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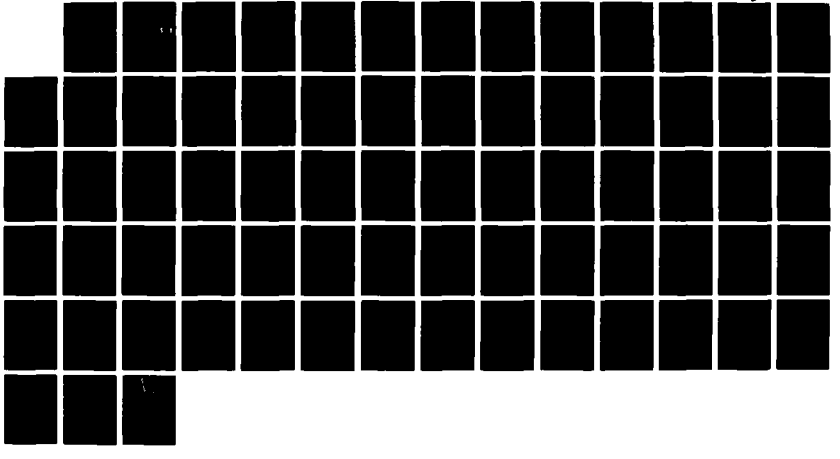

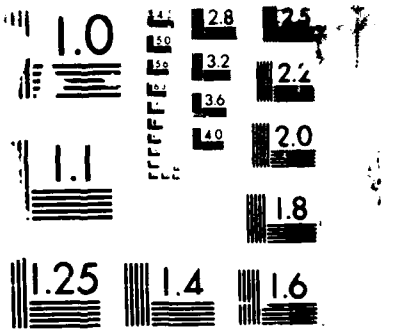
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An Appreciation of Tactical Agility as a Function of the Decision-Making Process

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This monograph discusses the components and characteristics of decision-making that are necessary to achieve the tactical agility required in AirLand Battle. As one of the four tenets of AirLine Doctrine, agility - the ability to decide and act faster than the enemy - is fundamental to AirLand Battle's approach to generating and applying combat power. It is a prerequisite for seizing, maintaining and exploiting the initiative.

The study is based on the premise that it is the relative effect of combat power compared to that of the enemy which determines the outcomes of engagements and battles. It proceeds with a theoretical inquiry into the nature of agility as it relates to

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combat power, the environment of battle, and the decision-making process. Next it examines these relationships in the context of two historical examples: Balck's counterattack along the Chir River in December of 1942, and Wood's exploitation in the Nancy Bridgehead in September of 1944.

Based on this theoretical and historical analysis, the study then presents a conceptual model of an 'agile decision-making process.' This conceptual model suggests how the basic decision-making process - a feedback control mechanism - can be adapted to the uncertain, unpredictable and constantly changing battlefield to achieve a relative combat power advantage through tactical agility. It considers how such an adapted process can deal with the inherent elements of risk and unstable probabilities on the battlefield to generate further opportunities for exploitation. In considering such a process, this discussion also identifies specific characteristics required in both the decision-making organization and, the leaders who make decisions, and those who execute them. Together, they represent a system of battle designed to meet the tactical agility requirements of AirLand Battle. The implications of such a system are considered in terms of supporting Army doctrine and conditioning, training, and indoctrinating the soldiers and leaders of the U.S Army.

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ABSTRACT

AN APPRECIATION OF TACTICAL AGILITY AS A FUNCTION OF THE DECISION-MAKING PROCESS by MAJ BRIAN A. LOVATT, USA, 63 pages.

This monograph discusses the components and characteristics of decision-making that are necessary to achieve the tactical agility required in AirLand Battle. As one of the four tenets of AirLine Doctrine, agility - the ability to decide and act faster than the enemy - is fundamental to AirLand Battle's approach to generating and applying combat power. It is a prerequisite for seizing, maintaining and exploiting the initiative.

The study is based on the premise that it is the relative effect of combat power compared to that of the enemy which determines the outcomes of engagements and battles. It proceeds with a theoretical inquiry into the nature of agility as it relates to combat power, the environment of battle, and the decision-making process. Next it examines these relationships in the context of two historical examples: Balck's counterattack along the Chir River in December of 1942, and Wood's exploitation in the Nancy Bridgehead in September of 1944.

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I. INTRODUCTION

American war fighting doctrine for over a century has been significantly influenced by an expectation of abundant material resources, the availability of superior firepower, and a tendency toward strategies of attrition.[1] Firepower has been the dominant element of combat power and *mass* invariably the means to seize, maintain, and exploit the initiative. The tactical employment of combat power has often relied on deliberate planning and execution to achieve the favorable force ratios required for high probabilities of success.[2] Following World War II and culminating in the doctrine of Active Defense, emphasis on firepower and attrition and a new emphasis on defense steadily increased until they became the principal characteristics of U.S. Army doctrine.[3]

In sharp contrast to those doctrinal traditions, AirLand Battle represents a new approach to generating and applying combat power at the tactical and operational level. It is a response to the challenges of future high- or mid-intensity conflicts against a technologically advanced, well equipped, and numerically superior enemy.[4] Its vision of future battle is one of chaos and constantly changing situations caused by extreme violence, rapid movements, and the friction of war. Its emphasis on maneuver reflects the recognition that combat power can no longer rely on the dominance of firepower. Instead, tactical and operational success will depend on securing, retaining, and exploiting the initiative by the rapid and aggressive execution of a succession of violent offensive actions and rapid maneuvers designed to throw the enemy off balance

and prevent his recovery.[5]

Initiative is determined largely by the relative effects of combat power at a specific point. According to FM 100-5, Operations it "means setting or changing the terms of battle by action."[6] It implies offensive action and requires the ability to force the enemy to conform to our purpose and tempo while retaining our own freedom of action.[7] However, initiative is not determined soley by the combat potential of superior mass and fire power, but rather its effect on the enemy.

In order to wrest the initiative from the enemy and retain it, the framers of AirLand Battle doctrine reasoned that "the commander had to act more rapidly than his opponent and present the enemy with repeated, continuous, disrupting and menacing actions more rapidly than he could react to them."[8] Thus, in April, 1981 the concept of *agility* was adopted as one of the four basic tenets of AirLand Battle.[9] Accordingly, FM 100-5, Operations, states, "Agility - the ability of friendly forces to act faster than the enemy - is the first prerequisite for seizing and holding the initiative."[10] It is a combination of physical and mental qualities. In leaders it is the ability to visualize and understand the battlefield, make quick decisions in the face of risk and uncertainty, and act without hesitation. In units it is the capability to move and concentrate rapidly and to transition quickly from one operation to another in response to changing situations.[11]

The problem of attaining physical *agility* is largely a function of quantitative measurement and calculation. It is presumably solvable. However,

achieving the kind of mental and psychological *agility* which battlefield commanders require in order to 'read the battlefield', decide quickly, and act without hesitation"[12] is a more difficult problem. In most of the Army's past experiences in war, superior resources and fire power have allowed deliberate decision-making based on high probabilities of success and minimum risk. Combat power could be applied rigidly to force the desired outcomes of the decision.[13] Repeated over time, such decision-making produced victory. However, the conditions anticipated in AirLand Battle lie for the most part outside of our experience. Now, limited resources and the unacceptable cost of attrition require that friendly forces act more quickly than the enemy in order to achieve a relative combat power advantage over him. To achieve this *agility* requires a decision-making process aimed at rapidly generating a relative combat power advantage and applying that advantage to the greatest possible effect.[14]

The aim of this monograph is to develop an appreciation of the fundamental components and characteristics of the decision-making process necessary to achieve tactical agility . It begins by developing a theoretical understanding of the relationship of *agility* to combat power, the environment of battle and the decision-making process. It then examines these relationships in the context of the counterattacks by General Balck's 11th Panzer Division at the Chir River and General John S. Wood's exploitation across the Moselle River in September, 1944. Based on the analysis of theory and these historical examples, a conceptual model of 'agile decision-making' is then developed to provide insight into how tactical

agility can be achieved through the decision-making process. Finally the implications of these insights are considered with respect to Airland Battle.

II. A Theoretical Perspective

Agility and Combat Power

In order to appreciate how agility - the ability to act faster than the enemy - affects combat power, it is useful first to understand the relative nature of combat power. Based on his study of the subject, Colonel Huba Wass De Czege has written,

> "Combat power is always relative, never an absolute, and has meaning only as it compares to that of the enemy. Combat power is defined as that property of combat action which influences the outcome of battle. It has meaning only in a relative sense--relative to that of the enemy--and has meaning only at the time and place where battle outcomes are determined. Prior to battle there exists only the capability. Leaders and the forces of their environment, to include the actions of the enemy, transform this capability into combat power. Superior combat power has been generated on the battlefield by superior leaders and superior units against forces vastly superior by any objective criteria."[1]

It is in this play of relative combat power that *agility* is able to generate superior combat power at a place and time where disproportionate results can be achieved.

Agility, although a new doctrinal term, embodies quickness and balance and centers on the idea of deciding and acting faster than the enemy. Its principal effect is speed in battle - the ability to dominate space in time. The quest for speed in battle has been a principle in war as long as wars have been fought. Sun Tzu said "Speed is the Essence of War."[2] The advantages from speed accrue through the creation of a physical or psychological disequilibrium which favors he who decides and acts faster than his enemy, or faster than his enemy believes him

capable. The result is a shift in initiative.

Speed is vital to rapid concentration, maneuver and surprise, and provides the ability to exploit opportunities and react to danger. At the most fundamental level, speed determines the calculation of space and time which Clausewitz recognized as the essential factor in concentrating forces to achieve a relative numerical superiority at a decisive point.[3] It also enables a force to maneuver successfully to achieve a positional advantage relative to its enemy. Even in terms of the Boyd Theory of Maneuver Warfare, speed is paramount in achieving an advantage in time against the enemy by being consistently faster through a succession of Observation - Orientation - Decision - Action Loops, or Boyd Cycles.[4] Speed is also necessary for surprise. Surprise is achieved when troops can be concentrated at an unexpected time or place or in unexpected numbers. General Waldemar Erfurth in his study of surprise argues that "Without successful surprise no superiority at the decisive point can be achieved."[5]

Mental quickness and speed are required to exploit the effects of surprise and other opportunities, and to react to dangers. The ability to strike at such moments Sun Tzu likened to "the release of the trigger" on a drawn crossbow. With such ability a skilled commander is able to seek victory from the situation.[6]

Agility depends on speed and offensive action to achieve, sustain, and exploit a relative combat power advantage. It seeks to deny the enemy the time to react or recover from a loss of balance. As a result there is a natural struggle to control the tempo of battle by determining the ratio of action to inaction. It

creates a relative equilibrium. The defender seeks to postpone action while the attacker is compelled to seek it. In considering this dynamic tension, Clausewitz concluded that "time which is allowed to pass unused accumulates to the credit of the defender."[7] The slower the tempo resulting from inaction the greater the time available to calculate probabilities, the easier to retrieve a mistake, and the easier to restore balance.[8] However, should one opponent, as a result of the cumulative effect of his greater speed in decision and action, increase the tempo of battle, his capacity for faster action would gain him increasing advantage over the enemy's inability to maintain the equilibrium of battle. Initiative would shift in his favor.

Agility, therefore, is capable of producing successive effects on the battlefield. It provides a means of generating a relative combat power advantage against the enemy in the short term at a specific place and time. It achieves this by rapid concentration, maneuver, and surprise. However, the ability of agility to achieve a combat power advantage and influence the tempo of battle also provides a means of creating opportunities for further exploitation. These effects can only result from a decision-making process that is designed to achieve them.

Impediments and Opportunities

The ability to act faster than the enemy is dependent on quick and well timed decisions and the speed of execution. However, the uncertain and unpredictable nature of war, friction, and the opposing will of the enemy create risks and inertia which impede the ability of commanders to make decisions and the capability of

units to execute even the simplest of actions.

