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AD-A234 003

**The Science and Art of Operational Maneuver
in Post CFE-Europe**

**A Monograph
by
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Armor**



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Second Term, AY 89/90

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01 4 125

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT SECURITY CLASSIFICATION		1b. RESTRICTIVE MARKINGS	
2. SECURITY CLASSIFICATION AUTHORITY UNCLASSIFIED		3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited	
4. DECLASSIFICATION / DOWNGRADING SCHEDULE			
6. PERFORMING ORGANIZATION REPORT NUMBER(S)		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
8a. NAME OF PERFORMING ORGANIZATION School of Advance Military Studies; USAC&GSC	6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION	
8c. ADDRESS (City, State, and ZIP Code)		7b. ADDRESS (City, State, and ZIP Code)	
9a. NAME OF FUNDING / SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State, and ZIP Code)		10. SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) The Science and Art of Operational Maneuver in Post-CFE Europe (U)			
12. PERSONAL AUTHOR(S) Major Paul A. Loveless, USA			
13a. TYPE OF REPORT Monograph	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day) 90/05/25	15. PAGE COUNT 70
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
		operational maneuver, Stonewall Jackson	
		Post-CFE Europe, Valley Campaign	
		Future Soviet Doctrine	
19. ABSTRACT (Continue on reverse if necessary and identify by block number) (SEE REVERSE)			
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL Maj Paul A. Loveless		22b. TELEPHONE (Include Area Code) (915) 684-2138	22c. OFFICE SYMBOL ATZL-SWV

ABSTRACT

THE SCIENCE AND ART OF OPERATIONAL MANEUVER IN POST-CFE EUROPE BY
MAJOR PAUL A. LOVELESS, USA, 70 PAGES.

U.S. Army doctrine considers operational maneuver essential to fighting outnumbered and winning. With an even smaller force in the future, operational maneuver will be more important to the Army's success. Because of this, understanding of all elements contributing to successful operational maneuver is essential. The Army has already been working hard to improve its capability to conduct operational maneuver successfully. However, most of this effort has focused on the science of operational maneuver concerned with tangible factors influencing a given force's speed. While maximizing an operational force's speed is important, science alone does not ensure a superior operational maneuver capability. Numerous intangible (art) factors must also be applied to achieve this. Elements of science and art, in varying degrees relative to each situation, always exist within operational maneuver to ensure its success.

Today, of all possible regions which might require the use of heavy forces conducting operational maneuver, the Federal Republic of Germany (FRG) is the least likely for a general conflict. However, the possibility for limited war in Europe may be rising. Further, if a limited war begins without warning, NATO will initially fight without reinforcement. Successful operational maneuver will be critical to achieving an end favorable to NATO, who will probably fight outnumbered. Therefore, this paper's focus is to answer the question: What tangible (science) and intangible (art) elements must be applied for operational maneuver to succeed following Conventional Forces in Europe (CFE) reductions?

The answer to the research question begins with a discussion of the science and art of operational maneuver. Next, using the factors of science and art as criteria, Stonewall Jackson's Shenandoah Valley Campaign is examined to illustrate how science and art combine to ensure successful operational maneuver. Following this section, the potential military force structures, doctrine, and the political situation in post-CFE Europe will be discussed. It is not an attempt to predict what conditions will actually be, but will establish a framework for discussion of future operational maneuver in this theater. Finally, using the criteria established in section one, an analysis of operational maneuver in post-CFE Europe is conducted.

This paper concludes that tangible (science) and intangible (art) factors must be applied for operational maneuver to succeed in post-CFE Europe. Science, movement conditions, staff planning, unit training, and knowledge of enemy capabilities, are extremely important. But, it is the successful application of art that ensures a greater operational maneuver effect. The application of art, as discussed in this paper, correctly aims the force, relates time/space problems, anticipates enemy intentions, and provides the capability to think ahead of an opponent.

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

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Title of Monograph: The Science and Art of Operational
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Accepted this 7th day of June 1990



A-1

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Introduction

Current U.S. Army doctrine considers operational maneuver essential to fighting outnumbered and winning. Today, all military services face budget cuts with dramatic reductions in the Army's force structure expected soon. With an even smaller force in the future, operational maneuver will be more important to the Army's success. Because of this, understanding of all elements contributing to successful operational maneuver is essential. The Army has already been working hard to improve its capability to conduct operational maneuver successfully. However, most of this effort has focused on the science of operational maneuver concerned with tangible factors influencing a given force's speed. While maximizing an operational force's speed is important, science alone does not ensure a superior operational maneuver capability. Numerous intangible (art) factors must also be applied to achieve this. Elements of science and art, in varying degrees relative to each situation, always exist within operational maneuver to ensure its success.

Today, of all possible regions which might require the use of heavy forces conducting operational maneuver, the Federal Republic of Germany (FRG) is the least likely for a general conflict. However, the possibility for limited war in Europe may be rising. Further, if a limited war begins without warning, NATO will initially fight without reinforcement. Successful operational maneuver will be critical to achieving an end favorable to NATO, who will probably fight outnumbered.

Therefore, this paper's focus will be to answer the question: What tangible (science) and intangible (art) elements must be applied for operational maneuver to succeed following Conventional Forces in Europe (CFE) reductions?

To obtain the answer to the research question, we will begin with a discussion of the science and art of operational maneuver. The science of operational maneuver is governed by the tangible factors which affect the speed at which an operational force can move. Numerous movement conditions (to be discussed) as well as staff planning and unit training are a part of these factors. Complementary, the art of operational maneuver concerns the application and understanding of numerous intangible factors such as the concept of center of gravity, time/space relationships, countermobility, anticipation, and agility. By defining and discussing the factors contributing to the science and art of operational maneuver, we will establish the criteria for its further analysis.

Using the factors of science and art as criteria, Stonewall Jackson's Shenandoah Valley Campaign will be examined to illustrate how science and art combine to ensure successful operational maneuver. Next, the potential military force structures, doctrine, and the political situation in post-CFE Europe will be discussed. It is not an attempt to predict what conditions will actually be, but will establish a framework for discussion of future operational maneuver in this theater. Finally, using the criteria established in section one, an

analysis of operational maneuver in post-CFE Europe will be conducted.

The Science and Art of Operational Maneuver

Operational maneuver refers to the deployment (movement) of joint and combined forces to and from battle formations, regroupment of forces, and the extension of those forces to operational depths through offensive or defensive operations. The purpose of operational maneuver is to attain positional advantage over enemy operational forces to achieve operational or strategic objectives (1). Within this paper, the science of operational maneuver is based on maximizing the speed at which any given force can move. It is also knowing at what speed that force is capable of moving within a given situation.

The first factor of science is the numerous movement conditions which affect this speed. The size and the technical capabilities of the force are among these conditions. Speed is also affected by a force's organization, sustainment capabilities and requirements, and movement modes available. Factors such as road space, road conditions, terrain, and weather also impact on the speed of an operational force. While these conditions remain constant, their effect changes with each situation. For example, while road space available will always affect speed, the amount of road space available is not constant.

An additional factor affecting the speed of movement is the staff planning for the movement. "Merely moving a large force,

say a heavy corps, on an undeveloped road network with good supporting air facilities and adequate supplies requires advanced staff skills".(2) Staff planning must go beyond assigning march routes and determining start points or release points. Vehicle capabilities must be matched with route capabilities. Additionally, support must be planned to maintain these routes. Also, combat support and combat service support do not stop when maneuver begins. It is not an easy task to ensure fire support, air defense, or sustainment continues as a force moves. This is more difficult when the force crosses unit boundaries, and is especially true when boundaries crossed belong to another nation's army. A poorly trained staff will not be able to efficiently develop a maneuver plan which maximizes a force's speed.

Unit movement and maneuver training is another scientific factor which affects the speed at which a force can move. A good plan poorly executed cannot maximize the capabilities of the moving force. Units without practice in large unit moves or disciplined for precise execution will not move quickly. Unit training also affects mobility. While speed is how fast a unit can move, mobility is the ability to shift forces and dispositions in response to changing conditions and situations.(3) Mobility builds on movement (speed) to produce the flexibility required for successful maneuver. (4)

The final element in the science of operational maneuver is knowing the speed at which the enemy is capable of moving.

Friendly operational maneuver capabilities must be considered relative to the enemy's capability. Knowing the enemy's maneuver speed will help determine relative maneuver capabilities.

Based on the movement conditions discussed, as well as the factors of staff planning and unit training, commanders must work to maximize the speed and mobility of their units. Knowing the speed at which you and the enemy can move is at least as important as how fast your force can move. Understanding this science is the first step toward successful operational maneuver.

Maximizing speed is important, but speed does not in itself provide a greater relative maneuver capability. For many reasons the speed of a friendly force may not exceed the speed of the enemy. Further, science does not ensure the maneuver force arrives where it will be most effective. Art must be applied to correctly aim a maneuver force and compensate for changes due to friction or an uncooperative enemy. Art must also be applied to relate correctly the numerous time/space problems associated with friendly and enemy operational maneuver. The intangible factors involved in the art of operational maneuver will be discussed next.

The art of operational maneuver is linked to the selection of the enemy's center of gravity (COG). The concept of a COG is meant to provide a focus for determining and applying combat power against enemy vulnerabilities. It is also linked to the creation of a friendly COG. Concentration through maneuver and

creation of a friendly COG (strength) against an enemy weakness are key to fighting outnumbered and winning.

Too often, discussions of the concept focus more on what a COG might be, and not its utility for determining key vulnerabilities for the concentration of combat power. Based on different interpretations of Clausewitz, discussions generally concern whether the COG will always be the enemy main effort (force) or whether the COG can be something else, i.e. a line of communication (LOC) or a critical commander. Identifying the COG as something other than the enemy main effort is supported by the following quotation from Clausewitz,

One must keep the dominant characteristics of both belligerents in mind. Out of these characteristics a certain center of gravity develops, the hub of all power and movement, on which everything depends. That is the point against which all energies should be directed.(5)

FM 100-5 follows this definition.(6) Enemy morale, a key political leader, or a main force could be identified as the "hub of all power". At the strategic level, where a nation's strength is based on its economy, political system, national will, geography, and/or military strength, this interpretation seems functional for determining the application of power. However, this interpretation does not work very well at the operational level where enemy strength is based on a joint and combined arms military force.

Again from Clausewitz, and considered his final position,

A center of gravity is always found where the mass is concentrated most decisively....The fighting forces of each belligerent have a certain unity and therefore some

cohesion. Where there is cohesion, the analogy of the center of gravity can be applied...A theater of war, be it large or small, and the forces stationed there, no matter what their size, represent the sort of unity in which a single center of gravity can be identified.(7) At the operational level, the main effort of the opposing enemy force will represent this cohesion and will be his COG.(8)

Closely associated with the concept of COG is the idea of the decisive point. Jomini states it is "a point the possession of which, more than any others, helps to secure the victory, by enabling its holder to make a proper application of the principles of war".(9) He further states that there are several types of decisive points.(10) Decisive points of maneuver "are on that flank of the enemy which, if his opponent operates, he can more easily cut him off from his base and supporting forces without being exposed to the same danger".(11) Geographical decisive points "are permanent and derived from their configuration.(12) A decisive strategic point is one which "is capable of exercising a marked influence either upon the result of the campaign or upon a single enterprise".(13)

A different interpretation of a decisive point comes from Professor James Schneider, School of Advanced Military Studies. In accordance with Jomini, a decisive point is "any objective that will provide a force with a marked advantage over its opponent."(14) However, Schneider states there are three types of decisive points: physical, cybernetic, and moral. Physical decisive points are the most well known. These may include anything that is physically tangible and an extension of the terrain, whether geological or manmade. It includes key hills,

bases of operations, LOCs, or a force (not necessarily a ground force). Jomini's decisive points fit within this definition.

