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COMBAT FAILURE:
NIGHTMARE OF ARMORED UNITS SINCE
WORLD WAR II

A Monograph
by
Major William R. Moyer



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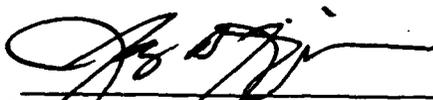
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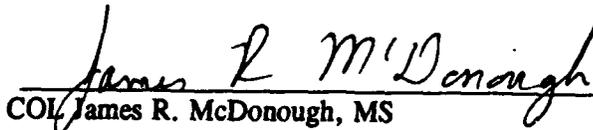
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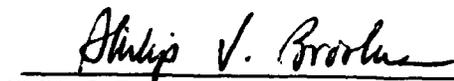
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ABSTRACT

**COMBAT FAILURE: NIGHTMARE OF ARMORED UNITS SINCE
WORLD WAR II** by Major William R. Moyer, USA, 67 pages.

This monograph examines the relationship between physical forces prevalent on the modern battlefield and the causes inherent to US armored battalion failure since World War II. Given the complexity of today's battlefield in terms of technology, command and control, and lethality, examining the physical aspects of failure can offer the clearest understanding of unit failure as a whole; after all, physical actions and reactions in battle are more easily analyzed.

To determine the relationship between armored failure and physical forces on the battlefield, I first provide some theoretical and contemporary perspectives on the physical aspects of unit failure. Next, the causes and conditions of battlefield failure are identified and examined, followed by a discussion of the processes of failure. After laying a foundation of theory and the processes of failure, historical examples as well as recent armored NTC experiences are examined to determine the decisive causes of failure for US armor units since World War II.

My conclusion is that effective enemy maneuver, when complimented with overwhelming fires is the decisive cause of failure for US armored units since World War II. Maneuver sets the conditions for both physical and moral destruction. However, failure is difficult to isolate; it is complex and occurs most often because of a combination of actions -- rarely just one. Clearly, technology has a great deal to do with physical failure. Maneuver, firepower, and protection have increased the power and importance of physical forces in relation to moral and cybernetic forces. Ultimately, overwhelming enemy maneuver and fires rapidly destroy unit cohesion as well as the physical capabilities of the defeated unit.

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**CAPTAIN JAMES M. BURT, U.S. ARMY
COMPANY B, 66th ARMORED REGIMENT, 2d ARMORED DIVISION
Near Wurselen, Germany, 13 October 1944**

**CONGRESSIONAL MEDAL OF HONOR
CITATION**

Captain James M. Burt was in command of Company B, 66th Armored Regiment on the western outskirts of Wurselen, Germany, on 13 October 1944, when his company participated in a coordinated infantry-tank attack destined to isolate the large German garrison which was tenaciously defending the city of Aachen. In the first day's action, when infantrymen ran into murderous small-arms and mortar fire, CPT Burt dismounted from his tank about 200 yards to the rear and moved forward on foot beyond the infantry positions, where, as the enemy concentrated a tremendous volume of fire upon him, he calmly motioned his tanks into good firing positions. As the attack gained momentum, he climbed aboard his tank and directed the action from the rear deck, exposed to hostile volleys which finally wounded him painfully in the face and neck. He maintained his dangerous post despite pointblank self-propelled gunfire until friendly artillery knocked out these enemy weapons, and then proceeded to the advanced infantry scouts' positions to deploy his tanks for the defense of the gains which had been made. The next day, when the enemy counterattacked, he left cover and went 75 yards through heavy fire to assist the infantry battalion commander who was seriously wounded. For the next 8 days, through rainy, miserable weather and under constant, heavy shelling, CPT Burt held the combined forces together, dominating and controlling the critical situation through the sheer force of his heroic example. To direct artillery fire, on 15 October he took his tank 300 yards into the enemy lines where he dismounted and remained for one hour giving accurate data to friendly gunners. Twice more that day he went into enemy territory under deadly fire on reconnaissance. In succeeding days he never faltered in his

determination to defeat the strong German forces opposing him. Twice the tank in which he was riding was knocked out by enemy action, and each time he climbed aboard another vehicle and continued the fight. He took great risks to rescue wounded comrades and inflicted prodigious destruction on enemy personnel and materiel even though suffering from the wounds he received in the battle's opening phase. CPT Burt's intrepidity and disregard of personal safety were so complete that his own men and the infantry who attached themselves to him were inspired to overcome the wretched and extremely hazardous conditions which accompanied one of the most bitter local actions of the war. The victory achieved closed the Aachen gap.

I. INTRODUCTION

It is more agreeable to write about victories, and those are the tales that find their way to the pages but, it is healthy, sometimes, to have a good look at the dirty end of the stick.(1)

General Hamilton Howze

When a military unit enters combat, all the forces of battle work toward its destruction, to break its cohesion and render it useless, and unless great care is taken by its leaders, that unit will not regenerate itself. (2)

Dr. Roger J. Spiller

Physical and moral forces clash upon a complex modern battlefield where fires and maneuver are dependent on soldiers fighting and trying to overcome great danger and survive. Captain James Burt's courage was the rallying point for his tank company. (3) Inspired by his leadership, his men fought effectively despite overwhelming odds and emerged victorious, successful in their attempt to isolate the German garrison.

Physical, moral, and cybernetic forces were at work on this World War II battlefield and each took on its own importance as the battle unfolded. Of the three, however, which force impacted most on B Company's success or could have led to its failure?

Carl von Clausewitz, a 19th century theorist on war, considered each force important in battle and the sum of these determined its outcome. (4) For Clausewitz, fighting meant a trial of moral and physical forces through a physical medium of violent combat aimed at killing the enemy and crushing him on the battlefield. (5) The outcome of battle for the defeated force -- that is to say its failure couched in terms of the physical medium -- is the focus of this monograph.

This monograph examines the relationship between physical forces prevalent on the modern battlefield and the causes inherent to US armored battalion failure since World War II. To accomplish this analysis, a theoretical and practical perspective on the physical aspects of unit failure will be presented.

Next, the causes and conditions of battlefield failure will be identified. The debate over the importance of maneuver versus firepower in defeating a unit will also be addressed. The analysis will then reveal the critical physical factors of failure, culled from numerous studies on the subject. Following the discussion on root causes, the processes of failure will be examined by exploring the phased disintegration of an armored unit, its reaction to failure, and the ways armored units can recognize impending tactical failure and avert defeat.

Following the causes and processes of failure is a brief historical look at US armored unit failure during World War II and Korea. Then the lessons learned from numerous tank task force failures at the National Training Center will be offered.

To assist in this analysis, three criteria will be used to evaluate the evidence that determine the physical failure of armored units. These criteria are enemy actions, friendly actions, and circumstances beyond the control of either force. These criteria will be used to determine whether failure results more often from enemy success or simply from friendly force errors. I will also provide conclusions about the complex nature of tactical failure and who or what is responsible for it. In summary, this assessment will offer implications for tank battalions preparing for a future war against a foe far more formidable than the Iraqi Army.

Before introducing theoretical and practical perspectives, it is important to define failure in its physical medium. Simply stated, military failure is the inability to accomplish an assigned mission. However, there is a confluence of two other key factors: excessive casualties and the loss of important terrain or resources. Failure is also cumulative, collective in nature, and in essence the sum of enemy success and critical friendly errors of commission, omission, or neglect.

Given the complexity of today's battlefield in terms of technology, command and control, and lethality, examining the physical aspects of failure may offer the clearest understanding of unit failure as a whole. After all, physical actions and reactions in battle are more easily analyzed. Man has always tried to calculate his chances of success and failure in war. This study plans to expose the nightmare of tactical armored unit failure and its causes.

II. THEORETICAL and PRACTICAL PERSPECTIVES

I suggest we study the art of battle fought under unfavorable conditions. It will be an unpleasant and sobering study, and will pose problems many of us have never faced. (6)

General Hamilton Howze

Those who have never been through a serious defeat will naturally find it hard to form a vivid and thus altogether true picture of it: abstract concepts of this or that minor loss will never match the reality of a major defeat. (7)

Carl von Clausewitz

The great majority of modern theorists on war have emphasized the importance of the moral impact upon two armies locked in combat. The focus of these theories has been on the infantry experience. Even though the infantry soldier bears the terrible burden of risking his life while advancing into a hail of gunfire, tankers "buttoned up" in M1A1 Main Battle Tanks, still face similar danger from enemy tanks and anti-tank missiles. COL James McDonough, in a passage from a recent journal article, captures well a contemporary vision of combat that brackets many attempts by theorists to describe the physical and moral forces at work in battle:

Combat is ferocious uncertainty. It is a maelstrom of horror and pain, of biting cold and searing heat, of screams, explosions and screeching radio nets, of confused orders and darkness, of desperate, savage fights at close range and impersonal barrages of steel and ordnance from afar. It is a struggle of wills to see beyond the primordial struggle of the moment, to anticipate the deadly thrusts of the foe and to focus killing power at the jugular of the enemy. Units are lost or destroyed, orders are contradictory, crucial assets burn into uselessness, hurt and broken men fail to withstand holocaust of fire and terror - but still the battalion must fight on. (8)

Clausewitz, in his classic On War, initiates the debate over the importance of destroying an enemy's moral and physical will to fight. Clausewitz defines the objective of fighting as the moral defeat and physical destruction of the enemy's army. Destruction demands the victor execute three intrinsic combat tasks: inflict massive casualties, cause the retreat of the enemy, and smash the enemy's moral strength. (9) The fulcrum of success or failure for Clausewitz is the "moment of decision." During battle the outcome rests not on one single action, but in a series of crucial moments. (10) Failure, on the other hand, follows from the loss of critical ground, the lack of reserves, the melting away of numbers, and the collapse of the original battle

line by superior physical and moral forces. (11) These "crucial moments" could be either decisive physical or moral forces applied by the stronger army. For example, moments made by a tank battalion's cannon fire fixing an enemy regiment in a deadly fire sack while reserves knife through an exposed flank. The impact of the unexpected flank attack is too much; enemy battalions "melt away" as massed fires strip away enemy combat power and shred any remaining unit cohesion and fighting spirit.

