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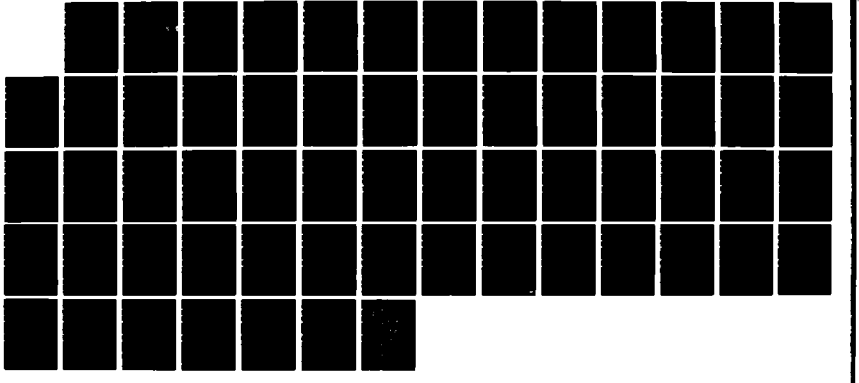

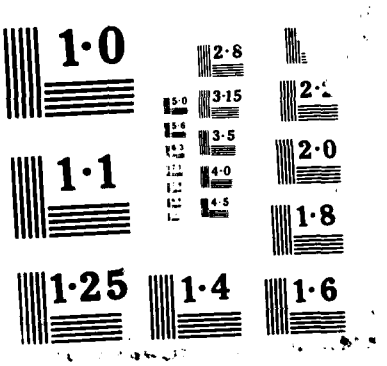
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Tank Destroyers -- A New Look At Old Doctrine

by

Major David H. Huntoon Jr.
Infantry

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School of Advanced Military Studies
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This monograph discusses the current value of tank destroyer doctrine based on the American experience in World War II. The tank destroyer tactical doctrine for defeating large enemy armored assaults has great utility for our modern force and dovetails with the doctrinal requirements of Airland Battle.

This monograph first examines the Soviet armored threat and its doctrinal employment. U.S. responses to that threat are analyzed for sufficiency with the focus on the European theater of operations. U.S. antiarmor assets at corps and division level are matched against the Red armor arrays, with a discussion of both force structure, weapon systems, and doctrine. The history of the U.S. tank destroyer experience in the Second World War is recounted reviewing doctrinal, organizational, and materiel lessons learned. The Battle of Kursk is studied as an excellent example of the use of an in depth antitank defense against a major armor threat.

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ABSTRACT

TANK DESTROYERS -- A NEW LOOK AT OLD DOCTRINE by Major David H. Huntoon Jr., USA, 53 pages.

This monograph discusses the current value of tank destroyer doctrine based on the American experience in World War II. Tank destroyer tactical doctrine for defeating large enemy armored assaults has great utility for our modern force and dovetails with the doctrinal requirements of AirLand battle.

This monograph first examines the Soviet armored threat and its doctrinal employment. U.S. responses to that threat are analyzed for sufficiency with the focus on the European theater of operations. U.S. antiarmor assets at corps and division level are matched against the Red armor arrays, with a discussion of both force structure, weapon systems, and doctrine. The history of the U.S. tank destroyer experience in the Second World War is recounted reviewing doctrinal, organizational, and materiel lessons learned. The Battle of Kursk is studied as an excellent example of the use of an in depth antitank defense against a major armor threat.

American tank destroyers, employed with the basic doctrinal strengths of WWII and coupled with a new emphasis on integrated, combined arms, are recommended as a strong response to the current Soviet armor threat. Tank destroyers can defeat Soviet massed armor so that U.S. armor and mechanized infantry can accomplish their AirLand Battle doctrinal missions.

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Introduction

The heavily armored columns and their accompanying waves of attack aviation smashed through the Western defenses in a surprise attack that left the defenders reeling. Through the violent and decisive shock action of the tank and airplane, the attack overwhelmed what had been widely regarded as the most modern army in the world. The antiarmor defenses of the Allies utterly failed to stop the enemy armored juggernaut. Central Europe in 1988? No. This was France in 1940 as the German blitzkrieg shocked the West by its efficient and ruthless application of armored combat power and strategic surprise.

The American response to the French defeat was to conduct an immediate review of its own antiarmor defenses and weapons systems. This in turn led to the establishment of the tank destroyer (TD). With their redoubtable motto of 'Seek, Strike and Destroy', the tank destroyer battalions were created at Camp Hood, Texas in 1942 as the American counterpoise to the massed German armor threat in Europe. Tank destroyers were to be employed in battalion and group size forces to defeat massed enemy armored penetrations. The Armored Force, just coming into its own in 1940, could then focus on its infantry support mission and pursue more doctrinally offensive tasks. The TD battalions were created, the training cycles begun, and the tank destroyers improved from year to year. But in the actual employment in combat, tank destroyer doctrine never got a valid test.(1)

The doctrine was misunderstood, mishandled and occasionally disregarded by field commanders. Facing no massed armor threat of the kind which overran France in 1940, tank destroyer battalions were generally parceled out to divisional units in platoon and section-sized packets. Although TD units performed effectively in a variety of missions from killing tanks to indirect fire, the concept was abandoned by the U.S. Army at the end of the Second World War. German and Soviet forces, on the other hand, retained their tank destroyer doctrine and forces.(2)

This paper argues that the tank destroyer doctrine, developed in 1942 and discarded in 1945, holds significant merit in 1988. An examination of the Soviet threat and the role of the tank in Soviet offensive doctrine sets the conditions for a new look at tank destroyer doctrine. U.S. antiarmor systems are analyzed for sufficiency in light of the worldwide Soviet threat within the context of the current European theater of operations. And the employment of those antiarmor assets are discussed against the backdrop of AirLand Battle doctrine. Tank destroyers in the Bundeswehr illustrate a contrasting approach to antiarmor within NATO. A review of U.S. TDs in WWII helps to elucidate their strengths and weaknesses in combat. The Battle of Kursk provides an example of antitank defense in depth against massed armor. Finally, tank destroyers with a complementary organization and doctrine are recommended for integration in the current Army structure.

The Soviet Armored Threat

The tank. Shock action, firepower, mobility. The greatest single symbol of ground power on the modern battlefield of the twentieth century. A revolutionary weapons system that has changed the face of modern warfare in this century, and continues to dominate the battlefield in every nation state able to field a significant combat force. Still the single most visible threat in the arsenals of the Soviet Union and the fulcrum about which Soviet force structure is arrayed in complementary, combined arms. In the NATO arena specifically,

> the heaviest Soviet numerical advantage lies in the tank, the weapon that characterizes the thrust and style of Soviet war-fighting in Central Europe more than any other.(3)

The destruction of the Soviet tank is a primary military requirement for the United States. What then is the status of American antitank defense against Soviet armor? Do we have a sufficient antitank force structure and a realistic doctrine today which adequately meets the threat? In 1942, tank destroyers and their attrition doctrine were created in response to the massed armor of the Blitzkrieg sweeping across the plains of Europe. The TDs were abandoned at the end of that war in favor of more balanced combined arms, with antiarmor systems organic to maneuver units. Is the tank destroyer worth a second look? Do we have a dedicated antiarmor system that can make a difference as the U.S. faces yet another mass armored threat? The problem of enemy armor is still very much with us as we see by looking at the Soviet's

expansionary and central role for its armored fleet. In any potential conventional conflict with the U.S.S.R., the United States will not only be outnumbered, it may also be short of the essential antiarmor defenses necessary to survive.

If the leadership of the Soviet Union decides to enter into a general war in Europe with the NATO alliance, will that war be conventional or nuclear? In the years since the publication of Marshal Sokolovskii's monumental tome Military Strategy, the Soviet Union has changed its outlook on the probabilities and the advantages of nuclear versus conventional war. Nuclear war-fighting is still a key component of Soviet military strategy, but there has been a pronounced shift in public discussion and writings about future conflict with the U.S.. That shift suggests the Soviets prefer to achieve military success through conventional means. The Soviets fully recognize the tremendous destructive power of nuclear conflict and the long term disruption for both sides in such a war. Given the quantitative conventional superiority in Soviet ground systems versus those of the U.S., it makes considerable sense for the U.S.S.R. to adopt a conventional approach to war-fighting against NATO.

In the conventional force structure of the Soviet Army, the tank is clearly the centerpiece. Historically, the tank has dominated Soviet tactics since the reforms of Marshal Tukhachevskii, reaching its doctrinal maturity in the last half of the Great Patriotic War of 1941-1945. Tanks are fully integrated in the Soviet ground forces from section level to tank armies. U.S. manuals on the Red army teach that "the Soviet's basic

principle of land warfare is violent, sustained, and deep offensive action."(4) Here is a mission designed for the tank. Massed armor in the first echelon creates penetrations and more massed armor (from a tank battalion, tank regiment, tank division or operational maneuver group) in the second echelon exploits quickly to operational depth. If an argument can be made for a tactical center of gravity, which is the "hub of all power and movement", massed tanks in the Soviet Army fit the definition.(5) With production rates for armored vehicles continuing to climb and technical capabilities in firepower, mobility, and protection increasing similarly, Red armor dominates the Soviet Army.