Uncertainty is as much a problem of being able to recognize the truth as it is to see it. Clausewitz wrote that "War is the realm of uncertainty; three quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty."[1] Within this fog of uncertainty a commander is torn between the need to make a rapid and accurate decision and the lack of certainty about the situation based on information which may be incomplete, inaccurate, or erroneous. In his study of the functioning of command in war, Martin Van Crevald concluded; "From Plato to NATO, the history of command in war consists essentially of an endless quest for certainty" - "certainty about the manifold factors that together constitute the environment in which war is fought."[2]

Decision making is further hampered by the unpredictability of future events and constant change. Unpredictability in war is the result of chance produced by unforeseen friction, the mind of the enemy commander, and the potential of human spirit and moral factors to defy rational expectations. "No other human activity is so continuously or universally bound up with chance. And through the element of chance, guesswork and luck come to play a great part in war."[3] Together these factors combine with the dynamics of battle to produce chaotic situations in a constant state of change. It was Sun Tzu's belief that the "only constant in war is constant change."[4]

The uncertain, unpredictable, and constantly changing characteristics of war mean that the decision a commander makes may have little impact on the result of

combat. Other factors beyond his control or knowledge may actually determine the sequence and outcome of events. These situations are called *stochastic* because of the seemingly random nature of actual outcomes. In a stochastic situation a number of very different outcomes are possible but not equally probable from an initial situation. It differs from a deterministic situation in which only one outcome is likely and an indeterministic situation in which all outcomes are equally likely.[5] Despite the inability of a commander to determine the actual outcome of combat by his decision, he may still influence it. Through his decisions he retains the ability to influence initial conditions to achieve the highest probabilities of favorable outcomes or the lowest probabilities of unfavorable ones.[6]

The stochastic nature of combat presents three significant implications for decision making: risk, unstable probability structures, and opportunity. Uncertainty and potential loss are sufficient to make a situation risky.[7] Risk, therefore, is inherent in stochastic situations in combat. Decision-making in risky situations is complicated by a lack of contol over the elements of risk, a lack of information required to reduce uncertainty, and a lack of time. However, implicit in every risky situation is the knowledge that the decision-maker can take actions to increase or decrease his potential loss or gain.[8]

The second implication for the decision-maker is the unstable probability structure of stochastic situations. The role of pure chance makes random outcomes possible in any situation. However, of more importance to the decision-

maker is the potential for a single event substantially to alter the probabilities of subsequent possible outcomes. It means that by influencing the outcome of a single combat action it may be possible to achieve an advantage in successive actions.[9] (See Figure A.)

This leads to the third implication - opportunity. It is a consequence of risky situations and the unstable probability structure of combat. In every stochastic situation the decision-maker will recognize a range of alternative actions, each with a varying degree of risk and a range of possible outcomes. Often the course of action with the possibility of producing the most favorable outcomes also involves the greatest risk. Conversely, there may be less risk associated with an action whose outcomes, though less favorable, are more probable. Beyond this dilemma between probability and risk lies opportunity. In battle, opportunities appear as a result of chance or the intentional influencing of conditions to improve the probabilities of more favorable outcomes which can be exploited.

Agility enables the commander to generate a combat power advantage at a specific place and time. The challenge is how to use that ability to the greatest effect in stochastic situations. It requires that decision-making be capable of accepting risk and finding ways to influence probabilities in order to create opportunities. It must then be capable of recognizing these opportunities as they appear and initiating rapid action to exploit them. The ability to make such decisions and execute them faster than the enemy can set the terms of battle.

The Nature of Decisions in War

Agility requires the ability to understand the battlefield, decide quickly, and act without hesitation despite uncertainty, unpredictability, and constant change. The tasks required to achieve agility correspond to the basic pattern of military decision-making and parallel most C2 and C3I concept models.[1] They are also found in Colonel Boyd's O-O-D-A Loop in his theory of maneuver warfare[2] and McCrimmon and Wehrungs' REACT (Recognise, Evaluate, Adjust, Choose, Track) model of risk management.[3] (See figures B thru E.) They define the structure within which a decision-maker must generate and apply combat power to its maximum effect.

The tasks of decision-making include *sensing* the environment and nature of the problem, *analyzing* information and possible actions, *deciding* on a course of action, and initiating *action* to achieve an intended result or change in the situation. Together they form a *feedback control mechanism* designed to achieve, through continuous feedback and action, a sufficient control over events to shape the environment in accordance with our own expectations.[4] *Sensing* represents the effort to gain certainty through the collection of information required for decision-making. It is structured by the availability of time, quantity and quality of information collection resources, the focus of the collection effort, and the complexity of the situation. While information is ultimately the source of certainty, more information does not necessarily produce greater certainty. The stochastic nature of battle limits the extent to which certainty ever can be

achieved. Martin Van Crevald has described the obsession for greater information in the quest for greater certainty as "the pathology of information". He concluded that it contributes to a false sense of control and an upward centralization in the decision-making system resulting in over structuring or strangulation.[5]

Analyzing is the process of interpreting information in order to achieve an accurate estimate of the current situation, comparing it to a desired end state, and considering the possible outcomes as a result of our own actions, enemy actions and terrain. It is a function of information, method, judgment, and time.

Deciding is the ultimate function of command. It involves choosing between alternative actions in the face of uncertainty to accomplish a purpose. It is characterized by a positive aim and the desire to exert control or influence over events to achieve that aim. The quality of a decision is a function of its ability to produce action that achieves its aim. It is determined by knowledge of the situation, analysis, judgment, and timing.

The final element in the decision making process is *action*. It links the organization to the environment by means of a decision. It begins with the transition from decision to action and results in interaction with the environment. Its purpose is to cause or influence changes in accordance with the aim of the decision.

The ability of decision-making to control combat outcomes is limited by the lack of determinacy in stochastic situations. The nature and expectations of decision-making must therefore be adjusted to that lack of determinacy in combat.

If the decision-maker fails to recognize and adapt to the situation he, as well as his organization, become vulnerable to a loss of effectiveness. Frustration can occur when action fails to produce expected results. Shock and incapacitation are possible in response to an intense or unexpected change in the situation and a sense of hopelessness may result from a perceived inability to influence any outcomes at all.[6]

Stochastic situations at the tactical level will tend to require decisions of encounter made in reponse to situations in which immediate action is required and a choice of actions must be made.[7] They are characterized by lack of time, lack of certainty and lack of control - the fundamental characteristics of a risky situation. Greater determinacy in situations may permit set piece decisions. These decisions are possible when time, information and the resources to increase control facilitate more detailed analysis and planning. Risk tends not to be an immediate consideration and outcomes are more predictable.[8]

Problems in stochastic situations tend to be qualitative and subjective in nature. They present a difficulty which at best can be surmounted by choosing a course of action based on experience, judgment and analysis. However, problems that arise in situations that have greater determinacy are more quantifiable and relatively objective in nature. There is the perception of a 'correct solution' which can be arrived at by proper measurement, calculation and staff work. Decision-making is deterministic as in solving a puzzle. Outcomes are relatively certain.[9]

Organizational structures to deal with uncertainty, unpredictability, and

change and to exercise command and control must be able to deal with the relative lack of determinacy in battle. Organizations which perceive their ability to determine outcomes, perhaps as a result of greater combat resources, tend to be centered on the commander, hierarchical in structure, and highly directive. To function, they require considerable information and the ability to exercise control. Such organizations find it difficult to operate in stochastic situations. By comparison, organizations based on a stochastic view of battle expect to face uncertainty, to deal with risks, and to exploit opportunities. Authority will be more decentralized in order to distribute problem solving. Vertical and horizontal cooperation will be required to maintain unity of effort.[10]

Centralized systems have the advantage of unity of effort, better control of subordinate elements, and benefit from the judgment of more senior commanders. However, they risk rigidity, a loss of creativity, and a loss of touch with the flow of events at the lower levels. Decentralized systems tend to benefit from greater involvement, creativity, and initiative at lower levels, and the ability to take advantage of changing situations and exploit unexpected opportunities. However, decentralized organizations risk a loss of unity of action, a lack of coordination, and a loss of control.[11]

From a theoretical perspective, the tenet of *agility* must be understood in terms of its relation to combat power, the stochastic nature of battle, and the decision-making process. To achieve agility the decision-making process must be structured to provide the ability to act faster than the enemy to achieve a combat

power advantage and opportunities it can exploit. As a feed back control mechanism it must adapt the functions of sensing, analyzing, deciding, and action to the stochastic nature of battle and the implications of risk, unstable probabilities, and opportunity. It must be capable of producing decisions in encounter situations which have no single 'correct solution'. Agile decision-making requires decentralization in the organization. However, such decentralization must include measures to prevent an unacceptable loss of unity of action, coordination and control. Above all it must seek ways to create and exploit a relative combat power advantage.

III. A Historical Perspective

Having considered the theoretical relationship of *agiltiy* to combat power, the environment of battle, and the decision-making process, it is appropriate to consider these relationships in two examples of agility in combat. For this purpose General Hermann Balck's counterattacks during the defense of the Chir River and General Wood's actions in the Nancy Bridgehead have been selected. They serve to illustrate how agile decision-making in stochastic situations enabled a commander to develop a combat power advantage to create and exploit opportunities.

Counterattacks Along the Chir River

When Soviet forces completed the encirclement of the German Sixth Army at Stalingrad on 23 November, 1942, German defenses along the Chir and the lower Don Rivers became critical to the relief or extraction of the Sixth Army and to the general defense of the sector held by Army Group Don. The bridgehead retained by

Army Group Hoth on the east banks of the Chir and Don Rivers was essential for Operation *Wintergewitter* aimed at the rescue of the Sixth Army.[1] However, on 3 December, before the operation could be mounted, the Soviet South Western Front struck south along both sides of the Don River to defeat the relief operation and encircle Army Group Hoth.[2]

It was into this situation, on 6 December, that General Hermann Balck, an experienced armor commander,[3] led the 11th Panzer Division. His mission was to join the General Von Knobelsdorff's XLVIII Panzer Corps as part of Army Group Hoth's relief operation.[4] However, continuous Soviet attacks against the Chir bridgehead would see the 11th Panzer Division in almost continuous action until 29 December, and conducting no less than five division counterattacks.