Cybernetic decisive points are those which sustain command, control, communications, and the processing of information. A cybernetic decisive point might be a communications node, a boundary, a command post (CP), a commander, staff group, etc.

The third type of decisive point is a moral decisive point. These sustain the forces' morale - their magnitude of will. They might include the "will" of the commander or the commander himself if his presence is needed to sustain the will of his soldiers.

A commander seldom, if ever, will have the resources available to seize all decisive points.(15) After determining the COG, he must decide which decisive points may be turned into vulnerabilities which, by their destruction, will lead to the destruction of the enemy COG. Those decisive points which he ultimately decides to retain, seize, or destroy are called objective points.(16)

How the operational commander defines the term COG is not critical. It is critical that his concept leads to the application of his strength against an enemy operational force which, by its destruction, contributes to the enemy's defeat. Regardless of his approach, the operational commander must identify what is key to the success (or failure) of his enemy's course of action, determine the enemy's vulnerabilities, and what amount of force must be applied to defeat him. At the

operational level, this is where the operational commander aims his maneuver. Further, the operational commander must identify and protect his own center of gravity. The opposing commander will also be attempting to destroy the friendly COG. Too much of a focus on winning the campaign, without consideration for protecting the friendly COG, could lead to its destruction and loss of the war. The previous discussion, therefore, was not an attempt to provide "the answer" for clear understanding of the concept of COG. It is, however, one way the concept can be used to identify where the operational commander can apply force to achieve an operational effect. This method will also be used within this paper for further analysis of operational maneuver.

The art of operational maneuver is also linked to the ability to relate and identify numerous time/space problems. Familiarity with time/distance (space) factors is vital to the success of moving large bodies of troops. (17) For this paper, space equals the distance a friendly or enemy force must move from any given point on the ground to another point on the ground. Time equals the minutes, hours, or days it takes to travel this given space by the modes of travel available. An operational commander must be able to relate in time his capability to move versus his enemy's capability to move through a given space. Several time/space problems must be considered.

One is the time/space problem of introducing friendly forces into a theater of war in relation to the introduction of enemy forces. Commanders and staffs must be able to relate the

introduction of friendly forces to a point of concentration and at a time which facilitates their use for maneuver. A second time/space problem is related to the position selected to provide an advantage for attack and the enemy's movement to that position. Based on the enemy's movement, the commander must plan his maneuver so that combat power is concentrated at the position, and at the time when it will have the desired effect. Additional time/space problems are the separate relationships created by different modes of travel: land (foot, wheeled, tracked), air (fixed and rotary winged), and sea. The difficulty of terrain and weather also affects time/space relationships.(18)

Calculating individual time or space problems is part of science. However, at the operational level, numerous time/space problems must be related to each other in order for relative maneuver capabilities to be fully determined. It is the requirement to relate several time or space relationships within a single maneuver plan that demands art.

Counter mobility is a further consideration for operational maneuver. Counter mobility efforts limit the speed at which the enemy can move or maneuver.(19) These efforts are important to the creation of a superior relative maneuver effect. If time/space calculations indicate a time effect unfavorable for friendly forces, counter mobility efforts can slow the enemy in order to create a favorable effect. Counter mobility efforts also "shape the battlefield". Where an enemy arrives is as important

as when he arrives on the battlefield. Engineer countermobility operations are integral to achieving either effect.

Operational fires are also part of the effort needed to achieve a superior relative operational maneuver effect. Concentrated against particular areas, facilities or units, operational fires limit the enemy's use of roads, rail, air, and waterways; deprive him of supplies and transport; and degrade his air forces. Operational fires distract, weaken, blind, and slow the enemy.(20)

Ground forces also play a countermobility role in slowing the enemy to create a superior maneuver effect. Richard Simpkin, in his book Race to the Swift, describes the relationship between a maneuver force and its ground holding force. The holding force must fight to allow the mobile (maneuver) force to achieve leverage (maneuver effect).(21) The mission of Simpkin's holding force, in either the offense or defense, is to pin down or delay the main enemy force helping the maneuver force achieve a superior relative operational maneuver effect.

Successful operational maneuver ultimately depends on the commander's ability to develop his plan before the conditions ensuring the success of his maneuver have been established. "To command is to foresee, consequently, in large units, the principle mission of the commander is to prepare the battle rather than conduct it on the ground".(22) The operational commander must anticipate the enemy's actions/reactions and must be able to foresee how operations may develop.(23) Anticipating

events and foreseeing the shape of possibilities hours, days, or weeks in the future are two of the most difficult skills to develop, yet among the most important.(24)

Intelligence is key to the commanders ability to anticipate events.

Reading the battlefield, anticipating events, requires that unit staffs and commanders know a few key facts about the enemy, understand effects of terrain for himself and the enemy, and understand the full range of his unit's current capabilities and how they apply to the situation. Knowledge of the enemy depends upon the commander using all available intelligence resources, and understanding enemy tactics, capabilities, and vulnerabilities.(25)

Operational intelligence requires information broader than that normally associated with tactical intelligence preparation of the battlefield (26) It includes tactical elements, but it must also consider political, economic, and technological factors.(27)

Tactical and strategic means must be used to collect this type of information. Without knowledge of enemy capabilities, the correct anticipation of a enemy's course of action and development of a maneuver plan to counter it is impossible.

Timing and anticipation at the operational level are critical. At the tactical level, hours late may delay battle a day. However, if an operational force is concentrated too late in relation to the enemy's development of combat power, it might be destroyed. Through the loss of the operational force, hours late at the operational level can lengthen a campaign or war by months or years.

Because it must project circumstances well into the future in the face of an enemy exercising free will, intelligence at the operational level of war is uncertain and uniquely vulnerable to enemy deception.(28) Execution of a plan based on operational maneuver and predicated on future conditions entails the acceptance of great risk by the operational commander. However, the requirements for risk and the need for anticipation can be reduced by the operational commander's ability to maneuver a force faster relative to his enemy.

Agility also plays a role in the art of operational maneuver. Agility is the ability to act faster than the enemy and adjust to changing situations.(29) A mobility (operational maneuver) advantage is produced by forcing continuous decisions on the enemy. That can be done by going through what Bill Lind, in his Maneuver Warfare Handbook, describes as the observation-orientation-decision-action (OODA) cycle faster than the enemy.(30) The slower side is placed at a disadvantage because by the time he acts, his action is inappropriate since the faster side is doing something different already. Hence, not only physical speed, but mental speed is essential in gaining a mobility advantage.(31)

Further, no plan survives contact since the enemy rarely conforms exactly as expected. Friction, the manifestation of Murphy's Law during war, also contributes to change in operational plans.(32) Units and leaders must possess the agility to respond to the changes created by enemy reactions and

friction for maneuver to be successful. Seeing what must be done is of little value unless leaders possess the initiative to take action. Only a force using a decentralized command and control system with leaders exercising initiative can have an OODA cycle faster than the enemy.(33) Also, subordinates cannot correctly execute in the absence of positive control if they do not understand or act within their commander's intent. If the commander's intent is not the basis of initiative, actions taken by subordinates could be more disruptive than constructive.

To summarize, science and art provide the criteria for judging successful operational maneuver. As previously discussed, the criteria provided by science include numerous movement conditions, staff planning, unit training, and knowledge of the enemy. The criteria provided by art include numerous intangible factors. Among these factors are the operational commander's ability to correctly identify the enemy's COG and decisive points for attack, the ability to relate different time/space problems, anticipate events, assume risk as well as his and his unit's agility. The criteria discussed in this paper will next be used to analyze Stonewall Jackson's Shenandoah Valley Campaign. Although the evaluation will be subjective, it will illustrate how correct application of science and art contribute to successful operational maneuver.

Jackson and the Valley Campaign

Between March 22 and June 25, 1862, Stonewall Jackson's Army of the Valley marched 676 miles (Appendix A). He fought five battles, numerous smaller engagements, and then escaped to join Lee at Richmond. This analysis will focus on the period 19 May-8 June 1862.(Maps A&B) During this period, Jackson fought successful engagements at Front Royal and Winchester. He threatened the north and was responsible for drawing off major reinforcements (McDowell) promised to McClellan for his attack on Richmond. At the end of this campaign, although pursued by 60,000 soldiers under three separate commands, Jackson left the Valley with his prisoners as well as numerous captured supply wagons. He then fought successful engagements at Cross Keys and Port Republic. Although fought 132 years ago, this campaign is still an outstanding example of a smaller force using operational maneuver to win against a stronger enemy. The following discussion provides an analysis of the factors of science and art which contributed to the success of Jackson's maneuver.

The movement conditions affecting Jackson's and his opponents' operational speed were equal with one exception. Through superior organization for movement, Jackson was able to achieve greater speed than his opponents. First, he used march discipline and effective organization to maximize the speed at which his force could move.(34) On May 13, Jackson distributed a circular in which he summarized standard regulations for the march and incorporated some special requirements.(35) His troops

marched fifty minutes and rested ten in each hour of movement. They received one hour rest at lunch. His men marched light carrying only their rifle, a blanket, a haversack, and ammunition. Second, Jackson organized his force for movement so that maximum combat power was forward. Only wagons for the wounded and those carrying ammunition were allowed to move with his march columns. Supply wagons were kept to the rear. Intervals were established between companies, regiments, and brigades. If his officers failed to enforce these intervals, Jackson was usually there to assist them and "encourage" his men forward.(36)

Good staff planning also contributed to his success. As most staffs of this period, Jackson's was ill-trained. (37) Jackson compensated by acting as his "own chief of staff". (38) Essentially, Jackson planned his own marches. He was effective doing so because he was a student of the terrain on which he fought. Jackson knew the topography of the Valley and used it to his advantage.(39)

The Massanutten Mountain Range splits the Shenandoah Valley into two north/south corridors. In the center of this mountain range, a road ran between New Market and Luray. This road provided the only available crossing point. The topography formed an H (sketch, Map C) with maneuver possible on either "shank".(40) On the west side, the Valley Turnpike provided a high speed macadam road. The east side provided a slower but covered track. The crossbar, the road running between New Market

and Luray, was the key. Whoever held it could move up or down either shank of the H with his flank protected. There was also an excellent chance of striking the flank of an enemy on the other side. Jackson used this knowledge in his attack on Banks at Front Royal and his latter retreat south on the Valley Turnpike.

The final scientific factor contributing to Jackson's success was his unit's training as demonstrated by his soldiers extraordinary endurance and ability to move.(41) A good march or maneuver plan is worthless if soldiers or units are not capable of successful execution. Jackson did not have this problem. There were stragglers, but those (most) who remained in the march proved more than capable for the tasks Jackson provided. The forced marches were made most often on half rations or none at all. The weather was "for many days in succession abominable".(42) Many of Jackson's soldiers were barefoot. "If the troops were volunteers, weak in discipline and prone to straggling, they more the less bore themselves with conspicuous gallantry".(43) His soldiers were trained to move fast and knew what they could accomplish.