Clausewitz acknowledged that success and failure depend on the dynamic reactions of four key physical factors: the tactical patterns of each force, terrain, composition of forces, and the relative strength of each side. (12) But he cautioned against relying solely on physical superiority by consistently demanding successful attacks capitalize on combining superior moral and physical strength. (13) By doing so, the eventual outcome was failure for the force that could not mass superior physical and moral forces at the enemy's center of gravity.

Colonel Ardant Du Picq in his book Battle Studies mirrored many of Clausewitz's theories on the interaction of material and moral forces at work on an army in combat. Ardant Du Picq wrote that "the effect of an army, of one organization on another, is at the same time material and moral. The material effect of an organization is in its power to destroy, the moral effect in the fear that it inspires." (14) The French colonel believed the destructive power of an army's moral force coalesced with the appearance of fresh reserves prepared for counterattack, an unexpected maneuver on an enemy's flank or rear, or a devastating penetration of his battleline. (15) Du Picq described the weaker force in combat as the army that became "frightened; set

his sights no longer; [failed to] aim his piece; breaking lines . . . as the whole first rank fell, smashed." (16)

Du Picq clearly saw retreat and loss of ground by the defender as immediate indicators of failure. But failure was not just the province of the defender for the attacker became vulnerable if the defender could preserve moral ascendancy. Ascendancy derived through withering fires or simply the will to beat back the attack. Force ratios also meant little to Du Picq. He countered arguments of force superiority by stressing that "moral pressure would always cause flight when a bold attack was made." (17) In summary, Du Picq identified fear, surprise, friendly materiel failure, psychological and physical isolation, loss of control, and lack of cohesion as all contributing factors of battlefield failure and unit collapse.

Undoubtedly, the insights of nineteenth century theorists have contributed significantly to contemporary attempts to understand failure. The writings of Cohen and Gooch, Dupuy, Simpkin, and S.L.A. Marshall weight the importance of studying failure in an age of mechanization as key to understanding the dynamics of modern battle. Clausewitz and Du Picq certainly could not have imagined the impact micro-chip technology would play on the modern battlefield. Today, maneuver, firepower, and protection have increased the power and importance of physical forces in relation to moral and cybernetic forces.

In Military Misfortunes: Anatomy of Failure in War, Eliot Cohen and John Gooch depict military failure as a continuum of increasing complexity. Military units can suffer from simple, complex, or catastrophic failure dependent on a unit's inability to learn from its mistakes, adapt to changing situations, or anticipate failure. In essence, the authors believe that "true

military misfortune can never be justly laid at the door of any one commander. Misfortunes are failures of the organization, not of the individual." (18) Military misfortune is a complex process of friendly errors that most often comes about because of a fatal disregard for firepower and maneuver. (19) Cohen and Gooch's theories on military failure highlight organizational and structural flaws, and place the burden of blame on friendly unit errors made on the battlefield.

Trevor Dupuy provides a slightly different perspective on unit failure in his book Understanding Defeat. His theories are based on a large data base of U.S. divisional and regimental battles since World War II. Dupuy focuses almost entirely on the physical forces that prey on a unit before it is defeated in combat. These physical phenomena include the impact of combat power ratios, casualty rates, attacker advance rates, and actions occurring on a unit's flank. (20)

Dupuy's work is a representative sample of much of the scholarly work done in the past 20 years on military unit failure. Contemporary theorists believe weapon lethality, mobility, and armored protection have increased an enemy's potential to fire and maneuver on an opponent's flank or rear. Errors in tactics, techniques, and procedures can place armored units in positions vulnerable to successful enemy maneuvers that outflank, infiltrate, or encircle -- all leading to defeat. (21) Ultimately, failure is the byproduct of these two complex enemies applying maximum physical force at predetermined weaknesses.

Like tectonic plates under pressure, modern combat forces exert great pressure on each other. Eventually, one plate will slide over the top of the opposing plate, causing a severe geological disturbance. On the battlefield,

that disturbance manifests itself as the strengths of the enemy attacking the weaknesses of his opponent. What results is a surging imbalance of force focused at a decisive point. Failure is the predictable outcome at that decisive point. In other words, defeat is an armored force's fault line and failure is the sum of all forces creating the disturbance.

Although predisposed toward the physical causes of failure in battle, Dupuy does not discount the fact that human factors play a role in defeat. However, it is here that he clearly breaks with the classical theorist's view of moral ascendancy. Dupuy believes that modern weapon systems can cause the complete physical destruction of an enemy force. These physical forces (tank battalions, MLRS, Apache attack helicopter units) on the modern battlefield, are so lethal and well protected that their decisive actions, aimed correctly, can alone destroy an opponent before moral collapse occurs within the defeated unit. Nevertheless, Dupuy's major contribution to the theory of failure is the idea that certain key physical forces applied by an overpowering enemy can cause a weaker unit to fail on the battlefield. Advanced weapons technology can create complete physical collapse without having to target the enemy's moral forces.

Richard Simpkin in Race to the Swift looks at unit failure through a lens he terms "Basic Reliability Theory." Simply stated, the theory asserts that the more complex the system [for example: a tank battalion task force in combat], the greater its probability of failure. The military solution to the reliability problem is to build redundancy and provide surplus mass over and above what is deemed sufficient for the task at hand. (22) Simpkin further believes that defeat becomes "the creation of a picture of failure in the commander's mind. The outcome turns neither on seizing and holding ground

nor on the dislocation or disruption of forces and resources, but on the pictures in the opposing commander's mind." (23) Failure is a mural of insurmountable moral and physical superiority painted for the enemy not only to see, but more importantly, to believe. Simpkin views failure as a common phenomenon, but fails to explain the mechanism by which a battalion fails. (24)

S.L.A. Marshall, in his many books on U.S. soldiers in action, dealt directly with the mechanism of failure. "SLAM" believed each battle had its own unique rhythm and tempo, based largely on opposing force rates of fire. A soldier's will and effective firepower from his weapons determined success or failure. (25) Marshall believed unit cohesion and collective unit fires were instrumental in preventing unit breakdown in combat. Trust in firepower gave each infantryman the will to overcome fear and the possibility of defeat. Marshall saw a great deal of combat and understood the importance of both physical and moral forces at work in battle. His version of success depended on a simple calculation: greater physical force (rifle fire) than an enemy's force, would give the US soldier the moral strength he needed to advance under fire and get to the objective. (26)

Thus, a review of classical and contemporary perspectives first reveals that failure is a common phenomenon found throughout the history of warfare. Failure is also difficult to isolate; it is complex and occurs most often because of a combination of actions -- rarely just one action. Second is the symbiotic relationship of physical and moral forces on the battlefield and their influence on soldiers and their use of weapons in combat. Clearly, the 19th century theorists linked defeat to both physical and moral failure. But contemporary theorists realize that the complexity of modern warfare and weapons systems weakens the link between the physical and moral. Units can be defeated in

literally minutes by precision weapons of immense lethality. Target the physical forces and defeat them and moral failure is sure to happen. Technology has a great deal to do with physical failure. Maneuver, firepower, and protection have increased the power and importance of physical forces in relation to moral and cybernetic forces. The right blend of force, when applied by the officers and men of a tank battalion, can create a juggernaut of fire and maneuver strong enough to defeat an armored enemy.

Clearly each theorist offers a paradigm from which to choose. Dupuy's models (see Appendices) offer utility in getting on the ground to determine the causes of collapse. But Clausewitz also offers a useful model to discover the truth in history.

Clausewitz's concept of "kritik" (27) seems the best way to explore the realm of physical failure and its causes. "Kritik," or critical analysis, was Clausewitz's method of determining what actually happened or might have happened on a battlefield. Three guiding principles shaped Clausewitz's search for truth: discovery of the facts, tracing the effects to causes, and investigating and evaluating the means by which the commander based his actions. (28) The Prussian general's model will prove useful in studying failure because, as Clausewitz reminds us, "in war, effects seldom result from a single cause; there are usually several concurrent causes." (29)

III. THE CAUSES OF FAILURE

We got a hell of a beating. We got run out of Burma and it's humiliating as hell. I think we ought to find out what caused it, go back, and retake it. (30)

General Joe Stillwell

It was the saddest sight I have ever seen . . . men pushing, shoving, throwing away equipment, trying to outrace the artillery and each other, all in a frantic effort to escape . . . It was a heartbreaking, demoralizing scene. (31)

Anonymous remark made by an
American platoon leader at
Vossenack during 28th Infantry
Division battle for Schmidt

Far out in the high Mojave desert, US tank battalions train for the next war at the National Training Center (NTC). Armed with the best equipment and operated by the best trained soldiers in the world, American units grind it out with a tough NTC opposing force which wins 80% of the time. As mentioned previously, a US tank battalion represents a potent mass of firepower, mobility, and protection unmatched by other modern armies. That being the case, what causes our armored units at NTC to fail despite their enhanced capabilities to fight and survive on the modern battlefield?

The physical causes of failure are the things you can see, touch, and feel on the battlefield. Leadership, cohesion, and morale may be the glue of a tank outfit, but firepower and mechanization are its muscle. The physical environment is simply the tactical drop-cloth over which it has to fight. This blend of firepower with maneuver through mechanization results in the modern armored units being a fairly sophisticated military organization -- an "accident waiting to happen" if Simpkin is to be believed.

The causes of armored failure are largely the result of a tank battalion's technological complexity, the missions it must accomplish, and the expectations demanded of it by Army doctrine. Enemy forces, terrain, and weather complete the aggregate factors linked to tactical failure.

