

Firepower, Attrition, Maneuver— US Army Operations Doctrine: A Challenge for the 1980s and Beyond

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Then Colonel Wayne A. Downing was a student at the Air War College at Maxwell Air Force Base, Alabama, from 1979 to 1980 when he wrote this article. Like other forward thinkers during the late 1970s, he came to the conclusion that the US Army's attrition doctrine was bankrupt. He contributed this article to Military Review to argue for abandoning attrition warfare in favor of maneuver warfare as an operating style. The article appeared in the January 1981 edition, and as a result, Downing was consulted during the composition of the 1986 version of US Army Field Manual (Fm) 100-5, Operations.

THE US ARMY is currently pursuing a general warfare doctrine which is bankrupt—it will not work in practice. The avowed intent to defeat the Soviets in Central Europe with forward-oriented, firepower and attrition methods is doomed to failure given the realities of the balance of power between NATO and the Warsaw Pact. Not only is the American obsession with firepower and attrition inhibiting the Army's ability to defend Europe successfully, it also directly impedes the US ability to fight limited conflicts in other key areas of the world.

The premise of this article is that the US Army must embrace a maneuver-oriented doctrine in order to carry out its land combat mission successfully. This maneuver-oriented doctrine must focus on the vulnerable centers of gravity of our potential enemy. It should embrace the fundamentals of what B.H. Liddell Hart termed “the indirect approach” through emphasis on surprise, maneuver, and physical and psychological dislocation of the enemy.

Development of Current Army Doctrine

Throughout most of its long and illustrious history, the US Army has successfully employed firepower and attrition to overwhelm opponents. Beginning in the American Civil War and continuing through the two world wars, Korea and Vietnam, the United States has applied its technical and materiel superiority to annihilate opponents with firepower. Maneuver has consistently been subordinated to the effective application of firepower.¹

The US penchant for technology, innovation and management techniques developed the application of firepower to a fine art and an unprecedented degree of

effectiveness. German soldiers, for example, describe World War II experiences against the Americans in terms of being “steamrollered” and “pulverized” by a seemingly inexhaustible supply of munitions delivered by a plethora of weapons systems. One of the primary lessons the US Army felt it learned from World War II was the requirement for closely coordinated and effective firepower.²

In the Korean War, the United States used firepower with devastating tactical effect—initially to stem the North Korean onslaught and later to compensate for the numerical superiority of the Chinese. Firepower became a force multiplier and even, in many cases, a substitute for maneuver units on the battlefield. The role of tactical air power, especially close air support, came to the fore in this conflict.³

In Vietnam, the application of firepower-attrition reached unequaled efficiency and tactical effectiveness. Infantry (both light and mechanized), armor and cavalry were employed to locate the enemy while firepower destroyed him.⁴ Infantry units were even known as “target acquisition agencies” in some US divisions. Slogans, such as “Bullets Not Bodies” and “Pile On” still ring in the ears of many of the Army's Vietnam-experienced officers and noncommissioned officers. Vietnam was a war fought to inflict maximum attrition by the skillful application of massed firepower.⁵

As the nation began its disengagement from Vietnam, the Army's focus returned to Europe. In the NATO arena, the United States found a revitalized Warsaw Pact in the process of unprecedented modernization. The Army soon realized that it had sacrificed a decade of doctrinal and materiel advances in the

Central Region. As this rude awakening was occurring, the 1973 Arab-Israeli War illuminated the realities of modern combat with advanced weapons systems.⁶ The US Army attempted to digest these lessons rapidly (perhaps too quickly) and produced one of the most controversial manuals ever printed—Field Manual (FM) 100-5, *Operations*.⁷ The manual is pure, traditional US Army firepower-attribution doctrine applied to counter a Warsaw Pact conventional attack in Central Europe. FM 100-5 features forward defense with emphasis on destroying the enemy thrusts.⁸ There is nothing subtle about the doctrine—it advocates meeting the strength of the Soviet attack (armor) head-on and destroying it by massed firepower.

The combat techniques described in the manual stress almost mechanical methods of fighting—or applying firepower. Systems analysis terms, such as target servicing, target arrays, Pk (kill probability), firepower potential and firepower capability, are used throughout to describe the dynamics of combat.⁹ Queuing theory is implicit in many of the discussions.¹⁰ Follow-on interpretations of FM 100-5 use explanations couched in terms such as the “calculus of battle” and in mathematical notions expressed by Lanchester Laws and gaming theory to discuss the modern battlefield.

