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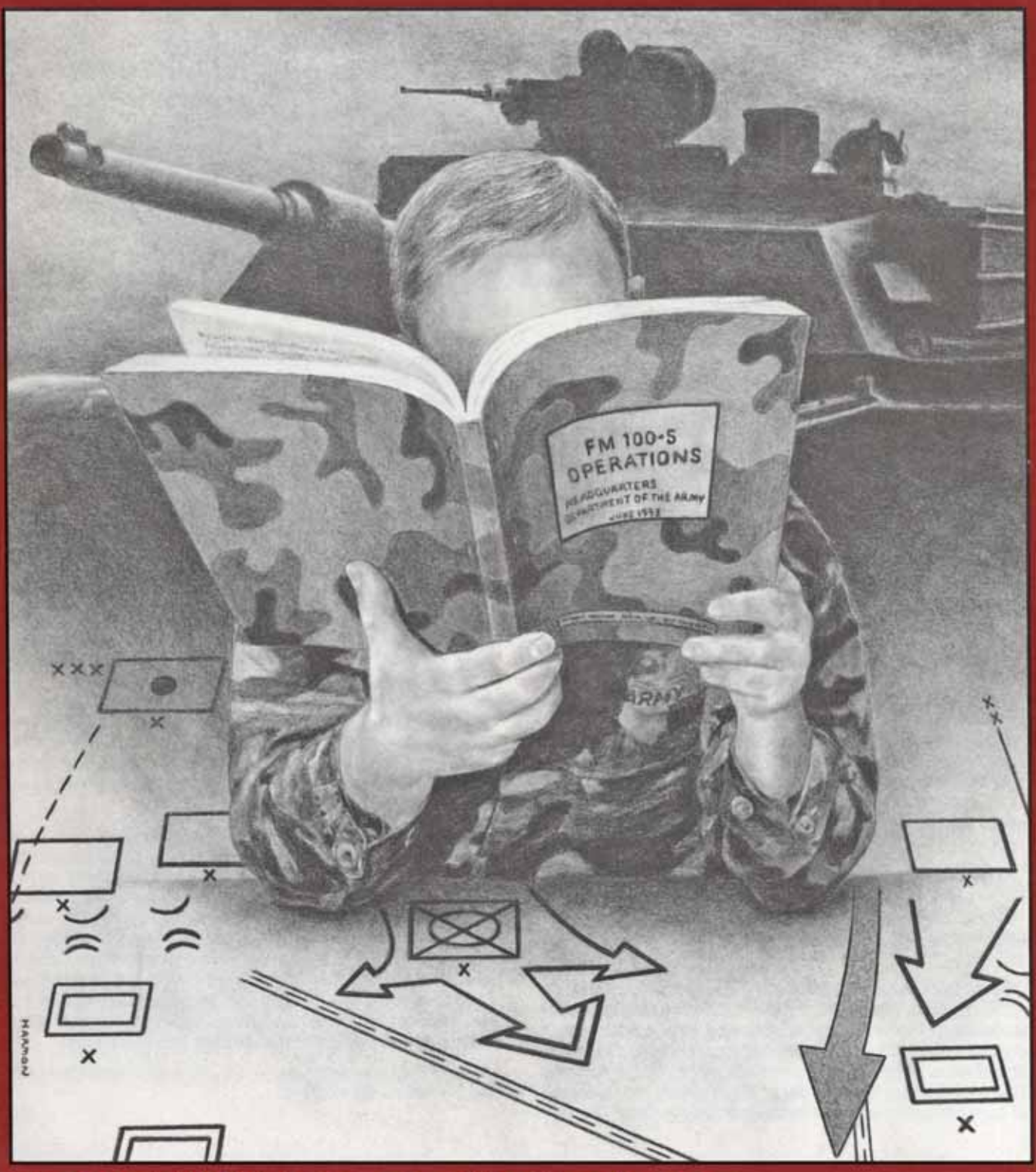

The New FM 100-5: Time to Make New Doctrine

PB 17-99-6

November-December 1999

Saddle Up... Tonight We Ride

"Red one-one, White two-one, this is Blue three-one, Execute Sierra Delta, Time Now!"

A very long time ago, this cryptic radio message sent three platoon leaders to a specified frequency known only to them (or so they thought). Once they had made the switch to their "bandit frequency," Radio Free Company Commander, the three platoon leaders were able to converse freely. The subject was usually the same: "Do any of you guys know what the heck is going on?"