In every major trouble spot, from Nicaragua to the Persian Gulf, the United States Army faces that increasingly sophisticated armored threat. The interdependence of the Soviet bloc and its surrogates, the increased capability of supplying third world nations with top flight weaponry, and the increasing capital available in those nations with which to buy modern tanks all contribute to a formidable problem for the U.S.

No longer can a contingency force be created from discrete airborne forces flown in to demonstrate a show of force. That show of force will pale in comparison to the ground armored threat it meets at the landing zone. Soviet deliveries of tanks and self-propelled guns to third world countries from 1981-1986 alone totaled 5,465.(6) In Korea, U.S. forces face 3,000+ threat tanks across the 38th parallel.(7) In Nicaragua, Peru, Angola, and many other nations in the third world, Soviet trained armor crewmen, manning modern Soviet armor, are ready to meet an American

military response. Clearly the days of the banana republic insurgency quickly put down by the U.S. Marines are over. The U.S. enters the next decade of potential conflict facing a significant armored threat unlimited by the plains of central Europe.

The European Theater of Operations

Although some would argue that the European theater does not reflect the most probable trouble spot for U.S. involvement, clearly it remains our foremost priority for overseas deployment in pursuit of U.S. strategic goals. NATO's survival and the basis for U.S. foreign policy are synonymous: the deterrence of Soviet aggression. Deterrence is based on two essential components: capability and the determination to use that capability. The credibility of deterrence rests equally with both elements. In Europe our conventional deterrence posture is undergoing challenges to its credibility. Our capability to resist Soviet conventional strength, most symbolically represented by its large superiority in numbers of tanks, is a large question mark. Our determination to withstand a Soviet attack and keep that resistance conventional is also questionable. At what point are we willing to accept Soviet success in Western Europe in a conventional war without going to the nuclear option? The components of capability and determination are intertwined. The Soviet tank in Europe plays a tactical, operational and strategic role as it sets the conditions in a conventional war for success

or failure. And it is in Europe that the American Army faces the single most massive armored threat in the world.

The Soviet Union continues to produce armored vehicles at a constant rate; its sheer numbers threatening to overwhelm American technological advantages. As General Bernard Rogers noted in his farewell remarks as NATO commander,

> ...As we measured the widening gap between NATO's conventional force capabilities and those of the Warsaw Pact since 1973..I could show you charts that display in every area of measure, even in the areas where we were ahead in 1973, (Soviet Union) has closed that gap or has surpassed it..(8)

Latest figures from the Department of Defense' Soviet Military Power fully confirm General Rogers assertion. Soviet main battle tanks outnumber U.S. tanks by 53,000 to 20,000 in the NATO/Warsaw Pact ground force comparisons.(9) Add to these figures the large numbers of Soviet attack aviation and there is a basis to review the armored threat in Europe Raw data such as this is not instructive unless it is viewed in context. The 150 motorized rifle divisions, 52 tank divisions, and 7 airborne divisions provide the combined arms context which gives the USSR the potential for mass combat synergy.(10) Add to these numbers the 55 non-Soviet Warsaw Pact divisions and one begins to gain a sense of the threat array of armored vehicles faced by NATO.(11)

In a conventional war scenario of the kind painted by writers such as Sir John Hackett, P.H. Vigor, and F.W. von Mellethin the tank is the centerpiece of the campaign.(12) Time would clearly be of the essence as the Soviets sought to conclude a short war in Central Europe without raising the stakes to the nuclear

threshold. A massive armored assault across the Inter German Border (IGB) coupled with a simultaneous air attack is given as a probable scenario. Strategic surprise will play a major role in an attack of this kind. That surprise reduces the timely employment of operational U.S. reinforcements from the continental United States (CONUS). The absence of those reinforcements means that the Soviets will be able to fully exploit their considerable advantage in massed armor.

Soviet tactics envision massive armored attacks on the ground and attack aviation in the air. Soviet main battle tanks (MBTs) will spearhead the ground fight by helping to create penetrations in NATO's forward defense, opening the way for more tank heavy formations to roll toward their intermediate and subsequent objectives throughout Europe. The Soviet operational maneuver group, designed to exploit these penetrations and gain key operational objectives, is largely a tank heavy force. Soviet attack aviation will provide a significant part of the air offensive, carrying the heavy firepower which has earned them the sobriquet of 'flying tanks'.

Is the Soviet tank the key to their modern blitzkrieg? If Allied forces unhinge the armor mass will NATO succeed? Is this the theoretical schwerpunkt of the Warsaw Pact? Here's what a noted Bundeswehr Commander, General F.W. Mellethin has written,

> ..Out of the past a certainty: Marshal Tukhachevskii dreamed of overrunning Western Europe with great tank armies. And now another certainty. Marshal Tukhachevskii's successors have built up a gigantic inventory of tanks and established a heavy numerical superiority over the West. Those successors may believe that, under a specific set of

> military and political conditions, they can use their conventional forces to seize terrain quickly in West Germany and present the West with so difficult a problem of counterattack as to succeed in an irrevocable seizure of territory--a fait accompli that changes the balance of power in Europe.(10)

Clausewitz wrote that "superiority of numbers admittedly is the most important factor in the outcome of an engagement, so long as it is great enough to counterbalance all other contributing circumstances."(14) Mass alone would not be a problem for the technologically superior West if our antitank forces were capable of successful multiple engagements to stop the threat. But modern versions of Soviet armor are not only plentiful, they are increasingly competitive with the West in firepower, mobility and protection. The protection afforded by new Soviet armor is of particular concern to the U.S.. Reactive and applique armor which can be found on most late model Soviet tanks defeats all Western chemical energy antitank weapons except the Tube Launched, Optically Tracked, Wire Guided Missile 2A (TOW2A).(15) Against reactive armor plating, the infantryman needs reinforcement by a heavier force with TOWs. The Light Antitank Weapon (LAW), and the Dragon (M-47) cannot stop Soviet reactive armor, and neither can their proposed replacements.(16)

Soviet Armor Design, Production, and Logistics

The tank has always been designed in a tension which balances the requirements of firepower and mobility and protection and ergonomics. Characteristically, Soviet armor has consistently been influenced by a primary concern for firepower and mobility.

Tactical destruction of the enemy through firepower has always been the foremost tactical element in Soviet tank design. This is reflected by the excellent performance of the T-34 in the Second World War, and in continuing efforts to increase the current armor inventory with Future Soviet Tanks (FSTs) of advanced firepower. Mobility represents the most important operational and strategic feature of the tank armies.(17)

Soviet tank production in large numbers is a function of the unbridled defense budget and relatively unsophisticated assembly line manufacturing. The surge capability of the Soviet tank fleet production lines was never halted at the end of WWII. That production has been driven by a military requirement for firepower and mobility as its most important components,

> As apostles of mobility the Soviet's prime interest lies in moving machines with a credible potential for fighting...specific Soviet general staff requirements are mainly concerned with mobility - in particular with what we should call strategic and operational mobility. (18)

Soviet movement planning nomograms are a hallmark of their doctrine. The requirement for armored columns to maintain speeds within tightly controlled formations on multiple routes is reflected in tank production design emphasis on mobility. Production focus on firepower is the guarantor that the end result of strategic and operational mobility is tactical success.