The factors, such as surprise, shock action, morale, and others, which cannot be quantified are, not surprisingly, left out of the equations. FM 100-5 continues to govern US Army tactical doctrine as well as force structure and modernization plans.¹¹

Inadequacies of the Present Doctrine

The realities of the 1980s present harsh facts to US military leaders—facts which, in some cases, have not been directly addressed. The United States no longer enjoys an overwhelming materiel superiority.¹² The Soviets have narrowed the technological gap which previously gave NATO an edge over the numerically superior Warsaw Pact. Nor is this devalued US military capability confined to Europe. The proliferation of modern conventional arms throughout the world, especially in crisis areas like the Middle East, combined with the inherent problems of deploying force to remote locations, have created conditions where US reaction forces could quite likely be outgunned as well as outmanned by a Third World nation.

A firepower-attribution strategy is quite likely not going “to win the first battle” given a numerically superior enemy with comparable quality weapons. The United States may not be able to project sufficient force to a remote region to “fight outnumbered and win” against even a fourth-rate force equipped with modern weapons systems. A “come as you are” war in

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Central Europe could quite likely be a stunning defeat. The US Army must look beyond firepower-attribution to find new ways of accomplishing the land combat mission in the 1980s.¹³

What Is Needed?

The US Army’s concept of warfare for the 1980s must focus on objectives and methods which recognize the realities of its military capabilities vis-à-vis those of potential adversaries. This style of warfare should capitalize on American strengths and take advantage of an enemy’s weaknesses and shortcomings.

Objective—enemy centers of gravity. More than 150 years ago, Karl von Clausewitz offered sound and timeless counsel to military and civilian leaders on the orientation of warfare:

*One must keep the dominant characteristics of both belligerents in mind. Out of these characteristics a certain center of gravity is formed, the hub of all power and movement, on which all depends. That is the point against which all our energies should be directed.*¹⁴

The “centers of gravity” concept is valid across the spectrum of warfare—confined not only to a nation’s grand strategy, but also applicable to the operational realm of tactics. Strategic considerations will most likely outline a series of centers of gravity which are general and relatively consistent over time. Tactical assessments will produce changing, specific objectives to be exploited. In both contexts, the enemy centers of gravity must be evaluated to assess which are vulnerable to friendly attack. By attacking and influencing these centers of gravity, a numerically inferior force can defeat a superior enemy.

The centers of gravity concept that Clausewitz described can be physical factors (a line of communication, a key piece of terrain, the enemy reserve), and they may well be intangible (the enemy's morale, the support of the local population, the confidence of the enemy commander). In either case, the center of gravity is critical to the effort and success of the enemy.

Concept—the indirect approach. The methods of attacking the enemy's centers of gravity can vary between straightforward assault (which is often appropriate for a vastly superior force) to less direct methods which rely on speed, surprise and deception.

When faced by a numerically superior enemy with equal or greater firepower and mobility, the direct firepower-attrition methods employed by the US Army become increasingly questionable and most likely dysfunctional. The "indirect approach" described by Liddell Hart seems to be the appropriate means to attack Clausewitz' "centers of gravity."¹⁵ Liddell Hart contends the methods should attack the mind of the enemy commander and the will of the enemy army.¹⁶ The fundamentals of surprise and maneuver are used to attack critical targets which dislocate the enemy physically and psychologically—these are the goals of military operations, not the mere physical destruction or attrition of enemy forces.¹⁷

Method-maneuver warfare. Applied at the operational level, these concepts are especially applicable to the US Army facing the challenges of the 1980s and beyond. Maneuver warfare, directed at an enemy's centers of gravity, emphasizes speed and movement to present an opponent with rapidly developing and quickly changing situations. Attacks are directed at the weaknesses of the opponent's attack or defense so that he is unable to adequately react.¹⁸ Firepower remains an essential part of a maneuver strategy but does not become the *raison d'être* for maneuver.

Americans appear to be ideally suited for this fluid form of combat. Oft-reported, national characteristics of the American soldier have always been his flexibility, adaptability and ingenuity—traits required for the maneuver warfare of Liddell Hart's indirect approach. Conversely, looking at potential adversaries, the major weaknesses ascribed to the Soviets (and most Third World countries) is inability at the tactical level to cope with rapidly changing situations and events.¹⁹

The Soviet Combined Arms Concept

In order to develop a maneuver strategy to counter the Soviets, it is necessary to examine the essentials of the Soviet combined arms concept (CAC).