Unfortunately, it was seldom any of the three did, so without a clue and with the small amount of information gleaned from a company commander notorious for keeping important information to himself, the three platoon leaders worked out courses of actions and a tentative plan.

Eventually, sister companies were invited into the bandit frequency net, in the hope that perhaps *their* company commanders had passed along the information ours had neglected to convey. All went well, the net proved useful, and the lieutenants discovered secrets they had only dreamed about in the past...their company's mission, the enemy situation, stuff like that. The station's popularity began to grow, and our heroes soon got overconfident. Too many people knew about the bandit frequency, and we should have expected trouble.

All good things must come to an end, and Sierra Delta's end came when a carefree conversation questioning the mental ability of our company commander was interrupted by a less-than-ecstatic Black six. Talk Radio, Sierra Delta was off the air.

Bandit frequencies are not new; they exist all over today's Army. "Execute Sierra Delta" grew out of frustration from poor leadership — a company commander who would neither communicate with nor train his platoon leaders. 1LT Clark describes a similar frustration in his piece, "A Lieutenant's Plea to Company Commanders." Clark details the necessity of communicating with and training platoon leaders. The article is a wake-up call for company commanders who either fail to engage or do so haphazardly (Note: One should include habitually attached platoon leaders in the training and communicating). Neglecting this mission-essential task will sooner or later return to haunt company commanders and may manifest itself through a bandit frequency, confusion at an obstacle site during a CTC rotation, or worse yet, a disaster during a real-world mission in some exotic location.

I'm told that *ARMOR* was prohibited some time ago from publishing obituaries, promotion notices, etc., but I would be remiss if I failed to note the passing of COL Orville "Sonny" Martin, a WWII veteran whose service of 31 years included a stint as the 29th Editor of *ARMOR*. COL Martin titled his column *"reconnoitering"* and a look back at his January-February column in 1970 provides a pretty good account of what we seek to accomplish with *ARMOR* today: "A journal records deeds, and probably even more important, it puts forth words which are the communication symbols of men's thoughts. In a truly professional journal, this is done not to propagandize nor to grind someone's axe but to stimulate honest and sincere thought leading to forthright discussion which will indeed result in professional thought." We thank COL Martin for all his words.

The holidays are fast becoming near targets and for most of us this means many of the usual drills: half day schedules that don't work or are not followed, frantic shopping on the 24th, and creative financial planning to survive the season. However, to a great many cavalrymen and tankers, it means separation from loved ones. We've all missed our share of holidays, birthdays, school plays, first communions, etc.; it goes with wearing the tree suit. Still, it isn't easy. Before I get caught up in the madness that marks the holiday season, I'd like to offer my thanks to all those separated by duty from loved ones and a wish for their speedy and safe return.

And to the usual suspects — Tim, Bob, Phil, and a few others — execute Sierra Delta.

— D2

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

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LETTERS

Scout Vehicle Photo Recalls WWII Skirmish in France

Dear Sir:

On return from vacation, I read with interest the July-August issue, particularly the article by Major Tolson. The M-8 armored car in the picture on page 26 was that of LT Charles ("Buck") Rogers, of A Troop, 87th Cavalry Reconnaissance Squadron (Mechanized), the organic recon of the 7th Armored Div. I commanded the 2nd Platoon of E Troop, the assault gun troop. Once we landed in Normandy and started to roll towards Chartres, my platoon was attached to A Troop and that may well be my half-track just behind Buck's M-8. This was the first time our column had been fired on; that is the reason for the non-tactical column and the curious troops.

I later took over B Troop, and spent much of the next months in an M-8. It was not a bad vehicle; one of my sergeants knocked out a German Panther tank by creeping up behind it and putting a 37-mm round into the engine compartment. It had the virtue of being not too noisy. In the recon platoons, each armored car was teamed with two jeeps (called peeps by Armored folk). I rode point on many an occasion and the peep was so quiet, scouts could hear leaves rustle.

After WWII, someone called together men from various recon troops to talk about future vehicles. The heavy recon people (from Italy, etc.), who had fought for information, won the battle over those higher numbered divisions who had scouted for information and who prized quiet and stealth. Never again would mounted scouts have sensitive hearing unmarred by vehicle and track noise.

WILLIAM A. KNOWLTON
GEN, U.S. Army (Ret.)
Arlington, Va.