If we are going to examine armored failure, it is important to understand the role of tank battalions in our Army. Simply stated, the tank's role sets the conditions for armored success or failure. Field Manual 100-5 defines the importance of US armor:

In mounted warfare, the tank is the primary offensive weapon. Its firepower, protection, and speed create shock effect necessary to disrupt the enemy's operations and defeat him. Tanks can destroy enemy tanks, infantry, and anti-tank guided missiles. Tanks can break through suppressed defenses, exploit the success of an attack by striking deep into the enemy's rear areas, and pursue defeated enemy forces. Armored units can also launch counterattacks as part of the defense. (32)

So tanks remain the primary mounted assault element in our Army. Major General Ernest Harmon, commander of two US Armored Divisions in World War II, echoed the same sentiments 45 years ago: "Tanks should habitually lead and take the brunt of the battle in all cases where terrain favors tanks. Always attempt to get some tanks into the rear of an enemy position. When this is successful, the fighting is generally over." (33)

A US tank battalion's mission is to close with and destroy enemy forces using fire, maneuver, and shock effect. In the defense it is to repel an enemy assault by fire and/or counterattack. The battalion must be able to attack or defend and conduct sustained combat operations in any environment. Armor battalions normally fight enemy forces they can both see and engage, usually within an envelope of five kilometers from organic direct and indirect

weapons. The key to armored success is quickly massing combat power by maneuver and synchronizing combat multipliers. (34)

The foundation of doctrine for tank battalions is classical maneuver warfare. The battalion uses portions of its whole to find and fix the enemy, while the bulk of combat power maneuvers to the enemy's weakest point -- usually an exposed flank or rear. The goal is to mass tank cannon and artillery fires at a critical time and place to destroy the enemy. (35) This goal supports Clausewitz's concept of there being "crucial moments" that decide the outcome of battle. As mentioned previously, risk is inherent in complex armored operations. Fully recognizing that fact, current tank doctrine calls for taking the initiative while accepting prudent risks.

Armor doctrine also makes certain assumptions in regard to execution. Tank battalions are expected to attack and defeat a defending enemy company, usually one third its size. The attack must focus fires and maneuver on defending platoons, penetrate the defenses - sometimes through a maze of entangling minefields and tank ditches, and finally fight off counterattacking reserves. Destroying the enemy force and preserving friendly combat power are the objectives of a successful attack.

In addition, tank battalions must defend against and defeat an enemy regiment three times its size. Here, the expectation of a successful defense is enemy destruction, retention of decisive terrain, and maintaining enough combat power to counterattack.

Tracking down what went wrong in an attack or defense at first seems easy to do: study the battle, discern the important facts, trace the effects to causes, and evaluate their importance to the battle's outcome. But defeat is a human experience. Only the men who were on the field of battle can recount

what really happened. So an empirical approach based on combatant oral interviews, historical analysis of unit after action reports, and scholarly synthesis by military analysts, is the best way to find out how armored units fail.

Clausewitz captured well the human experience of defeat. For him, battle had a momentum all its own. The shape of battle was largely predetermined and followed a course set before the battle began. (36) A timeless passage from On War describes the hopeless collapse and failure of a unit:

The loss of entire batteries while none are captured from the enemy; the crushing of [your] battalions by the enemy's cavalry while the enemy's own battalions remain impenetrable; the involuntary retreat of the firing line from point to point; futile efforts to capture certain positions, which end in the scattering of the assault troops by well aimed grape and case-shot; a weakening of the rate of fire of [your] guns as opposed to the enemy's; an abnormally rapid thinning out of [your] battalions under fire caused by groups of able-bodied men accompanying the wounded to the rear; units cut off and captured because the battle line is disrupted; evidence of the line of retreat being imperiled: all this indicates to a commander where he and his battle are heading . . . and the closer comes the time when the battle has to be conceded." (37)

From the victor's perspective, the causes of an opponent's failure seem clear in this case: overwhelming enemy fires and maneuver coupled with an opponent's high casualties, inability to mass his fires, or hold ground. Tactical superiority carried the victor over the defeated opponent's breastworks. But Clausewitz's account is only part of the complete answer. What other causes were present that day but never captured by the great Prussian's pen?

The majority of recent historical research done on tactical failure comes in the form of studies based on World War II and Korean War experience. Battles at division and regimental level have primarily been the focus. Trevor Dupuy and his organization, Historical Evaluation and Research

Organization (HERO), provide much of the rich data available on US tactical failures since World War II. (See Appendix A) Other authors cited in this study use similar historical data to arrive at many of the same conclusions as Dupuy. (38)

Dupuy divides the causes of failure into three general categories. First, a unit may find itself in a battle in which the odds of success are so low that no matter what a unit tries to do, there is no hope of success. Second, certain actions may not actually be the fault of the unit or its commander, but the unit may have contributed to or influenced them. Finally, battles are most often lost because of failures on the part of the unit's own actions. (See Appendix B) (39)

The first group of causes center on overwhelming numbers of enemy tanks, artillery, and air support causing defeat. Superior numbers have many times been the essential reason for defeat. Massed enemy armor and air support can be overwhelming both quantitatively and qualitatively. In addition to superior numbers, other uncontrolled causes include weather, terrain, chance, and luck. Friction in combat, the result of countless minor unexpected incidents Clausewitz believed "made the apparently easy so difficult on the battlefield," is the one variable he believed could tip the balance of battle away from the expected outcome.

The second category of failure covers conditions a unit may be able to influence. These factors include the degree of preparation before the battle, low morale, fatigue before the battle, high casualties incurred during battle, and outright errors made during the course of battle. Only very good units can overcome or avoid these causes.

The final Dupuy category of failure rests solely with the commander and his unit. These factors can cause long term physical and psychological damage to a defeated unit and include: surprise, inferior leadership, poor command and control, and poor reconnaissance.

A HERO study analyzed Dupuy's model and generated 39 possible causes of tactical unit failure. (See Appendix C) Based on historical analysis of actual battles and computer modeling, HERO analysts selected what they believed were the 13 critical factors that cause tactical failure: (40)

1. high enemy/low friendly force ratios
2. heavy personnel casualties
3. severe equipment losses
4. friendly forces in tactically vulnerable positions
5. enemy occupied key terrain
6. unfavorable status of friendly units in adjacent sector
7. enemy flanking, envelopment, and penetration attacks
8. unfavorable advance rate by the an enemy attacker
9. lack of friendly reserves
10. supply shortages
11. low ammunition
12. communications failures
13. poor morale

Force ratios cannot be discounted despite the US armor quantitative edge. HERO studies indicate that a ratio of armored vehicles equal to or exceeding 1.5 to 1 increases the potential effectiveness of the side that has the advantage. (41) In addition, historical force ratios indicate a median attack failed when the ratio decreased to 1.3 to 1, while a defense failed if the ratio approached 2.1 to 1. (42) German General Kliest told Liddell Hart after World War II that "an attacker needing a 3 to 1 superiority was under the mark, rather than over it. I would say that, for success, the attacker needs 6 or 7 to 1 against a well knit defense." (43) In retrospect, NTC lessons learned reinforce Kliest's calculations. A successful attack against the OPFOR must

include a force ratio of 6 or 7 to 1 at the point of penetration -- usually a Motorized Rifle Platoon. And ultimately, initial or final force ratios may not decide an outcome as much as the sudden unanticipated impact of a US tank battalion maneuvering into an enemy flank.

Casualty rates have varied impact on battle outcome. Many studies come to different conclusions. What matters most is the intensity and tempo of combat and a unit's ability to absorb daily casualties and backfill with replacements. Units can sustain very high or unusually low casualty rates before collapsing. Dorothy Clarke's study of 44 World War II infantry battalion engagements in a 1954 research paper entitled Casualties as a Measure of the Loss of Effectiveness on an Infantry Battalion, concludes that enlisted cumulative casualties above 40% caused an attacking unit to withdraw and a defending unit to collapse. (44) The desire to accomplish the mission remains the true indicator of the number of casualties a unit will endure. Casualties then become only a "water-mark" of the unit's determination to fight on, despite the human cost.

HERO also interviewed veterans of some of the worst US defeats in World War II and Korea. These interviews were conducted in order to compare and contrast subjective human experiences to a strictly objective historical after action analysis.

The veterans ranged in rank from four star general to infantry private. The battles were all classic, well known US defeats: 36th Infantry Division (ID) at Rapido River; 45th ID at Anzio; 28th ID at Schmidt; 106th ID at Schnee Eifel; 2nd ID at Krinkelt-Rocherath; 24th ID at Taejon (Korea); and 2nd ID again at Kunu-Ri (Korea). The participants were given surveys to

complete and joined in discussion groups to recall what went wrong in their divisions during combat. (45)

The veterans divided the causes of tactical failure into five main categories: force strength imbalances, tactical errors, poor weather and terrain, lack of means and materiel, and human factors. The three most important causes (all tactical errors or failures) selected were: enemy maneuvers involving flank, enveloping, and penetration attacks (no other factor was cited as frequently or strongly as enemy maneuver); enemy units occupying key terrain; and US forces positioned in tactically vulnerable positions. (See Appendix D)

One particular veteran who served in the 106th ID as a captain and later as a lieutenant colonel in the 9th ID in Korea, was a participant in two major US defeats in two wars. He believed the main cause of defeat in both was the tactical superiority of enemy maneuver and fires. The same veteran also cited poor command and control, high casualties, and lack of reserves, ammunition, and fire support as other important causes of failure for defeated US units. (46) Based on the oral interviews with the 40 veterans, HERO concluded that tactical considerations are probably the most important factors leading to mission failure.