Balck arrived at Nizhna Chirskayna on the night of 6 December after conducting reconnaissance in advance of his division. (See Map No. 1.) His arrival coincided with an attack across the Chir by the Soviet 1st Tank Corps and 33d Rifle Division which hit the left flank of the German 336th Infantry Division. By early 7 December these Soviet forces had penetrated some 15 miles to the settlement of Sowchos 79 (State Collective farm 79).[5] With his division still enroute to the Don, Balck received orders to eliminate this Russian penetration and restore the situation. He quickly placed his headquarters with the 336th Infantry Division and by afternoon had dispatched a small force from his 15th Panzer Regiment to block the Soviet advance while he assembled and deployed the remainder of his division that night. At daybreak of 8 December he launched the 110 Panzer Grenadier

Regiment in a holding attack from the southwest just as the Russians were about to launch their own attack into the rear of the 336th. This unexpected attack threw the Russians off balance as the 15 Panzer and 111 Panzer Grenadier Regiments raced across their rear. The Russians "were totally surprised by Balcks unexpected appearance."[6] In the ensuing fight Balck's forces knocked out 53 Soviet tanks, shot up columns of truck mounted infantry and drove the remnants back into the Chir Valley.[7]

On 11 December, while still involved in action to restore that situation, XLVIII Corps informed Balck of two fresh enemy breakthroughs along the Chir, the first at Lissinski and the second at Nizhna-Kalinovski 22 kilometers to the north. (See Map No. 2.) Balck appreciated that the front of the 336th Infantry Division at Lissinski was the "pivot and the shield for the operations of 11th Panzer."[8] On the following day, after a 15 mile move, he threw the full weight of the division at the Lissinski penetration quickly smashing it. At mid-day he turned and marched another 15 miles to attack the enemy at Nizhna Kalinovski. A sharp fight there on 13 December succeeded in containing the penetration and repelling an attack against his own flank. The 11th Panzer Division had now been moving and fighting for eight consecutive days.[9]

After covering the Russian bridgehead at Nizhna Kalinovski, Balck began his move toward Nizhna Chirskaya to cross the Don on 17 December and link up with Hoth's Army Group. However, on 16 December the Russians unleashed a new offensive along the Don including a strong attack on 17 December which broke

through the 336th Infantry Division six miles north of Nizhna Chirskaya. Again the 11th Panzer Division was committed to action while on the move, and again succeeded in rescuing the situation.[10]

It was in the midst of this new action that Balck received still another change of mission. The Soviet 5th Mechanized Corps had overrun German defenses south of Nizhna Kalinovski and was attacking toward Sowchos 79. He was ordered to move at once.[11] According to Balk's own recollections;

> "I immediately gave the verbal orders extracting us from the attack and directing the division on how to move and prepare for the new counterattack against the breakthrough 20 km away. We launched our counterattack at 5 o'clock the next morning, and achieved such surprise that we bagged 75 Russian tanks without the loss of a single one of our own. Of course, one of the key reasons why we were able to achieve such quick movement was that I marched with the units. After all, the men were dead tired and nearly finished. I rode up and down the column and asked whether they preferred to march or bleed."[12]

His units moved into assembly areas and by 0200 on the following morning the 110th Panzergrenadiers were in blocking positions and the 15 Panzer and 111 Panzergrenadiers were poised to strike the eastern flank of the enemy. At 0500 the 15th Panzer and 110 Panzergrenadiers wheeled into the rear of the Russians inflicting total surprise and confusion. "The 11th Panzer Division took excellent advantage of this confusion, but the element of surprise was nevertheless the basis of the entire counterattack."[13] Balck, forward in his armored personnel carrier, was able to exploit the situation and smashed the Russian Corps. The speed of action was sustained by the initiative of subordinates such as Colonel Graf Schimmelmann, commander of the panzer regiment and Captain Lestman, a tank leader who, by seizing opportunities, destroyed virtually all of the enemy's 60 tanks with few if any friendly tank losses.[14]

Except for about two days when Balck ordered a defensive posture to regroup, the 11th Panzer Division remained in almost constant fighting in and around the Soviet bridgehead at Nizhna Kalinovski. On 24 December a more serious threat emerged as the Soviet 24th Tank Corps moved against the key German logistical center and airbase at Tatsinskaya. However, again, as a result of quick actions by the 11 Panzer Division, Popov's 5th Tank Army was prevented from exploiting the penetration to Tatsinskaya and the 24th Tank Corps was destroyed.[15]

Balck's employment of the 11th Panzer Division during 19 days of almost continuous action is a useful example of tactical agility. It reflects Balck's appreciation of the effects of rapid concentration and maneuver. He relied upon quickness and speed to gain a relative combat power advantage over larger enemy forces. He would then press this advantage to create and exploit the opportunities as they occurred. His ability to sustain this pace over time set a tempo which served to his advantage. In Balck's own words, "The axiom of the Division was 'Night marches are lifesavers'," although he admitted that "The question of when the men of the 11th Panzer got any sleep was never clearly answered."[16]

Balck not only accepted the uncertainty, unpredictability, and constant changes along the Chir, but mastered them through his own agile methods. The intent of his decision-making process was to develop a relative combat power advantage by acting faster than the enemy and apply this advantage to create opportunities for exploitation. To do this he was forced to accept risky situations and attempt to improve the probabilities of more favorable possible outcomes while minimizing his

exposure to risk. He adjusted this to the condition of battle.

Balck recognized the importance and time sensitivity of sensing throughout the decision making process. He emphasized continuous reconnaissance by each level of command before and after issuing orders to detect changes and track risky situations. He accepted that reconnaissance could dictate immediate action by subordinates to exploit a situation or prevent one from developing, and delegated that authority to them so long as such events were reported. [17] Although he relied heavily on his own reconnaissance battalion and radio intercept, these were not always available. In these situations, or when fast paced action dictated, his front line battalions performed their own infiltration reconnaissance employing pairs of armored vehicles or tanks with radios. [18]

During rapid operations Balck insisted on being forward, usually with a battalion in the main effort. This enabled him to sense the action at the most critical points and reduce the time required to analyze, decide and act.

> "The secret of armor leadership is that everything has to happen in the blink of an eye. That can only be accomplished if the commander is right at the point of action -- and only if the division has confidence that it is being competently led." [19]

He recognized the need for quick decisions and orders. He would get together whatever information was available and make his decision accordingly, refusing to wait long for reconnaissance if it meant the loss of surprise. [20] Orders were usually issued verbally at night for the following day and adjusted as necessary. However, to order an attack Balck remembered, "I preferred to meet my regimental commanders where we [illegible] the critical sector and have a terrain

discussion" and then issue verbal orders.[21] The various actions described here indicate that Balck developed a concept of maneuver enroute to a new situation and adapted it to the situation as circumstances dictated. As in the attack against the Soviet 5th Mechanized Corps, his forward position with the maneuver force made such refinements possible.

To achieve and sustain rapid action Balck relied upon the initiative of his subordinates and the flexibility and unity of his division. He expected his subordinates to act without hesitation;

> "In a critical situation the subordinate with an understanding of the overall situation can act or react responsibly. We always placed great emphasis on the independent action of the subordinates, even in peace time training.[22] "I always prized most highly those commanders that needed to be given the least orders."[23]

He took measures to improve the flexibility of the division and reduce friction. To avoid the disorder caused by combining and reorganizing units Balck preferred not to combine arms below the division.[24] Accordingly, he did not seek to employ his regiments independently but rather preferred to focus the entire combat power of the division in a unified effort. He relied on his Police Traffic Company to reduce friction in road marches and provided assets to each regiment to assist in their moves, especially at night.[25]

All of these factors contributed to *agility.* However, the key to Balck's success lay in the ability of his decision-making process to influence events in the stochastic environment of the battlefield. In each action, Balck's decision-making focused on two distinct factors. First, fast actions to achieve a combat power advantage that would influence future probabilities. The use of night marches,

blocking forces, flank attacks, and surprise were designed to gain a relative combat power advantage in situations in which he was usually outnumbered.

The second factor was to apply this combat power advantage to influence the probabilities of possible outcomes in risky situations. Having anticipated possible outcomes, he postured his forces to exploit opportunities or react to dangers. His decisions to attack larger forces from the flanks and rear involved great risks. However, he was able to minimize risks by establishing blocking forces and reserves, and to improve the probabilities of favourable outcomes by concentrating and maneuvering against enemy vulnerabilities and taking the enemy by surprise. Each of these actions reflected his focus on influencing future events to his advantage and his willingness to accept risks in seeking more favorable outcomes.

Offensive Action at the Nancy Bridgehead

The 4th Armored Division at the Nancy Bridghead is another example of a decision-making process which produced agility at the tactical level. By examination of this action it is possible to observe further how 'agile decision-making' created tactical agility and used it to generate and exploit a relative combat power advantage.

In the seven weeks after the 4th Armored Division crossed the beaches of Normandy in July 1944, it roared 700 miles across central France as part of Patton's sweeping right hook into the Lorraine. At the end of August however, logistics forced Patton to halt at the Moselle River for 12 days to replenish supplies, especially fuel. The loss of momentum brought with it a loss of surprise and time

for the Germans to recover their balance east of the Moselle. When the push across the Moselle was finally ordered in early September the situation on the other side was most uncertain.[1]

The commander of the 4th Armored Division was Major General John S. Wood, "P" (for Professor) Wood to his contemporaries. A student of mobile warfare,[2] Wood wanted to cross his entire division north of Nancy, at Dieulouard, where terrain would favor his high speed tactics. However, General Manton Eddy, the XII Corp Commander to whom the 4th was assigned, insisted on making his main effort to the south but allowed Wood the freedom to make his own way in the north with Combat command A of his division. That proved to be all that Wood needed. (See map No.3.)

In the south the 35th Infantry gained a tenuous footing across the Moselle. Further south, CCB was able to force its own crossing to assist the 35th largely as a result of the initiative and charactacter of subordinate leaders. 1Lt William Marshall's platoon of the 8th Tank Battalion was the first to reach the river.

> "Although the German gunners had taken the American tanks under fire, Lieutenant Marshall proceed to build his own causeway across the canal by firing into the banks until they caved into the water and then topping the earth with a ramp of rails and ties. Marshalls platoon, followed by the rest of the 8th Tank Battalion, then successfully negotiated the four separate streams which here comprise the Moselle."[3]

In the meantime, Wood was busy organizing his own effort north of Dieulouard, near the XX Corps crossing site. While the lack of bridging assets in the Corps frustrated his efforts, the 80th Infantry succeeded in forcing a deliberate crossing at Dieulouard between two German Divisions early on 12 September. Wood quickly made the decision to cross CCA through there.

As the main body of CCA began moving toward the bridgehead early on 13 September, an advance element consisting of D Troop of the Reconnaissance Squadron, a liaison officer, and guide parties was already enroute to recon and coordinate the crossing. It arrived in the midst of a German counterattack which fought to within 100 meters of the bridge exit. As CCA closed on the bridgehead, D Troop crossed and quickly fought its way almost to the town of Ste Genevieve. At this point a council of war assembled to make the decision whether or not to continue the crossing. Besides Eddy and Wood, there was the commander of CCA, Bruce C. Clarke, and the commander of his 37th Tank Battalion, Creighton W. Abrams. The latter two men had been schooled by "P" Wood. They agreed on the action required and the order was given to "Get Going"[4]

The 37th Tank roared across the bridge and into action with such force that by 0800 it had pushed the Germans out of Ste Genevieve, 5 miles beyond the bridgehead, and began to exploit east. By 1300, with most of CCA across the river, its high speed attack along a front at times no wider than the 22 feet of paved surface ran over, through, or around the Germans who struggled to regain their balance. By that evening CCA had penetrated 20 miles and had seized the high ground west of Chateau Salins,the division's initial objective.

On 14 September, per Wood's order, the exploitation by-passed a strong enemy presence in Chateau Salins and overran elements of the 15th Panzer Grenadier Division in Arracourt. By evening, patrols from CCA and CCB had established contact and German forces in Nancy were effectively encircled. In 37 hours, Wood's CCA had

advanced 45 miles in a sweeping left hook that had inflicted severe damage on the enemy and knocked him off balance with minor losses to the division. A German Colonel of SS Troops captured during the fight commented that

> "to know the commander of this armored division would explain to me how this army managed to achieve such a speed of advance which in many instances caught us completely unprepared."[5]

Neither Clarke nor Wood was content to halt at Arracourt and saw the possibilities offered by a continuation of the exploitation to the Saar. Eddy, however, confronted with the task of reducing the encircled Germans, was unable to exploit this situation at the operational level and would not approve a deeper penetration. During 15 and 16 September the division remained in the vicinity of Arracourt and assisted in defeating a strong counterattack against Ste Genevieve. It also conducted converging attacks by both CCA and CCB to clear German defenses out of Maxie which threatened the encirclement. Wood issued a warning order for movement on 18 September east toward the Saar River but postponed it in order that CCR could be relieved at Luneville to join the division.

These delays allowed the Germans to regain their balance and prepare their own actions to wrest the initiative from the Americans and Wood's 4th Armored Division. (see map No.4.) They provided additional time for General Von Manteuffel, commander of the German Fifth Panzer Army, to concentrate all available forces for concentric attacks to destroy the 4th Armored Division.[6] On 18 September he began limited attacks to pierce the counter reconnaissance screen on the flanks of the U.S. XII Corps and locate the 4th. The first attack on 18 September broke through the

Corps cavalry screen and struck CCR north of Luneville only to be pushed back by a prompt counterattack by CCA from Arracourt. The next, on 19 September, probed the forward positions of CCA and ran into Abrams' 37th Tank Battalion. Here, CCA's ability quickly to concentrate forces and rapidly reinforce the 37th Tank Battalion with a platoon of tank destroyers, beat off the attack and destroyed 49 German armored vehicles.