Overview. The CAC is the philosophical foundation of Soviet military doctrine. But coming to grips with

the concept is often extremely difficult for Western analysts—at least one eminent scholar argues that not even all the Soviet military truly understand their own CAC! The Soviet CAC is both a concept *and* an operational method or technique—and herein lies much of the confusion.²⁰

It is generally accepted that the Soviet CAC is not merely cross-attachment or cross-reinforcement of units as in the United States and other Western armies. The Soviets mean much more by CAC than the task organization for combat.²¹ Professor John Erickson contends that the CAC is an interactional process among the elements of the Soviet armed forces which produces "joint effort . . . on the basis of their close and uninterrupted interaction and the fullest exploitation of their capabilities."²² The Soviet CAC simultaneously confronts its opponents with a variety of weapons systems of widely differing capabilities. In such an engagement, the action the opponent takes to avoid or neutralize one Soviet system continues to make the opponent vulnerable to other Soviet systems. The Soviet CAC dictates an interaction among elements which is both complementary and supplementary.

This interactional concept is dynamic and synergistic in Soviet eyes in that the total effect realized on the battlefield by the CAC far outweighs the sum of individual contributions of the components. This dynamic and synergistic nature places great emphasis on timing, tempo, depth of attacking forces, densities of weapons, relationships among forces and command and control (troop control in Soviet terms).²³

The Soviet CAC is *not* the classic German blitzkrieg which stressed fluid, flexible and highly independent operations at all echelons. The Soviet CAC is disciplined, very rigid and explicitly formatted—even its espousal is dogmatic in nature and authoritatively embraces all elements of the Soviet army forces.²⁴

As an operational method, the CAC also addresses how the Soviets intend to fight.

Characteristics. The Soviet CAC is characterized by fire, assault (shock/attack) and maneuver. Overwhelming *fire support* was a keystone of Soviet offensive operations in the Great Patriotic War and continues to be a major Soviet goal. Capitalizing on the shock effect of firepower and movement, Soviet attacks are envisaged as overwhelming, in great depth (echelons) and unceasing.²⁵ But the purpose of the entire operation is *maneuver*. Fire and assault create the breakthrough—the penetration which allows maneuver into the enemy rear, destroying reserves and disrupting the continuity and coherence of the defense.²⁶ Professor Erickson asserts that the purpose of the initial Soviet penetration is to force the enemy to commit his reserve. Once the enemy

reserve is located and destroyed by the first or second echelons, then the true exploitation of the enemy's rear begins.²⁷

In its essence, then, the Soviet concept requires:

- Maintenance of momentum and freedom of maneuver along multiple axes of advance.
- Maximum rates of advance to prevent effective defense in depth.
- A high degree of control by the central directing headquarters and close coordination among enemy elements.
- Close timing of the multiecheloned attacking forces to achieve the synergistic effect of tempo of operations.²⁸

The Soviet CAC is the classic illustration of the set-piece battle and presents an extremely formidable, if not overwhelming, opponent—if it is allowed to proceed according to Soviet plans. But, like all operational methods, the Soviet CAC has weaknesses which can be exploited.

Weaknesses. The extremely dogmatic and rigid application of the doctrine at the operational level discourages (perhaps even excludes) decentralized execution—a *sine qua non* for maneuver warfare. At its very core, then, the Soviets have created conditions which threaten the essence of their concept.²⁹

The centralized direction of the CAC by the very capable and professional Soviet General Staff demands reliable and effective command, control and communications (C³) throughout operations.³⁰ C³ will be one of the greatest problems for both sides on either a nuclear or conventional European battlefield.

In addition, Soviet commanders have been conditioned to conduct all operations against a backdrop of overwhelming fire superiority—especially artillery.³¹ Conditions which degrade or deny this advantage will have a significant effect on Soviet attack doctrine and on the actions of tactical commanders.³²

Finally, the entire Soviet concept is based on tempo and timing among elements. Unforeseen events which impede the highly prized timing among units or the tempo of attack (especially the second-echelon units in a multiecheloned attack or among cooperating units in the single-echelon attack) will have a major negative effect on operations—as the synergistic, dynamic effect of interaction is lost or degraded.³³ This appears to be a significant shortcoming in the Soviet strategy. War, as so aptly stated, is subject to friction and uncertainty more so than any other form of human endeavor. If any undertaking must have flexibility, it is combat.³⁴

Summary. The foregoing discussion has outlined the centers of gravity of the Soviet CAC. In the macroview, the concept is highly dependent on the uninterrupted

interaction between elements of the armed forces. This timing and tempo depends in part upon the Soviet C³ system; fire support, especially artillery; and the timely arrival (at the proper place) of the Soviet second echelon (in the multiecheloned operations) or all the many elements cooperating in the single-echelon attack.