Jackson knew he could move fast and was confident in planning how fast he could move. Jackson also knew his opponent was indecisive, lacked aggressiveness, and could not move as fast.(44) Able to plan on speed and his enemy's lack of it, Jackson designed his campaign using maneuver to gain positional advantage. However, the speed provided by application of science

was not the only reason for Jackson's success. Art was also required to ensure successful maneuver and win this campaign.

Jackson's first application of art was in identification of his enemy's COG and selecting where to aim his maneuver. Jackson had returned to the Valley on 19 May with a force of 17,000 men following an engagement at McDowell, Virginia. The only force remaining in the Valley at that time was under the command of General N.P. Banks. Banks' mission was to protect the LOC's leading to the Potomac River and Washington. Banks commanded 12,500 men and represented the only Federal force in the Valley.(45) This force represented Jackson's opposing COG. Although commanding fewer men, Banks was too strong to attack directly while he occupied good defensive positions. Jackson had to determine a vulnerable decisive point for attack.

Banks had divided his force into essentially five decisive points. At Strasburg, 7000 men defended behind earthworks; at Winchester, 1450; at Buckton Station, 2000; at Richton, another 2000; and Front Royal, 1000. Based on these dispositions and using his knowledge of the terrain, Jackson chose Front Royal as his initial objective. Front Royal was weakly defended, on Banks left flank, and could be approached under the cover of the Luray Valley.(46) Jackson's plan was to cross the Massanutten Mountain Range at the Luray Gap, move north through the Luray Valley, and then hit Front Royal hard and fast.(47)

Further application of art required Jackson to relate several time/space problems. Jackson had a sixty mile march to

Front Royal. If Banks discovered Jackson's movement, he only had to move twelve miles to Winchester in order to protect his LOC's and left flank. Fremont, with 17,000 soldiers at Franklin, had a march of only thirty-five miles to reinforce Banks at Strasburg. To succeed, Jackson had to hold Banks in place and keep Fremont out of the Valley.

Jackson used several countermobility methods to do this. First, Fremont's passage through the Allegheny Mountains was blocked by a squadron of Jackson's cavalry. Along with fighting a delay, "bridges and culverts were destroyed, rocks were rolled down, and in one instance trees felled along the road for a distance of one mile in front of Fremont.(48) To hold Banks in place, an additional cavalry force was left to demonstrate in front of Strasburg. With these countermobility actions, the speed of his march, and the cover of the Luray Valley, Jackson fell on Front Royal before anyone knew he had moved.

By 30 May, Jackson's attack reached its limit of advance in front of Harpers Ferry. He now had the problem of protecting his own COG, the force he had concentrated during his attack. Three forces were converging against him. Banks from the north, Fremont from the west, and Shields from the east.(49) Jackson's one line of withdrawal was south on the Valley Turnpike through Strasburg. Several decisive points along this route could be used to block his retreat. The first was Strasburg, next came New Market, and finally Port Republic.(50)

This situation created new time/space problems for Jackson. On 29 May, Jackson was in front of Harpers Ferry, fifty miles from Strasburg; Fremont was at Fabris, twenty miles from Strasburg; Shields main body was not more than twenty miles from Strasburg with an advance brigade in Front Royal twelve miles away.(51) With one army at his back, two additional forces were closer to Strasburg than Jackson.

Again, Jackson depended on countermobility efforts combined with his own speed to offset his enemy's time/space advantage. First, his cavalry demonstrated in front of Fremont and Shields holding both in place.(52) Second, as Jackson withdrew, an infantry brigade paused in front of Winchester to halt Banks and then conducted a forced march to join Jackson in Strasburg. Following his escape through Strasburg, Jackson's cavalry continued to demonstrate in front of Fremont fighting a delay and burning bridges. This eventually provided Jackson a gap of 24 hours between his force and Fremont's. Simultaneously, Shields was trying to beat Jackson to New Market and Port Republic. However, Jackson's cavalry burned bridges at Luray Gap blocking access to New Market, and at Conrad's Store, blocking access to Port Republic.(53) Jackson had the additional advantage of marching on a macadam road while Shields, in the Luray Valley, marched on an unimproved track.

Anticipation was another critical factor of art that contributed to Jackson's successful operational maneuver.

"There never was a commander; stated his chief of staff, whose foresight was more complete".(54) At the end of April, well in advance of his campaign, Jackson was forming his plan for attacking Banks. On the 10 May, Jackson wrote, "should circumstances justify it, I will try, through God's blessing, to get to Bank's rear".(55) On 29 May, based on the reported locations of his enemies, Jackson quickly saw what had to be done and took action to provide for his escape. He also began developing his plan for the engagement with Fremont at Cross Keys and Shields at Port Republic. Jackson was at least one day ahead of Banks and Shields in how he saw the battle shaping up.

Jackson's ability to anticipate events was based on his use of intelligence, familiarity with the terrain, and his knowledge of his enemy. Fighting in the Shenandoah, Jackson had a friendly population from which to gain knowledge of his enemy's movements. With his knowledge of the terrain, Jackson knew before his enemies where positional advantage could be found. He also knew how to use the terrain to best support his movement and delay theirs. Further, through previous engagements, he knew the commanders he fought and their probable actions. Finally, unlike most of his opponents during this campaign, Jackson was a student of war. Teaching at the Virginia Military Institute since 1851, Jackson had, "vigorously prosecuted his mental improvement (for war) so that he would have more chance of success in war than those who had remained in the treadmill of garrison". He believed experience was of little value without reflection". (56)

Accepting risk was also critical to Jackson's success. By attacking Front Royal, he placed his force between two armies. At one time during his retreat, Jackson was pursued by Banks, Fremont, and Shields. However, these were calculated risks with success not dependent on luck or the failures of his enemy. Further, in view of the mission and its payoffs, the risks were well taken.(57)

Friction and enemy reactions required changes to Jackson's plan during the campaign. Jackson's agility was a major factor in his ability to adjust to these changes. When Banks escaped to Winchester, Jackson and his force were able to accomplish a direction change quickly to pursue him to the Potomac. At the end of the campaign, Jackson's cavalry failed to provide warning as Shields advance guard approached Port Republic. However, Jackson was able to recover quickly to repulse this unit, to finish a fight with Fremont, and then to return the next day to defeat Shields' main body.(58)

There are several reasons for Jackson's success. First, Jackson fully applied the science of operational maneuver to maximize the speed of his force. Second, Jackson applied art to determine his enemy's COG and place his force where it would have the greatest effect. Also, he was able to relate numerous time/space problems in developing his maneuver plan. Through counter mobility efforts, he denied his enemy any time/space advantages. Jackson accepted great risks, but they were calculated risks, and did not depend on luck for success.

Because of his agility, Jackson was able to adjust his plan when friction or an uncooperative enemy required a change.

The technical capabilities of Jackson's army were drastically different from those of a modern military force, but they were the same as his enemy. It was his application of the science and art of operational maneuver that produced his success. In a future war with the Soviets, NATO will depend upon the same elements of science and art for success. However, the environment NATO can expect to fight in will be significantly different from those expected today. This future environment, as it relates to Soviet doctrine, troop strengths, and the potential for war will be discussed next.

Soviet Post CFE Doctrine and the Potential for War

Soviet doctrine has been based on the principles of speed, surprise, and weight of blow.(59) For the Soviets, a factor in speed is a force's ability to mobilize and deploy relative to the enemy. Total surprise depends on deployment without the enemy's knowledge. Gaining this level of surprise depends on diplomacy and deception to help hide the mobilization and deployment of Soviet forces. Weight of blow requires bringing enough men and material to bear in order to smash the enemy's forces and occupy his vital territory. Further, surprise is valuable only if it can be exploited. The traditional Soviet method of exploiting surprise has been with speed and weight of blow. However, if

weight of blow was felt insufficient in view of their correlation of forces, increasing speed and ensuring surprise compensated.

Currently, the Soviets believe attacking in a "nuclear scared posture" requires that a force employ these principles quickly to overwhelm an enemy. Achieving the needed weight of blow and avoiding being a massed nuclear target require a single echelon broad front attack. Further, preventing enemy use of nuclear weapons requires early mixing with enemy forces to deny them precise nuclear targeting.(60) Forward detachments and mobile groups must be employed to assist exploitation of penetrations and rapid mixing with enemy troops.(61) To help achieve the rapid collapse of enemy defenses, air assault, aircraft delivered airborne mechanized soldiers, and Spetsnaz teams are also incorporated within their doctrine.(62) As late as 1985, buttressed by analysis of the impact of new, high-precision munitions (PGMs) on combat, the Soviets reiterated their firm belief that operational maneuver was still possible in a European war.(63) What worked in a nuclear scared posture would also work on a battlefield employing PGMs.

To implement their doctrine in Europe, the Soviets have depended on large numbers of forward deployed ground and air units. CFE reductions will remove most of these forces. Also, many Warsaw Pact nations have asked for the complete removal of Soviet forces currently stationed in their countries. Possible future force locations are at Appendix B. Further, Confidence and Security Building Measures (CSBMs), within the expected CFE

treaty should make the mobilization, deployment, and concentration of Soviet forces easier to detect prior to a general war.(64) Within this framework, the problem for the Soviets is how best to achieve surprise, speed, and weight of blow in a future European war.

Surprise, in a general conflict, is unlikely following CFE reductions with the incorporation of CSBMs. Surprise, in a no warning limited objective attack scenario is conceivable with the generation of force based on Soviet units deploying from garrisons straight to battle. The Soviets will not concentrate large units prior to their attack in order to enhance surprise and avoid the effects of nuclear weapons/PGMs. The Soviet's will achieve weight of blow by applying their available forces on a single front axis of advance. Speed of their units in the attack will be enhanced, as in current doctrine, through the surprise achieved in a no warning attack.

To accomplish this type of attack will require a precise timetable method of force generation. This attack will also require a high quality force. The current watchword for restructuring the Soviet military force has been to make a shift from "quantity to quality".(65) It will also require a very elaborate and extensive strategic deployment capability. The Soviets have made numerous efforts since the 1970's to improve their strategic deployment capabilities.(66) The Soviets believe strategic deployment can reconstitute operational groupings. They currently have a significant deployment capability and can

increase this capability without violation of the current proposed CFE treaty. Although the size of the Soviet attack would be smaller, it will be conducted against a smaller NATO force with a corresponding increase in maneuver room for Soviet offensive maneuver.

NATO's force structure is also being reduced due to CFE and a push for smaller defense budgets. It is believed that if parity on the ground is achieved, the threat faced by NATO will be dramatically reduced. It is a calculated risk based on the belief that warning of a major reinforced attack would come much sooner than today, and warning indicators would have far greater clarity and political salience with CSBMs. The warning time expected from CSBMs is critical to reinforcement of Europe and a potential NATO defense in case of general war. Without reinforcement prior to hostilities, NATO will have fewer active forces to defend the same space as protected today resulting in lower troop densities. These lower troop densities create the effect of greater maneuver space for an attacking Soviet force. A possible NATO defense posture without reinforcement is at sketch map D.