Uncertain of the true nature of these attacks, Wood again began moving east. By 0930 on 20 September his lead elements were 10 miles east of Arracourt heading for the Saar River. Just as Wood's reconnaissance was beginning to identify the extent of German strength, the Germans resumed their attack on Arracourt. Wood ordered CCA back to restore the situation. As CCA attacked south into Arracourt it ran into the strength of the LVIII Panzer Corps attacking from the southeast. In quick response Wood pulled in his commands to more favorable terrain and shortened his front. As fighting around Arracourt continued through 22 September a radio intercept from German assault force provided CCA with the opportunity to strike. With a quick counterattack supported closely by air, CCA slashed into the flank of the German attack from the east, destroying elements of two brigades.[7]

From 24 through 29 September, Wood fought a mobile defense around Arracourt beating off a series of attacks against his positions; from the north and northeast on 24 and 25 September, and from the south and south east on 27 and 28 September. By the 29th of September however, the 5th Panzer Army's attack against the 4th Armored Division had been broken.[8]

Wood's handling of the 4th Armored Division demonstrates how agile decision-making produces battlefield agility and uses it to gain and exploit a relative combat power advantage. In the 19 days of action the 4th Armored Division had cost the Germans 1884 POWs, 1589 KIA, and 107 tanks, 62 guns and 491 other vehicles destroyed.[9] The 4th was in need of rest and replenishment but its losses had been relatively light. *Agility* had been the essence of its operating method and the source of its success.

The ability of Wood and his division to gain and exploit a combat power advantage through *agility* can be traced to the purposeful development, implementation, and employment of an agile decision-making process. The 4th expected and was prepared for the chaos of battle, to the point of seeking it as a source of potential advantages and opportunities to be exploited.

Wood had trained the 4th Armored Division in rapid action for almost two years before leading it into combat. His training was aimed at "the development of sound combat habits, and to flexibility, rapidity and initiative."[10] He stressed character building in his officers but tolerated their mistakes so long as they were not repeated. His training regimen concentrated on the practice and innovation of those tasks he expected to face in combat. He forced his units to deal with chaos and confusion in order to develop flexibility and harmony and the ability to adjust to changing situations without the loss of efficiency.[11]

When finally committed to action, Wood and the 4th Armored Division were ready. During the race across France they refined the agile style of fighting for

which Wood had trained the division.

> "It was a daring, hard-riding, fast-shooting style. The division's front was as wide as the road down which it sped, the recon men out front kept going until they hit resistance too hot to handle. Teams of tanks and armored infantrymen swung out smoothly in attack formation under the protective fire of the quickly emplaced artillery. The division broke the enemy or flowed about them, cutting the German lines of communication and splitting apart units."[12]

To carry out this style of fighting Wood depended on the ability of his division to sense, analyze, decide, and act faster than the enemy in fast paced, chaotic and unpredictable situations. He relied on his own ability to set and sustain the pace of battle at division level and the ability of his subordinates and the other division leaders to sustain and exploit the effects of rapid action. The essential element in each case was agile decision-making.

During the exploitation across France Wood quickly recognized the advantages that close cooperation with tactical air support provided not only in terms of combat power but also in security and reconnaissance. He relied heavily on air reconnaissance to sense short-term situations and those beyond the short term which might impact on his operations. His close relationship with supporting tactical air units enabled him quickly to gain information and develop and exploit situations with both air and ground arms.[13]

In order to remain personally aware of the situation in fast paced operations Wood remained well forward during fighting. He believed, "If you can't see it happen, it's too late to hear about it back in the rear area and meet it with a proper force."[14] In selecting his position during an operation he considered possible outcomes and positioned himself where he could sense the most critical of each anticipated

short-term situation.

Wood combined his latest reconnaissance and intelligence information with his personal knowledge of events to analyze and decide quickly in each new situation. His emphasis was always on getting orders issued and action underway as quickly as possible. He would fly to Eddy's Corps Headquarters for an orders briefing, sketch out his own concept of maneuver and objectives, and coordinate boundaries and support while still there. He would then fly over his lead command and, after exchanging recognition signals, land nearby and explain his concept of maneuver and issue verbal mission orders. Repeating this process until all his major subordinate commanders had been provide with mission orders, he then visited his own headquarters where his staff prepared a record copy and followed up coordination. In this manner the 4th Armored often took all its objectives before the written Corps order arrived. More important, it gave the Germans little chance to regain their balance.[15]

He gave great attention to possible outcomes in order to be able to react or exploit as required. His forward position in the action provided him the greatest ability to control or influence events in the short term which would in turn provide subsequent advantages. He "went where the going was roughest, and provided the effective leadership because he took full advantage of the time element."[16]

The second major factor in the ability of the 4th Armored Division to act faster than the enemy was Woods' emphasis on developing the ability of his subordinates for rapid action. Certainly, the professional development of Bruce C. Clarke and

Creighton Abrams reflect positively on Wood's influence.[17] In the eyes of his own ranks he cultivated officers who were capable of making speedy decisions; he pressed for initiative and expected privates to act like corporals, corporals like lieutenants, and lieutenants like generals.[18] In 1Lt Marshall as well as in others, Wood's emphasis on initiative paid dividends.

In developing initiative Wood also recognized that it required positive reinforcement. He strove to achieve a sense of 'all for one and one for all.' He said,

> "Every man must feel that he is individually responsible for its [the Division's] reputation and its actions and that he will be backed by his commanders and comrades in any act of individual initiative."[19]

Training, flexible organization, and the delegation of authority to subordinates and staffs reinforced this effort.

By this example it is clear that Wood had a system of war which he had perfected to an art. The expression of that art was *agility*. Its principles according to "P" Wood[20] were designed to gain the initiative through rapid and unexpected action to disrupt the enemy and then to exploit the situation with all possible speed and to maintain that speed. He faced the risk of being over extended with confidence in his ability to sense and react to possible threats. He judged that the possibilities for greater successes out weighed the potental for loss. His agile decision making enabled him to gain and maintain a relative combat power advantage that created opportunities that he was quick to exploit to even greater advantage.

Section IV. A Concept of Agile Decision Making

An appreciation of the theoretical nature of agility as it relates to combat power,

the environment, and decision-making, and the examples of tactical agility make it is possible to envision a concept of 'agile decision-making.' It is a process aimed at achieving and exploiting the effects of agility. To do so it must meet three recognized requirements. First, it must be compatible with the structure of the decision-making process; second, it must relate positively to the stochastic nature of battle, and third, it must maximize the effects of agility in generating and employing combat power. Von Moltke had an intuitive understanding of such a concept, when he said

> "the problem is to discover the situation in spite of the fog of uncertainty; to evaluate correctly what is known and to estimate what is unknown; to reach a decision quickly, and then carry it out powerfully and unhesitatingly."[1]

The concept of agile decision-making presented here is based on previous analysis. It is designed to generate a relative combat power advantage by acting faster than the enemy, and to apply that advantage in stochastic situations to create and exploit opportunities. It recognizes the conditions of uncertainty, unpredictability and change that characterize battle and seeks ways to overcome and exploit these conditions through a more agile decision-making process. Based on his study of stochastic situations, John W. Sutherland, a systems analyst, has written,

> "the objective is to make the most efficient use of resources in a succession of varying short-term situations and to rapidly and effectively take advantage of opportunities for exploitation. This approach achieves long-term efficiency by continually trading off internal consistency and mechanization for versatility and adaptivity to the external environment."[2]

In an agile decision-making process, sensing, analyzing, deciding, and action orient on producing rapid action to achieve a relative combat power advantage in a short-term situation and on accepting risks in order to create opportunities for

exploitation.

Agile sensing contributes to agile decision-making by discovering the nature of short-term situations in near real time. It seeks to provide the commander with relative certainty about short-term situations which in turn enables him to achieve and exploit advantages and opportunities present in that situation. To be agile, sensing must be based on an appreciation of the commanders intent. It must identify changes in the current situation and search for possible changes in the short-term situation and beyond that could impact on that intent.

Leaders who make decisions must be personally aware of events as they unfold. To gain this awareness they must anticipate possible events and outcomes and position themselves or use "directed telescopes"[3] to sense key events. They must also develop and exercise two way reporting of critical information and anticipated changes in the situation vertically and horizontally within the organization.

Agile sensing allows the commander to make short-term decisions with relative certainty. However, more important, it enables him to anticipate possible outcomes and consider his alternatives based on indications of how successive situations may develop. It is not without risk. Certainty about situations, especially successive situations, will be relative and temporary.

Agile analysis focuses on the implications of the environment - risk, unstable probabilities, and opportunity. Its purpose is to consider how relative certainty about a short term situation can be used to achieve a combat power advantage at a

specific time and place and how that advantage can be exploited. It accepts risk as a consequence of more favorable possibilities. The two essential requirements of agile analysis are judgment and ability to structure risks.

Judgment must include the mental capability to recognize reality and to envision possibilities. The former, according to Clausewitz, is the product of "a skilled intelligence to scent out the truth"[4] The latter is *coup d'oeil* which Frederick II described as the ability to judge the number of troops that may operate in a piece of terrain, or the advantages offered by terrain. Clausewitz called it the "ability to decern where the decisive stroke might take place."[5] Both are products of mental qualities and personal experience in dealing with the impediments and environment of war. Although judgment is certainly a quality of military genius, it can be developed by conditioning, indoctrination, and training, and reinforced by method.[6]

Analyzing also requires the ability to structure risks in order to consider risky actions as a means of achieving the possibility of more favorable outcomes. Structuring risks is accomplished in three steps; recognizing, evaluating, and adjusting. Risks should be recognized in terms of possible losses, the liklihood of loss, and exposure to loss. They should be evaluated by comparing possible losses with possible gains, considering the chance of loss versus gain, and whether the exposure to loss is justified in seeking the gain. Finally, risk levels should be adjusted by identifying ways to increase control over the risk elements, obtain information about the risks, or gain time to mitagate risks.

> Even when the degree of control, information, or time is insufficient to eliminate all risk in a situation, those elements can be used to mitigate risk partially. Having partial control over uncertain events allows us to influence which outcomes occur without determining the specific outcome.[7]

Gaining control seeks ways to moderate losses, influence the probabilities of possible outcomes, or spread exposure to risk to dilute its potential effects. Gaining information may reduce uncertainty as to chances of possible losses and may identify ways to spread or absorb risks. Gaining time provides additional opportunities for gaining control or information.[8]

An example of risk structuring is found in General Balck's counterattack at Sowchos 79 on 8 December. In deciding to attack the Russian 1st Armored Corps with a holding attack from the south and a flank attack from the west, Balck accepted the risk that the Russians might succeed in executing their own attack to the east into the rear of the 336th Division. He recognized that risk and adjusted it to an acceptable degree by positioning his Engineer Battalion and anti-aircraft units in blocking positions to the east. Although it proved an unnecessary measure, it provided a means of mitigating the risk.

In focusing on possible outcomes, agile analysis emphasizes anticipation and stimulates mental flexibility in dealing with uncertainty, unpredictability and change. It allows a commander to reduce his vulnerability to the effects of surprise and friction by expanding his realm of possible expectations. He thus avoids the intellectual consequences of being surprised, which at best is a relative loss of equilibrium and confidence in one's own calculations, and at worst - panic.[9] However, his ability to exploit the effects of unexpected surprises, as Clausewitz

recognized, is equally important; "For the side that can benefit from the psychological effects of surprise, the worse the situation is, the better it may turn out, while the enemy finds himself incapable of making coherent decisions."[10]

Agile analysis accepts shortcomings in the ability of human judgment to deal with uncertainty and risk. The human tendency to reduce problem situations to the fewest possible variables limits the ability to deal with complex situations involving randomness, uncertainty, and several diverse and unrelated problems. The influence of individual experiences and expectations in structuring problems and risk can lead to erroneous or inapproriate cues and reponses to new situations.[11] However, as previously mentioned the limitations of judgment can be somewhat balanced by conditioning, indoctrination, training and method.