Stealth in Scouting Requires Small, Quiet Vehicles, Not Guns

Dear Sir:

I have studied Major Tolson's article in the July-August 1999 issue of *ARMOR*. I have a problem with this scout/cavalry vehicle dilemma. First, scouts do not fight! Second, they have in the past, and will in the future, employ any method of transportation to accomplish their mission. History tells us that scouts walked, rode ponies, horses, motorcycles, cars, jeeps, and helicopters in order to accomplish the mission. An old axiom is that a scout must abandon his mount, if necessary, in order to get information back to those who need it.

Without question, the best motorized scout vehicles during World War II, Korea, and Vietnam were the radio and gun jeeps in the scout sections of the recon platoon. Many other armies have used armored cars in their reconnaissance units for decades. After the Korean War, the U.S. chose to develop an armored track vehicle for the scout. Against the recommendations of the U.S. Army Armor & Engineer Board, the M-114 was placed in the inventory and was a disaster from day one. In 1969, the Army went further and put a 20mm cannon on the M-114 so it could engage enemy recon elements at long range. I told a group of generals at a Combat Vehicle Review, "The mission of scouts is not to fight; they are to remain unseen. Do not give them a cannon because then they lose their mission."

We cannot armor a vehicle used for scouting and protect it from all kinds of weapons systems. The vehicle must be light and fast and, at best, protect against spears, crossbows, and beer bottles. Of course, there is a need for a cavalry fighting vehicle to overwatch the movement of the scouts, in conjunction with attack helicopters and other systems.

The point I want to make is that U.S. Armor does not need new development of a dedicated scout vehicle. The current research and development people should be aware of the

The Commando Scout Vehicle

numerous high mobility chassis available that would make good scout mounts. As long as scouts have good communications, GPS, detection sensors, and laser designators, they are good to go in many different configurations.

I think the Army made a mistake by not following through with the wheeled XR311. It would have turned out to be the best reconnaissance vehicle the Army ever had. Later, I think we dropped the ball with the Cadillac-Gage Commando Scout. It had CBR protection and was armored against rocks, nails, and small arms fire. It was easy to mount and dismount. It was cursed because it looked like an armored car and it had wheels — heaven forbid!

BURTON S. BOUDINOT
LTC, Armor (Ret.)
31st Editor-in-Chief, *ARMOR*

Merkava Is Plenty Mobile, Says One Who's Driven It

Dear Sir:

I read Jon Clemens's Tank Assessment Survey article with great interest. While I really can't comment on the order of merit between the Leo II and the M1A2, my gut tells me that the M1A2 is a better all-around tank, if for no other reason than it's our tank. I will say what I said to the U.S. Ambassador to Switzerland in 1982 when we were trying to sell the M1 to the Swiss in competition with the Leo II: "They are both great tanks, and I'd be happy to take either one into combat."

My problem with the assessment is the Number 10 position of the Israeli Merkava, based on "...its poor power to weight ratio, which limits its mobility..." It's obvious to me that the assessors have not had a hands-on look at the Merkava and are basing their assessment on what has been printed in the open press and not on its true operational capabilities. I'm sure that their comments refer to the Merkava Mk I, with its 750-hp AVDS 1790 Teledyne Continental engine, and not to the current, in-service, Merkava Mark III, with its 1200-hp AVDS 1790 Teledyne Continental engine. Several years ago, while I was working at Teledyne, a study was conducted comparing the horsepower-to-weight ratios of the Merkava Mk III (1200 hp) and the M1A1 (1500 hp). If memory serves me correctly, the Merkava's 1200-hp engine, through a Renk transmission, delivered approximately 1000 hp to the sprockets, as did the M1's 1500-hp turbine, through an Allison transmission — the difference between the two being on the order of 20 hp. If those figures are correct, there should hardly be a difference power-wise between the two tanks. The only difference then would be how the suspension system of each tank handles the delivered 1000 hp. Personal experience, after driving both tanks, tells me that they both do it quite well.

I've had the privilege to drive five of the tanks in the survey, including the M1, the Leo II, the Merkava Mk III, the Challenger, and the LeClerc. (I've also TC'd and gunned several of them.) While my seat of the pants top marks go to the M1, I am truly hard-pressed to discern a difference between the cross-country mobility and agility of the Merkava in comparison to the M1 and/or the Leo II, which are both head and shoulders above the other two. The Merkava runs like a scalded cat and is not in any way horsepower-limited; if anything, it is ride-limited at very high cross country speeds, as are both the M1 and the Leo II. By that, I mean that the cross country speed of each is only limited by the ride tolerance of the crew.