The geographic component of Soviet tank design is a product of operating in the flat plains and high steppes of Northwestern Europe. This translates into tanks designed for effective firepower and mobility at the expense of protection and human

engineering. Firing on the move from a stabilized turret and racing across the plains of Germany are considered to be more than enough compensation for less armor and the jarring effects on the tank crews inside.(19)

Production rates for current Soviet main battle tanks continue to increase over the past decade, far exceeding similar rates for MBT's in the U.S.. With 17-19% of GNP aimed at the military sector, the Soviet research and development process continues to provide a healthy climate for improvements in armored technology. Specific procurement rates for Soviet armor for the period 1977-1986 show totals of 24,400 compared to 7,100 for the U.S.(20)

This emphasis on mass production and the requirements for tactical firepower and operational mobility finds a clear manifestation in the Operational Maneuver Group. The OMG is no stranger to Soviet military history. Forward mobile detachments played an important role in the Second World War in most major campaigns on both the German and Manchurian fronts. Their modern day descendant, the OMG, has institutionalized the tactical concept in the form of a 22,000 man shock group with 450 tanks, 600 armored vehicles, and 300 artillery pieces. The OMG will await the penetration of a weak sector along the front and push through to operational depth. Once through, its mission may be to conduct an envelopment or encirclement or seize strategic points deep in the NATO rear. This describes the force structure of an OMG at Army level. An entire tank army may constitute the OMG for a Front commander.(21)

And what about the Soviet ability to sustain its armored fleet? In Europe that logistical ability is not only in place, it's a key component of Soviet fighting strength exemplified by the detailed support planning for conventional operations. With a wartime surge capability in place, the full industrial might of the Soviet Union is ready to crank out replacement parts and major components quickly and efficiently. From tank rounds to major assemblies, armor resupply is highly organized and operates from the advantage of interior lines. Movement support by rail and heavy equipment transporters carries those tank supplies forward.(22) Pre-stocks of main gun ammunition are established throughout their Eastern Zone, in Warsaw Pact caches. The same surge system has tank ammunition ready to be produced when the military needs it.(23)

Soviet heavy equipment transportation and rail nets are equally formidable in efficiency. A majority of military supplies in the Soviet Union are routinely moved by rail, putting them on a war time footing already. With some 83,000 miles of rail in the Soviet Union alone, transport of replacement components and ammunition is a smooth operation. With a peacetime Rail Transport Staff already <u>in situ</u>, it manages the daily movement of materiel and can swing into high gear with little surge. Soviet heavy equipment transporters are numerous and well exercised. Transloading materiel from rail to road is a routine procedure in Europe for the Soviet armored forces. Compare this to U.S. heavy equipment transporter availability in USAREUR and the difference is striking.(24)

Soviet logistical support, represented here by strengths in the replacement, ammunition, and transportation means advantages in operational mobility that the tank gives the Red Army. The Stavka (Soviet High Command) can unleash tank armies against NATO knowing that replacement and replenishment will succeed. That logistical 'green light' must be a major factor in Soviet military planning of a conventional war campaign.

The gross numbers of Soviet tanks represent a decided advantage over U.S. armor. The same essential ratios hold true for all mechanized vehicles when comparing Warsaw Pact forces against NATO. In the Warsaw Pact, there are 38,000 armored personnel carriers or infantry fighting vehicles opposed to 32,850 NATO. Strategic reinforcements of these same vehicle types show the Pact with a potential 54,000 versus 41,500 for NATO. In Antitank guided missile launchers NATO shows 13,370 to 18,000 for the Pact with a reinforcement potential of 22,580 (Pact) to 28,000 (NATO).(25)

Included in these statistics but not highlighted by the authors of Soviet Military Power is the fleet of Soviet tank destroyers. In addition to the BRDM-1 and BRDM-2, the Soviets also employ the ASU-85 and the ASU-57 in tank destroyer roles. Both ASU models are light tanks employed with Soviet airborne units.(26) The presence of these vehicles in the Soviet inventory gives strength to their doctrinal concern for antitank warfare exemplified in this comment by Soviet writers Major-General G. Biryukov and Colonel G. Melnikov:

> Second only to the combatting of nuclear weapons, antitank warfare has become the key element in any combat operation, and a vital part of all-arms combat (27)

The relevance of Soviet emphasis on firepower and mobility to the U.S. tactical maneuver commander is that it makes believable the kind of scenario that Sir John Hackett described in the Third World War. The Soviets fight with superior numbers of technically first rate tanks, and they have the ability to sustain those tanks. Tactical breakthroughs achieved by Soviet armor create operational victories which in turn set the conditions for strategic success. Accordingly, if an American commander can anticipate a cross-IGB breakthrough on a wide front with massed armored formations, then he can better prepare his forces. But there is only so much that the U.S. commander can do with his current antitank forces. Given the strong possibility of conventional war in Central Europe, the size and enhanced armor technology of the current Soviet armored array, the institutionalization of the OMG, and the Russian ability to sustain its armored fleet, the U.S. Army faces major problems in responding with its present antiarmor systems.

U.S. Antiarmor Capabilities

What is the U.S. antiarmor posture? Is it ready to respond to a surprise attack with sufficient numbers of antitank weapons that can unhinge the armored threat? Does U.S. antitank doctrine realistically account for this threat? Will U.S. forces be able

to utilize all antitank assets at maximum range without being defeated themselves? In a massive conventional conflict in Europe can USAREUR afford major attrition of its armor and antiarmor forces and still endure?

In the absence of conflict, some of the answers to these questions are in open source material (necessarily dated by the dynamics of armor and antiarmor research and development). Other answers come from making assumptions based on both theory and the lessons of recent armor history. This section will review the figures, and the types and quality of antiarmor systems. Then it will take a further look at the doctrinal employment of those systems in 1987. It begins at the corps level and works down to the soldier in the field in a review of the full antiarmor picture. The focus is on direct-fire, mobile systems, excluding artillery, FASCAM, obstacle systems, and other indirect measures of antiarmor warfare.

Antiarmor in the Heavy Corps

In the U.S. heavy corps, antiarmor forces external to the division are represented primarily by the armored cavalry regiment (ACR) and the corps' aviation brigade. A reserve component antitank battalion equipped with the Improved Tow Vehicle (ITV) is part of the strategic reinforcement to NATO corps. Its effectiveness is predicated on safe and timely arrival in the theater, its survivability as a lightly armored vehicle, and the limitations of the TOW. Strategic reinforcements may also include a heavy or light infantry brigade or a separate armored brigade;

their safe arrival on time is also the key to their successful employment. These additional brigades are maneuver forces. They are not designed to be dedicated antiarmor units.

The armored cavalry regiment mission statement addresses "reconnaissance and combat security operations as an economy of force."(28) There are considerable antiarmor assets in this self-contained maneuver unit, but their employment will normally not allow for coverage of any major armored penetration in depth. The ACR has been traditionally employed as a covering force element or in a flank security role for the forward deployed corps in NATO. Although these missions are doctrinally sound, they do not allow the ACR to simultaneously fight a counterattack against threat armored arrays which have penetrated to operational depth.

Additional missions for the ACR are to "serve as a reserve for a defending corps" and to "engage and destroy threat tanks at extended ranges".(29) In a Soviet surprise attack, the ACR will not have time to serve as the corps reserve. Engaging threat tanks at extended ranges is doctrinally correct, but it assumes several factors. It assumes that the enemy can be engaged at the standoff distances favorable to long range U.S. antiarmor weapons. In Europe this is not a completely valid assumption because of the uneven terrain which restricts line of sight (LOS). The rolling, hilly, compartmentalized ground makes engagement distances much closer. Engagement at long distance does not mean success at long distance. It is harder to kill with chemical energy and kinetic energy weapons at extended ranges. Tracking an ATGM at long range means more time for the gunner to

be exposed to artillery and counterfire. Engagement at long distance also means the remaining enemy elements can maneuver - they are not decisively engaged. The U.S. must take its standoff advantage in long range engagements to stop enemy armor and disrupt the Soviet tempo. But if there is a major armor assault, the ACR will be hard pressed to hold it at extended ranges.

ACR aviation assets from the attack helicopter squadron are not only dependent on the weather, but they are also vulnerable to Soviet counter-air and air defense operations before they can successfully engage threat armor. Finally, the vulnerabilities listed for an ACR include the high risk of being cut off and bypassed or neutralized when operating in the depth and width traditionally given to ACRs.(30)

The corps' aviation brigade is the other powerful antiarmor force organic to the corps. Its missions are similar in terms of reconnaissance and security to those of the ACR, but it packs a more potent aviation punch. This impressive antiarmor array is flawed by its vulnerability to the fog of war (literally) as represented by the vagaries of the weather--especially in Europe. The aviation brigade could serve as a vital counterattack force to delay or stop a major Soviet armored penetration in its theater of operations. But it must first penetrate Soviet counter-air space, avoid significant air defense threats (including U.S. air defense amicide), and then achieve accurate targeting on moving armor at night. This assumes that the brigade is not already committed to another sector in the corps area: e.g., the deep battle, or an economy of force sector. It also assumes that it has not already

been attrited by the first Soviet strike in the corps area. Soviet targeting of both the ACR and especially the aviation brigade must be expected. It represents in any gross calculation of correlation of forces a significant advantage for the U.S. corps. Therefore it will be sought out immediately by attacking Soviet forces.(31)

Where then in the organization of the U.S. heavy corps is an antiarmor force designed specifically to combat the mobile armored warfare threat we can expect to face in the NATO battleground? If the ACR is employed as a covering force, it may not be able to hold a major penetration. If the ACR is dispersed throughout the battlefield, it may not be able to concentrate in time to meet that armor penetration. Who will do the job?