In view of current Soviet reforms, it is difficult to imagine a war in Europe. However, it must be remembered that Gorbachev is attempting to reform the Soviet system, not abolish it.(67) The unanswered question concerns whether changes in their security, arms control, and the opening of their society reflect a change in their belief in the use of force or is it a

tactic to gain time for economic restructuring. This breathing space and slowing of the arms race may be needed for the Soviet Union to recast its economy and to modernize its forces to meet requirements for the next century.(68) It is also a very unstable time for the Soviets as Baltic and Caucasus states attempt to regain their sovereignty. As Alexis de Tocquville observed of the ancien regime, no order is more at risk than an authoritarian and corrupt regime when it begins the process of reform.(69)

With these thoughts in mind, a "road to war" scenario is outlined at Appendix C. A possible Soviet course of action is outlined in a draft campaign plan (paragraph 1 only) at Appendix D. Within this framework, the following section will use the criteria previously discussed to analyze requirements for operational maneuver in post CFE Europe.

Operational Maneuver in Post CFE Europe

Several sources address the numerous conditions, staff planning considerations, and unit training requirements affecting the science of operational maneuver in Europe today.(70) Even with force structure or doctrinal changes, the factors discussed in these sources will be valid for operational maneuver in post-CFE Europe. The major factor not discussed in these sources is the affect a no warning limited attack will have on staff planning.

Staff planning for current European exercise scenarios assumes time for NATO to mobilize and assemble dispersed units, deploy, and receive reinforcements prior to D-Day. Operational maneuver is not expected until after the defense has created favorable force ratios for a counterattack by a reinforcing unit. However, if M-Day for NATO is D-Day for the Soviets, reinforcements from the U.S. needed to strengthen the defense and conduct a counterattack will not be initially available. Units not in the Soviet zone of attack will be the only force immediately available for use as a reserve or counterattack force by the operational commander (CINCENT) and his staff.

Further, a no warning attack will compress the time available for staffs to plan an operational maneuver. Also, planning will be more complicated since time will not be available to concentrate brigades/divisions prior to conducting a counterattack. Units will move to and through attack positions from garrison or training area locations without pausing in

assembly areas. The ability to adapt existing plans providing an 80% solution will help reduce needed planning time. However, only a staff practiced in movement planning, totally familiar with the terrain in its area of operations, and knowledgeable in unit movement capabilities will be able to do this quickly.

As with Stonewall Jackson, the first application of the art of operational maneuver by CINCENT will be to determine the point at which his operational force must be aimed. Within the scenario outlined, the mission of the Soviet first echelon armies is to seize terrain that will facilitate a future defense and provide leverage for negotiation of their political objective. However, these armies will not be strong enough to hold this terrain against a reinforced NATO counteroffensive. For this reason, the second echelon army's quick closure is critical to the achievement of the Soviet operational commander's objectives.

This army is the only force that can provide the requisite mass to link the gains of the Soviet/Polish penetrations, and provide the basis for a favorable correlation of forces for the Soviet follow on front's (Nemets Front) possible exploitation. Therefore, this second echelon army is the enemy operational commander's main effort and his operational COG. Defeat of this army will assist in the collapse of the first operational echelon. Also, defeat of this army will throw the Soviet operational commander off his plan. This will force a decision concerning commitment of forces with little potential for success.

After determining the COG, decisive points must be selected whose destruction will lead to the defeat of the army. The manner in which the Soviets must move the second echelon army creates several physical decisive points for attack. The zone of the Soviet penetration provides the second echelon army the space to move with two divisions forward. The zone of advance will be a minimum of sixty kilometers wide. Each division, in accordance with current Soviet doctrine, will be moving in march column with regiments on a maximum of two routes creating a column length of 120 kilometers. The distance between the lead and trail divisions will be as much as thirty kilometers.(71) With a possible column length of 270 kilometers, the "usable mass" of the second echelon army will be greatly dispersed. Each of the second echelon army's attacking divisions and the regiments within them are decisive points. Using operational fires, the lead divisions could be separated from the trail divisions further increasing the vulnerability of units within the second echelon army.

Several time/space relationships, based on the introduction of units to the theater of war, must be understood to select the best window and point for attack by CINCENT forces. Using Soviet planning factors, and assuming no NATO countermobility effects, the lead divisions of the first operational echelon armies could be at their objectives by D+2. By D+4, the lead elements of the second operational echelon army could be at the German/Polish border.(72) By D+5, two divisions of the second echelon army

could be available for commitment into Germany. The lead divisions of this army could be at the Elbe River by D+6 and can linkup with the lead operational echelon by D+8. Assuming this army does not continue to attack, it could close with the first operational echelon at Hannover by D+12. Finally, the second strategic echelon could be about 4-6 days behind this army.

The second echelon army is most vulnerable during the period D+6 to D+8. At this time, its column length will be fully extended with regiments on both sides of the Elbe River. Also, prior to linkup with the first operational echelon, it must depend on its own force for strength. Further, it is a moving force without the benefit of defensive positions to increase the effects of its combat power. Unless CINCENT wishes to use some form of countermobility to delay this force, it must be attacked during this window in order to ensure its defeat.

In developing a plan, CINCENT must relate his own time/space problems to the Soviet's. Since reinforcement in this scenario will not begin until D-Day, it is unrealistic to expect CINCENT to have a force from the U.S. assembled prior to D+6 to assist the defeat of this force.(73) If the Soviets stop or are held at the former IGB, this force would still have to conduct a lengthy movement to reach a potential objective. Reinforcements will be available in time to assist in the Soviet's final destruction. However, the only force readily available to defeat the second operational echelon army in this scenario is the VII Corps.

The earliest VII Corps could attack is D+6. At least one division of VII Corps will be required to conduct a penetration of one of the Polish army's blocking positions to provide the maneuver room for a follow on force. This penetration could not be accomplished until D+7. Also, one of the Corps' ACR's would have to remain in contact with Polish blocking positions not attacked to keep them fixed. This leaves one heavy division and one ACR for attack of the Soviet army. Assuming a perfect passage of lines through the penetration, the lead brigades of this attack could reach the left flank of the lead Soviet army division, in the vicinity of Leipzig, by the close of D+7.

At worst, this attack would be conducted with a 1:1 force ratio. This assumes one U.S. division against the four divisions of the Soviet army. This is physically impossible. A more detailed discussion of a possible course of action (COA), by battlefield operating system, is at Appendix E. However, assuming an attack with two brigades abreast, the most their front could encounter is the flank of two Soviet regiments. This creates an initial U.S. to Soviet force ratio of 3:1.(74) To maintain this force ratio, the attacking force must retain its mass against Soviet regiments through the introduction of reserves as the attack develops.

The best point of attack would be the second and third regiments of each lead division. This will be possible at D+7. Destruction of these regiments would split these divisions and contribute to their defeat by disrupting their command and

control. However, it will be impossible to attack this point exactly. At best, the counterattack will strike a certain number of maneuver battalions, combat support, and combat service support units equal to two regiments.

Attacking through a Soviet zone of advance of sixty kilometers could not be completed until D+9. It is also a very risky maneuver. As with Stonewall Jackson, this maneuver will also concentrate CINCENT's operational force creating a friendly COG that must be protected. As the attack continues, this force's usable mass will also become dispersed and attrited due to combat. Eventually, it will become questionable as to which flank is more exposed: CINCENT's or the Soviet's.

Whatever COA is determined best, defeating the Soviets will depend on CINCENT's ability to anticipate and create the conditions necessary for success days in advance of its execution. In this scenario, for the identified ground force to attack the flank of a second operational echelon division on D+7, the decision to do so must be made on D+1. CINCENT must be able to see the battlefield this far into the future if his defense is to be successful. Given a maximum three days to plan and a minimum of three days to move, this is about as fast as this force could accomplish the mission outlined. Every hour or day delay in the decision will increase the total time for the attack to be accomplished. However, without delaying the Soviets, maneuver forces must reach the Soviet army by D+7 to achieve the effect desired.

For CINCENT, anticipation in this scenario is made difficult for many reasons. First, many of the political and economic indicators expected to provide warning of a general war will not be observed prior to a limited objective attack. For example, diplomatic efforts will be used to avoid a period of increased tension prior to the attack. Additionally, a major buildup in war stocks will not be accomplished by the Soviet's to facilitate their deception plan.

The next problem following the attack is the difficulty in attaining the intelligence needed to help determine the enemy's intent and shape the battlefield in a timely manner. CINCENT does not own many of the intelligence systems capable of looking out to the distances required. The CENTAG commander, as long as he is a U.S. officer, has access to TENCAP systems he can share with CINCENT. Other assets capable of providing the needed information are owned by the corps CINCENT wishes to move. Attacking with the VII Corps by D+7 assumes CINCENT possesses a command and control system which enables timely access to all available intelligence assets and the information they provide. Without the ability to do this, it is unlikely CINCENT will be able to act and make decisions fast enough to create the conditions necessary for success.

The capability to remove the risks associated with the uncertainty of operational maneuver does not currently exist. Another choice that might seem to hold less risk is to use VII Corps to strengthen the NORTHAG defense rather than

counterattack. This would be feasible if the Soviets planned to continue their attack past the Weser river. The force correlations with a strengthened NORTHAG defense might be sufficient to win an attrition battle if the Soviets continue to attack. But, if the Soviets only choose to retain the terrain gained and can reinforce their forward force, the advantages of defense and numerical strength would be theirs. NATO would eventually be forced to either use nuclear weapons in an attack or negotiate a settlement with little political leverage. However, if the decision is made to commit the VII Corps and it is successful, the war might be won without the use of nuclear weapons and with fewer NATO casualties.

CINCENT must be capable of outstanding agility in order to be successful in this scenario. He must be able to out think his opponent, the opposing TVD commander, if he is to win. The probability of failure increases the longer CINCENT is reacting to the execution of his opponent's plan. Further, commanders, staff planners, and the units executing the potential maneuver under this scenario will require exceptional agility just to begin movement. This paper does not provide the space to discuss the numerous ways friction and the enemy can cause this maneuver to fail. Conducting a counterattack, especially against a moving force, is an obviously difficult task. A unit transitioning from peace to war, conducting a lateral movement, passing through another division, and then attacking into the flank of a Soviet army will require exceptionally agile leadership to succeed.

The purpose of this section has not been to provide the detailed facts necessary to finalize a counterattack plan. However, it is evident that successful operational maneuver in post CFE Europe will depend on science and art. Staffs will still be required to plan for movement effectively and in a compressed time period. Units in position at the start of a no warning war must be able to mass and efficiently execute these plans within a situation providing enormous friction. The operational commander must be able to decide quickly where to aim his maneuver and he will have little room for error if it is to succeed. Numerous time/space problems concerning the commitment of forces to and within the theater of war must be addressed within the plan. If the Soviets possess a time/space advantage determined by the friendly COA selected for maneuver, the operational commander must plan countermobility efforts to remove this advantage. Finally, the complications inherent within a operational maneuver plan in this scenario make its final success highly dependent on the agility and initiative of the leaders executing it.

CONCLUSION

Science will continue to play an important role for successful operational maneuver in post-CFE Europe. As part of this science, staffs must be able to develop a maneuver plan quickly. The three days to develop a plan mentioned in this paper is not a lot of time. However, it is the minimum standard.