From an operational standpoint, the Merkava moves across the battlefield as well or better than any other tank in the world, and to give it a dead last rating, based on its power-to-weight ratio, (whatever it is) is an injustice to the tank and the valiant tankers of the Israeli Armor Corps who put their lives on the line in it every day.

And yes, Madam Ambassador, I'd be happy to go to war in a Merkava Mark III!!

STAN R. SHERIDAN
MG, U.S. Army (Ret.)

General Sheridan was program manager for the M60 tank program and first program manager on the Bradley program. He is a former Deputy Chief of Staff for Research, Development and Acquisition, Department of the Army. – Ed.

Israel's Merkava: Underrated in Survey?

Israeli Tank Is Far Better Than Rated in Tank Survey

Dear Sir:

The Tank Assessment Survey published in the July-August issue of *ARMOR* contains a number of questionable judgments and none more so than when it places the Israeli Merkava "at the bottom of the Top Ten."

As someone who has been involved with armored vehicles around the world for many years (it will soon be 50 years since my first article was published in *ARMOR*!) I have had the opportunity to examine the Merkava several times, and only four months ago I was able to drive and to fire it again. I think I might be more familiar with its characteristics than the authors of the Survey and I cannot agree with their judgment.

In particular, instead of "fairly advanced electronics," the Merkava has a most advanced fire control system which was very effective, as I was able to find out for myself. Among others, the fire control system incorporates an automatic target tracker which, so far, is used in only one other tank. It also has a "hunter-killer" target acquisition facility, and the turret drive is all-electric, for which some of the other tanks in the survey are rightly praised.

In addition to its armor protection, which the Survey recognizes to be among "the best in the world," Merkava enjoys the advantage of a low frontal area turret, which reduces its chances of being hit in defensive, defilade positions, and unique protection of its ammunition against fire and spall. It also has the advantages of several other unique features, including a 60mm mortar for the engagement of infantry targets not accessible to direct fire weapons, easy and safe access through a door in the rear of the hull, and the possibility of carrying an infantry squad in place of the bulk of its ammunition or, alternatively, of evacuating casualties.

As to its mobility, far from being "poor," the power-to-weight ratio of the Merkava is more than adequate under tactical conditions and is not lower than that of some of the other tanks in the Survey. Moreover, its excellent suspension system provides more road wheel travel than that of almost any other tank, which enables it to move faster over rough ground.

When all its characteristics and capabilities are taken into account and compared with those of other tanks, the Merkava proves to be superior to most of them. In consequence, instead of being placed at the bottom it should be near the very top of the list of tanks covered by the survey.

RICHARD M. OGORKIEWICZ
London, England

Suggestions from a Scout Unit's Successful Experimentation

Dear Sir:

I am a scout/driver with HHT, 1/16th Cav Regt. I've been in the Army five years, spending two at Ft. Carson and the remainder here. I have had five rotations to NTC, one to Camp Doha, and one to a National Guard base in Idaho.

I am not an officer with a college degree or an NCO, junior or senior. I am just a simple Joe, like many other Armor and Cavalry enlisted soldiers. But we also enjoy your magazine, whenever we can scout it out from one of our officers or NCOs.

Your magazine's advice on jury-rigs, enemy doctrine, and equipment help us (the EM) out a lot. For example, the tailgate rack (back cover, May-June 1999 *ARMOR*) can help motorized scouts... Statistics on Soviet equipment is important. They are major weapons exporters and, at the present time, most Third World nations that we might fight are going to be fielding this equipment against us.

Finally, I wish to submit an idea on scout platoon organization in behalf of my former PSG, SFC Duane La France, and the other scouts from 1/8 INF, 1/12 INF and 1/68 AR. This idea was a doctrinal shake-up from the norm, but was extremely beneficial.

At the time, the scout platoon had ten HMMWVs (five M1025s and five M1026s). The scout platoon for HHC 1/68 AR was divided as follows:

- HQ 20 - LT
- HQ 25 - PSG
- HQ 21 & 22 - Alpha Section
- HQ 23 & 24 - Bravo Section
- HQ 26 & 27 - Charlie Section
- HQ 28 & 29 - Delta Section

Our platoon also happened to have an influx of 11Hs (Anti-Armor Infantry), which presented us with a golden opportunity. We were able to get an M998 HMMWV, which we had manned by a scout, a medic, and a mechanic. That vehicle was able to perform resupply, recovery, evac, and -20 level maintenance, freeing up other vehicles so that more time could be spent on the mission.