The U.S.A.F. A-10 has a primary mission of close air support. Its 30mm gun and Maverick missiles kill tanks from the top down avoiding Soviet reactive armor. However it has limitations which hamper its role as an antiarmor weapon. Although it is dedicated to the mission of ground support, it is not an organic, dedicated asset which the maneuver commander can rely on. In the opening stages of an armored breakthrough, not all A-10s will reach their stations to fight the battle. Those which respond to an immediate request must first fight their way through the Soviet counter-air and air defense threats. The A-10 does not fly at night. It is vulnerable to ground fire because of its slow speed and high profile in the attack. And it is a finite fleet. There are not enough A-10's to simultaneously support each maneuver battalion in USAREUR. The A-10 will help those maneuver

units it reaches, but it is not a dedicated antiarmor system to stop massed armor.(32) The conditions for a major armored breakthrough with a follow-on exploitation are probable in a conventional war. Even with the attrition wrought by air power, corps artillery, engineer obstacles, mines, and barriers in addition to the maneuver combat power, it is just as probable that some Soviet armor will get through the forward defenses. Whether employed in the offense or defense, the U.S. heavy corps has shortfalls in antiarmor combat power required to defeat the Soviet armored threat in Europe.

The Heavy Division

The heavy division has the strongest concentrated antiarmor combat power in the theater of operations, represented by a variety of systems. The divisional cavalry squadron, the heavy brigades, and the divisional aviation brigade all contain organic direct fire antiarmor assets. But given the numbers of opposing armor and antiarmor systems these divisional units have a difficult job to do. The U.S. must expect to defeat an enemy three times its own size to succeed on the European battlefield. But can the division 'fight outnumbered and win' against the current Soviet armored threat?

A comparison of a U.S. battalion task force against a first echelon Soviet motorized rifle regiment is shown in Appendix A. The armor versus antiarmor match-up is not favorable for the U.S. by any standard. In a surprise attack, U.S. weapons systems would

be attrited below these starting figures. Additionally, the casualties due to conventional field artillery, chemical or biological weapons used by the Soviets would have an even greater effect on the ratios. If a Soviet breakthrough is achieved, where does the division commander turn for his counterattack force to defeat the armored array? This paper has already shown that the answer is not to assets from the corps. Within the division, the cavalry squadron's relatively minimal combat power would already be attrited. The aviation brigade is weather dependent and subject to the Soviet (and friendly) air defense threat. Given the numbers opposing the division, the U.S. commander will be reluctant to hold a large maneuver brigade in combat reserve to stop a breakthrough. But, that may the only choice.

The positioning of that reserve is critical to the commander because of the time-distance factors involved in moving it to the site of the enemy breakthrough. If the reserve is located far from that breakthrough, it will not make it in time. Without the antiarmor reinforcements of that reserve, the enemy penetration will roll through the forward defense and pass quickly back into operational depth. What makes this breakthrough possible on the ground for the Soviets? Their tanks. And what can stop them from rolling through? Outnumbered American tanks? A reserve out of place? If holding the Soviet armor threat becomes the focus of the U.S. defensive plan then flexibility and initiative are lost.

What is the U.S. response to the multiple breakthrough? What if the weather stops attack aviation from flying and the route for the ground counterattack force is blocked with Soviet

FASCAM, burning vehicles, and refugee traffic?(33) The division commander turns to corps for antiarmor help, but the corps command and control net is shut down from electronic counter measures. In the few seconds that the net reopens the corps response is: "Hold them as long as you can..."

And what of the specific antiarmor weapons systems at divisional level? Examine the the M-1, the M-2 and the M-3, and the ITV. Are they designed to take out Soviet armor? Can they? If they are taking out enemy armor, are they missing their primary missions? Are they survivable? The answers to these questions should tell us how significant an antiarmor shortfall U.S. forces really have at the ground level.

The M-1 main battle tank is a significant improvement over the M-60 series because of its upgraded armor, mobility, and firepower. But the M-1, regardless of its quality, is outnumbered on the NATO battlefield. Can it achieve enough multiple engagements to stop the Soviet armor array?

The Lanchester equations posit the need for multiple engagement success against threat tanks in order to survive.(34) Even if we hold a 3:1 qualitative advantage against the T-80 with the M-1, the Lanchester Law of Attrition says that eventually we will lose the fight if we are outnumbered by 2:1. Given the Soviet advances in reactive armor, the intentional positioning of T-80 tank armies in the American sector of NATO's defense, and the rapid improvements by the Soviet army in limited visibility operations we would be hard pressed to make the case for a 3:1 qualitative advantage in the next decade.(35) Lanchester's Law is

a statistical exercise which deals with the raw data of pure mathematics. Admittedly it does not account for the moral dimension, leadership, nor the friction which attends all conflict. But it is a logical model with an important key in its title. It is the Attrition in Lanchester's Law which is as disturbing as the predicted simulation result. AirLand Battle is not an attrition doctrine. We cannot defeat Soviet armor by fighting tank on tank.

What is the role of the M-1 tank in the AirLand Battle? Is it a tank destroyer or is it designed to achieve the shock action breakthrough of the tank in order to carry the fight to the enemy? Can we afford to expend our M-1 strength in defensive attrition battles? These are old questions which have marked the cycles of tank development and doctrine since the battle of Cambrai. Do tanks have a primary mission of killing other tanks?

Arguably the M-1 is well-suited to kill Soviet armor. If this becomes its primary mission then what is lost? FM 100-5 tells us that:

> In mounted warfare, the tank is the primary offensive weapon. Its firepower, protection from enemy fire, and speed create the shock effect necessary to disrupt the enemy's operations and to defeat him. Tanks can destroy enemy armored vehicles, infantry, and antitank guided missiles units. 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 a defense.(36)

What then is lost when the M-1 is used (in a combined arms team) principally to counter Soviet armor? The value of the tank as an offensive force is lost. The ability to achieve the AirLand Battle breakthrough is lost. The ability to pursue, to strike deep, to take full advantage of the strength of the armor is wasted on attrition warfare. The M-1 was designed for maneuver warfare. Can we afford to use the costly and finite M-1 fleet in attrition warfare at the expense of the counterattack in the defense or any of the tank's offensive missions? In the environment of an outnumbered U.S. mechanized and armored force, limitations on the use of tanks will apply. Commanders will make priorities based on mission, enemy, troops, terrain, and time available so that the greatest gain is made from the limited assets at hand. Armor will not be able to do all the missions for which it is held doctrinally accountable.(37)

If the tank is not the answer to antiarmor defense in NATO, will the M2/M3 Bradley Fighting Vehicles (BFVs) fill the bill? Can the BFV stop a threat armor penetration with its TOW and 25mm chain gun? The main gun on the Bradley is not the TOW, it is the 25mm chain gun. That weapon was designed to kill the BMP and the BRDM, and it cannot defeat current Soviet tanks.(38) As the Army Green Book for 1987 noted:

> The characteristics of the IFV allow for mounted combat and provide the infantry a means to protect tanks and consolidate gains in the offensive. The principal design requirements for the Bradley were mobility equal to the most modern tanks such as the M-1, and main armament powerful enough to handle enemy light armor and support the infantry squad when dismounted..(39)

The TOW mounted on the Bradley, both on the infantry and cavalry versions, is a first rate tank killer. The TOW2A missile, now in production, can penetrate through reactive armor.(40) However, it has a slow rate of kill because of its time of flight. If the Soviet tank is able to maneuver out of range or behind cover before the flight time is complete, then the round is gone with no result. The TOW round must be tracked the entire flight path to impact for a successful hit - this is not a fire and forget weapon. The implications for a gunner who is uncertain of his skills with a live round, receiving ponderous artillery fire and whose nerves are shattered by the intense friction of high intensity conflict create a special training problem. Given the short LOS ranges in Europe, the standoff advantage of the TOW will not be employed to full effect. The TOW also has serious limitations in a built-up area because of its back blast zone, its minimum arm range of 65 meters in the close engagement distances in urban fighting, a slow rate of fire, and potential interference from high voltage wires. (41)

The Bradley will do a first rate job in keeping up with the M-1 in the offensive and killing some enemy armor in the defensive while delivering its infantrymen to the fight. But it cannot serve as a mobile force (in task force configuration) to stop a major armored breakthrough. It is a maneuver element of combat power designed to fight with and complement the main battle tank. It is not suitable for an attrition battle against heavier armored vehicles. It must survive to get its infantrymen to the battle.

And it must survive to support M-1's in their offensive breakthrough assaults and defensive counterattacks.