It simply must not take longer to plan a move of 200-300 kilometers than it takes to execute it. Staff battle drills for planning must be a part of their training just as battle drills are common to any combat unit. Further, contingency plans must provide flexibility for execution in response to the Soviet's capability to select a point of attack across a broad front.

It is a tough problem to plan the movement of a heavy corps any distance. Unfortunately, planning the move is the easy part. Ensuring sufficient combat power arrives where it is needed is the tough part. There is a requirement for greater sophistication in how commanders and their staffs envision the application of a force's combat power at the end of the movement.

There is a tendency to view enemy and friendly maneuver forces as First Battle markers during the planning for maneuver and the application of a maneuver force's combat power. Operational planners must see the battlefield beyond the point of a broad arrow. As described, the usable mass of a Soviet army during movement occupies a lot of space. However, so does a U.S. force. To effectively apply combat power requires a maneuver plan which incorporates this fact and ensures units arrive where they are needed, with sufficient combat power forward, as well as on time. Simply stated, a movement that begins with a heavy corps divisions moving on 4-6 routes must incorporate the need for as many as 16 company routes, and the time to deploy on these routes, where contact is expected.

Additionally, the number of vehicles a current heavy force must move in order to sustain itself is the major scientific factor which slows the movement of a heavy force. Sustainment, especially at the operational level, is a major element of combat power. However, just as Jackson assumed risk moving his supply wagons separate from his combat units, future operational commanders will have to assume similar risks if heavy forces are to be moved with any speed.

As important as science is to operational maneuver, the factors of art discussed in this paper seem more critical. Among the factors of art described, anticipation is the key to success. In-post CFE, CINCENT's "time standard" for anticipating and determining a COA is no more than 24-36 hours. The surprise achieved in a no warning attack will provide the Soviets an initial time/space advantage. They will be moving toward their objectives when the war starts and we will not. Once a decision is made it will take at least 6 days to counter the Soviet force with ground maneuver. Given 6 days to plan and execute an operational maneuver, in this paper's scenario, a CINCENT decision later than D+1 would prevent the operational maneuver force reaching its objective on time.

Anticipation for CINCENT contains many tasks. He must quickly determine the Soviet's echelonment of forces, if any, as they deploy to the theater of war. This will provide an indication of the Soviet's time/space problems. He must also determine his opponent's COG, decisive points, and decide where

the Soviet's are most vulnerable. To do this, knowledge of Soviet capabilities and doctrine is obviously critical. The operational commander must be able to depend on his own knowledge of his enemy, not only a staff officer's, if he is to have any confidence in his ability to determine enemy intent. Hard facts gained through intelligence are also critical to his ability to anticipate and envision a final COA. CINCENT must be able to access directly the numerous intelligence systems available in subordinate headquarters "in real time" if he is to achieve the time standard indicated. He can do this with electronic means bypassing the CENTAG headquarters. This, however, may not allow easy access to information from TENCAP systems. Further, this system would have to be in place before a war starts. There will not be time to develop special communication links after the war begins.

A final task within the CINCENT's requirement for anticipation is the need to relate his own time/space problems to the objective he desires to attack. This includes the time needed to move reinforcements from the U.S. and the time needed to move forward deployed forces laterally. Within these forces, he must be able to relate effects desired to the time needed to move operational fires, army aviation, and ground forces to the point of attack.

Finally, it is easy to say we must be agile to win but difficult to put a time standard on agility. However, it can be said that agility is most important at the operational level. It

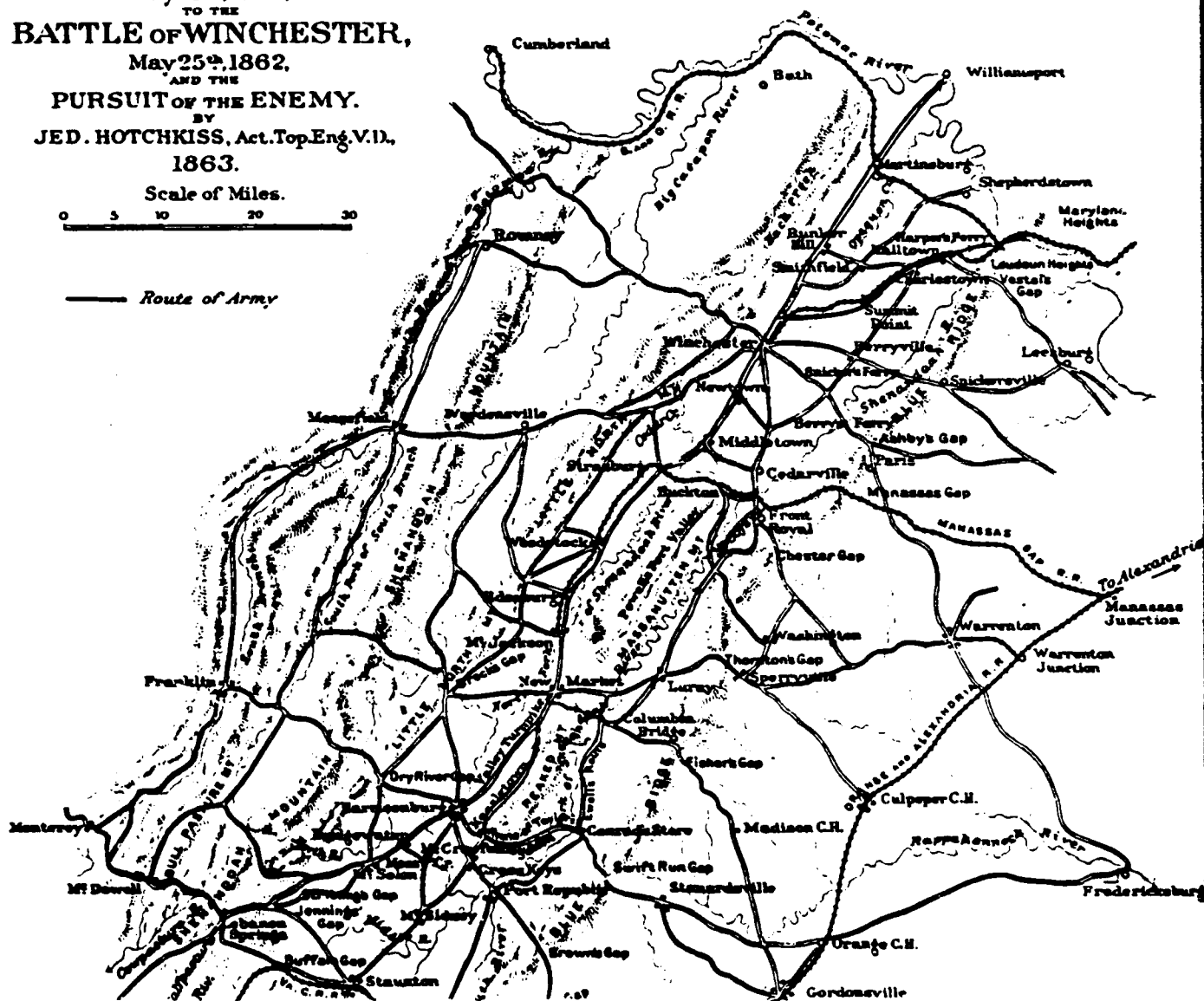
does not matter how well a tactical unit can respond to friction if the operational commander cannot think ahead of his opponent. Stonewall Jackson's soldiers responded well to friction and his directions; but, it was Jackson's ability to think ahead of his opponents that ensured success. This paper reveals no great truths concerning how to develop agility at the operational level. However, it does seem a basic requirement that operational commanders, just as the lowest tactical commander, exercise their decision making capabilities often in training. Understanding operational art is also important to the operational commander's development of agility. The cursory look this paper takes at a future conflict in Europe indicates that CINCENT will have to do more with less. Under these conditions, operational art and maneuver will be more important than today.

The purpose of this paper was to determine what tangible (science) and intangible (art) factors must be applied for operational maneuver to succeed in post-CFE Europe. Science, movement conditions, staff planning, unit training, and knowledge of enemy capabilities, are extremely important. But, it is the successful application of art that ensures a greater operational maneuver effect. The application of art, as discussed in this paper, correctly aims the force, relates time/space problems, anticipates enemy intentions, and provides the capability to think ahead of an opponent.

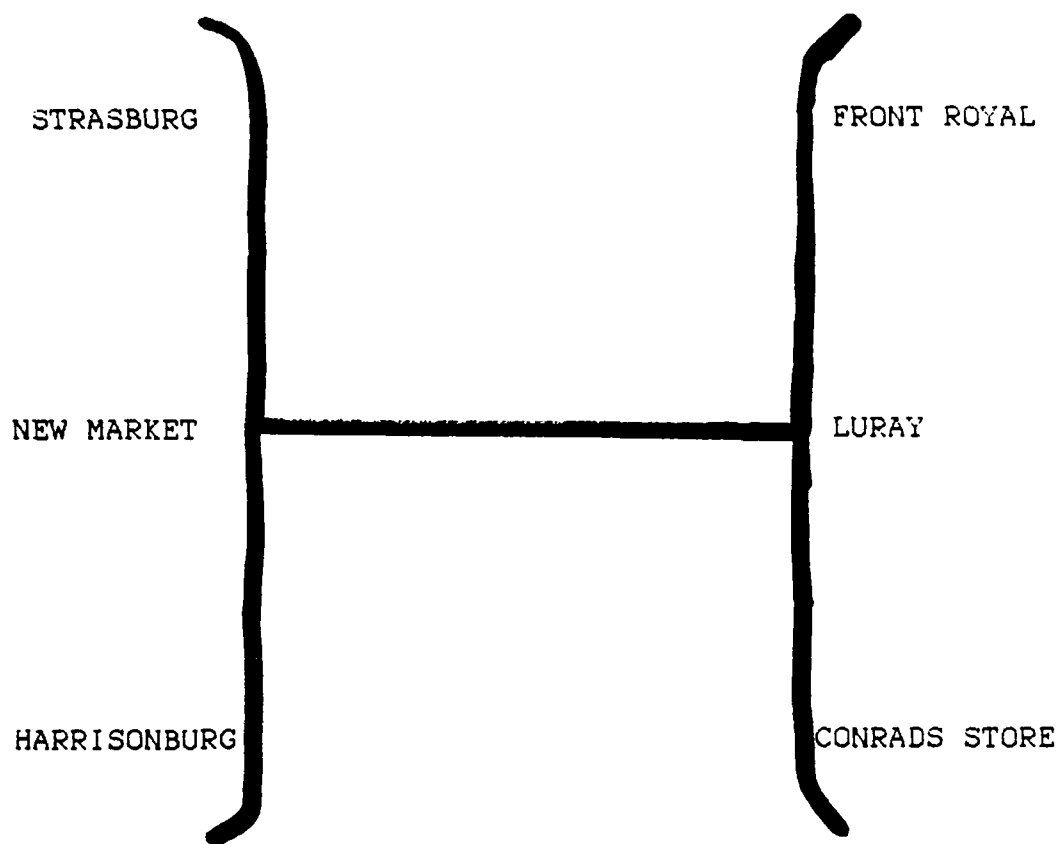
MAP OF ROUTE
OF
THE ARMY OF THE VALLEY
FROM
FRANKLIN, PENDLETON CO., VA.,
May 15th, 1862,
TO THE
BATTLE OF WINCHESTER,
May 25th, 1862,
AND THE
PURSUIT OF THE ENEMY.
BY
JED. HOTCHKISS, Act. Top Eng. V.D.,
1863.