Aside from physical aspects of failure, many of the veterans stated that failure came as a complete surprise. They believed failure was objective, but the feeling of defeat was subjective. The fighting had been under severe conditions and most men did not feel defeated. One veteran general officer confessed that "defeat is what you feel if you believe you have in some way been responsible for failure." (47)

In addition to the computer modeling and veteran interviews, Dupuy and HERO made one other major discovery using their data base of the battles listed in Appendix A. Figure 1 (48) outlines the main reasons why a US or enemy force abandoned an attack or defense. Clearly, maneuver, not firepower, was the more decisive influence in causing failure. Note that enemy maneuver was about six times more likely than enemy firepower to cause tactical failure.

Reasons for a Force Abandoning an Attack or Defense

Maneuver by Enemy

Envelopment, Encirclement, Penetration	33%	
Adjacent Friendly Unit Withdrawal	13%	
Enemy Occupied Key Terrain	6%	
Enemy Achieved Surprise	8%	
Enemy Reinforced	4%	64%

Firepower by Enemy

Casualties or Equipment Losses	10%	
Heavy enemy Artillery/Air Attacks	2%	12%

Shortage of Resources

No Reserves Left	12%	
Supply Shortage	2%	14%

Conditions External to Battle

Truce/Surrender	6%	
Change in Weather	2%	
Orders to Withdraw	2%	10%

FIGURE 1

What is it about maneuver that can cause the defeat of an armored force? Clearly, Clausewitz felt a threat to the rear could make defeat more probable, as well as more decisive. (49) Ardant du Picq believed the essence of maneuver was to "cut off, outflank, turn the enemy in a thousand ways -- the intent not to kill but to shatter discipline, shatter cohesion, produce paralysis, bring about collapse by generating confusion, disorder, panic and finally, chaos." (50)

Effective maneuver places deadly tank firepower at an enemy weakness. Unexpected fires from flanks and rear attack the "grill doors" and thinly armored sections of enemy tanks. When confronting this situation, an enemy must withdraw in order to protect his force. The withdrawal in combat takes on any number of shades of orderliness, from disciplined retrograde to uncontrolled flight. It is the withdrawal that feeds firepower. In other words, multiple targets arise as a defender attempts to reposition, giving the attacker a vulnerable, target rich battlefield in which to mass direct and indirect fire. Continued pursuit on behalf of the attacker leads to the enemy's soft underbelly, his logistical and command and control nodes. Their destruction can put a "lock" on defeat of the defending force. General Patton fondly referred to the enemy's rear as "the happy hunting ground for tanks."

Effective maneuver, although a cause of failure on its own merit, starts the snowball of defeat rolling faster and faster. "Moral disruption by maneuver" (51) causes complete surprise and higher casualty rates, wrecks enemy tactical plans, destroys reserves, shuts down command and control, and puts the enemy force in a tactically vulnerable position. Firepower, meanwhile, annihilates the enemy and seals his fate as a shattered force.

German Major General F.W. von Mellenthin was asked after World War II what was the decisive point in counterattacks against Soviet units. Was the decisive point the destruction inflicted on the enemy by firepower or the disruption of cohesion caused by maneuvering and suddenly appearing from an unexpected direction?

The Russian doesn't like to be attacked by surprise -- if so, he panics. The only chance you have with a Russian unit is to attack not from the front line, but from the rear or from the flank, therefore our [the German] aim was to attack the enemy by maneuver, surprise him, and destroy him by fire . . . destroy the whole unit quickly. (52)

Effective maneuver complemented with decisive firepower remains the surest means of causing tactical failure. One other variable to be considered is the inability of a unit to react to the blow. Mixtures of action (attack, defend, counterattack), as well as physical and moral dominance, all impact on the outcome of battle. Failure finds the unit that cannot master the procedures and processes that ensure success, or avert defeat.

IV. THE PROCESSES OF FAILURE

As my [infantry] company attacked, one minute there was fire and maneuver, next there was just fire, and then the leading units were reported pinned down. (53)

Richard E. Simpkin

The history of failure in war can be summed up in two words: too late. Too late in comprehending the deadly purpose of a potential enemy; too late in realizing the mortal danger; too late in preparedness; too late in uniting all possible forces for resistance; too late in standing with one's friends. (54)

General Douglas MacArthur

MILES "kill" lights, not burning tanks, light up the NTC after a battle with the OPFOR. (55) In most cases, the defeated armored unit shakes itself off after an exhausting battle and prepares for the next mission. Meanwhile, the battalion's leaders march off to an after action review (AAR) to analyze the battle and find out what went right, and wrong, with its planning and execution. It is during the AAR that they discover the causes, processes, and results of their mistakes. Often it is the processes that prove more difficult to identify and for good reason.

The processes of failure are tied to events, friendly actions, and reactions of opposing forces. As such they occur over space and time. They occur everywhere on the battlefield and play out along a battlefield timeline. Events unfold as the sum of all forces build pressure along the "faultline" of defeat as previously described. In line with Clausewitz's description of failure, small actions when put together fit into a collective outcome that takes shape over time. That outcome, either defeat or victory, is the result of a process. This section examines the process that leads to the former – defeat. In that regard, it will seek to answer several questions. First, what actually happens to a unit that suffers the symptoms of failure? Then, what are a unit's reactions to defeat and can the unit feel or sense the impending disaster?

Clausewitz addressed the Napoleonic process of this phenomenon in Book Four of On War. He stressed that the outcome of battle was made up of many smaller engagements. If there were a "sideline" to a battle, one could watch the process by keying on four distinct signs: the commanding officer's moral stamina under fire, the wasting away of one's own troops at a rate faster than the enemy, the amount of ground lost, and finally the ratio of unused

reserves still available to each unit. (56) A passage in Book Four describes the phenomenon of defeat in a way only a defeated force can experience:

When one is losing, the first thing that strikes one's imagination . . . is the melting away of numbers. This is followed by a loss of ground which almost always happens, and can even happen to the attacker if he's out of luck. Next comes the break-up of the original line of battle, the confusion of units, and the dangers inherent in the retreat . . . which are always present to some degree. Then comes the retreat itself, usually begun in darkness, or at any rate continued through the night. Once that begins, you have to leave stragglers and a mass of exhausted men behind; among them generally the brave -- those who have ventured out farthest or held out longest. The feeling of having been defeated, which on the field of battle had struck only the senior officer, now runs through the ranks down to the very privates. It is aggravated by the horrible necessity of having to abandon to the enemy so many worthy comrades . . . Worse still is the growing loss of confidence in the high command . . . What is worse, the sense of being beaten is not a mere nightmare that may pass. It has become . . . the fact that the enemy is stronger. (57)

General Howze, an armored regimental commander in North Africa during World War II, recounted the same observation as Clausewitz. "Small units or parts of units would just drop from sight, without explanation, and [I would see] holes developing in the defense and know that the units had been penetrated in some areas. The very fact that [a unit was] losing ground was indication enough that the situation was partly out of control" (58) In both instances, Clausewitz and Howze described a chain of events that led to defeat. Essentially, cause and effect traveled along a predictable timeline of events. But as has been discussed previously, there is more to combat than simple action-reaction. Chance, friction, and luck also play a part in battle. For example, a unit seems ready to collapse but due to an unpredictable event or action it staves off defeat. Can anyone discount the effect of the fixed-bayonet charge of the 20th Maine at Gettysburg, as men charged downhill, out of ammunition, close to collapse, scattering and capturing hundreds of

Confederate soldiers? Nevertheless, despite the unpredictability of battle, there are patterns of failure and, in fact, theories to explain it.

Disaster theory (59) grapples with concepts of cause and effect and their relationship to inevitability of events. As Simpkin points out, possibilities of failure exist in complex organizations where two or more components interact in a way not expected. This is especially true in the chaos of combat where this friction is so widespread. According to the theory, once this chain of cause and effect occurs and accelerates, operators (unit commanders) can lose control of the organization. In other words, disaster lurks in every organization and is inevitable in any complex organization. (60)

Catastrophe theory (61) is directly related to disaster theory and deals with the impact of sudden changes on organizations. Military forces (two units in combat) can experience either gradual or sudden changes during battle. Regardless, as opposing forces interact, there is some "catastrophic" point of no return, beyond which events precede on an inevitable pathway (determined by factors previously described, i.e. low morale, luck, and chance). Just before the catastrophe, however, small changes made at the right moment can keep a unit out of trouble. (62) The failure process can be altered or even stopped. The old axiom of "snatching victory from the jaws of defeat" suggests this phenomenon. Nevertheless, a unit must quickly recognize the failure process and react to its causes in order to avoid defeat.

The World War II and Korean War veterans interviewed by HERO identified nine foreboding events they associated with defeat:

- 1.) Leaders down the chain of command received only vague orders and enemy information during battle.
- 2.) Men purposely losing themselves in the heat of battle.

- 3.) Slackening of artillery support during enemy onslaught.
- 4.) Men falling back under heavy, outnumbering fire.
- 5.) Being attacked by superior weapons: tanks firing on dismounted infantry.
- 6.) Fear of isolation and being cut off.
- 7.) News from higher HQ that their unit was cut off and surrounded.
- 8.) Running out of ammunition.
- 9.) Wounded comrades being abandoned along with the dead. (63)

Most of the veterans generally felt that soldiers fighting at battalion level were not aware of impending defeat until telltale events like those listed began to occur. Enemy maneuver, overwhelming fires, and the fog of being unaware of defeat enveloped the veterans in a predictable process of "moral disruption by maneuver."

Captain Kevin Smith outlines this process of "moral disruption by maneuver," in an article by the same title (61), in which a superior force attacks into the unsuspecting flank or rear of an enemy. The power and surprise of the attack penetrates the force's Unit Moral Envelope (UME), or moral and physical ring, causing fear of encirclement and annihilation. The attacking force must possess the combat power necessary to cause flight, disorganization, or disintegration of the defending unit. The fear generated by this combat power is translated to sensations of impending defeat and the unit withdraws. The attacker then pursues the haggard unit and destroys it. (64) The process is physical but the trigger -- fear, a moral condition caused by overwhelming physical forces leads to failure.