The numbers of Bradleys versus BRDMs and BMPs also remind us of the logic and the result of the Lanchester Law of Attrition. And if the Soviets place reactive armor on these vehicles then the 25mm will no longer be able to perform its primary mission. The Bradley is not a light tank and its armor will not stand up against Soviet MBTs or the Sagger ATGM series. It will do a superb job in the combined arms team, but it was not designed as either a tank or a tank destroyer. As FM 100-5 says,

> Mechanized infantry complements armor through its ability to seize and hold ground. It provides overwatching antitank fires and suppresses enemy infantry and antitank guided missile elements.(42)

The Improved Tow Vehicle (ITV) in the heavy division bears the only current resemblance to the antiarmor organizations of WWII. With the arrival of the BFV though, the further utility of the antiarmor company in each infantry maneuver battalion is questionable. The concept is inherently sound and there is clearly a need for dedicated vehicles to deal with the strong Soviet armor threat. Does this make the ITV the tank destroyer the U.S. Army needs in the J-Series TO&E battalion? The ITV has the same advantages (and disadvantages) of the BFV in its TOW launchers. What it does not have is the ability to maneuver at the same speed as the Bradley, essential mobility in the modern battlefield. The ITV cannot keep up with M1/M2 force on a high speed move. Overwatching antitank fires are lost until the ITV catches up to the battle. The ITV is also a relatively thin-skinned vehicle

similar to the M113 armored personnel carrier. Here is has no match in the heavier armor plating of the BFV or the M-1. ITV crews are placed at the most dangerous place on the battlefield with minimal armor protection and limited mobility.

The ITV is often parceled out (not unlike the tank destroyer experience of WWII) to maneuver companies within the battalion as an ad hoc attempt to increase their company antiarmor strength. Rarely does the battalion commander employ his ITV's en masse along a major breakthrough route, nor can he reasonably be expected to have that kind of special insight. The consequences of incorrectly guessing would be disastrous.

The days of the satchel charge as individual antitank weapons are sadly gone. No longer can trained sapper dog teams with explosives tied to their chests run underneath tanks as the Russians employed in the Second World War. Instead, the foot soldier relies on the Light Antitank Weapon and the Dragon. Both of these systems are undergoing improvements and changes, but their current capabilities raise sharp doubts about reliability and lethality against most Soviet MBTs.(43)

The need for additional antiarmor combat power is clear in this review of U.S. antiarmor capabilities and employment in the heavy corps. This is especially true if the Soviets conduct a major surprise attack and achieve multiple massed armor penetrations. U.S. quality in antiarmor weapons systems is not enough to overcome Soviet quantity and enhanced survivability in armored vehicles. More M-1's, M-2s, ITVs, Cobras and Apaches are not the answer. They are too expensive in this era of increasing

defense budget austerity. More importantly, they are firepower and maneuver forces not firepower and attrition forces. The West German example of a dedicated tank destroyer stands in marked contrast to the U.S. antiarmor shortfall, and is well worth a look.

European Tank Destroyers

One direction to a better antiarmor system in NATO is given by the Bundeswehr. In their system of complementary, combined arms, the German Army includes tank destroyers in their organizational structure. The Jaguar is an "anti-tank tracked vehicle armed with 2 HOT missiles"(44). It is employed as an integral part of the forward defense of the Bundeswehr:

> Tank destroyers are normally employed in close coordination with tanks in all types of combat operations. This cooperation is characterized by a clear "division of responsibilities"; i.e. missile equipped tank destroyers engage enemy tanks in depth, while friendly tanks engage the leading tanks.(45)

The West German tank destroyers are organic to both battalion and brigade. An antitank company of two Jagdpanzer platoons and one of self propelled (SP) ATGMs is reinforced at the brigade level by a company of twelve Jagdpanzer and five SP ATGMs.(46) Dr. Christopher Donnelly of the British Army Staff College writes,

> The Soviets feel that the Bundeswehr system of organizing antitank weapons is the more effective, and they draw their officers' attention to the possibility that special, highly mobile antitank brigades may be formed by West Germany in the near future to include ATGM vehicles. (47)

Donnelly goes on to say that the main threat for the Soviets in their advance through the defenses of NATO is "from a counterattack or from reserves moving to block a gap in the defense." This is precisely what the Bundeswehr appears able to do with its mobile antitank formations.(48)

The German Army emphasizes one combined arms system for combat, fully integrated and with clearly distinct responsibilities. Here is a sound approach, one that was battle tested in their own experience in the Second World War and not discarded. The logic of German tank destroyer employment as a separate arm shows that the BFV cannot serve the same purpose, even though its armament is similar. The BFV has multiple missions, and the primary one is mechanized infantry - not tank killing. For the role of mechanized infantry, the Germans employ the Marder. This triad of Leopard, Jaguar, and Marder is a powerful source of combat power. U.S. tank destroyer history applied a similar approach with far less doctrinal success.

U.S. Tank Destroyer History

Dr. Christopher Gabel of the Combat Studies Institute at the Command and General Staff College at Fort Leavenworth, Kansas has studied the U.S. tank destroyer experience extensively. Gabel points out that tank destroyers were the U.S. response to the shocking defeat of the French Army in 1940 by the combat power of the blitzkrieg. Tank destroyer units were established at echelons above division as part of General Lesley J. McNair's pooling

concept--what we refer to now as a corps plug. When the need arose for an antiarmor reaction force, tank destroyer units were to move quickly to the site of the enemy and destroy the tanks. TDs were envisioned to be employed in battalion, group and brigade size forces to counter the German threat.(49)

An article in the Cavalry Journal of May 1941 summed up the doctrinal employment of tank destroyers succinctly:

> The repulse must come before the counterattack. Antitank units can effect the repulse of the hostile tanks. Armored forces, and other forces, can then make the counterattack. We must not only build tanks as fast as we can. We must have a mobile force to stop tanks and permit the full use of other arms.(50)

Here is the fundamental combat advantage provided by the TD. Enemy massed armor is fixed by tank destroyers, allowing friendly maneuver forces to counterattack, regain the initiative, and destroy the threat. This doctrinal mission is no less valuable today.

Tank destroyer battalions looked like a self-contained unit (although not a combined arms unit) when first organized by the Army Ground Forces. As CPT Jonathan House has noted:

> ..each platoon had four self-propelled guns, an armored car section for security, and an antiaircraft section; in addition to three companies of such guns, the battalion included a reconnaissance company of three reconnaissance platoons plus a pioneer platoon.(51)

The first 'off the shelf' TDs employed in North Africa were essentially unfit for the job, did poorly against dispersed and superior German armor, and established a hollow reputation across

the board with field commanders.(51) This initial reception in combat was followed by a misapplication of the tank destroyer doctrine and a general, albeit pragmatic, disregard for its original purpose. The process naturally snowballed. Without a major enemy armored force to mass against, U.S. commanders seized the additional firepower of the tank destroyer and employed it in 'penny packets' throughout their divisions.

A common experience of the tank destroyer battalions in WWII was to begin with one division and finish up a dozen divisions later across the breadth of Europe. Platoons and even sections of tank destroyers were commonly parceled out to support infantry and armor companies. One TD platoon leader remembered that in 300 days of combat in Europe, he spent 15 under the command and control of his battalion.(53) The cohesion of the tank destroyer battalions was thus severely affected and the full combat power of the TD dissipated. As German armor continued to improve on the Western Front, the U.S. played catch up with its own antiarmor response. It was not until 1945 that the most powerful tank destroyer was deployed in Europe. This was the self-propelled M-36, mounting a 90mm gun and capable of knocking out the King Tiger as well as the PanzerII. By then it was too late to convince the field that the TD concept had merit. No blitzkrieg reappeared in the ETO to validate the soundness of the tank destroyer doctrine. The variety of uses for tank destroyers in the absence of a massed armor attack did not recommend them for further development.(54) Their combat experience, however mixed, was marked by innovation, elan, and occasionally effective antiarmor combat power.

One combat profile of an American TD unit against massed armor is instructive. This was the experience of the 601st TD battalion at the Battle of the Bulge. Although the TDs never had an opportunity to mass in the Ardennes against the onslaught of the German surprise attack, their contribution was memorable in a number of ways. The official history of the Bulge notes that:

> The mobile, tactically agile, self-propelled, armored field artillery and tank destroyers are clearly traceable in the Ardennes fighting as over and over again influencing the course of battle.(55)

This also sounded the death knell for the 37mm antitank gun which had a mixed performance in North Africa for both the British and the Americans. The Bulge experience gave combat commanders some indications that the self-propelled M-36 TD with its 90mm gun could in fact shoot better than the 75mm version of the Sherman tank.(56)

Tank destroyers performed their missions remarkably well in the frontline of ground combat. They were also used in a variety of unexpected roles which METT-T created. TDs were employed extensively in indirect fire roles under the operating control of divisional artillery units. They were also very effective in knocking out enemy bunkers both in and out of urban areas. And TDs participated in overwatch roles for tanks, anticipating the current employment of ITVs and BFVs.(57)

From El Guettar to the Bulge, tank destroyer units performed with great courage and considerable tactical efficiency in spite of their piecemeal employment, their relatively unsophisticated hardware, and the misunderstanding and distrust of senior

commanders. Any assessment of the validity of the tank destroyer experience in the Second World War is necessarily flawed by these artificial constraints. One notable part of the tank destroyer saga was the parochial infighting between Army branches represented by strong personalities of the senior officers of the War Department. An ad hoc materiel development process that bore no resemblance to our own concept based requirements system, handicapped the TDs from the beginning.(58)

Dr. Gabel's summary of the American tank destroyer experience notes that the doctrine was fundamentally flawed since it was never employed against the threat it was designed to defeat -massed armor. He further notes that any future employment of tank destroyers must take into account the combined arms concept in order to succeed.(59) The failure to integrate tank destroyers as organic elements of divisions contributed to its elimination at the end of WWII. In Germany and the Soviet Union, on the other hand, the full integration of tank destroyers and doctrine as organic elements of maneuver forces was fully retained. Their combat experience taught them that TDs had an important role in mobile armored warfare which would not fade with time.