Scale of Miles.
0 5 10 20 30

— Route of Army



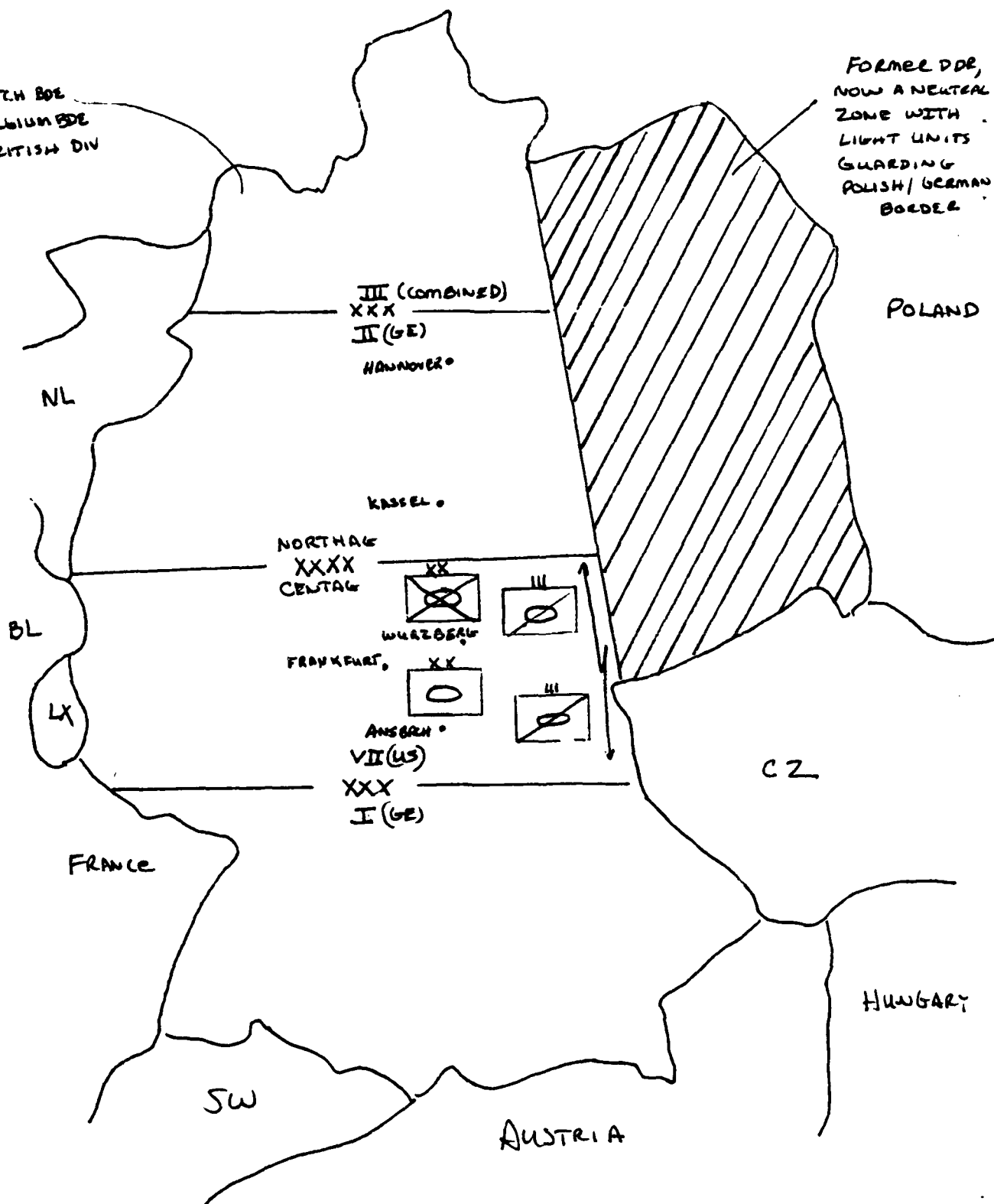
MAP A



MAP C

! DUTCH BDE
 ! BELGIUM BDE
 ! BRITISH DIV

FORMER DDR,
 NOW A NEUTRAL
 ZONE WITH
 LIGHT UNITS
 GUARDING
 POLISH/GERMAN
 BORDER



MAP D

Appendix A

Jackson's Marches in the Valley Campaign

March 22 to June 25, 1862

	Miles	
Mar 22. Mount Jackson--Strasburg	22	
Mar 23. Strasburg--Kernstown--Newtown	18	Battle of Kernstown
Mar 24-26 Newtown--Mt. Jackson	35	
Apr 17-19 Mt. Jackson--Elk Run Valley	50	
Apr 30-May 3 Elk Run Valley--Mechum's River Station	60	
May 7-8 Staunton--Shenandoah Mt.	32	Battle of McDowell
May 9-11 Bull Pasture Mount--Franklin	30	Skirmishes
May 12-15 Franklin--Lebanon Springs	40	
May 17 Lebanon Springs--Bridgewater	18	
May 19-20 Bridgewater--New Market	24	
May 21 New Market--Luray	12	
May 22 Luray--Milford	12	
May 23 Milford--Front Royal--Cedarville	22	Action at Front Royal
May 24 Cedarville--Abraham's Creek	22	Action at Middleton and Newtown
May 25 Abraham's Creek--Stevenson's	7	Battle of Winchester
May 28 Stevenson's--Charlestown	15	Skirmish
May 29 Charlestown--Halltown	5	Skirmish
May 30 Halltown--Winchester	25	
May 31 Winchester--Strasburg	18	
Jun 1 Strasburg--Woodstock	12	Skirmish
Jun 2 Woodstock--Mt. Jackson	12	
Jun 3 Mt. Jackson--New Market	7	
Jun 4-5 New Market--Port Republic	30	
Jun 8		Battle of Cross Keys
Jun 9 Cross Keys--Brown's Gap	16	Battle of Port Republic
Jun 12 Brown's Gap--Mt. Meridian	10	
Jun 17-25 Mt. Meridian--Ashland Station (one rest day)	120	

676 miles in
48 march days

Average 14 miles per day

Appendix B
Soviet Post CFE Force Stationing Plan

LOCATION	NATION	MRD	TD	TANKS
Zone I: Poland, Czechoslovakia	Soviet Union	1	3	1162
	Poland	5	5	3100
	Czechoslovakia	5	5	3500
			Cumulative	7762
Zone II: Zone I + Baltic, BeloRussian and Carpathian Military Districts	Soviet Union	5	3	2538
			Cumulative	10,300
Zone III: Zone II + Moscow, Volga, and Ural Military Districts	Soviet Union	2	3	1,000
			Cumulative	11,300
Zone IV: Zone III + Bulgaria, Romania, and in USSR, Leningrad Odessa, Kiev, N. Caucasus and Transcaucasus Military Districts	Soviet Union	22	18	8,700
			Cumulative	20,000

Bulgaria and Romania do not maintain tanks in their active forces. The Soviet Forces stationed outside USSR borders are in Poland only. Czechoslovakia is a neutral nation in this scenario.

Appendix C

Road to War Assumptions

- * 199_ German unification takes place. Former East German territory is declared a buffer zone with stationing of heavy forces illegal within this zone. Germany does station two Infantry Divisions (Lt) along the German/Polish border as guards.
- * NATO remains a viable military alliance but force levels are reduced with only two German, one U.S., and one Combined Allied Corps fully active for training and defense. U.S. reinforcement capability increased since 1990.
- * The Warsaw Pact is not a viable military alliance. Poland and the USSR maintain a mutual defense treaty.
- * Gorbachev remains in control of the Soviet Union for only one term as its president. He loses to a conservative member of the Communist Party who wins on a platform calling for stability and a resurgence in Soviet world power.
- * Some economic reforms have been initiated but the USSR is still unable to feed itself and is no longer capable of producing its own energy requirements. The Soviet Union has been required to use capital for purchase of wheat and oil instead of investment in industry.
- * Denied economic support (a new Marshall Plan) and access to the West's technology, the Soviet Union's economy is barely functioning by the year 2000.
- * The Soviet Union's one strength is its military power. Although receiving a much smaller budget, the military has made many qualitative improvements. Only 100 divisions are maintained but fifty of these divisions are maintained above 90% for both equipment and personnel. These fifty divisions are maintained west of the Urals since relations with China have improved as dramatically as China's relationship with the U.S. has worsened. Improvements have been made in command and control, strategic deployment, and the quality of leadership. By maintaining units in "home" districts, increasing pay for NCO's, and implementing higher standards of fair treatment for basic soldiers, morale has never been higher nor training better in the Soviet army.
- * Faced with a rapidly falling economy, the Soviet Union must either cease to compete, release her hostile border states, and withdraw from its world power position, or attack to seize control of German industrial centers. The Soviet's hope in attacking would be to reestablish herself as a military threat, return stability to her borders, and bargain for economic assistance in return for land grabbed. The Soviets choose to attack.

Appendix D

Central Europe
Netherlands

Copy No _____
Allied Forces

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THEATER OF WAR CAMPAIGN PLAN:

References: A. Map Series: Special Map Europe 1:1,00,000
(1-DMATC)

B. NATO Ministerial Directive

C. NATO Armed Forces

D. Allied Command Central Europe (ACE)

Campaign Plan (Freedom Fighter)

Time Zone: Alpha

COMMAND RELATIONSHIPS. Commander in Chief, Allied Forces Central Europe (CINCENT) will be supported in this campaign plan by the Supreme Commander Europe (SACEUR) as directed by the NATO Military Committee. All existing agreements concerning command and employment of German, American, French, Belgian, Dutch, Luxemburg, and British forces remain in effect for this campaign plan.

1. SITUATION. AFCENT is committed to the concept of collective security. AFCENT will respond to aggression with measures up to and including the application of the combined military forces available to AFCENT. The aim of such an application of military force is the deterrence or restoration of peace and security. The scenario begins with hostilities initiated by a joint Soviet/Polish force entering the buffer zone of former East German territory. Increased tensions do not precede the attack. NATO is provided no warning of attack. AFCENT members join the defense of Germany but reinforcement of NATO has not occurred prior to the first border crossing. NATO M-Day is equal to the Soviet/Polish D-Day.

A. Strategic Guidance. The overall objective of AFCENT military strategy is to preserve or restore peace and security.

(1) AFCENT will maintain a strong, integrated defensive capability, featuring a conventional forward defense and flexible response in the nuclear domain, to deter aggression. However, army group commanders are not required to begin their defense on Germany's borders. NORTHAG has freedom of maneuver with ground forces across the former IGB when hostilities are initiated.

(2) Should deterrence fail, AFCENT will respond to armed attack with the full capability of forces immediately available, reinforcing forces as available, and other military capabilities, including nuclear fires, as approved by the NATO Ministerial Council.

(3) Constraints: Release of nuclear and chemical weapons is not authorized without the prior approval of the NATO Military Committee (NMC).

a. Use of conventional air operations and indirect fires directly against former Warsaw Pact nations, less the Soviet Union, directly or indirectly supporting aggression is authorized. Major ground operations against any potential adversary is not authorized without prior approval of the NMC. Special Operations Forces will operate in adversary countries under national control in coordination with the NMC.

b. Attack of the Soviet Union is not authorized without prior NMC approval, except for attack by NATO naval forces on former Warsaw Pact naval forces inside Soviet territorial waters. This does not include attack of ports and other land installations.