Our platoon had ten M2s, five MK-19s, and two TOWS. At the time, we had no MILES for the MK-19s, so everyone had an M2 except for the two TOW vehicles (one Alpha and one Delta). Normally, the lieutenant and the two section sergeants (21, 23, 26, & 28) had the MK-19 and the PSG and squad leaders had M2s.

When we went to the field, we received engineers, GSR, COLTS, linguists, and more. At one time, we had around 40 soldiers in and/or attached to our platoon. This was probably putting a strain on our resupply efforts, but we were definitely able to increase our endurance and our area of recon.

I believe that this TO&E is definitely beneficial and worth mentioning.

SPC JASON COMBS
HHT, 1/16 Cav Regt.
Ft. Knox, Ky.

Another Source Cited For Info on the "Super Pershing"

Dear Sir:

ARMOR Magazine for Jan-Feb 99, pages 59-60, contains a review of *Death Traps: The Survival of an American Armored Division in World War II,* reviewed by CW2 Stephen Sewell, in which the reviewer states that the author of this book "provides the only known description of what he calls the "M26A1E2" or Super Pershing, better known formally as the "T26E4." More than adequate information on the T26E4 tank is provided in R.P. Hunnicutt's excellent book, *PERSHING, A History of the Medium Tank T20 Series,* Feist Publications, 1971, which shows photographs, drawings, and tabulated data of this vehicle and its 90-mm Gun T15E2 in Mount T119. In addition, some history of the adventures of the T26E4 in Europe is presented, together with photographs of local up-armoring.

For those not familiar with them, the books by R.P. Hunnicutt on the subject of American tanks are outstanding works covering development and history of these vehicles, along with photographs, drawings, illustrations of details, and data in a large format with first-class reproduction.

LEONARD E. CAPON
Mesa, Ariz.

COMMANDER'S HATCH

The Revolution in Institutional OES-AOB/AC3

by Major General B. B. Bell, Commanding General, U.S. Army Armor Center

Never before in our nation's history have the missions of the Army been as complex, varied, and demanding as they are today. The Army's missions are directly linked to the role our nation is playing in helping shape the international environment where our interests are on the line. While shaping the environment to prevent future conflict, we must also have forces ready to respond to a crisis while ensuring our future systems and formations are prepared to meet future threats and operational environments.

The Mounted Force plays a vital part in each of these missions, which range from being prepared to conduct high-intensity combat operations to conducting stability and support operations around the world. As evidenced by the role of mounted forces in the decade of the '90s, we are the Army's full spectrum relevant force of choice. The stated intent of our Chief of Staff is to provide the *leadership*, grounded in the future, to keep the Army the pre-eminent land warfighting force in the world. The corresponding and central demands placed on the Armor and Cavalry community require us to be prepared to accomplish an increasingly wide variety of tasks to be successful. Inherent in these expectations is for the Armor Center to provide the force with leaders who are disciplined, competent, professional, and tough enough to meet these demands. The Armor Center and School will foster the development of warrior leaders for combined arms mounted warfare, as well as light-heavy operations, across the full spectrum of conflict in all terrain, to include complex and urban. This is easy to say, but tough to do. Nonetheless, we can (and must) produce these adaptive leaders capable of successfully operating across a wide range of asymmetric environments. Tactical and technical competence and small unit leadership nested in the warrior ethos remain the centerpiece of our officer and noncommissioned officer education systems.

The 16th Cavalry Regiment, which conducts Armor and Cavalry leader training for the Armor Center (less NCOES), is on the hook to produce adaptive warrior/leaders for our officer corps. The primary mission of the 16th Cavalry Regiment is to provide the field with trained officers at platoon through brigade level who are prepared to assume leadership duties in Armor and Cavalry units. For company grade officers, they accomplish this during the Armor Officer Basic Course for lieutenants, and the Armor Captains Career Course (AC3, formerly AOAC) for captains. These courses have undergone significant changes in the past year in an effort to make leap-ahead improvements to our leader training, and to keep pace with the needs of the Mounted Force.