Agility in deciding reflects acceptance that in a stochastic environment the impact of a decision is limited to influencing the probabilities of possible outcomes. It acknowledges that in a stochastic problem there is no 'correct solution', but rather many possible actions with varying risks which could result in a wide range of outcomes. To be agile, deciding must accept choices that involve risks.

An agile decision expects only to gain limited control over short term situations about which it has relative certainty. The purpose of that control is to gain a relative combat power advantage over the enemy at a given place and time. It sees risky situations and constant change as sources of opportunity, but also includes direct actions to adjust the risk of possible unfavorable outcomes. It relies upon the statement of a positive aim and intent to produce unity of combat effort

beyond specific controlled events.

The principal feature of an agile decision is the expression of a concept of maneuver describing the distribution of forces and the direction of each.[12] This 'concept' in the larger sense is a "maneuver idea" which can be anticipated and decided upon a priori - that is well in advance of contact with the enemy.[13] It allows an early decision on a general scheme with details added and refinements made as certainty about the situation permits. Alternative actions (branches and sequels) provide the flexibility necessary to gain and maintain the advantage of speed.[14] Charles A. Willoughby in his study of maneuver argues that it was the preconceived 'maneuver idea' which governed the movements of Napoleon's army and cites the Battles of Eylau, Castiglione, and Lutzen as examples.[15] According to his study;

> "It is *the idea* only, which was preconceived by Napoleon; its materialization took form later and upon the latest information the maneuver can be elastic and, up to a certain point, is adaptable to modifications in the situation introduced by the enemy."[16]

It necessitates initiative and flexibility in subordinates and requires decentralized authority for action to exploit advantages and react to dangers.

Early and quick decisions enhance agility when they limit time lost to inaction. Deciding can be made more agile by structuring decisions such that they are distributed over time or within the organization. By distributing decisions specificity can be added over time or at progressively lower levels of command and leadership as certainty increases. Decisions are not delayed in order to provide specific details that may not be knowable until later. Instead, specificity is added

as the fog of uncertainty is gradually penetrated. However, the willingness to risk an early decision based on uncertain and incomplete information requires a determination and boldness which can only be aroused by the intellectual awareness that they are required.[17]

Agile action contributes to the combat power effects of agility by rapid movement throughout the depth of the battlefield, prompt execution of decisions, and the ability to transition quickly from one action to the next. It is dependent upon a degree of certainty about short-term situations relative to its capability for agile action. The greater the capability for agile action the less certainty required about situations,and the more narrowly they may be defined. In each situation, agile actions will include those intended to track and adjust risks by gaining additional information, more time, or more positive control of events[18]as well as those actions aimed at exploiting advantages and opportunities.

Agile action requires initiative, discipline, flexibility and organizational unity. Initiative is formally established by lowering decision threshholds in encounter situations and delegating the authority to act. In combat, initiative at lower levels of leadership distributes problem solving and localizes the effects of unforseen events.[19] In order to insure that initiative produces positive action it must be based on an understanding of the short-term situation and the commander's intent, and balanced by judgment and discipline.

The judgment required of initiative can be developed through indoctrination to establish and transmit a "common fund of professional judgement, distilled from

analyzed professional experience." This helps in sensing the situation relative to the commander's intent and results in quick, predictable, sound, and harmonious responses to different parts of a problem.[20] It can also be developed by systematically requiring each leader to think two-levels up and two down.[21] Method - proven method - reinforces judgment when the complexity of the situation surpasses the capacity of judgment to deal with it. In this case learned responses, drills, indoctrination in methods of attacking problems or prebriefing on likely situations and alternative actions help subordinate leaders to see the situation in relative proportions to the commander's intent.[22]

Initiative must also be balanced and complemented by discipline. P. C. S. Hobart, a pioneer in armored warfare, concluded that the reliance on intelligence and initiative in all ranks called for a new sort of discipline, rather than the "you're not paid to think" variety.[23] Richard Simpkin has suggested that such initiative in the chaos of battle requires a "self-generating discipline" which he describes as "the same thing as team spirit in the full sense, where each man thinks for the team and acts on his own initiative in its best interests."[24] It must be enforced by a moral leadership which compell individuals to figure out what they "ought" to do and forces them to do it for the good of the team.[25]

Agile action requires flexibility in the application of combat power in order to achieve a relative advantage at a place and time where it will have the greatest effect. The variety of possible outcomes in stochastic situations and as a result of risk-taking requires that the distribution and control of combat power provide for

rapid action and concentration to exploit opportunities and minimize losses.[26] The optimum distribution of combat power is a function of positioning forces based on continuous time-distance calculations relative to anticipated outcomes and operating in formations that enhance *sensing* and action to develop the situation, rapid maneuver, and concentration. Reserves are organized and positioned based on the degree of uncertainty and perceived risk. They supplement the distribution and control of combat power and increase the commander's ability to influence events and deal with uncertainty and the unexpected.

Organizational unity prevents the unnecessary dissipation of combat power. It is required in agile actions to maintain flexible control over combat power, minimize friction, and resist the destructive effects of war. It must involve more than physical means of control which can be degraded in combat. Rather, it must be developed from common mental conditioning to the environment of battle, indoctrination in simplified methods of combat, and drills which allow rapid and predictable responses in the midst of chaos. Indoctrination in methods of command and control which are simple but precise also reduce friction in C2 structures and networks by insuring a common understanding of *sensing, analyzing, deciding* and *action*.

This concept of agile decision-making has adapted a basic feed back control mechanism to the stochastic nature of combat. Each component - sensing, analyzing, deciding and action - is oriented on achieving a relative combat power advantage at a place and time where it can produce the greatest effect in a series of short-term

situations. The concept suggests ways to employ the advantages of agility in risky situations to influence the probabilities of more favorable outcomes and exploit them. As a system for generating and applying combat power, it represents an alternative to more deliberate processes which are more dependent on superior combat capabilities.

V. Implications

This monograph has examined how decision-making can achieve and exploit the combat power effects of tactical agility. It is founded on the premise that the outcomes of engagements and battles are the results of the relative combat power between antagonists at critical points. Included in this premise is the understanding that "combat power is the result of what leaders do with the firepower, maneuver and protection capabilities of their units."[1]

Based on theoretical and historical analysis, the study concludes that an 'agile decision-making process' can produce the necessary tactical agility to achieve and exploit a relative combat power advantage in a succession of short-term situations. Such a decision-making process must be structured to accept and exploit the implications of stochastic situations - risk, unstable probabilities and opportunity. It requires an organization whose leaders and soldiers are conditioned to the uncertainty, unpredictability and constant change of battle, and indoctrinated in the requirements of rapid action. Their training must emphasize initiative, judgment, self-generating discipline, and moral leadership. Together, the decision-making process, the leaders and commanders who make decisions, and those who execute

those decisions form a system of battle.

Such a system of battle based on achieving and exploiting the effects of tactical agility through agile decision-making reflects the essence of AirLand Battle Doctrine. However, this study suggests that it presents two significant implications for the U.S Army. The first, relates to the current doctrinal decision-making process as expressed in FM 101-5, Staff Organization and Operations. (See Figure F.) That process continues to reflect the same deliberate planning methods that have existed since prior to World War II.[2] It does not reflect an adequate appreciation of tactical agility as required in AirLand Battle nor as suggested in this study.[3] The second implication relates to the training and indoctrination of soldiers and leaders in tactical agility. Soldiers and leaders are not conditioned to expect the stochastic nature of battle. Indoctrination in decision-making remains tied to the procedures described in FM 101-5. As a consequence training, indoctrination, and professional development of soldiers and leaders remains tied to a system of battle inconsistant with the tactical agility requirements of AirLand Battle. Until changes are implemented in those areas 'agile decision-making and the essential soldier-leader qualities of initiative, judgement, and self-generating discipline required in AirLand Battle will remain the hostages of a former system of battle.

Figure A

Risk Paradigm [1]

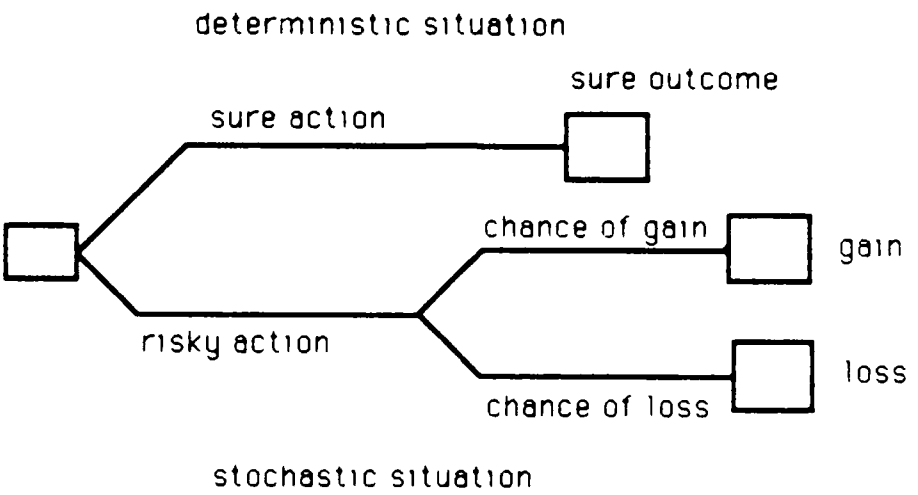
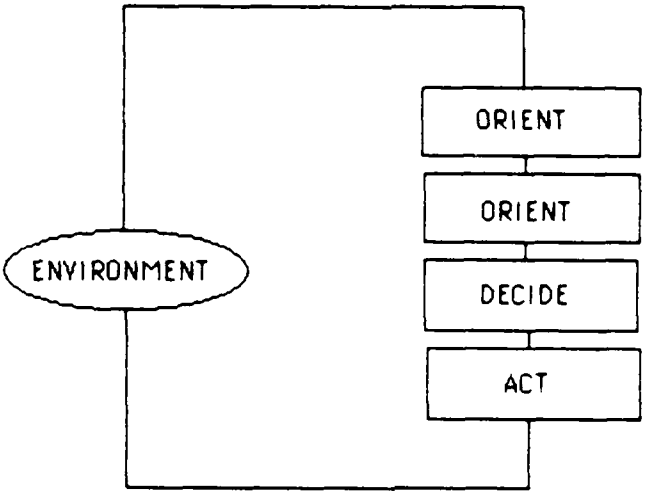


Figure B

Boyd's O-O-D-A Loop Structure [2]



Orr's Combat Operations Model [3]