B. Enemy Forces. Refer to Annex B (Enemy Order of Battle) TBP

(1) Post-CFE Soviet Concepts of Operations:

a. Soviet principles of successful war remain unchanged.

b. Deep operations continue as doctrine.

[1] Simultaneous use of aviation.

[2] Single operational echelon.

[3] Speed and rapid maneuver to counter nuclear and precision guided munitions.

[4] Improved capabilities to mass fires vs. massing troops.

c. Forces remains offensive in capability.

(2) Polish Forces. Polish ground forces consist of seven motorized rifle and three tank divisions organized under two army headquarters. Polish air forces consist of 285 tactical fighter-bombers and 400 fighters. The Polish Navy is primarily coastal defense, with enough amphibious craft to conduct an opposed amphibious landing.

(3) Soviet Forces. Soviet forces in Poland consist of one motorized rifle division (MRD), three tank divisions (TD), and army/front-level headquarters elements, plus tactical air forces of the Northern Group of Forces (NGF) (135 fighter-bombers, 105

fighters/fighter-interceptors). Forces available outside Poland consist of five MRDs and three TDs of the Western Military Districts, and ten MRDs and eight TDs from CFE Zones 3 and 4. Additional air assets available are those of the Legnica and Vinnitsa Air Armies; and air forces of the Baltic, Belorussian, Carpathian, and Kiev Military Districts (Total additional aircraft available: 840 fighter-bombers, 535 fighters). Sufficient strategic air assets are available to support one full airborne division drop. Soviet naval forces consist of the Baltic Fleet and two naval infantry brigades.

(4) Strength. All attacking and reinforcing forces are assessed to be 90-100% strength in personnel and equipment.

(5) Strategic Concept. Enemy political objective is to reestablish the Soviet Union as a world and European power and as a minimum gain access to German industrial centers in former DDR.

(6) Major Objectives.

a. Enemy immediate strategic military objective is the occupation of Northern Germany with a credible threat prior to NATO's ability to commit U.S. reinforcements in order to gain sufficient leverage for negotiations.

b. Enemy operational objectives are to seize and control territory as far west as the Weser River, as far north as Hamburg, and as far south as the Thuringerwald/Hof Corridor; and to destroy German and defeat other NATO forces in sector. If possible, this line will be extended West to the Dutch border to include occupation of the Ruhr valley.

(7) Doctrine. Polish forces will use Soviet doctrine. Soviet forces will amend their standard doctrine to reflect recent changes in force structure and CFE requirements.

(8) Probable Enemy Course of Action.

a. A combined Soviet/Polish force of three armies (14 divisions) drawn from forces in CFE Zone 1 attack across the German-Polish border with three armies abreast controlled by one front headquarters. 1 Polish Army (1 PLA) attacks in the north to seize Berlin by D+5. The attack's main effort is conducted by a Soviet TA in the center attacking along the line Dresden-Leipzig-Halberstadt-Hannover to reach Hamberg by D+12. The southernmost army (2 PLA) will secure the front's left flank using the fortified region concept to block the Gotingen, Fulda, Coberg, and Hof avenues of

approach to preclude a rapid NATO counterattack. Priority of air operations will be to support the advance to the Weser, however, up to 40% of the fighter-bombers will be employed to disrupt NATO reserve/counterattack forces. Precision guided missiles using conventional warheads will be used to strike identified nuclear storage facilities, ports, and concentration areas for NATO reinforcements. Naval forces will provide coastal defense and may begin mine laying operations in the Mecklenberger Bight to hinder German, or other NATO direct naval action.

b. A second Soviet army from the Soviet Western Military Districts is expected to arrive in Poland by D+4 and will be committed on or about D+5 to reinforce the gains made by lead elements. Elements of a fifth army, the lead army of the NEMETS Front and also from the Western Military Districts, will arrive by D+10-11 and will be available for commitment by D+14. Additional elements of the NEMETS FRONT (18 Divisions from CFE Zones 3 and 4) will begin to arrive in Poland on or about D+14, with one full army available for commitment around D+20. Full NEMETS FRONT commitment expected around D+26. In addition to the main Soviet effort in the south, Soviet airborne forces are expected to conduct an operation to seize Hamburg with a division size force on or about D+9.

c. Due to the possibility of a U.S. nuclear response, Soviet forces are not expected to employ chemical or nuclear weapons. Soviets will strive for strategic, operational, and tactical deception, especially in the period immediately prior to their commitment.

(9) Operational and Sustainment Capabilities.

Neither Poland nor the USSR can sustain a conflict requiring general mobilization. Estimate that both sides can sustain full combat operations no longer than 30 days. After that period, significant operation degradation will occur. Defensive operations may be maintained longer, depending on the level of intensity of NATO operations.

(10) Vulnerabilities. Main Soviet vulnerability is their flow of follow-on forces. Due to extended deployment distances, they must achieve a relatively uninterrupted flow of divisions, and must precisely coordinate the use of rail, road and air routes.

(11) Center of Gravity. The enemy operational center of gravity is the FRONT's Soviet second operational echelon army (20 GA)). 20 GA is critical to achievement of Soviet operational objectives because it is the only force that can provide sufficient mass to link the gains of the Soviet and Polish penetrations, and provide the basis for a favorable correlation of forces for the follow-on armies. On or about D+12, the enemy center of gravity begins to shift to the lead armies of the NEMETS FRONT, which must

achieve closure before NATO forces are in position in sufficient strength to effect an unfavorable correlation of forces.

C. Friendly Forces. SACEUR coordinates NATO military operations with priority of effort to AFCENT. CINCLANT and CINCHAN insure reinforcement of Europe. AFNORTH and AFSOUTH assume higher readiness postures and prepare to defeat aggression. COMAAAFCE supports AFCENT reinforcement and military operations. COMBALTAP executes maritime operations to control egress from the Baltic Sea. French military forces participate in AFCENT's campaign; 1st French Army and elements of the French tactical air forces come under AFCENT operational control when German territory is invaded by Polish and Soviet armies. In this scenario French forces will play a limited role as their territory is not threatened and their force cannot move far enough to affect the Soviet COA. The following regional states declare their neutrality: Albania, Austria, Bulgaria, Czechoslovakia, Finland, Hungary, Ireland, Malta, Romania, Sweden, Switzerland, and Yugoslavia. All Middle Eastern and African states declare their neutrality.

D. Assumptions.

(1) Worldview/Political:

- a. Germany will be unified and a part of NATO.
- b. Czechoslovakia is neutral and will defend its borders.
- c. France will participate IAW existing agreements.
- d. Gorbachev failed; reforms achieved only marginal positive change. Economic problems continued to cause political unrest. Poland perceives a joint attack in her interest.
- e. NATO remains a viable organization.

(2) NATO/AFCENT:

- a. Sufficient strategic lift will be available to deploy one heavy contingency corps by M+5. One MEF will be available in Norway by D+7 and two additional divisions from the U.S. will be available in FRG by D+10.
- b. Only limited NATO forces will be positioned east of the former Inter-German Border. These will include Bundesgrenzschutz (Federal Border Guard) units, and light infantry formations of the Territorial Army (JaegerKommando, JgK).
- c. U.S. POMCUS stocks will consist of four division sets.

d. The U.S. National Command Authorities (NCA) will make timely decisions for reinforcement of forward deployed forces.

e. NATO is intact with troops reduced from 1990 levels.

f. A notable increase in tension does not precede the Soviet attack.

h. U.S. doctrine and force structure will be IAW AirLand Battle.

(3) Soviet/Warsaw Pact:

a. The only Soviet forces positioned outside the Soviet Union are in Poland, based on a bi-lateral agreement.

b. The Warsaw Pact is only an economic alliance, not military.

c. The Soviets will require minimal preparation and deployment time prior to conducting offensive operations with forces from the Western TVD.

d. The Soviets have reduced the technology and capability gap as well as their strategic deployment capability.

e. Soviet/Polish forces will have an offensive nuclear and chemical weapons capability.

f. The Soviet Union will not hesitate to violate the territory of former Warsaw Pact countries in order to pursue its military objective against NATO.

Appendix E: Discussion of VII Corps' Attack

This appendix is meant to provide some additional details concerning CINCENT's use of the VII Corps to defeat the Soviet's second operational echelon army before it can link up with the first operational echelon in the vicinity of Hannover. VII Corps is to attack at H-Hour, D+4 to destroy the two lead divisions of the Soviet second echelon army, and on order, defend in sector to destroy the two follow on divisions of the second operational echelon army. A discussion of this mission by Battlefield Operating System follows. A course of action sketch is at the last page of this appendix.

Completion of this mission will require the mechanized division to destroy the Polish division at Hof. The armored division must destroy two regiments of the Soviet army's left flank division. Two regiments of the right flank division will be destroyed by corps and fixed wing aviation. As part of establishing guard positions, the ACR will destroy an additional two regiments. VII Corps will then defend in sector to destroy remaining follow on elements.

MANEUVER: VII Corps mission must begin with a penetration of a Polish division defending in the vicinity of Hof. This division is part of a Polish army with the mission of guarding avenues of approach which could support division or larger attacks into the left flank of the Soviet second echelon army as it moves toward

Hannover. The problem for the Polish army is that it will only have five divisions to guard five avenues of approach stretched over a 160 kilometer front. The Polish army will not be able to form a contiguous defense. Their divisions will not have the force to establish a two echelon defense if they attempt to extend the width of their defense beyond 20-30 kilometers. Most important, with each of the Polish army's divisions in a defensive sector, there is not a reserve available to increase the tactical depth of their defense beyond 10-15 kilometers. To successfully pass the follow on division and ACR, the mechanized division's penetration must go to a point beyond the depth of the tactical defense and provide the space for movement of follow on units protected from indirect fires of the Polish division. The mechanized division can continue the destruction of the Polish division after the gap for passing the follow on units has been made. However, the follow on units should not have to use their combat power to complete the penetration to an operational depth if they are to have sufficient strength to destroy the lead divisions of the Soviet second operational echelon army. Until the penetration is completed, through the tactical depth of the Polish defense, operational maneuver space allowing somewhat free movement of the follow on armor division will not be available. To create this space, the mechanized division will need at least 24 hours.

The follow on armored division and ACR will need at least 36 hours to pass through the penetration and reach the left flank of the Soviet second echelon army. The armored division has been given an attack in zone and a limit of advance to orient it on the left flank division only. To continue the attack further would expose its flank to follow on Soviet units. The best case would allow this division to gain a position that allows fires to be delivered on the Soviet units from a defensive position without actually physically closing with their units. A meeting engagement is the least desired action to occur. Finally, although it may have maneuver space, this division can expect to encounter elements of the Soviet army's anti-tank regiment as well as reconnaissance elements as it advances in zone. It must bypass as much as possible (where feasible) in order not to delay execution of its primary mission.

The ACR must follow immediately behind the armored divisions combat force, through the penetration, if it is to get in a position to screen the armored divisions movement forward. The ACR will have to fight follow on units of the lead Soviet army's divisions in order to secure its guard positions. Its purpose is to destroy at least two regiments, establish its guard positions, and provide time for the Corps to organize a defense in sector.