When faced by a numerically superior enemy with equal or greater firepower and mobility, the direct firepower-attrition methods employed by the US Army become increasingly questionable and most likely dysfunctional. The “indirect approach” described by Liddell Hart seems to be the appropriate means to attack Clausewitz’ “centers of gravity.” ... The fundamentals of surprise and maneuver are used to attack critical targets which dislocate the enemy physically and psychologically—these are the goals of military operations, not the mere physical destruction or attrition of enemy forces.

US Army Doctrine for the 1980s

A US Army doctrine designed to counter the Soviet CAC must emphasize:

- Attacking the vulnerable centers of gravity of the Soviet system.
- Utilizing an indirect approach to these centers of gravity.
- Pursuing maneuver warfare to compensate for overwhelming Soviet strength in firepower and the directness of their military doctrine.

Maneuver warfare. Maneuver warfare is not mobility, nor is it movement. Maneuver warfare, in its essence, positions friendly forces so as to put the enemy forces at maximum disadvantage by forcing the enemy to react to unexpected, unplanned situations which threaten the viability of his military operations. Successful maneuver warfare presents the adversary with an increasing number of reactionary events which, in their cumulative effect, unravel and unhinge enemy attack or defense.³⁵

Applied to the Soviet CAC, US Army maneuver warfare would feature retention of certain key terrain by infantry equipped with a high density of antitank weapons. This terrain retention is designed to upset the timing of the Soviet offensive and determine the location and direction of major Soviet thrusts.³⁶ The retention of terrain must be flexible to avoid the annihilation of friendly units by massive Soviet firepower.

Maximum attention must be given to deception, cover and concealment and decentralized execution.

In a maneuver-oriented strategy, the bulk of the US forces are retained as mobile, armor-heavy reserves. As the covering force and infantry identify, attrit and perhaps channelize the Soviet main thrusts, the mobile reserve attacks these thrusts from the flanks and rear—to dislocate the Soviet plans and disrupt the tempo of their attack—and then quickly reconstitute.³⁷ Maneuver warfare is fought in depth and, while forward oriented, does not rely primarily on retention of terrain.

While a maneuver-oriented strategy can contain the Soviet first echelon, the key to destroying the Soviet CAC is to attack the second echelon and truly upset the timing and tempo of the overall enemy attack. In the case of a single-echelon attack, opportunities will be present to attack and disrupt the vast number of units in the single echelon with similar effect on timing and tempo.

Disrupting timing and tempo. Timing and tempo can be thwarted in three different ways:

- In the multiecheloned attack, heavy emphasis must be placed on interdiction of the Soviet second-echelon movement to the battlefield.³⁸ This must be given the highest priority, and the majority of tactical air support and surface-to-surface missiles must be dedicated to this essential, 24-hour-a-day task.

The Army's own organic fire support, while primarily involved in the first-echelon battle, must assist whenever and wherever possible in the crucial interdiction tasks. If the first-echelon battle is progressing satisfactorily and sufficient reserves are available, the Soviet second echelon can be attacked by highly mobile, tank-heavy forces. Total interdiction of the second echelon is not required for success. Interdiction efforts which degrade, slow down and disorganize the timely arrival of the second echelon will have a devastating effect on the CAC.

In the case of a single-echelon attack, the majority of effort must be placed on disrupting and delaying the momentum of the attacking forces. Tactical air support will be critical and must be primarily allocated to close air support and battlefield air interdiction—close-in interdiction effort.

The command and control problems of employing all their forces in a single echelon will present staggering problems to Soviet commanders, especially tactical leaders. NATO efforts which can delay and disorganize movement and actions within the Soviet single echelon can have a catastrophic effect on their CAC.