German and Soviet Tank Destroyers

The Germans employed antitank guns, both self-propelled and towed throughout the war on both fronts. From the massive PanzerJadger to the PanzerFaust, their technology was first rate. They made it clear that the employment of anti-tank systems was

part of a combined arms effort exemplified by the success with blitzkrieg in the opening stages of the war. The German development of pakfronts, concentrations of mobile antitank guns in depth, was so successful that the Soviets adapted it and used the technique with equal skill. The German legacy of antitank doctrine is exemplified by the triad of tank, tank destroyer, and mechanized force which remains a vital part of the Bundeswehr's forward defense of NATO.(60)

The Red Army also made excellent use of antitank systems and their doctrine more closely approximates the original U.S. doctrine for tank destroyers simply because they faced massed armor on the Eastern Front. Soviet antitank doctrine emphasized the joining of medium tanks, heavy tanks, and then tank destroyers (their assault guns)in the attack. These assault guns would overwatch the initial attack destroying enemy tanks from concealed positions so that the Soviet armor could attack without delay.(61) Soviet success at the decisive battle of Kursk was shaped considerably by their employment of antitank guns in depth against the most massive tank force ever employed in history.

The Battle of Kursk

The Battle of Kursk, fought in August of 1943, is deeply ingrained in the memory of current Soviet military because of the successful doctrinal employment of antiarmor in depth. General Biryukov writes that the Red Army had

> 23 guns per kilometer of frontage to a depth of 30-35 kilometers..by means of maneuvering with the reserves in the course of the fighting the antitank density was increased to 45-60 guns per kilometer of frontage.(62)

That this defense in depth succeeded can be seen by the successful counterattack of the 5th Guards Tank Army against the German 4th Panzer Army (63).

Colonel David Glantz has noted that Kursk was a strong example of combined arms defense. In particular he notes, "The antitank strongpoints and regions integrated infantry, artillery, and sometimes tank fire placed on the most likely armored approaches into the defense."(64) Current Soviet doctrinal literature on antitank warfare highlights Kursk as the historical basis for present day operations:

> ..The Soviet Army had completely adopted the basic principles of antitank defense which have retained their significance to this day. These principles consist in massing and distribution of antitank weapons in depth in the most important defense sectors and carrying out large scale maneuvers with these weapons.(65)

For the tactical commander, Kursk presents multiple lessons with respect to tactical and operational warfare. The business of antitank defense in depth, as well as the aggressive employment of tank armies in the counterattack, provides us with a scenario unlike the traditional surprise attack across the IGB into NATO's operational depth. Instead, here is an example of where Soviet tank destroyers played a primary role in setting the preconditions for decisive victory. Initially the tank destroyers/assault guns seeded the defense in depth and

eliminated enemy tanks at both long ranges and in the close in battle. Once the enemy had culminated in those deep defensive sectors, the tank destroyers followed the mobile armored counterattack and continued to defeat enemy tanks ensuring the success of the Red Army's 'flashing sword of vengeance'. It has been estimated that up to 75% of the German armor lost at Kursk was due to the employment of antitank guns. These guns were used in depth following a detailed, well understood, and violently executed plan which integrated all combined arms.(66)

Colonel L.D. Holder has noted that Kursk demonstrated the dangers for armor forces which blunder frontally into the depth of antitank defenses:

> Armor units succeed best when they appear unexpectedly or before defenses can solidify; their use as battering rams degrades their effectiveness and nullifies the advantage of superior mobility.(67)

Conclusion

The tank on today's outnumbered battlefield is clearly not the best defense against an enemy tank. American armor would be decisively attrited in NATO in a tank on tank duel by the sheer numbers of enemy tank and antitank systems. The U.S. could not wrest the initiative and conduct AirLand Battle offensive doctrine if it were mired in this kind of a tank slugfest. The BFV and the IFV are also outnumbered and their singular reliance on the TOW against increasing numbers of reactive armored vehicles places them at great risk in overwatching friendly armor and performing

their own specialized missions. Individually fired antitank systems are in the dynamics of developmental changes to increase their firepower and reliability. Attack aviation at both corps and division faces not only the problem of reactive armor on an elusive target but is also uniquely vulnerable to weather and the major threat of Soviet air defense. Where then is a system the American army can rely on which permits armor to perform its counterattack mission in the defense and its mobile warfare mission in the offense?

Tank destroyers and the tank destroyer doctrine of the Second World War provide a solution to this organizational, doctrinal, and combat power need!

Tank destroyer battalions organic at division and corps provide the organic firepower necessary to create the synergy for success in combat. One TD battalion per division and two more battalions per corps provide tactical and operational commanders with a significant increase in firepower and maneuver capability for the entire combined arms force. At the divisional level they would be controlled by the division commanding general (CG) and placed where he chose to weight his operations. At corps level they would be controlled by the corps CG and allocated as tactically necessary to the division or corps sector. Corps tank destroyer battalions would be commanded by a group headquarters. This headquarters would provide a tank destroyer control cell for the tactical operations center (similar to a fire support element) which serves as the principal advisor to the corps CG. Once committed to combat in a sector of the corps or division area of

operations, the TD battalion would fall under the operational control of the maneuver commander in that sector. This dovetails with the corps plug concept of today's Army. Here is the method to augment the J-series divisions from corps with antiarmor combat power. It is the pooling idea of General McNair but with the strength of force wide standardization.

Tank destroyer battalions would be configured similarly to the WWII organization, incorporating the best features of combined arms (See Appendix B). The TD battalion should have organic infantry and artillery support as part of this TO&E. History teaches that infantry and armor cannot survive long acting independently of one another. Infantry from the zone in which the TD battalion is employed may well be decisively engaged in the fight. Additionally, a battery of artillery per TD battalion will round out its combined arms role and provide a fire direction center for TD indirect fire missions. The Concept Based Requirements System (CBRS) can generate the appropriate TO&E with the priority given to mobility and combined arms integration with the remainder of the division.

Doctrinally, the tank destroyer answers the problem of armor fighting attrition warfare. With tank destroyers on the battlefield -as the Germans and Russians will attest to- armor can perform its mission in the defense and the offense without being wasted by tank on tank engagements. Even with the rough edge in technology the U.S. may now own, we have seen that the laws of attrition will inevitably play out against the superior numbers and increasingly sophisticated technology of the U.S.S.R. If

armor is designed to fight battles of maneuver, the tank destroyer can deal with the simultaneous battles of attrition. When armor needs to lead the way in the counterattack, the tank destroyer can clear that way through its tank killing firepower and maneuver. Armor then, complemented not only by the BFV but also the TD, can achieve the synergistic combined arms effect necessary to succeed against the threat's massive armor array.

Tank destroyer doctrine must embody the aggressive spirit of the Second World War, but with a far closer integration with armor and infantry. TRADOC can do a far better job of indoctrinating the Army about tank destroyers and their doctrinal roles than the Army Ground force in 1943. This will serve to make the ground commanders at all echelons far more capable of directing these assets with the maximum combat efficiency lost through ignorance in the WWII experience.

The match between AirLand Battle and tank destroyers is sound; it provides an opportunity for armor and infantry to perform their current doctrinal missions without culminating because of inferior numbers. Writing on dedicated antiarmor units, Colonel Holder, a major author of AirLand Battle, and Colonel Robert A. Doughty, an authority on French antitank doctrine wrote:

> In addition to providing the higher density of antitank weapons needed in any form of defense in use or being considered, such a unit would extend a commander's ability to influence the course of a battle by giving him a mobile, uncommited increment of combat power to counteract an offensive threat as it developed. Too, the presence of an antiarmor unit on the battlefield would add considerable flexibility and dynamism to the

> defensive plan and would shield the reserve from premature release or from being used in a piecemeal manner.(68)

Tank destroyers are multi-purpose weapons which can fit the proposed Armor Family of Vehicles for the future. The WWII experience validated their utility in the roles of indirect fire, air defense, and city fighting in addition to their primary role as direct fire tank killers. This is important as Dr. Gabel notes because of the need for "secondary missions when massed armor is not a threat."(69)

Their design should achieve the traditional balance between firepower, mobility and armor protection, but the primary concerns will be mobility and firepower. The tank destroyer must be mobile enough to flood the battlefield in the case of an enemy penetration and equally able to maneuver forward with the M-1/M-2 team. Their firepower must be able to defeat current and future reactive Soviet armor. That threat should also drive the question of guns or missiles or a mix on tank destroyers.