Timed with the armored divisions attack on left flank Soviet units, the Corps' aviation brigade will conduct a JAAT against right flank Soviet units to destroy two additional regiments.

Combat aircraft from the mechanized division could be used to increase the power of this attack. Additionally, all fixed wing assets available to CINCENT must join this attack. Prior to this attack, the Corps' CAB must establish forward FAARPs in order to support its attack.

Although the word regiment is being used often, regiments are not necessarily being attacked. The armored division will be attacking with one or two brigades forward. These brigades will encounter the Soviet left flank division. They will not perfectly align, each with its own regiment, on this division. At best they will destroy companies and battalions equivalent to two regiments somewhere in the middle of the Soviet division. The units within the attacking brigades will not simultaneously make contact. Companies and battalions will have to be repositioned following contact in order to get into the fight.

Finally, one ACR has been left in position to fix the remaining Polish divisions. It is unlikely these divisions would leave their positions to counterattack VII Corps. It would entail risk, but to improve the Corps defense in sector, this ACR should be brought forward. Additionally, CENTAG's southern Corps, although not immediately available, should be arriving in a position to support VII Corps as it completes its attack.

FIRE SUPPORT: Obviously, fires are not left in reserve. All available Corps and both division's divarty's must be devoted to

support the penetration. Some controls on targets and ammunition must be placed on use of the artillery units designated to accompany the follow on units but they must not be totally withheld. Care must also be given to positioning of these units in a way that will support their eventual movement through the penetration. The Corps aviation brigade might also be used to support this penetration. Given the distance that must be traveled to reach the Soviet second echelon army, time would be available to rearm and refuel between its use.

Once the penetration is completed, fire support must shift to the moving force. Support of a moving division with indirect fires is very complicated. The maneuver plan must provide for artillery units moving and in stationary positions capable of providing immediate support. If artillery units can move on routes separate from ground maneuver units the problem is made easier but not simple.

AIR DEFENSE ARTILLERY: VII Corps will not have any HIMED air defense directly in support of its move. Hawk units are not owned nor positioned by CINCENT. At best, VII Corps may be able to plus up with Stingers prior to movement. However, the Corps will not be able to protect the entire zone of attack. Priority will have to be established for air defense along the attacking division's axis with risks taken for certain units. As a minimum, command and control must be protected as well as fuel

accompanying the attack. Protection with lead elements will also assist maintaining the forward movement of the attack.

MOBILITY/COUNTERMOBILITY: The initial priority will be mobility from the penetration until completion of the attack. One problem, dealing with the effects of air interdiction, can be avoided depending on CINCENT's vision and initial reaction. An initial response may be to destroy all bridges and rail lines supporting the Soviet attack. However, LOC's damaged in the VII Corps zone of attack by friendly air interdiction, will delay friendly movement just as it delays the enemy. While some air interdiction must be flown in this sector as part of a deception plan, it must attempt to avoid possible attack routes. Regardless, engineers will be needed for bridging and maintaining routes.

If bridges are not with lead elements during the passage of lines they will not get forward until the war is over. Further, engineers cannot maintain all routes all the time. Priority must be given to specific areas which, if left unmaintained, will dramatically impede movement. Some problems will be avoided if you can move class 70 equipment on class 70 roads. However, these roads are not abundant in East Germany.

Plans must be made for air movement of obstacle material forward when the mission changes to countermobility. Transportation assets will be too few to allow their dedication

to carrying this material when it is not needed. Also, they will not be able to respond in a timely manner when they are available to move obstacle material forward.

COMBAT SERVICE SUPPORT: The first problem, and the only one closely solvable during the attack in zone, is fuel and the main problem for fuel is the M1 tank and Bradley Fighting Vehicle. Each can operate continuously for about 10 hours before top off. During the attack in zone, this will have to be done at least twice. One division's or an ACR's assets cannot carry this much fuel. 5,000 gallon tankers from the DISCOM and COSCOM must do a refuel on the move (ROM) as units begin passage. The first top off will be accomplished with unit organic assets. These assets will have to return to a forward linkup point with COSCOM and DISCOM assets, receive fuel, and then return forward in time to perform a second top off. However, there will be risk taken because it does not seem possible to ensure units attack with full fuel loads. It is highly possible for vehicles to run out of fuel before the attack is completed.

The next problem service supporters must address before the start of the attack is how to fix, rearm, refuel, recover, and replace personnel losses, received during the attack, prior to beginning the defense in sector. With the exception of fuel and recovery of wounded in the forward units, priority of all available DISCOM and COSCOM unit support must be given to the

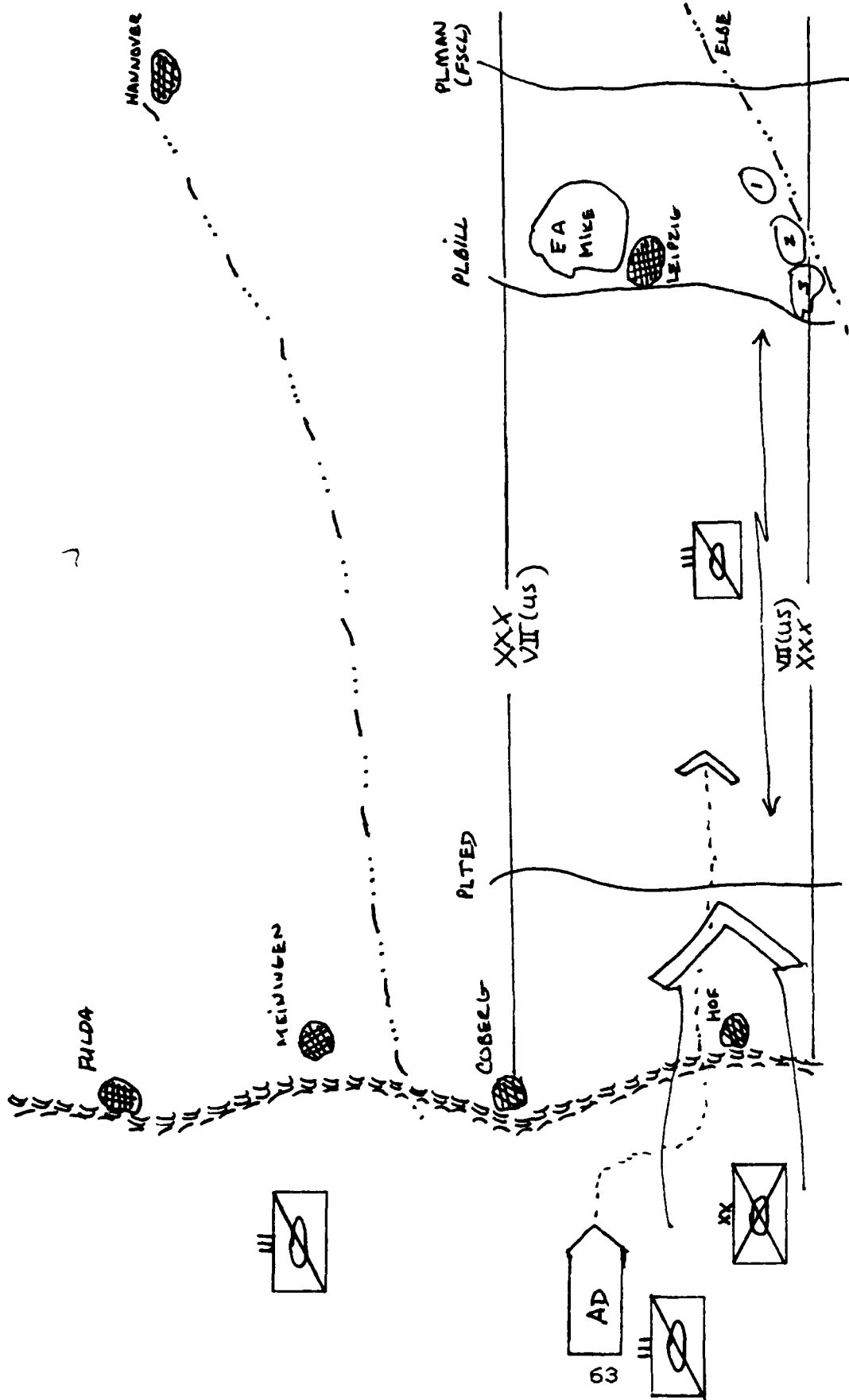
mechanized division following its penetration mission. Further, these assets will not move forward. There will not be time to move forward to support the armored division during the attack and doing so will interfere with attack routes. The armored division and ACR must depend on their basic loads for ammunition. BDA and maintenance failures requiring more than four hours to repair must wait until the attack is over for work. Otherwise, mechanics might be spending time repairing vehicles without any hope of employment during the attack.

Further, the mechanized division will not be fully recovered prior to its need to move forward to assist with the defense in sector. Reconstitution efforts must be directed toward reorganization within brigades to make effective battalions. The battalions brought up to strength (minimum 70% equipment and 80% personnel) can then be organized into brigades as needed.

INTELLIGENCE: Priorities for collection must be given to all Corps assets. The obvious focus for these assets is the Soviet second echelon army. Assets available at CENTAG and higher must be focused on Soviet units within the second strategic echelon. Further, these assets should be focused at points where large units can accomplish direction changes or where a decision concerning a direction for movement must be made.

COMMAND AND CONTROL: VII Corps' attack is part of CINCENTs' effort to defeat the second echelon army but CINCENT will not be

able to control the attack. His focus will be synchronization of air assets used for operational fires and the employment of the reinforcing Corps when it is available. The problem for VII Corps is where to locate its CP's to best control this operation. The Corps main CP should assist control of the penetration and passage of lines with the Corps command group positioned where the Corps commander feels he can do the most good. The Corps TAC CP should be positioned with the follow on division and move with this division's main CP in the attack. The division TAC CP should be forward with the lead brigade. Following the passage of lines, the Corps main should jump forward to a position that will facilitate contact between the Corps TAC CP and the Corps rear command post.



Appendix E

MISSION: VII Corps attacks H-Hour, D+4 to destroy the lead divisions of a Soviet second operational echelon army. O/O VII Corps defends in sector to destroy follow on divisions of the second echelon army.

COA: LMD conducts a penetration of a Polish division defending in the vicinity of HOF. LAD division follows and assumes main effort, attacking in zone to LOA Bill to destroy two MRRs south of Leipzig. An ACR follows the AD, screens right flank and occupies guard positions 1,2, and 3. O/O corps aviation conducts a JAAT to destroy two MRRs north of Leipzig. Until initiation of the JAAT, corps aviation BDE is the corps reserve, then the **MD is corps reserve**. MD will provide its division cavalry squadron to protect corps LOCs following the penetration

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the potential for increasing the number of divisions transported using additional HETs from those currently available. It also does not address the likelihood of the Soviets producing additional HETs beyond those currently available. The D+4 date assumes some use of rail transportation. The source identified does not.)

73. This time assumes M-Day and D-Day are the same. The request for reinforcement will be made by SACEUR on M/D-Day with CONUS units first alerted this day. Air movement could begin D+1. It assumes 4 days to close 2 divisions and 1 ACR, draw POMCUS equipment, and deploy to a TAA in the vicinity of Munchen Gladbach. With 1 additional day to sort itself, this corps would be available for deployment on D+6.

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