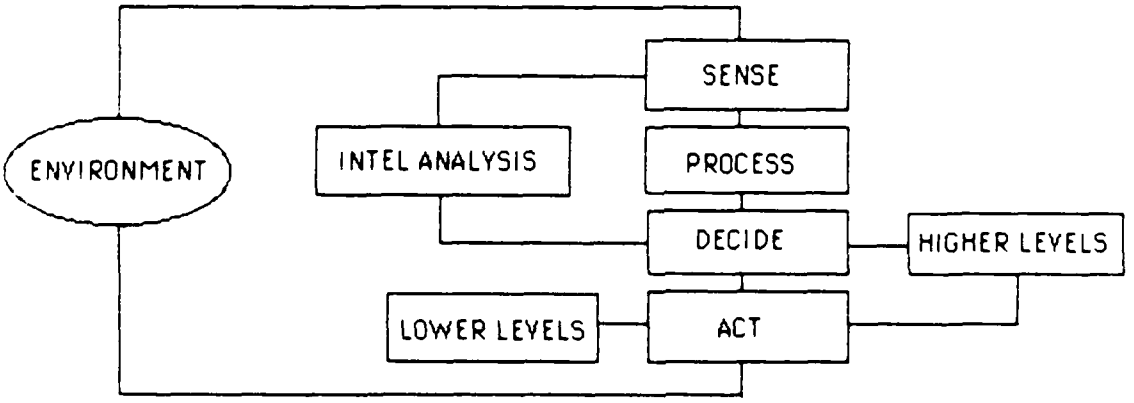
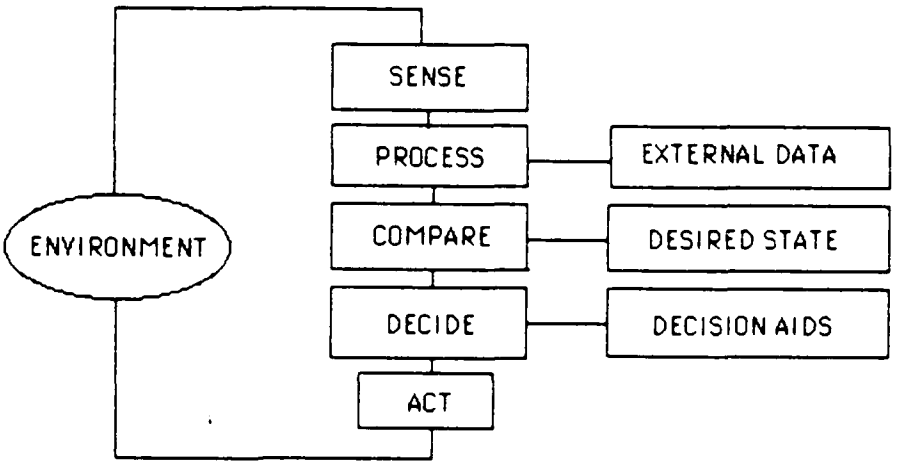
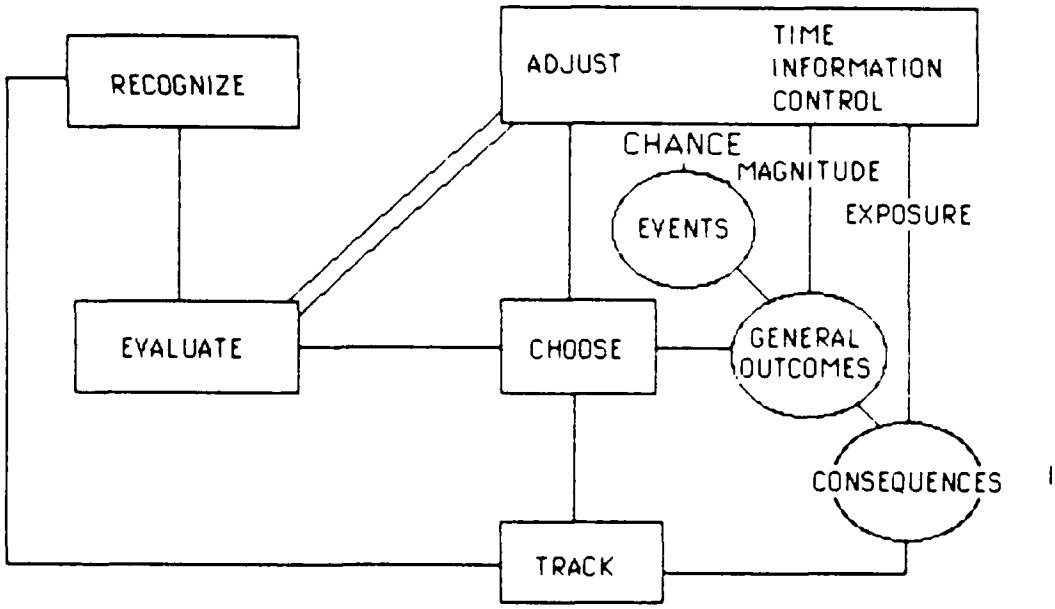


Figure C

Figure D

Lawson's C2 Model [4]





McCrimmon and Wehrung's REACT Model [5]

Figure E

Military Decision - Making Process (FM 101 - 5) [6]

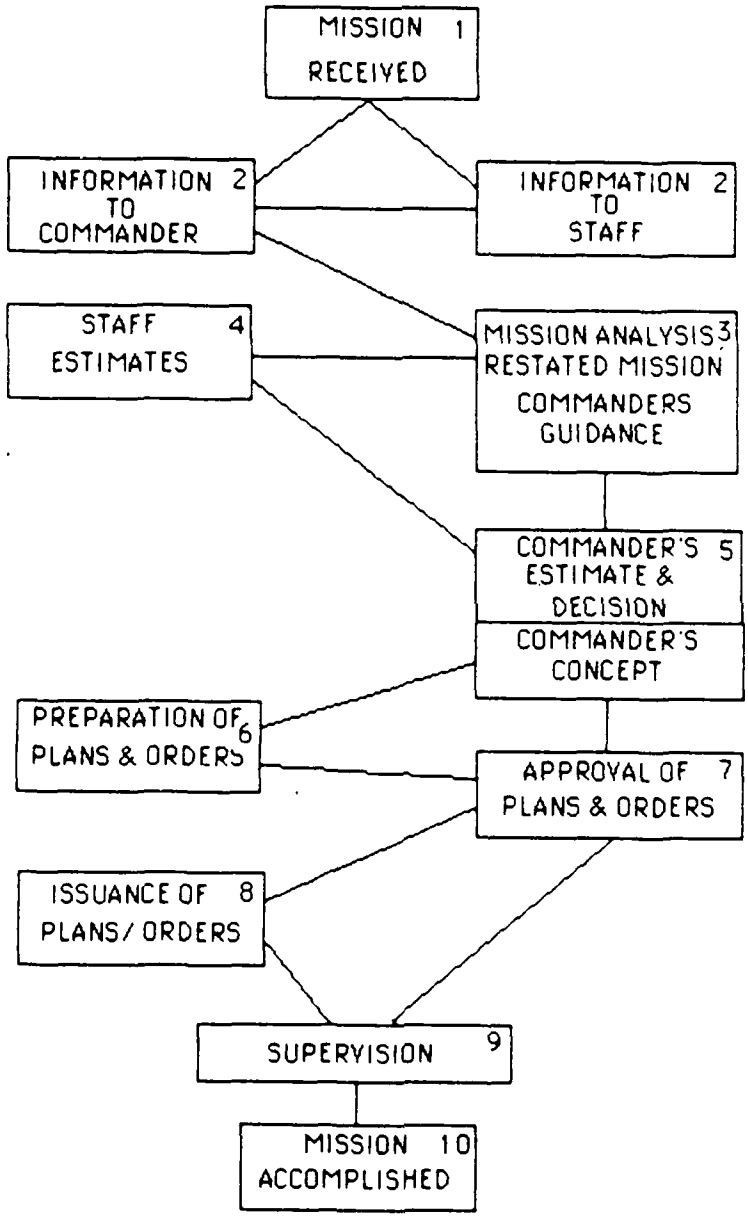
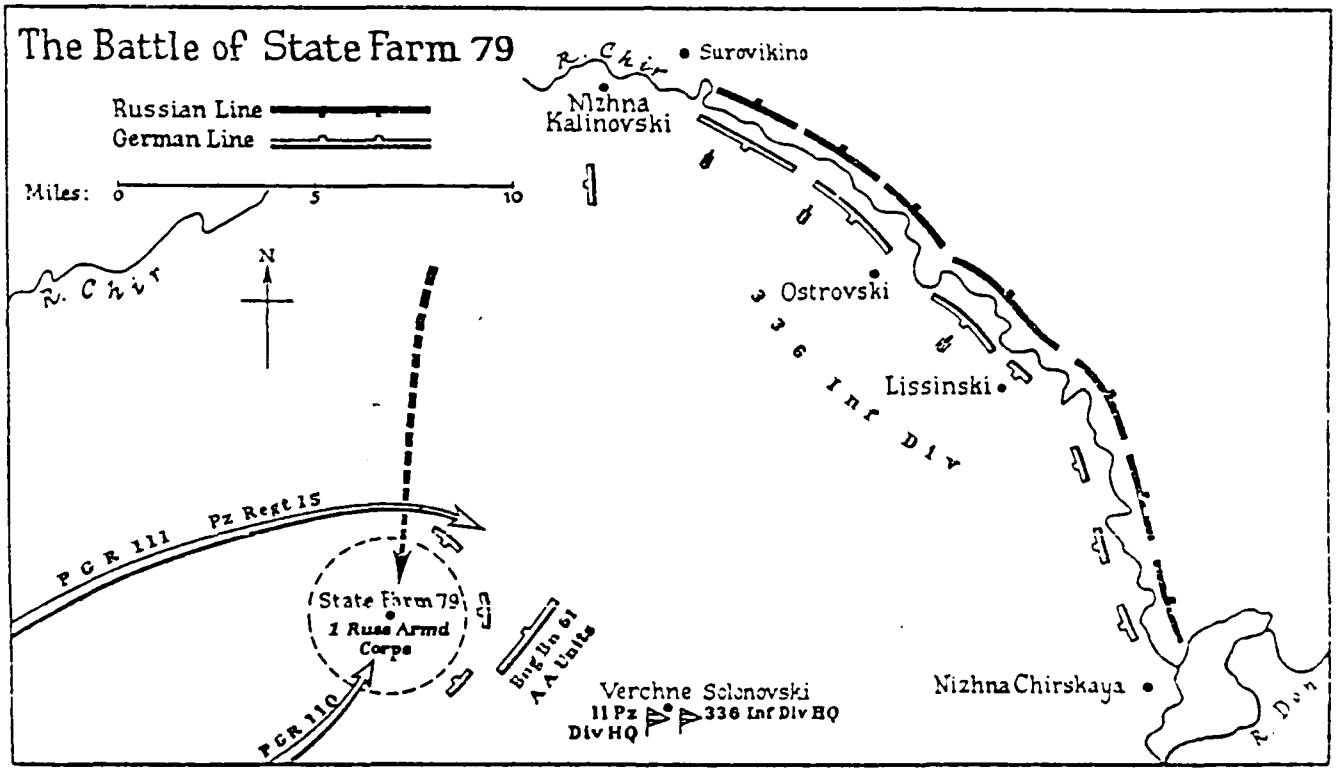
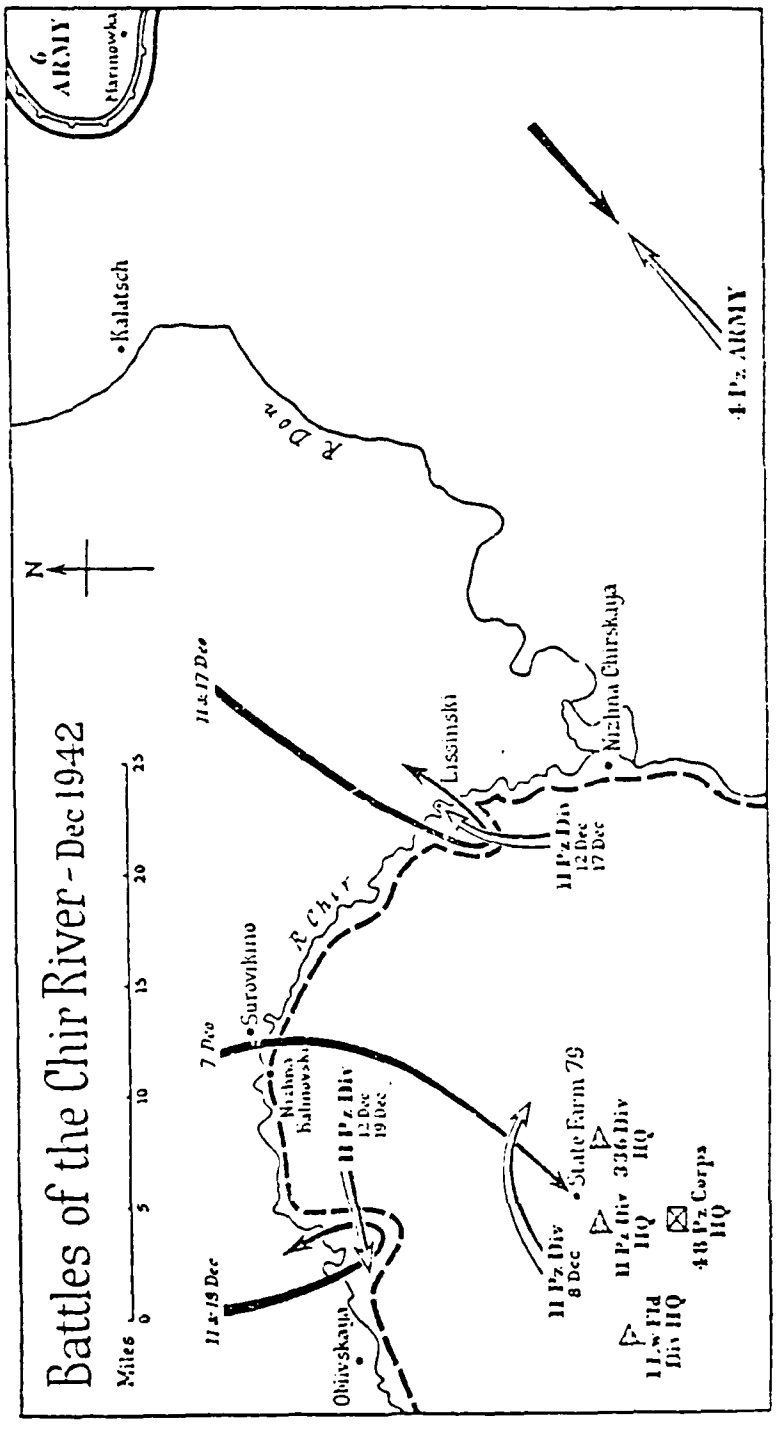