In Figure 2, Dupuy outlines specific conditions under which both attacker and defender will change their battle posture. (65) For Dupuy, the process is not as important as the conditions needed to ensure failure. The conditions center on superior force ratios, greater maneuverability, and lowered casualty rates. Again Dupuy highlights the physical aspects of unit failure and tends to discount the breakdown of moral forces as a condition of defeat. It is, however, the physical process that sets the conditions outlined in Figure 2.

Defending Force Fails

1. Combat power ratio (def/atk) is less than 0.5
2. Defender suffers greater than 42% casualties for a battle at battalion level.
3. Attacker advances at a rate greater than 1 km/day.
4. In adjacent sector, opponent is 10 km behind defender's FEBA.

Attacking Force Fails

1. Combat power ratio (def/atk) is less than 1.1
2. Attacker suffers greater than 28% casualties for a battle at battalion level.
3. Attacker advances less than 1 km/day.
4. In adjacent sector, opponent is 10 km behind defender's FEBA.

* 3 of 4 conditions will cause posture change

FIGURE 2

Studies done on unit cohesion in German Wehrmacht battalions late in World War II revealed that German resistance continued until units were

overrun, overpowered, lines were cut, or small units were cut off from their headquarters. Professors Shils and Janowitz, working in the Psychological Warfare Division, SHAEF during World War II, found that German units disintegrated depending upon levels of unit cohesion, loss of leadership, breaks in communication, and lack of food and medical care.

They classified modes of disintegration of modern armies into five categories:

1. Desertion
2. Active Surrender -- a deliberate decision by a unit to give up to the enemy, and take steps to facilitate surrender.
3. Passive Surrender -- showing only token or no resistance to capture.
4. Routine Resistance -- rote or mechanical, but effective execution of orders until the enemy became overpowering.
5. "Last Ditch" Resistance -- ends only with the exhaustion of men and equipment. (66)

The choice each unit takes in succumbing to an overpowering enemy comes down to its will to resist and the level of cohesion left intact. Soldiers and commanders may be faced with the question: Have I lost? Dr. Roger Spiller believes that modern warfare demands more of the individual soldier -- "decisions in combat now are made down in the ranks of the ordinary fighter: Do I advance? Do I take cover? Do I fire now? Do I retreat? Do I surrender?" (67) The failure process certainly has an important human element that affects the outcome of battle. Soldiers react to enemy forces and decide to fight or flee. Disintegration, in essence, becomes a fait accompli, or the last gasp of a defeated unit. The moral processes of human failure are the natural and expected outcome of overwhelming physical forces.

The processes of failure can be analyzed many ways: by time and event, by cause and effect, or by physical and moral causes. Each theorist sees battle, its processes, and outcomes through a different lens. Clausewitz described the process of failure as overwhelming physical forces applied over time to create moral conditions ripe for defeat. The process is first a series of physical actions by the stronger opponent involving maneuver, fires, violence and physical destruction of the weaker force. The physical and moral reactions by the weaker force are a collective of small sequential actions that result in failure, defeat, disorganization, and disintegration. That process of failure is sparked by individual and collective human emotion as well as deadly force applied by a determined enemy.

Technology and modern armored warfare have redefined the physical parameters of battle since the 19th century. But the processes of failure evident at the NTC and in recent history suggest that the process Clausewitz describes is still valid today.

V. HISTORICAL PERSPECTIVES OF US ARMORED FAILURE

I told them we could not hold out much longer unless we got additional ammunition. Captain Montgomery said we must hold . . . our orders were to hold at all costs. I wondered if he could possibly realize the meaning of those words. We must hold until every last man was killed or captured. Company I's last stand! And what is to be gained? Nothing but time. Time born of the bodies of dead men. Time. (68)

Charles B. MacDonald,
Infantry Company Commander
Battle of the Bulge, Dec 1944

Words are a poor instrument to describe what a tank battle looks like. Neither can isolated camera shots tell you the whole story. Probably only Hollywood with its machinery of many dimensions is capable of transferring to your senses a clear impression of a tank battle. (69)

Ernie Pyle, covered the battle of
Sidi-Bou-Zid, 15 Feb 1943

The sounds of armored combat echo back in time from the maneuver corridors of NTC desert to the North African desert of 1943 where US armor first felt the "sting of battle" from German '88 fire. The foundations of contemporary American armor battalion organization are built upon the sands of Sidi-Bou-Zid, Tunisia, where the 1st Armored Division received its baptism of fire. After all, it was during the battle that two US tank battalions were decimated by German tank fires and close air support when counterattacking experienced panzer troops of Rommel's Afrika Corps. History reminds us all that almost 100 US tanks and their crews perished in two days of fierce fighting at Sidi-Bou-Zid. Needless to say, the North African defeat had a great impact on subsequent US armored tactics and techniques.

Armored historical perspectives play an important part in the evolution of American armor equipment, organization, and tactics. In fact, the concepts

inherent in armored warfare have followed a logical, evolutionary path of development since World War I. Essentially, the tank evolved as a means to overcome the deadlock of World War I trench warfare. The expectation of tanks since World War II, however, has been to kill enemy armor with a single shot, survive his counterfire, and rapidly maneuver over any type of terrain in order to fulfill this expectation. Maneuver, firepower, and shock action have become the benchmark of modern armored combat power. Unless something entirely revolutionary occurs to change the expectations of the tank or its combat power potential, armored warfare will continue to tack a predictable course of success and failure, dependent on the ability of armored leaders to synchronize the physical, moral, and cybernetic forces at work on the battlefield.

There were a number of US armored failures in World War II. The majority can be attributed to the poor quality of Allied tanks in that conflict. For the most part, US tanks were unable to engage German tanks at equal range in concentrated, decisive thrusts. Our attacks were often limited to slow, piecemeal engagements against superior firepower. (70) Figure 3 (71) reveals just how vulnerable US and allied tanks were against German Tiger and Panther tanks. The US Sherman M4A1 tank, for example, was unable to penetrate the frontal armor of the German tanks at any range. Whereas, the vulnerable Sherman could be destroyed from almost a mile away. Needless to say, for an American tanker, "Tanking in World War II was a cautious business." (72)

GUN VERSUS ARMOR-WW II TANKS

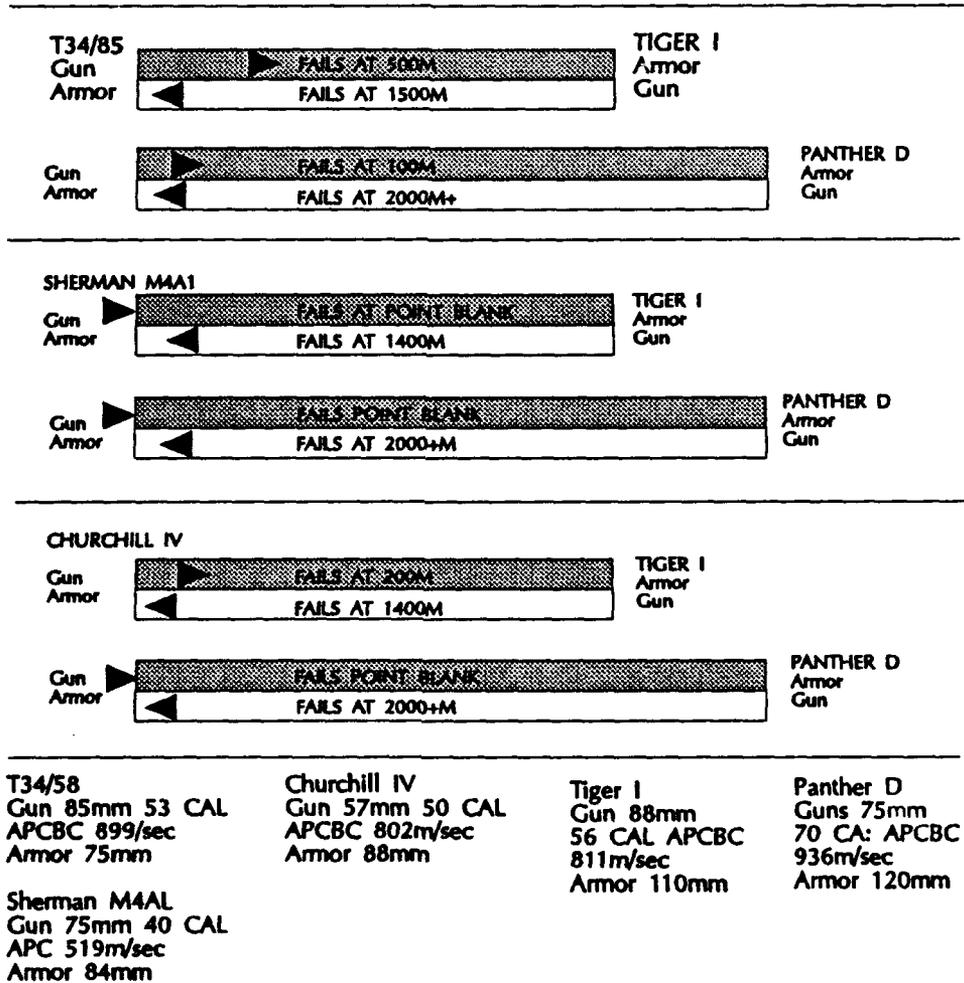


FIGURE 3

Caution is what 1st Armored Division (AD) carelessly tossed into the wind in Tunisia. They took "imprudent risks" born of inexperience and

ignorance of the enemy. As mentioned previously, in two days of fighting the 1st AD suffered the loss of two tank battalions. In addition, two reconnaissance companies with light tanks, and several battalions of artillery and infantry were destroyed. Both tank battalions were lost while counterattacking because the attacks lacked mass, synchronization of effort, and sorely discounted the ability of the Germans to fire and maneuver.