By reducing the cost of special armor protection and placing an emphasis on speed and firepower, the tank destroyer will not only be more efficient but also less expensive than a main battle tank. Cost efficiency does not mean jeopardizing the lives of the soldiers who man the TDs. Their ability to maneuver and kill the enemy armor makes their own survivability far more likely. Lightness also means transportability. The TD should be able to serve with both heavy and light divisions and therefore must be able to be deployed as part of the light divisions sortie requirements. Given the new technologies in firepower and engineering systems for mobility, this need for light armor can be

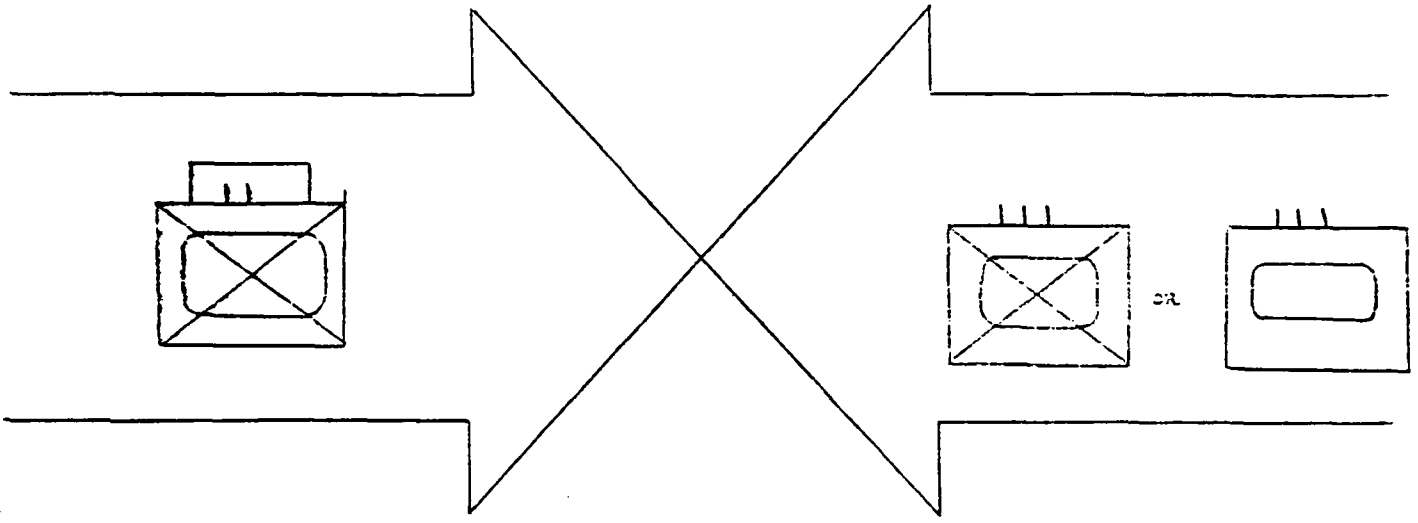
accomplished. The Light Armored Vehicle program adopted by the United States Marine Corps is proof that light armor can be lifted strategically.

In the design of the tank destroyer, key attention must be given to human engineering. The ideas of Brigadier Simpkin in many of his volumes address this issue eloquently.(70) TD crews would be placed in extremely dangerous positions on the dirty battlefield. Reducing the stress of combat through ergonomics in the design process has a battlefield payoff. A focus on the moral dimension of TD crews will help to strengthen their resolve and result in increased mission efficiency.

No single weapon system can solve the dynamic problem the U.S. faces against the numerical superiority of the Soviet Union. Reliance on any single technical solution can only mean disaster for the total force. Tank destroyers fully integrated and organic to major maneuver units provide a powerful antiarmor arm to defeat massed Soviet armor. As they battle the threat armored array and block multiple penetrations, the maneuver forces of the M-1/M-2/Apache team can fight outnumbered and win through the employment of AirLand Battle doctrine. Without this TD supplement the chances of being able to employ the offensive part of that doctrine is doubtful.

The tank destroyer esprit of WWII has already created a tradition upon which to build a cohesive fighting team, this time fully integrated with its divisional base. That spirit of seek, strike, and destroy can be a key factor in the survival of NATO.

Appendix A - The Armor/Antiarmor Comparison in Central Europe



U.S. - A Balanced Task Force

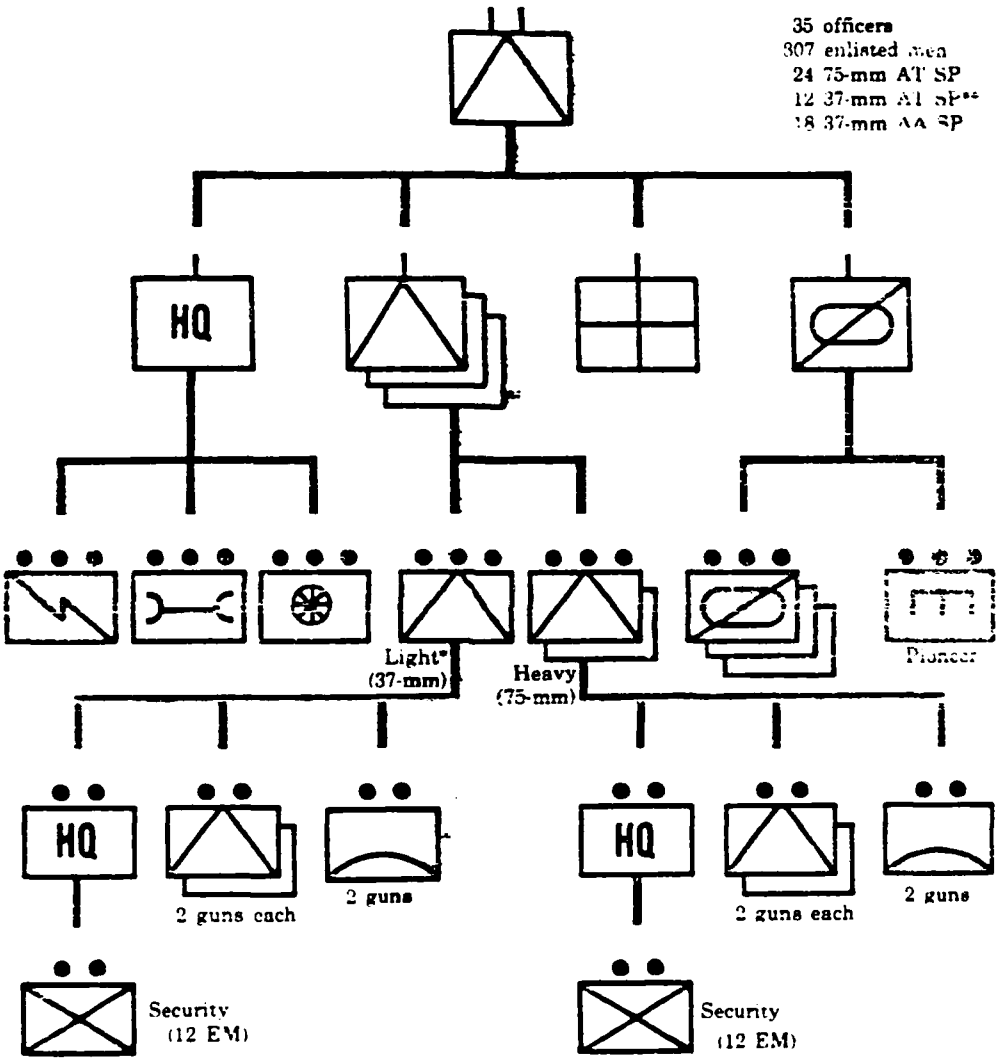
Team Tank x 2
Team Mech x 2
E Co
Scout Platoon
TOTAL: 24 M-1s
34 BFVs
12 ITVs

Soviet - One Motorized Rifle Regiment or a Tank Regiment

1 MRR=3 MRB+1TB
TOTAL: 40 T-80s
134 FVs

1 TR=3TB
TOTAL: 94 T-80s
17 FVs

Note: T-80's in Group of Soviet Forces East Germany, poised against USAREUR, have reactive armor.(71)



*Converted to heavy platoon, 9 November 1942
**Replaced by 75-mm weapons, 9 November 1942

Figure 6. Tank destroyer battalion, heavy (SP), 1942

ENDNOTES

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5. Clausewitz, Carl von On War ed. Peter Paret and Michael Howard New York:1986, p. 595.