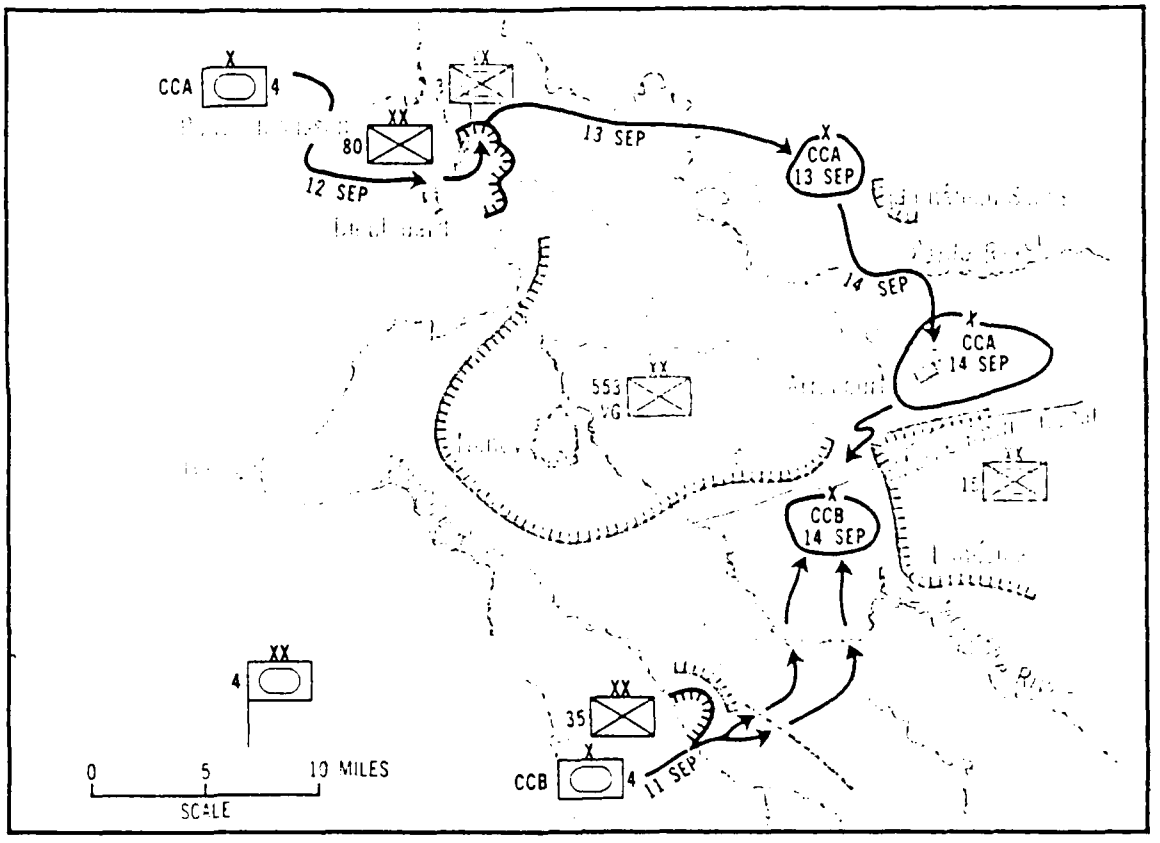
Figure F



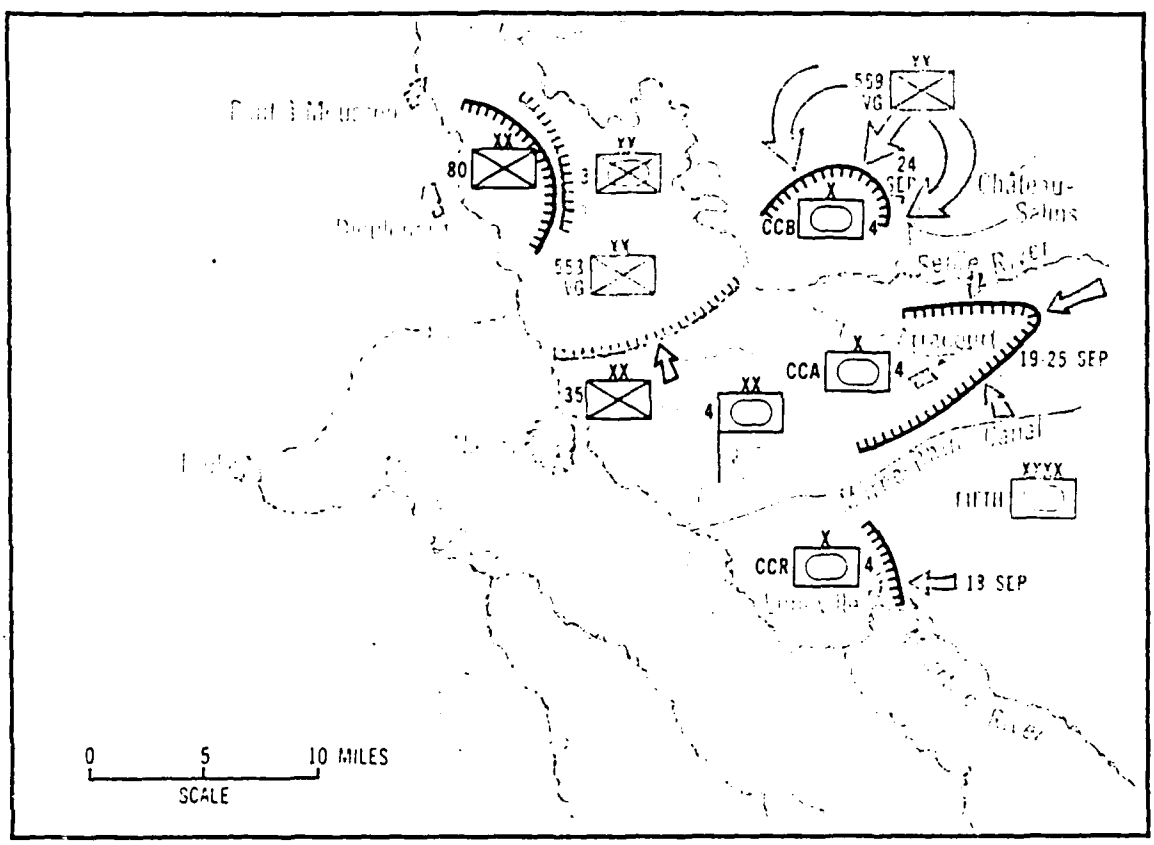
Map 1. Chir River, 6-11 December 1942.[1]



Map 2. Chir River, 11-22 December 1942.[2]



Map 3. Nancy Bridgehead, 11-14 September 1944.[3]



Map 4. Nancy Bridgehead, 18-25 September 1944.[4]

ENDNOTES

Section I. Introduction.

1. Edward N. Luttwak, Strategy and Politics, (New Brunswick, Canada, 1980), pages 300-303. Luttwak argues that the vast superiority in resources enjoyed by the Allies, the United States in particular, made attrition a rational approach to war fighting but tended to render generalship "largely a matter of deploying greatly superior forces in the general direction of the enemy" (p. 303). It made up for shortcomings in the practice of the art of war and meant that "victories could still be won prosaic plans rigidly executed"(p. 300).

2. George E. Orr; Combat Operations C^{3}I: Fundamentals and Interactions (Maxwell Air Force Base, Al, 1983), pp. 55-56.

3. Major Robert A. Doughty; "The Evolution of US Army Tactical Doctrine, 1946-1976," Leavenworth Paper No. 1, (Fort Leavenworth, KS, August, 1979), p. 49

4. John L. Romjue, "From Active Defense to AirLand Battle: The Development of Army Doctrine 1973 - 1982," (Fort Monroe, Va., June, 1984), pages 21, 44-46.

5. U.S. Army, FM 100-5, Operations, (Washington, D.C., 1986), p.14.

6. Ibid., p. 15.

7. Ibid., pp. 14-15.

8. Romjue, "From Active Defense to AirLand Battle: The Development of Army Doctrine 1973 - 1982", p. 58.

9. Ibid., p. 57. The term *agility* was advanced by LTG Richardson, then TRADOC Deputy Commander and subsequently approved by General Starry.

10. FM 100-5, Operations, p.16.

11. Ibid., p. 16.

12. Ibid., p. 16.

13. Orr, Combat Operations C ^{3}I: Fundamentals and Interactions, p. 55. Also see Edward N. Luttwak's essay "The Strategy of the Tank", Strategy and Politics, p.303. This idea of the relationship between material superiority or poverty and inclination of armies to accept risk and uncertainty is one of the main themes.

14. Orr, Combat Operations C ^{3}I: Fundamentals and Interactions, pp. 55-56.

Section II. A Theoretical Perspective

Agility and Combat Power.

1. Huba Wass De Czege, "Understanding and Developing Combat Power", AMSP Course Special, Dynamics of Small Unit Actions, (Fort Leavenworth, KS, 10 February 1984), p. 8.

2. Sun Tsu, The Art of War. Translated by Samuel B. Griffith, (New York, 1963), p. 134.

3. Michael Howard and Peter Paret, ed. and trans., Carl von Clausewitz, On War, (Princeton, NJ, 1976), pages 196-197, 204, 209.

4. William S. Lind, Maneuver Warfare Handbook, (Boulder, CO, 1985), pp. 5-6.

5. General Waldemar Erfurth, Surprise, (Harrisburg, PA, 1943), p. 23.

6. Sun Tsu, The Art of War, pp. 92-93.

7. Howard and Paret, ed. and trans.; Carl von Clausewitz, On War, p. 357.

8. Ibid., p. 85.

Impediments and Opportunities.

1. Howard and Paret, ed. and trans., Carl von Clausewitz, On War, p. 101.

2. Martin van Crevald, Command in War, (Cambridge, 1985), p. 264.

3. Howard and Paret, ed. and trans., Carl von Clausewitz, On War, p. 85.

4. Sun Tsu, The Art of War, p. 10.

5. George E. Orr; Combat Operations C^{3}I: Fundamentals and Interactions, (Maxwell Air Force Base, AL, 1983), pages 48, 51-54.