- Soviet C³ may well be the Achilles heel of their dogmatic doctrine. There is strong evidence to support the efficiency and professionalism of the

high-level Soviet staffs and equally strong proof that the operational commanders are given little, if any, latitude in carrying out their assigned mission. If Soviet C³ can be neutralized or seriously degraded, then the CAC will not be able to react to the debilitating effects of first-echelon battle surprises produced by the US maneuver doctrine and the effects of second-echelon interdiction.³⁹

- Attack the Soviet artillery. The backbone of Soviet tactical fire support is their artillery. It can be neutralized in a direct and indirect manner. Counter-battery suppression by the Army's own artillery and armed helicopters, as well as US Air Force close air support, can seriously degrade Soviet artillery. The vagaries and uncertainties which are the byproducts of successful maneuver warfare are perhaps the most effective means of depriving the Soviet commander of his expected fire support. When the set-piece battle prescribed by the CAC begins to unravel and not progress according to schedule, the entire timetable of artillery support and resupply will begin to disintegrate.⁴⁰

Tactical nuclear weapons. A successful US Army maneuver doctrine can defeat a Soviet attack or defense. Maneuver warfare is also viable on a nuclear or conventional battlefield. The maneuver-oriented concept is enhanced by the employment of tactical nuclear weapons (TNWs). Integration of TNWs into the US Army's maneuver warfare doctrine in Central Europe, or any other place in the world, would truly give the United States the capability to fight outnumbered and win. Early employment of TNWs across the Warsaw Pact borders on staging areas and key lines of communication would significantly affect the timing and tempo of Soviet operations at the outset of the war.

In addition, the selected targeting of Soviet C³ by TNWs could achieve far-reaching results. While TNWs support a maneuver doctrine, they must not replace such a method with the familiar firepower-attrition model. Studies and field exercises have clearly shown that TNWs and chemical weapons cannot be used effectively unless fully integrated with maneuver operations.

Conclusion

A maneuver-oriented doctrine is a war-winning strategy for the US Army. Such a doctrine acknowledges the realities of the 1980s and beyond and capitalizes on inherent American strengths of flexibility, adaptability and originality.

Maneuver warfare can be successful on a nuclear or conventional battlefield, and it can be conducted

in Central Europe or in any other portion of the world where US vital interests are at stake. Maneuver warfare can also be conducted during offensive or defensive operations. It places primary emphasis on attacking the mind of the enemy commander and the will of his army.

At the operational level, maneuver warfare is directed at those key elements of the enemy strategy and force structure which are vulnerable to attack. Maneuver warfare is complemented by the introduction of TNWs. In fact, a publicly stated US national policy of intent to employ TNWs in the normal course of military operations could serve as a major deterrent to both the Soviets and their surrogates, as well as other potential adversaries throughout the world.

Adoption of maneuver warfare will not be easy for the US Army. It means a fundamental change in traditional concepts of how to fight. Attrition and firepower were, in many ways, a simpler form of warfare. Maneuver is much more flexible and decentralized. An American preference for mission-type orders, commanders forward at the key location and inherent national characteristics will enhance adoption of a maneuver doctrine.

In addition to a change in philosophy, the Army must also take a serious look at its force structure when adopting a maneuver strategy. A detailed discussion of these topics is beyond the scope of this article, but several key parameters appear to be important.

Force structure must orient on decentralized execution by flexible elements possessing impressive mobility and suppressive firepower. Command and control will be important, not so much from higher to lower but laterally. Units must be small and highly flexible, avoiding the large, unwieldy organizations of the past and present. Commanders must be able to command “up-front” at the point of decision.

Commanders at higher echelons (corps and above) must be able to “look deep” and “see” the battlefield. One of the crucial tasks to be accomplished, on the European battlefield, for example, is the requirement to determine the nature of the Soviet attack. Is it single echelon, the classical multiechelon attack, or some other variation? Early determination of the mode of Soviet attack will be crucial to the timely and wise allocation of critical tactical air assets as well as the positioning of reserve and reinforcing forces.

The Army must take a critical look at where its commanders “command.” Advanced command, control, communications and intelligence (C³I) systems are presently being designed which will force a division commander to remain to the rear at

a centralized location in order to receive and process the myriad details soon to be available to him. The commander’s critical presence “up-front” at the point of decision will be forfeited, an issue that must be fully examined.

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The size of the Army divisions is growing to unmanageable proportions. It is rapidly becoming beyond the capability of three general officers and a cumbersome staff to conduct maneuver warfare and manage the vast array of critical functions within their commands. Maneuver warfare seems to dictate smaller, mobile formations—perhaps 6,000 to 8,000 men—commanded by a general officer with the mission of *fighting*. Most combat support functions would likely remain in such a formation with small selected combat service support elements. However, the bulk of the support should be provided by an external organization to avoid distracting the combat commander from his primary fighting mission.

Active and effective reconnaissance elements are absolutely essential in maneuver warfare. These units must be available and responsive to the tactical commander in order to exploit vulnerabilities presented in this fluid form of maneuver. Military police or some other traffic control elements will also be required to control follow-up echelons and direct critical resupply and limited maintenance units.