German armor outnumbered American armor two to one throughout the Sid-Bou-Zid battle. The results were also lopsided with one hundred American tanks being destroyed while the Germans lost only ten. German penetrations and flanking maneuvers overwhelmed and trapped portions of two armored regiments, while accurate Axis firepower reduced 1st AD's overall combat power by 50%. (73) The American defeat was catastrophic and put the entire campaign at risk. Simply stated, German maneuver and superior firepower had painted a terrible mural of American failure at Sidi-Bou-Zid. General Rommel later described the two day engagement as "a violent tank battle in which the inexperienced Americans were steadily battered down by my tank men -- veterans of hundreds of desert battles." (74) Although many important lessons were learned by the Americans, the defeat in Tunisia was by no means the last.

The 2nd AD, during their drive to the Roer Plain in November 1944, also experienced firepower superiority problems while dueling with German tanks. During one particular battle, two M4 Sherman battalions tangled with 25 Tiger/Panther tanks from the 9th Panzer Division. The action lasted all day and when it was over, 2nd AD had lost 47 tanks and 350 casualties, as opposed to only one German tank lost. During the entire month of November, the three M4 tank battalions of the 67th Armored Regiment only killed 5

Panther tanks. (75) This inability to fire and maneuver on the superior German tanks gave American armored battalions fits throughout the war. It was not until the Korean War that American armor could maneuver, free from the worry of quality enemy tanks and antitank guns.

There were very few tank battles in Korea. Like Italy in World War II, the terrain of the Korean peninsula did not support large armored operations. In addition, even though North Korean T-34 tanks led the attack south of the 38th Parallel, the 400 or so tanks of the North Korean Peoples Army were knocked out of action by early winter, 1951. After that, the only significant threat to US armor were minefields and sporadic bazooka fire. In fact, the only serious defeat of American armor in Korea came when a tank column was ambushed by Chinese infantry in a narrow pass between Kunu-ri and Sunchon. In the engagement, sixteen tanks were attacked and destroyed. The largest recorded tank battle of the war occurred in November 1950, when one US tank company took on and defeated a company of North Korean T-34's.

Constricted terrain and road networks laced with mines proved to be the major threat to US armor in Korea. Effective maneuver was next to impossible throughout the theater due to the poor roads. As a result of poor terrain, armored battalions were reduced in effectiveness and largely supported dismounted infantry action. This infantry support mission and intermittent use as indirect fire in place of artillery, tied up the efforts of most of the tank outfits in theater. A 1st Cavalry Division after action report made clear that "enemy North Korean tanks showed reluctance to slug it out with the medium tanks in tank versus tank fights." (76) Armored unit failure usually only occurred as a result of friendly errors: tank units failing to properly clear

minefields, or carelessly entering dangerous chokepoints without an infantry escort.

Nevertheless, both wars offered unique challenges to US armored units. World War II was fought on a grand scale against an enemy with superior armor. US tank battalions took many "lumps" struggling with the German panzers. Armored units suffered from high materiel and personnel losses. They also displayed a disturbing inability to maneuver and fire on German flanks. This characteristic did not go unnoticed by American generals. Major General Ernest Harmon, for example, emphasized the fact that "it always took time to coordinate the attack [against the Germans]. Most attacks that failed did so because they were not well set, and all the means at the disposal of the commander were not put into action." (77) In other words, they were not managed and used at the right time and place. Tanks, when employed as part of a combined arms team, must be used in mass, concentrated at enemy weaknesses, and be synchronized for success. 1st AD piecemealed their tanks in counterattacks and paid a high price for that lesson. 2nd AD went up against tough, superior enemy tanks and also paid a high price.

John Ellis, in his book The Sharp End of War, believed Allied armor failures stemmed from excellent German defensive tactics, superior antitank guns, and the pugnacious Tiger/Panther tanks. (78) Ellis remained critical of American and British armor tacticians who, "to the very end of the war, hurled [armor] against defenses with the same kind of blind faith that characterized infantry attacks in World War I." (79)

There are historical similarities between US armored units defeated in World War II and today at the NTC. In both cases, armored units primarily fail their first battles. 1st Armored Division failed in Tunisia but learned from

its mistakes and improved its armored operations in the Italian campaign a year later. The majority of NTC tank battalions also lose their first few battles but improve steadily during the rotation. Many of the same mistakes made 45 years ago in combat are still made at the NTC today:

1. failure to synchronize combat power
2. poor reconnaissance
3. poor command and control
4. inability to maneuver/fire on enemy flanks
5. inexperience fighting in a desert environment

Modern American tank battalions are tough, robust organizations that are far superior than their forerunners in previous wars, but they too take their licks at NTC. Like other weapon systems, the tank is an imperfect machine, controlled by imperfect soldiers. As with American armored units in the Tunisian desert of 1943, failure is alive and well in the Californian desert of 1991.

VI. FAILURE AT THE NATIONAL TRAINING CENTER

We train the way we intend to fight because our historical experiences amply show the direct correlation between realistic training and success on the battlefield. The Army has an obligation to the American people to ensure its sons and daughters go into battle with the best chance of success and survival. This is an obligation that only outstanding and realistic training conducted to the most exacting standards can fulfill. (80)

Army Field Manual 25-100
Training the Force

Recent history has shown that the battlefield effectiveness of modern armies has been largely dependent upon their ability to analyze correctly lessons learned through observations of peacetime exercises. The NTC provides our armor battalions an expansive training area on which to fire and maneuver in peacetime. Ideally, the mistakes made in the California desert will not follow us into the next war, as was the case in Tunisia in 1943.

The NTC is an engagement simulation, and as such, each battle takes on a decisive character which is rare in actual combat. The result of these battles is a tempo of fire and maneuver, which is faster than that normally experienced in combat. (81) It is widely accepted that the NTC approximates the actual conditions of combat better than any other simulation. The lessons are invaluable and they parallel the lessons of history to a remarkable extent. (82)

A CONUS-based active component armor battalion goes through the three week NTC rotation about once every 18 months. The nature of NTC operations also requires a train up period. Army training manual FM 25-101 lays out a preparation model that requires seven months of dedicated training to prepare for 14 days of "combat." (83) While at the training area, the battalion fights a fully equipped, representative model of a Soviet Motorized Rifle Regiment during six or seven attack and defend missions, as well as two live fire missions. The opposing force (OPFOR) regiment may fight as many as 14 rotations (28 battalion task forces) during the training year. The two week clash of armor and OPFOR is specifically designed to stress men and materiel to their absolute limits. The byproducts of the NTC experience are a few successes and many failures for the training unit. The end result, nevertheless, is a better trained battalion.

The critical importance of NTC cannot be overemphasized. For example, a recent battalion commander wrote that units must treat their NTC rotation as if it was World War III. (84) While at the training area, armored units must focus on the critical combat skills that require the precise synchronization of maneuver, fires, protection, and sustainment. The missions are tough work and "almost every unit that goes to the NTC meets essentially the same problems and defeats as do other units." (85)

The causes of failure for armored units at the NTC are remarkably consistent. Case in point: armored units arrive at the NTC to discover that their warfighting systems cannot endure the harsh desert environment, or fight a tactically skilled and aggressive OPFOR. Defeat at the NTC is largely a cause of physical forces: most often, battalions have the bulk of their combat power (tanks, Bradley Fighting Vehicles) destroyed by effective OPFOR maneuver, direct fires, and indirect fires. The battles tend to be brief and intense; battalion combat vehicles "melt away," resulting in physical defeat. Failure is usually keyed to an armor battalion's inability to match and mass the necessary combat power to parry OPFOR blows. They are simply out thought and out fought by the opponent.

Moral collapse, due to high casualties or fear of death, cannot be recreated at the NTC, so units often fight battles to the last man and weapon. That does not mean there is not a moral component, it is just not found at the same intensity as in actual combat. This is readily accepted. For example, "It would be fallacious to think real American battalions could sustain repeated carnage [during a 14 day training rotation] without moral collapse." (86) Regardless, each armored unit must fight off the cumulative moral effects of stress, fatigue, and pressure of continuous training operations inherent in

combat. Consequently the moral effects of combat can be felt to some degree. As Clausewitz reminds us, even the easy things are difficult in combat.

So, NTC battles focus on the following armor specific combat skills under the harshest conditions: attack, defend, conduct reconnaissance, sustain the force, chemical defense, night operations, and direct fire gunnery. These skills are the mainstay of armored units. However, these are the same skills units consistently fail to accomplish to standard at the NTC.

After combing through many lessons learned sources, including six tank battalion take home packets from 1988-90, the following 15 causes of failure account for the majority of defeat US armored units suffer at NTC:

1. Poor reconnaissance/counterreconnaissance
2. Direct fire systems killing potential not maximized
3. Inability to breach enemy obstacles
4. Poor tank gunnery killing skills
5. Difficulty conducting actions on enemy contact and assaults
6. Lack of operational endurance
7. Not rehearsing the plans to be executed
8. Poor fire support planning and execution
9. Failure to accurately report enemy information
10. Failure to maintain momentum while maneuvering
11. Poor NBC defense skills
12. Inability to fight at night
13. Poor command, control, and leadership under fire
14. Poor battalion security
15. Neglecting essential force ratios needed to attack or defend

There are many more causes of failure that could be included. But, what should strike the reader's attention here are the failures associated with the tank battalion's inability to maneuver and mass fires with its primary weapon system, the tank. Failure to synchronize and direct combat power at the enemy's heart remains the most difficult task at NTC, as it was for the 1st AD in Tunisia. A Center for Army Lessons Learned (CALL) bulletin reminds us that "battles are won and lost on the basis of errors! Commanders and staffs

must be on the constant lookout for flaws in concepts, omissions in synchronization, and errors in critical estimates." (87)

The Commander of the NTC OPFOR regiment highlights what he believes to be the essence of battlefield failure in the desert as: units suffering from low operational endurance, maneuvering poorly, and lacking quality gunnery skills. (88) The OPFOR commander's visual interpretation of mistakes made by both NTC forces appears in Figure 4. The graph depicts the learning curves the OPFOR and BLUEFOR (rotational units) make during their 14 days of "combat." Note that the average unit (U2) gradually escapes the major "failure box" by mid-rotation. Only a minority of units excel (U1) or fail to improve (U3) during their training rotation. In addition, Figure 5 captures graphically the concept of operational endurance. Most units initially dip below 90% readiness rates during their rotation, but steadily improve as the unit learns to cope with the environment and a challenging opponent.