6. Soviet Military Power Washington D.C.:March 1987 p. 134.

7. The 1987-88 Green Book Army Washington D.C.:October 1987 p. 82.

8. Rogers, General Bernard W. "General Rogers: Time To Say Time Out" Army September 1987 p. 24.

9. Soviet Military Power p. 93.

10. Ibid, p. 9.

11. The Posture of the United States Army for Fiscal Year 1987 Washington D.C.:1987 p. 2.

12. See for example the following sources:
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13. von Mellethin, p. 117.

14. Clausewitz, On War, p. 194.

15. Schemmer, Benjamin F., "Interview with Phillip A. Karber" Armed Forces Journal:June 1987, pp.112-137.

16. Ibid.

17. Simpkin, Brigadier Richard Red Armour Oxford:1984, p. 36. This assertion is also based on a discussion with LTC Douglas W. Craft, Armor, U.S.A..

18. Simpkin, Red Armour, p. 36.
19. Ibid, Part 1, Technology, pp. 33-56.

20. Soviet Military Power, p. 121.

21. Courter, Congressman Jim "Can NATO Strategy Work?" Military Review June 1987, p. 8. See also Simpkin, Red Armour pp. 158-168, CPT Guy C. Swan's article in the September 1986 Military Review, "Countering the Daring Thrust", pp. 42-53, and The Soviet Army, pp. 4-5, 4-9.

22. Keltner, LTC Kenneth M. and Turbiville, Graham H. Jr. "Soviet Reinforcement in Europe" Military Review:April 1987, pp. 34-43. See also Chapter V, "Readiness, Mobility, and Sustainability" in Soviet Military Power pp. 95-104.

23. Ibid

24. The Soviet Army, p. 13-13. See also Keltner, "Soviet Reinforcement in Europe" pp. 40-42.

25. Soviet Military Power, p. 93.

26. Foss, Christopher F. Jane's World Armored Fighting Vehicles New York: 1976, pp. 331-333.

27. Biryukov,G. and Melnikov, G. Antitank Warfare Moscow:1972, p. 6.

28. Organizational and Tactical Reference Data For The Army In The Field Fort Leavenworth:1987, pp. 7-13

29. Ibid, pp. 7-16

30. Ibid

31. A correlation of forces done by Major David Fastabend as part of the TACOPS exercise at the School for Advanced Military Studies on October 26, 1987 showed a 6.5 to 1 advantage for the aviation brigades of two U.S. corps compared to Front aviation assets.

32. TACP 50-20 (TRADOC TT 17-50-3) Joint Air Attack Team Operations Fort Rucker Alabama 30 April 1979, pp. 15-21.

33. Discussion with LTC C. Houser, Center For Army Tactics, Command and General Staff College, Fort Leavenworth, Kansas.

34. Hollingsworth, LTG James F. and Wood, MG Allan T. "The Light Armored Corps - A Strategic Necessity" Armed Forces Journal January 1980, pp. 57-59.

35. Ibid, p 58.

36. FM 100-5 Operations Washington, D.C. 1986, p. 42.

37. Pause for a moment and consider a theater of operations outside of the European battlefield. Here the use of the M-1 against Soviet armor in an attrition fight is even more dangerous. If NATO can be viewed as essentially a strategically

and operationally defensive fight, what of Southwest Asia. What if the U.S. Army fought an operationally offensive campaign. Can it afford to focus its tanks on defeating Soviet armor when the force ratios could be as high as 16:1 against the U.S.? See Hollingsworth, "The Light Armored Corps-A Strategic Necessity" pp. 58-59, for a discussion of that potential theater of operations.

38. Zaloga, Steven J. The M2 Bradley Infantry Fighting Vehicle London:1986, pp.4-16

39. The 1987-88 Army Green Book, p. 417

40. Armed Forces Journal September 1987, p. 12

41. Organizational and Tactical Reference Data For The Army In The Field p. A-4. See also Karber, Armed Forces Journal September 1987, p. 12 and CPT Frank Emery's article "Antiarmor Weapons in Cities" in the May-June 1986 Infantry, pp. 42-43.

42. FM 100-5, p. 41

43. Armed Forces Journal, September 1987, p. 12

44. Medenbach, COL P.C. "Concept and Operating Principles of the German Armored Troops" Federal Republic Of Germany:1 October 1985, p. 2.

45. Ibid

46. Donnelly, Dr. Christopher "Soviet Tactics For Overcoming NATO Antitank Defenses" Infantry September-October 1980, p. 23.

47. Ibid.

48. Ibid.

49. Gabel, Seek, Strike and Destroy. See Chapter 2.

50. Hawkins, GEN "General Hawkins Notes" The Cavalry Journal May-June 1941 pp. 35-40.

51. House, Jonathan Toward Combined Arms Warfare:A Survey of 20th Century Tactics, Doctrine and Organization Fort Leavenworth, Kansas:1984, p. 113. House goes on to say:

> Ideally, when an armored penetration occurred, the tank destroyer battalions would mass to ambush the enemy tanks in the depth of the American defense. Within each tank destroyer battalion, the reconnaissance company selected likely antiarmor kill zones and emplaced minefields to impede the enemy advance through these areas. The gun companies would move to hull down positions to reduce their own vulnerability and then engage the enemy armor.

52. Gabel, Seek, Strike and Destroy, pp. 33-48. LTC Charles F. Baily focused on the materiel development of the tank destroyer in his book on U.S. armored development in the Second World War period (Faint Praise:American Tanks and Tank Destroyers During World War II Hamden:1983). He notes that the tank destroyer school and center at Camp Hood, Texas, took a dual approach to the problems of getting the right tank destroyer. The first job was to adapt what was immediately available such as the towed 37mm gun and the 57mm gun. The next job was to design the best TD for later production by the Ordnance Department. In both cases the overriding concern was to give priority to mobility and firepower at the expense of armor protection. The Armored Force in the American Army had just begun its own separate development and opted to have nothing to do with the tank destroyer concept which it believed to be both competitive and negative. As the Armored Force grew in size and influence, this bias would have an effect on the final demise of the TD forces. Both the TDs and the Armored Force competed for appropriations and support for armored vehicles from the powerful Ordnance Department.

53. Letter from Paul R. Stevenson to LTC James McDonough, dated 1 Sept 1985. Mr. Stevenson was formerly 2nd Platoon Leader, C Company, 644th Tank Destroyer Battalion, and saw considerable service from Normandy to the Elbe in the ETO.

54. Gabel, Seek, Strike, and Destroy, pp. 49-66.

55. Cole, Hugh M. The Ardennes:Battle of the Bulge Washington, D.C.:1965, p. 653 as quoted in Baily, p. 116

56. Baily, Faint Praise, pp. 99-118

57. See Gabel and Baily for the best overall accounts. An excellent article on TD artillery use is Colonel Otis McCormick's "Tanks and Tank Destroyers as Reinforcing Artillery The Cavalry Journal September-October 1944 pp. 67-68

58. Baily has an excellent account of this political struggle between the TD Center, the Armored Force, the Ordnance Department, and the Army Ground Force HQ. See especially Chapters 1,2,4,5,and 7.

59. Gabel, Seek, Strike, and Destroy pp. 67-72

60. See John Weeks, Men Against Tanks New York: 1975 and Werner Krapke's article, "Design Concepts for a Heavy Tank-Destroyer" in International Defense Review, March 1983, pp. 341-344 for two detailed accounts of German antitank history.

61. House, Toward Combined Arms Warfare, p. 115.

62. Biryukov, Antitank Warfare, p. 64.

63. Babadjanyan, Marshal Amazasp "Tank and Mechanised Forces" pp. 179-184 as quoted in G.P. Ivanov-Mumjiev The Battle of Kursk Moscow:1974.

64. Glantz, COL David Soviet Defensive Tactics at Kursk July 1943 Fort Leavenworth, Kansas:1985, p. 39.

65. Biryukov, Antitank Warfare, p. 60.

66. Ibid. See also COL Carl Ernst's "Echo Company Decision Paper" of 25 Mar 1986 which discusses the historical value of dedicated heavy antiarmor assets, p 4.

67. Holder, CPT L.D. "Kursk: The Breaking of the Panzer Corps" Armor:January-February 1975, p. 16.

68. Holder, MAJ L.D. and Doughty, MAJ Robert A. "Antitank Doctrine" Infantry: March-April 1976, p. 19.

69. Gabel, Seek, Strike, and Destroy, p. 72.

70. Simpkin, Tank Warfare London:1979 See especially Chapters 10-13.

71. Schemmer, "Interview With Phillip A. Karber", p. 116. LTC C. Houser, Center For Tactics, United States Command and General Staff College deserves credit for the idea of the armor/antiarmor comparison.

72. Gabel, Seek, Strike, and Destroy, p. 21.

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