Combined arms will be needed, and elements of the current Army are appropriate—but the mix of forces may be worthy of reconsideration. The nation has worldwide commitments. The US Army must be able to react rapidly to protect these interests wherever they are located. Therefore, the air/sea transportability of the equipment is a key consideration.

The ultimate key to victory, however, is psychological. The US Army must embrace a doctrine it knows

can win! This confidence must permeate the ranks from general to private. A maneuver-oriented doctrine for the 1980s will provide this positive outlook. Maneuver warfare oriented on vulnerable centers of gravity can defeat the Soviets or any other opponent wherever we must fight.

Work is under way on a new FM 100-5, Operations, that will result in significant changes to current doctrine. At press time, it was anticipated that a coordinating draft would be sent to the field in the December 1980-January 1981 period.-Editor [1981] MR

NOTES

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2. Doughty, *op. cit.*, p 3.
3. *Ibid.*, pp 7-12.
4. *Ibid.*, pp 33-40.
5. *Ibid.*, p 40.
6. *Ibid.*, pp 40-43.
7. While Field Manual (FM) 100-5, *Operations*, Department of the Army, Washington, D.C., 1976, is still hotly debated within the Army, perhaps its greatest service has been overlooked. The manual has surfaced the critical issues so they can be identified and discussed. Also, see Doughty, *op. cit.*, p 45.
8. Doughty, *op. cit.*, p 43; and Luttwak, *op. cit.*, p 87.
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12. Don L. Mansfield, "Soviet Army Echelonment: Employment Concepts and Tactical Options," concept issue paper, Deputy Directorate for Long-Range Planning, Headquarters, US Air Force, Washington, D.C., July 1979, p 86.
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16. Other distinguished strategists such as Sunzi (Sun Tzu), Mao Zedong (Tse-tung), Vo Nguyen Giap and J.F.C. Fuller have emphasized a similar indirect approach.
17. Liddell Hart, *op. cit.*, pp 13-14, 25-26 and 355-60; and Lind, *op. cit.*, pp 21-22.
18. Lind, *op. cit.*, pp 1 and 4.
19. Major General F.W. von Mellenthin, "Armored Warfare in World War II," *Battle*, Contract Number DAAK 40-78-C-0004, 10 May 1979, p 90.
20. John Erickson, "The In-Place Unreinforced Soviet Attack," *Soviet Military Digest*, October 1978, p 11.
21. Erickson, "Soviet Combined-Arms: Theory and Practice," *op. cit.*, pp 1 and 3-4.
22. *Ibid.*, p 177.
23. *Ibid.*, V. Ye. Savkin, *The Basic Principles of Operational Art and Tactics (A Soviet View)*, Superintendent of Documents, US Government Printing Office, Washington, D.C., 1972, p 272; and Lieutenant Colonel Robert G. Walker, "Through the Looking Glass: An Analysis of Soviet Combined-Arms," Air War College Research Report, Maxwell Air Force Base, Ala., March 1980, p 6.
24. Lieutenant Colonel David K. Anderson, "The Counter Mobility Potential in the NATO Context," *Strategic Review*, Winter 1979, p 68; Colonel John Boyd, "Briefing on the Boyd Theory-Competitive Observation-Decision-Action Cycles," with introduction (dated 25 June 1979) by William S. Lind, 1 August 1978; and Erickson, "The In-Place Unreinforced Soviet Attack," *Soviet Military Digest*, *op. cit.*, p 17, and "Soviet Ground Forces and the Conventional Mode of Operations," *URSI/RMAS Research Center Bulletin*, date unknown, p 46.
25. Currently, there is strong debate by Western analysts as to the validity of the echelonment theory. There are cogent arguments which suggest a single-echelon attack by the Soviets is the most likely form of attack. See Steven L. Canby, "The Soviet Method for Armored Warfare: Rigid or Flexible?," unpublished paper, 3 October 1979, pp 1-6; and Mansfield, *op. cit.*, pp 22-30.
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28. Anderson, *op. cit.*, p 70.
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34. Anderson, *op. cit.*, p 74; and Clausewitz, *op. cit.*, pp 119-21.
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37. Luttwak, *op. cit.*, p 87.
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39. Erickson, "The In-Place Unreinforced Soviet Attack," *Soviet Military Digest*, *op. cit.*, p 11; and "Trends in Soviet Combined-Arms Concept," *Strategic Review*, *op. cit.*, p 51.
40. Lind, "Toward a New Understanding of War," *op. cit.*, pp 8-9.

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