6. Ibid., p. 52.

7. Kenneth McCrimmon and Donald A.Wehrung, Taking Risks: The Management of Uncertainty, (New York, 1986), pages 9-10, 14.

8. Ibid., pages 9-10, 14.

9. Orr, Combat Operations C^{3}I: Fundamentals and Interactions, pages 46, 51-54.

The Nature of Decisions in War.

1. FM 101-5, Operations, pp. 5-6, and George E. Orr; Combat Operations C^{3}I: Fundamentals and Interactions, pages 24-27.

2. William S. Lind, Maneuver Warfare Handbook, p.5.

3. McCrimmon and Wehrung, Taking Risks: The Management of Uncertainty, p. 31.

4. Orr, Combat Operations C^{3}I: Fundamentals and Interactions, pp. 34-35.

5. Crevald, Command in War, pp. 258-259.

6. William A. Reitzel, "A Background to Decision Making", (Newport, RI., 1958), pp. 23-24.

7. Ibid., p. 37.

8. Ibid., p. 37.

9. Ibid., pages 39-41.

10. Orr, Combat Operations C^{3}I: Fundamentals and Interactions, pp. 87-88, and Crevald, Command in War, pages 270-271.
11. Reitzel, "A Background to Decision Making",pages 15, 20-21.

Section III. A Historical Perspective

Counterattacks Along the Chir River.

1. Earl F. Zeimke, Stalingrad to Berlin, (Washington, D.C., 1984), pages 56-59, 61-62.

2. "From the Don to the Dnepre: Soviet Offensive Operations, December 1942 - August 1943, 1984 Art of War Symposium", (Carlisle Barracks, PA, 1985), p.44.

3. Walter Von Mellenthin, German Generals of World War II, (Norman, OK, 1977), pages190-200. Balck seems to have been cut from the same cloth as Rommel. His considerable combat experience on three fronts during World War I (he was wounded in action seven times) led to his interest in mobile warfare and cavalry operations and assignments after the war with mounted forces and in the Inspectorate of Mobile Troops. As commander of a motorized infantry regiment in Guderian's Panzer Corps during the 1940 campaign in the west, he played a decisive role in seizing a crossing over the Meuse River and exploiting a significant breakthrough. After demonstrating the successful employment of armor in the mountains of Greece, he was tranferred to the Eastern Front where he assumed command of the 11th Panzer Division, in May, 1942, and again demonstrated his qualities as a combat commander.

4. Walter Von Mellenthin, Panzer Battles, (Norman, OK, 1956), p.175.

5. Mellenthin, Panzer Battles, pp 176-179, and "From the Don to the Dnepre: Soviet Offensive Operations, December 1942 - August 1943, 1984 Art of War Symposium", p101.

6. Mellenthin, German Generals In World WarII, p. 203.

7. Mellenthin, Panzer Battles, 177-178; also General Friedrich Schultz, "Selected German Army Operations on the Eastern Front Vol III, Reverses on the Southern Wing (1942 - 1943), Art of War Colliquium." (Carlisle Barracks, PA, November, 1983), p 255-258, and "From the Don to the Dnepre: Soviet Offensive Operations, December 1942 - August 1943, 1984 Art of War Symposium", pages 102-104.

8. Mellenthin, Panzer Battles, p.178.

9. Ibid., pages178-180, and "From the Don to the Dnepre: Soviet Offensive Operations, December 1942 - August 1943", p108.

10. "From the Don to the Dnepre: Soviet Offensive Operations, December 1942 - August 1943", pp. 108-109.

11. Mellenthin, Panzer Battles, 180-181; Schultz, "Selected German Army Operations on the Eastern Front Vol III, Reverses on the Southern Wing (1942 - 1943)", pages 255-258, and "From the Don to the Dnepre: Soviet Offensive Operations, December 1942 - August 1943", p.109.

12. Battelle, "Translation of Taped Conversation with General Herman Balck, 12 January 1979 and Brief Biographical Sketch", (Columbus, OH, January 1979), pp. 56-57.

13. Generalmajor Burkhart Mueller-Hillebrand, Chief of Staff, 3d Panzer Army; "Small Unit Tactics; Tactics of Individual Arms". (Koenigstein, Germany, February, 1951), p.25.

14. Mellenthin, Panzer Battles , p.181, and German Generals In World War II, pp. 203-204; see also Mueller-Hillebrand, "Small Unit Tactics, Tactics of Individual Arms", pp. 20, 25.

15. Mellenthin, Panzer Battles, pp. 182-183, and "From the Don to the Dnepre: Soviet Offensive Operations, December 1942 - August 1943, 1984 Art of War Symposium", p.79.

16. Mellenthin, Panzer Battles, p.83.

17. Battelle, "Armored Warfare in World War II; Conference featuring F.W. von Mellethin, Generalmajor A.D., German Army", p.32.

18. Battelle, "Translation of Taped Conversation with General Herman Balck, 12 January 1979", pp. 39-47; also Battelle, "Armored Warfare in World War II; Conference featuring F.W. von Mellethin, Generalmajor A.D., German Army," pp. 29-30.

19. Battelle, "Translation of Taped Conversation with General Herman Balck, 12 January 1979", p. 58.

20 Battelle, "Armored Warfare in World War II; Conference featuring F.W. von Mellethin, Generalmajor A.D., German Army", p. 29.

21. Battelle, "Translation of Taped Conversation with General Herman Balck, 13 April 1979." (Columbus, OH, July, 1979), pp. 25-26.

22. BDM, "Generals Balck and Von Mellethin on Tactics: Implications for NATO Military Doctrine." (McLean, VA, December 19, 1980), p. 19.

23. Battelle, "Translation of Taped Conversation with General Herman Balck, 13 April 1979", pp 25-26.

24. BDM, "Generals Balck and Von Mellethin on Tactics: Implications for NATO Military Doctrine", p. 43.

25. Battelle, "Armored Warfare in World War II; Conference featuring F.W. von Mellethin, Generalmajor A.D., German Army', p. 31.

Offensive Action at the Nancy Bridgehead

1. Hugh M. Cole, The Lorraine Campaign, (Washington, D.C., 1984), p.69; also see "The Nancy Bridgehead", (Fort Knox, KY, 1946), p. 3.

2. Hanson W. (Fort Collins, CO), p.103. Wood rejected the idea of static, position warfare. "He read De Gaulle, Fuller and Liddell-Hart, and became an early convert to the belief that 'the next war would be one of rapid movement, of motors, tanks and aviation, of indirect approach and deep penetration, regardless of flank protection and linear formations.'"

3. Cole, The Lorraine Campaign, p. 72.

4. "The Nancy Bridgehead", pp. 7-8.

5. Captain Kenneth Koyen, The Fourth Armored Division, (Munich, 1946), pp. 54-55.

6. Cole, Lorraine Campaign, pages 216-218.

7. "The Nancy Bridgehead", p. 21; also Cole, Lorraine Campaign, p. 233.

8. "The Nancy Bridgehead," p. 22.

9. Ibid., pp. 22-23.

10. Baldwin, Tiger Jack, p. 143.

11. Ibid., pp. 143-145.

12. Ibid., p32.

13. Ibid., p. 64.

14. Ibid., p.27.

15. Ibid., p41.

16. Ibid., pp. 145-146.

17. General Bruce C. Clark, "Leadership, Commandership, Planning and Success," Army Logistician, (September - October, 1985), p. 4. In this article General Clarke, discusses his exploits in the Lorraine Campaign and describes how anticipation, mission orders, follow up actions were key to quick action in the 4th Armored Division.

18. Nat Frankel and Larry Smith, Patton's Best: An Informal History of the 4th Armored Division, (New York, NY, 1978), pp. 180-181.

19. Baldwin, Tiger Jack, p.148.

20. Ibid., p.146. The following is a summary of those principles which Wood felt were the key to offensive action: 1. De L'audace. 2. Indirect approach. 3. Issue direct, oral orders - no details, only missions. 4. Movement in depth - allows flexibility and security of flanks. 5. Disregard old ideas about flank security. (Tying - in in a linear manner). 6. Communicate personally with subordinate commanders. 7. Never take counsel of your fears. 8. Never fear what "they" will say or do. 9. Trust people in the rear to do their part.

Section IV. A Concept of Agile Decision Making.

1. Helmuth Von Moltke, "Essay on Strategy", as quoted by Major General Baron Von Freytag-Loringhoven, The Power of Personality in War, (Harrisburg, PA, 1955), p. 88.

2. George E. Orr, Combat Operations C^{3}I: Fundamentals and Interactions, (Maxwell Air Force Base, AL, 1983), p. 53. Author cites the concept of determinancy as explained by John R. Sutherland, a systems analyst.

3. Martin van Crevald, Command In War, (Cambridge, 1985), p. 75.

4. Michael Howard and Peter Paret, ed. and trans., Carl von Clausewitz, On War, (Princeton, NJ, 1976), p.101.

5. Crevald, Command In War, pp. 57 and 289.

6. William A. Reitzel, "A Background to Decision Making", (Newport, RI., 1958), pp. 10 and 17.

7. Kenneth McCrimmon and Donald A.Wehrung, Taking Risks: The Management of Uncertainty, (New York, 1986), p.16.

8. McCrimmon and Wehrung, Taking Risks: The Management of Uncertainty, pages 17, 28, 31.

9. General Waldemar Erfurth, Surprise, (Harrisburg, PA, 1943), p. 25. Reference is made to note provided by Dr. Stephan T. Possony, translator.

10. Howard and Paret, ed. and trans.; Carl von Clausewitz, On War, p. 200-201.

11. Orr, Combat Operations C ^{3}I: Fundamentals and Interactions, pages 70-72.

12. Charles A. Willoughby, Maneuver, (Harrisburg, PA, 1939), pages 39-42.

13. Ibid., pp. 51-52.

14. J. F. C. Fuller, Armored Warfare, (Harrisburg, PA, 1943), pp. 10 and 51.

15. Willoughby, Maneuver, pages 56-58.

16. Ibid., p. 57.

17. Howard and Paret, ed. and trans.; Carl von Clausewitz, On War, p.103.

18. McCrimmon and Wehrung, Taking Risks: The Management of Uncertainty, p 29.

19. Orr, Combat Operations C ^{3}I: Fundamentals and Interactions, pp.41-42.

20. William A. Reitzel, "A Background to Decision Making", (Newport, RI., 1958), pp.10 and 17.

21. Brigadier Richard E. Simpkin, "Command from the Bottom," Infantry, March-April 1985, p. 36.

22. Reitzel, "A Background to Decision Making", p. 38.

23. Kenneth Macksey, The Tank Pioneers, (New York, 1981), pp. 126-127.

24. Simpkin, "Command from the Bottom", p.37.

25. Ibid., p. 37.

26. Orr, Combat Operations C^{3}I: Fundamentals and Interactions, pp. 56-57.

Conclusions

1. Huba Wass De Czege, "Understanding and Developing Combat Power", AMSP Course Special, Dynamics of Small Unit Actions, (Fort Leavenworth, KS, 10 February 1984), p. 11

2. "Combat Orders",(Fort Leavenworth, KS, 1939), pages 8-11 and 13-17.

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3. Ibid., p.27.

4. Ibid., pp. 24-25.

5. McCrimmon and Wehrung, Taking Risks: The Management of Uncertainty, p. 31.

6. U.S. Army, FM 101-5, (Washington, D.C., 1984), p. 5-6.

Maps

1. Battelle, "Armored Warfare in World War II", (Columbus, OH, May 10, 1979), p. 79.

2. Battelle, "Armored Warfare in World War II", p. 82.

3. Dr. Christopher R. Gabel, "The 4th Armored Division in the Encirclement of Nancy", (Fort Leavenworth, KS, April, 1986), p. 13.

4. Ibid., pp. 20.

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