COMPARISON OF TACTICAL FAILURE AT NTC

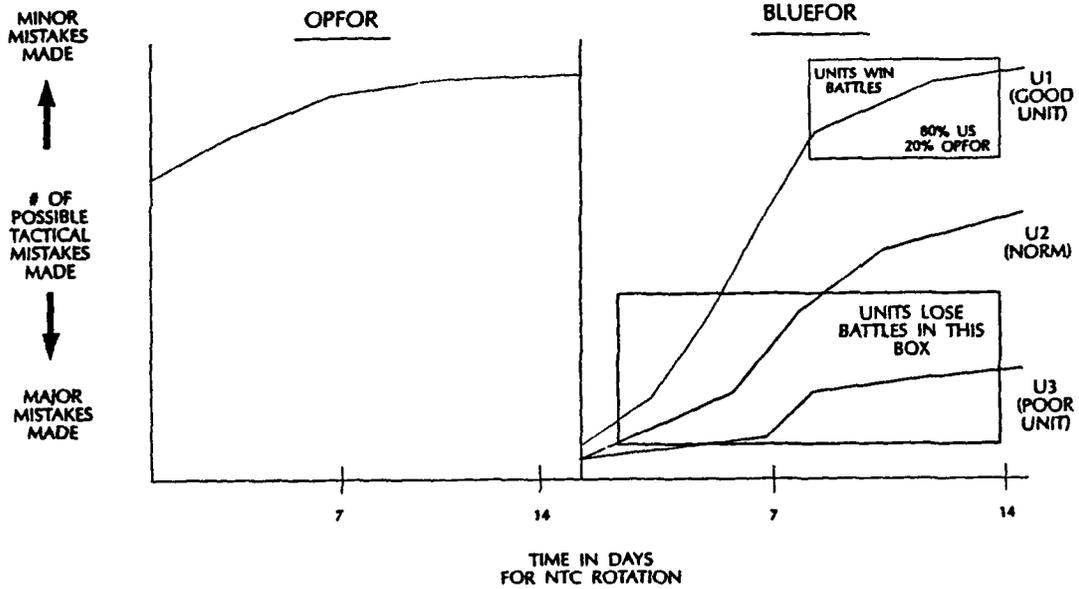


FIGURE 4

OPERATIONAL ENDURANCE OF UNITS AT NTC

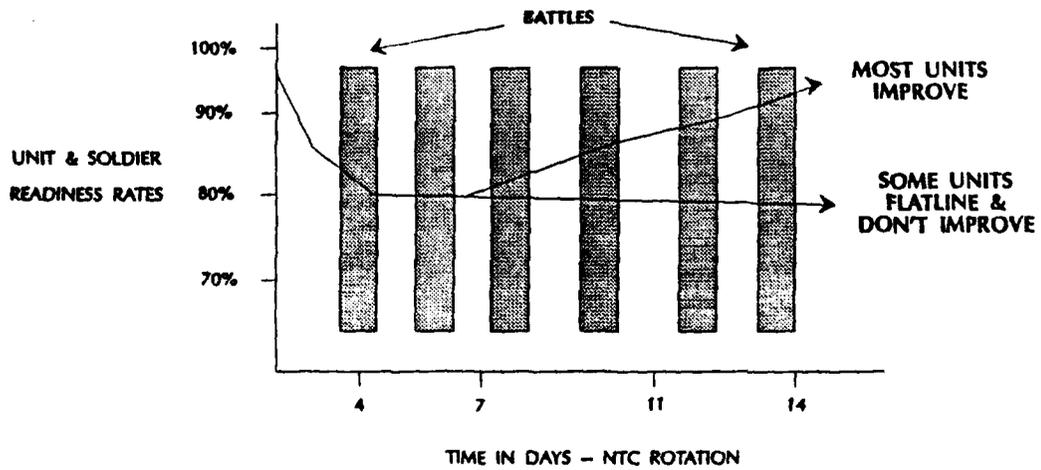


FIGURE 5

The OPFOR Commander believes simple plans and simple systems are the best way to fight with complex combat battalions. His observations, and those of others along similar lines, have not gone unnoticed and are echoed in doctrinal manuals. Simplicity may be the counter to Simpkin's assertion that organizational complexity invites failure.

FM 25-101, the Army's manual on Battle Focused Training, emphasizes that need for simplicity in training for combat. First, commanders and leaders must focus on the fundamental combat tasks: move, shoot, communicate, sustain, and secure. Battalions should use live fire exercises as well as night and adverse weather training to replicate a 24 hour wartime environment. Training must be structured to expose soldiers and leaders to unexpected situations, both favorable and unfavorable. Tasks must be executed confidently and competently during the fog of battle. Leaders must teach their soldiers that combat cannot be reduced to a set of calculations or checklists.

(91)

The training at the NTC does just that. The mistakes made there are only lessons learned in peacetime, not those of actual battle. LTC Doug Tystad, an M1A1 tank battalion commander during Desert Storm, believes the NTC gives each tank battalion its "first battle" before combat. (92) Our current philosophy of finding and fixing failure during peacetime training is born from historical failure to do so. Look again at the similarity of the mistakes made by 1st AD tank battalions in Tunisia and those repeatedly made by armor battalions at the NTC. Tank battalions still fail to mass fires, maneuver effectively to an enemy weakness, and synchronize combat power at the right time and place. But the NTC experience and lessons learned may prevent current armored battalions from making the same mistakes made in

1943. The skills necessary to win tank battles remain timeless, as do the causes of armored failure.

VII. CONCLUSION and IMPLICATIONS

No pain, no palm; no thorn, no throne, no gall, no glory;
no cross, no crown.

William Penn,
No Cross, No Crown, 1669

Failure in battle is a rather common phenomenon that continually piques the interest of succeeding generations of soldiers and historians. There are many battles with rich lessons to be learned from the actions of the beaten and defeated, however, our interest has focused primarily on the recent failures of US armored units at war and in peace. Contemporary armored battle has become, in essence, the sum of physical, moral, and cybernetic forces forged in symbiotic union. This study has examined the critical relationship between physical forces prevalent on the modern battlefield and the causes inherent to US armored failure since World War II; in doing so it has sought to identify the causes inherent to armored battalion failure in combat and how failure can be averted.

Armored battle has relied on rapid maneuver, massed fires, shock action, and synchronization of combat power at the right time and place. All are difficult tasks and invite failure if not properly executed in the face of a formidable enemy. In fact, effective enemy maneuver, when complimented with overwhelming fires, has been the decisive cause of failure on the

battlefield since World War II. Maneuver sets the conditions for both physical and moral destruction, but it is not the only physical cause of armored failure.

The complexity of armored organizations and tasks coupled with high "tech" weaponry cause a great deal of tactical failures at NTC, where the tempo and intensity of battle are at a constant pitch. Tank units continue to suffer from an inability to conduct proper reconnaissance, mass fires, and focus combat power at enemy weaknesses. Again, the complexity inherent in armored operations causes US armored units to fail combat tasks essential to accomplishing their mission. Unfortunately, NTC battles cannot replicate the moral collapse of a defeated unit. Overwhelming enemy maneuver and fires can rapidly destroy unit cohesion and discipline and soldiers fearful of death flee the battlefield as both physical and moral collapse close in on the defeated unit.

The causes of physical and moral collapse form the nucleus of tactical failure on the battlefield. The causes outlined in this study capture the timeless character of US armored failure. In the end, tank battalions will continue to fail the "first battle" as long as men must fight from their tank turrets. But our National Training Center exists for this very reason. Tank battalions can experience the causes and processes of failure without tasting real combat failure. Experience is the antidote for failure. NTC gives our armored battalions that experience and training in peace so the mistakes made in past wars are not repeated.

APPENDIX A: Engagements in the HERO Data Base (93)

Regimental Engagements

<u>DATE</u>	<u>ENGAGEMENT</u>
15 Feb 43	Sidi Bou Zid II
20-21 Jan 44	Rapido I North
21-22 Jan 44	Rapido II North
20-21 Jan 44	Rapido I South
21-22 Jan 44	Rapido II South
7 Aug 44	Mortain II
2-5 Nov 44	Schmidt I
2-3 Nov 44	Schmidt II
2-4 Nov 44	Schmidt III
17-19 Dec 44	Krinkelt-Rocherath II
7 Aug 44	Mortain I
4-5 May 45	Japanese Counterattack I
24-25 May 45	Japanese Counterattack II
7-9 Feb 44	Moletta River Defense
16-19 Dec 44	Schnee Eifel Center
14 Feb 43	Sidi Bou Zid I
19-20 Feb 43	Kasserine Pass
13-16 Dec 44	Wahlerscheid
16-17 Dec 44	Krinkelt-Rocherath I
12 Jun 45	Yaeju-Dake
20-24 Nov 43	Tarawa-Betio

Divisional Engagements

<u>DATE</u>	<u>ENGAGEMENT</u>
21-23 Feb 44	Fiocchia
11-12 Feb 44	Factory Counterattack
23 Mar 43	El Guettar
6-12 Aug 44	Mortain
28-29 Apr 45	Kochi Ridge-Onaga II
25-27 Apr 45	Kocki Ridge-Onaga I
9-12 Apr 45	Kakazu and Tombstone Ridges
14-18 May 45	Attack on the Shuri Line's Eastern Flank II
10-11 Jun 45	Initial Attack on the Yuza-Dake/Yaeju Escarpment
6-7 Nov 43	Pozzilli

APPENDIX A: Engagements in the HERO Data Base (cont.)

