.

19. This idea was discussed in great detail by General William Depuy (retired) in his presentation to a combined SAMS seminar during March, 1988. His presentation was

entitled "A Description of the Functional, Organizational, and Procedural Structure for the Command and Control of an AirLand Battle Force Operating in a Joint Environment. A Running Discussion of the Implications - Present and Future" General Depuy's discussion summarized his investigation into the command and control system of the U.S. Army. He concluded that the primary function of the current C2 structure was to synchronize the myriad of battlefield functions required of todays armies.

20. Field Manual 100-5, Operations, p. 14.

21. Ibid., p. 15.

22. Ibid.

23. Henri Jomini, The Art of War, (Westport, Connecticut: Greenwood Press, 1971), p. 74.

24. Samuel B. Griffith, Sun Tzu. The Art Of War, (Oxford: Oxford University Press, 1963), p. 106.

25. Field Manual 100-5, Operations, p. 16.

26. Richard E. Simpkin, Race to the Swift. Thoughts on Twenty-First Century Warfare, (London: Brassey Defense Publishers, 1985), p. 132.

27. Robert R. Palmer, The Army Ground Forces: The Organization of Ground Troops. United States Army in World War II. Edited by Kent R. Greenfield, Bell I. Wiley, and Robert R. Palmer, Historical Division, Department of the Army. (Washington, D.C.: Government Printing Office, 1947), pp. 11, 272.

28. Peter S. Kindsvatter, An Appreciation for Moving the Heavy Corps- the First Step in Learning the Art of Operational Maneuver, (Ft. Leavenworth, Kansas: U.S. Army Command and Staff College, 16 May 1986), pp. 15-20.

29. Barrie Pitt, The Crucible of War 2 - Auchinlenck's Command, (London: Macmillian Publishers Inc.), pp. 183-286.

30. John T. Nelson II, Where to Go From Here?: Considerations for the Formal Adoption of Auftragstaktik by the U.S. Army, (Ft. Leavenworth, Kansas: U.S. Army Command and Staff College, 16 May 1986), pp. 2-11.

31. Field Circular 101-55, Corps and Division Command and Control, (Ft. Leavenworth, Kansas: U.S. Army Command and Staff College ,January 1985), p. 3-1.

32. Field Manual 100-5, Operations, p. 15.

33. David Palmer, Summons of the Trumpet, (New York: Ballantine Books. 1978), p. 181.

34. Richard Simpkin, Race to The Swift, pp. 145-148.

35. Field Manual 100-5, Operations, p. 19.

36. Unless otherwise noted, the general description of the Ardennes campaign used in this monograph was drawn from a variety of sources. These included Hugh M. Cole's United States Army In World War II, The European Theater Of Operations: Ardennes: Battle of The Bulge, John S.D. Eisenhower's Bitter Woods, and Russel F. Weigley's Eisenhower's Lieutenants: The Campaign of France and Germany, 1944-45. The reader is referred to these text for more detailed information about the campaign.

37. Hugh M. Cole, United States Army In World War II, The European Theater Of Operations: Ardennes: Battle of The Bulge, (Washington D.C.: Office of the Chief of Military History, 1965), p. 17.

38. Charles B. MacDonald, The Siegfreid Line Campaign (Washington: Office of the Chief of Military History, 1963), p. 65.

39. Dwight D. Eisenhower, Crusade in Europe (New York: Doubleday and Co., Inc., 1948), p. 322.

40. Russel F. Weigley, Eisenhower's Lieutenants: The Campaign of France and Germany, 1944 - 45 (Bloomington Indiana: Indiana University Press, 1981), p. 465.

41. George S. Patton, Jr. War as I Knew It (Cambridge, Massachusetts: Riverside Press, 1947), p. 188.

42. Russel F. Weigley, Eisenhower's Lieutenants: The Campaign of France and Germany, 1944 - 45, pp. 484-489.

43. Bernard L. Montgomery, Normandy to the Baltic (Cambridge, Massachusetts: Riverside Press, 1948), p. 283.

44. Russel F. Weigley, Eisenhower's Lieutenants: The Campaign of France and Germany, 1944 - 45, p. 481.

45. Hasso von Manteuffel, Fifth Panzer Army (Ardennes Offensive) Foreign Military Studies MS# B-151, (Washington D.C.: Office of the Chief of Military History, U.S. Army), p. 119.

46. Bernard L. Montgomery, Normandy to the Baltic , p. 282.

47. Stephen E. Runals, Command and Control: Does Current U.S. Army Tactical Command and Control Doctrine Meet the Requirements for Today's High Intensity Battlefield? (Ft. Leavenworth, Kansas: U.S. Army Command and General Staff College, 2 December 1985), p. 35.

48. The story of this epic battle is told in great detail by the commander of that Israeli brigade, Avigdor Kahalani, in his book The Heights of Courage. A Tank Leader's War on the Golan published by Greenwood Press, Westport, Connecticut in 1984.

49. William Depuy, Presentation to a combined SAMS seminar entitled "A Description of the Functional, Organizational, and Procedural Structure for the Command and Control of an AirLand Battle Force Operating in a Joint Environment. A Running Discussion of the Implications - Present and Future".

50. Major Edward J. Filiberti has suggested such a revision in a monograph titled "The Standard Operations Order Format: Is Its Current Form and Content Sufficient for Command and Control?" Likewise, Major Runals' monograph on U.S. Army command and control doctrine also includes some interesting discussions with regards to this subject.

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