Divisional Engagements

<u>DATE</u>	<u>ENGAGEMENT</u>
26-27 May 45	Shuri Envelopment, Phase II
6 Dec 44	Singling-Bining
6-8 Jun 45	Hill 95-I
26 May 44	Velletri
14-15 Nov 44	Bourgaltroff
6-9 Jun 45	Advance to the Yuza-Dake/Yaeju Escarpment
29 May - 1 Jun 44	Lanuvio
29-31 May 44	Fossi di Campoleone
16-19 Feb 44	Bowling Alley
6-7 Nov 43	Monte Lungo
26-28 May 44	Campoleone Station
11 Sep 43	Sele-Calore Corridor
27-29 Nov 44	Burbach-Durstel
13-14 Sep 43	Tobacco Factory
2-13 Nov 44	Schmidt
26 Nov 44	Baerendorf II
16 Aug 44	Chartres
16-19 Feb 44	Bowling Alley I
16-19 Feb 44	Bowling Alley II
16 Dec 44	Schnee Eifel South
19-21 Apr 45	Tomb Hill-Ouki
9-11 Jun 45	Hill 95-II
15-17 Jun 45	Hills 153 and 115
29-31 May 45	Shuri Envelopment, Phase III
22-23 May 45	Shuri Envelopment, Phase I
6-7 May 45	Kochi Ridge IV
19-23 Apr 45	Skyline Ridge-Rocky Crags
5-8 Apr 45	Advance to Shuri Line Outpost
26-29 Apr 45	Maeda Escarpment
12-17 Jun 45	Capture of the Yuza-Dake/Yaeju-Dake Escarpment
17-19 May 44	Monte Grande (Rome)
4-5 Nov 43	Santa Maria Oliveto
11-14 May 44	Santa Maria Infante
14-15 May 44	Castellonorato
13-17 Sep 44	II Giogio Pass
1-2 Jun 44	Lariano
13-14 Oct 43	Triflisco
22-24 May 44	Terracina

APPENDIX A: Engagements in the HERO Data Base (cont.)

Divisional Engagements

<u>DATE</u>	<u>ENGAGEMENT</u>
1-2 Jun 44	Valmontone
2-4 Apr 45	Advance from the Beachhead
23-25 May 44	Anzio Breakout
23-25 May 44	Cisterna
25-27 May 44	Sezze
23-25 Aug 44	Melun
23 Apr-6 May 43	Sedjenane-Bizerte
16 Dec 44	Schnee Eifel North I
16-17 Feb 44	Bowling Alley II
16-19 Dec 44	Schnee Eifel North II
16-18 Dec 44	Our River Center
16-17 Dec 44	Our River North

APPENDIX B: Dupuy's Causes of Defeat (94)

The causes of defeat fall into three general categories. First a commander and his troops may find themselves engaged in a battle in which the circumstances are so unfavorable that they have no hope of success, no matter how well they may fight. Second, unfavorable circumstances may not necessarily be the fault of the commander, but he may have contributed to or influenced them. Finally, battles are most often lost because of failures on the part of the defeated commander. Each of these categories includes several specific subsidiary causes, as this outline suggests:

THE CAUSES OF DEFEAT

A. Unfavorable Circumstances Beyond the Control of the Commander

1. Overwhelming odds
 - a. Superior numbers
 - b. Superior armor
 - c. Superior fire support
 - (1) Artillery
 - (2) Air support
 - d. Superior skill
2. Unfavorable environment
 - a. Weather
 - b. Terrain
 - c. Roads/line of communications (LOC)
3. Hostile fortifications
4. Inferior technology
5. Chance or luck

B. Unfavorable Circumstances the Commander May Influence

1. Lack of preparation for battle
2. Inferior-quality forces
 - a. Quality of manpower
 - b. Training/experience
 - c. Doctrine
3. Poor morale
4. Troop and/or commander fatigue
5. Casualties
6. Subordinate error/failure

C. Failure of Command

1. Surprise
2. Inferior leadership
 - a. Self-delusion (perception)
 - b. Confused mission
 - c. Weakness of will

APPENDIX B: Dupuy's Causes of Defeat (cont.)

- 3. Inadequate control**
 - a. Poor reconnaissance/intelligence**
 - b. Poor planning**
 - c. Faulty tactics**
 - d. Inadequate logistics**
 - e. Breakdown in communications**

APPENDIX C: HERO's List of Causes of Defeat (95)

GENERAL FACTORS	SPECIFIC FACTORS
Combat power ratio, force ratio	1. High enemy/friendly force ratio
Perception of relative force	2. Perception of high enemy/friendly force ratio
Casualties and equipment losses	3. Heavy personnel casualties 4. Severe equipment losses
Tactical Plan	5. Defective tactical plan
Relative tactical posture and opponent's position	6. Low troops/frontage ratio 7. Force in tactically vulnerable position 8. Surprise by enemy 9. Enemy occupied key terrain 10. Unfavorable status of unit in adjacent sector
Enemy maneuver; attacker's advance rate	11. Flanking, envelopment, penetration 12. Unfavorable advance rate by the attacker
Fire support and reinforcement	13. Lack of artillery/air support 14. Heavy enemy artillery and air attacks
Proportion of reserves left	15. Lack of reserves
Logistical support	16. Supply shortage 17. Inadequate weapons 18. Lack of food; hunger 19. Low ammunition

APPENDIX C: HERO's List of Causes of Defeat (cont.)

GENERAL FACTORS	SPECIFIC FACTORS
Communications	20. Communications failure
Reconnaissance, intelligence	21. Poor reconnaissance 22. Intelligence failure
Condition of troops at the beginning	23. Precombat fatigue 24. Little time in line before engagement 25. Hasty unit commitment on new ground
Training and experience	26. Poor overall training and experience 27. Poor training for specific operation 28. Inadequate combined arms training
Fatigue	29. Troop exhaustion during combat
Morale and motivation	30. Poor morale 31. High personnel turnover/replacement 32. Low mission urgency
Leadership	33. Poor leadership 34. Poor staff work 35. Troop confusion over orders, objectives 36. Poor, or no, maps
Unusual environmental stress	37. Poor road net 38. Weather change 39. Unfavorable terrain

APPENDIX D: Summary of Factor Assessments by Veteran Discussion Groups (96)

<u>FACTOR</u>	<u>RATINGS</u>					<u>%</u>
	<u>D</u>	<u>I</u>	<u>S</u>	<u>N</u>	<u>U</u>	
High enemy/friendly force ratio	2	2	3	1		80
Perception of high enemy/friendly force ratio	1	3	2	1	1	57
Heavy enemy artillery attacks	3	2	3			60
Heavy air attacks		1	7			0
Heavy personnel casualties	2	1	4	1		42
Severe equipment losses	2	2	1	3		50
Defective tactical plan	2		4	1	1	67
Low troops-to-frontage ratio	1	2	1	1	2	75
Enemy maneuver--flanking, envelopment, penetration	6		2			100
Enemy occupied key terrain	5		3			100
Surprise by enemy	1	3	4			25
Unfavorable movement rate	2	1	4	1		50
Unfavorable status of unit in adjacent sector	3		4	1		100
Force in tactically vulnerable position	2	5	1			88
Hasty unit commitment on new ground			2	6		0
Lack of artillery support	1	3	1	3		80
Lack of air support	1	4	3			20
Inadequate weapons	2	1	1	4		75
No reserves left	1	3	2		2	17
Troop exhaustion during combat	1	3	2	1		25

APPENDIX D: Summary of Factor Assessments by Veteran Discussion Groups (cont.)

<u>FACTOR</u>	<u>RATINGS</u>				<u>%</u>	
	<u>D</u>	<u>I</u>	<u>S</u>	<u>N</u>		<u>E</u>
Supply shortage	1	2	5		33	
Low ammunition	3	1	4		100	
Lack of food; hunger		4	4		100	
Communications failure	3	2	3		100	
Troop confusion over orders, objectives	2	2	3	1	50	
Poor reconnaissance		1	1	3	3	50
Poor staff work	1	1	3	3	50	
Intelligence failure	2		4	2	100	
Poor overall level of training		1	7		100	
Lack of combat experience	1		7		100	
High personnel replacements	1	1	4	2	33	
Poor training for specific operation	1		1	6	50	
Inadequate combined arms training	1		7		100	
Little time in line before engagement	1	3	4		25	
Precombat fatigue		4	4		0	
Poor morale	1		6	1	100	
Poor leadership	1		6	1	100	
Poor, or no, maps	1	1	2	1	3	50
Low mission urgency	1		6		100	
Poor roadnet	2	4	2		33	

APPENDIX D: Summary of Factor Assessments by Veteran Discussion Groups (cont.)

<u>FACTOR</u>	<u>RATINGS</u>						
	<u>D</u>	<u>I</u>	<u>S</u>	<u>N</u>	<u>U</u>	<u>E</u>	<u>%</u>
Weather change			1	7			0
Unfavorable terrain	1	3	1	3			80

The ratings are:

- D -- Decisive
- S -- Significant
- I -- Present, but insignificant
- N -- Not Present
- U -- Presence unknown
- E -- Present, but effect unknown
- % -- Percent of cases in which the factor was present that it was decisive or significant = $(D+S)/(D+S+I)$

Numbers in ratings columns indicate numbers of discussion groups; total discussion groups = 8.

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