Our field commanders have told us that they want us to enhance the quality of training of our new lieutenants. We've gotten the message, and are committed to providing the force with competent warfighting platoon leaders (with full spectrum skills) prepared to perform required duties upon arrival at their next unit. This is our number one priority — we will start Armor officers off right. Presently, AOB is undergoing a dramatic redesign implementation effort to substantially improve how we do this. A dedicated team was formed in April of this year to re-engineer the course. This effort, which we call AOB 2000, debuts 30 November 1999 with AOB Class 00-02. The AOB 2000 design returns to the principles of performance-oriented training. Leadership, maintenance, gunnery, and tactical training are progressively integrated throughout the course. Some fundamental (and exciting) improvements in AOB 2000 include:

Leadership training is embedded on a daily basis. Every day is an opportunity to imbue the students with the Army's values and allow them to practice their leadership skills. From accountability formations and inspections in the morning, to student-led PT, to daily risk assessments, to student-led AARs, students are responsible and accountable for much more than attending class. This is important for officers at this stage in their careers, as they undergo the soldierization process of transitioning to Army officers and warfighters.

Tactical training begins in the small group classroom with rock drills, includes considerable time in virtual simulation, and culminates at the end of the course with a 10-day FTX. This process includes 12 days of training on the Close Combat Tactical Trainer (CCTT) to learn basic maneuver skills prior to going to the field. The 10-day FTX represents an aggressive 4-day increase in field time during the course.

Gunnery training begins during the first week of the course with conduct of fire and UCOFT, and culminates in the final week of the course with a modified TTVIII. Gunnery training includes an emphasis on basic hands-on tasks, such as TCGST, as well as TWGSS. Gunnery training is reinforced during all practical aspects of tactical training. This represents an increase of one additional day of

Continued on Page 46

DRIVER'S SEAT

Sergeant First Class Selection Results Offer Lessons For All Leaders

by CSM David L. Lady, Command Sergeant Major, U.S. Army Armor Center

The CY99 Sergeant First Class Selection List will be history by the time this article is published. As I write it though, the results are fresh on the street and still undergoing formal and informal analysis. This is not a formal review and analysis of the board results. This article identifies certain important lessons that commanders, leaders, managers, and soldiers should draw from the board results as they counsel and assign their soldiers.

The selection panel stated that Armor Center guidance as to what qualified a soldier for selection to SFC was "excellent…extremely useful in enabling the Panel to fairly evaluate the files." This guidance was drawn from the newly updated *Enlisted Professional Development Guide* (May 1999). I have consciously kept board guidance consistent over these two years; with this guide, Armor soldiers can know what they must do and where they must go in order to be "best of the best." There is no secret to how to succeed in the Armor Force: understand the requirements for each grade, be excellent at whatever assignment you are given, certify in each leadership position at each grade, and develop mentally and physically to be the best leader, coach, and example for American soldiers. This guide can be accessed at the Armor Home Page, and copies can be ordered from the Office of the Chief of Armor. MG Bell has committed resources to increase the distribution to all Armor units. Call us, copies will come.

Certification remains the most important factor in selection for promotion. While NCOs who had not been rated Success or Excellence on several NCOERs during an 18- to 24-month period were not ineligible for promotion, they were least qualified for promotion. According to the panel president, no uncertified NCOs were selected. I emphasize that NCOs should not focus on the time they spend in the position; focus on the excellence of the service in the position. Boards focus on the NCOER as proof of certification, not the 2-1.

The panel understood the heavy requirements that Armor Branch has for drill sergeants, recruiters, AC/RC duty, instructors, and other specialty assignments. The panel gave credit for achieving diversity in assignments, but penalized many NCOs who were placed in these assignments before becoming branch certified as tank commanders or scout squad leaders. Those soldiers had not proven themselves in key leadership positions. The panel took into account E-5 and E-6 service as tank commander or squad leader. No 19-series soldier will be allowed to volunteer for a specialty assignment before he is certified at the proper grade for the certifying position. PERSCOM and units should only assign NCOs to non-MOS or specialty positions after they meet requirements for MOS certification in current grade. Armor Branch is committed to following these rules; I will keep a close eye on them. Every unit must be committed to these lessons as well; do not assign the uncertified into non-MOS positions (i.e., battalion financial NCO, driver, training NCO, etc.).

The panel saw that entirely too many NCOER excellence ratings were not justified with adequate bullet comments. The panel discounted excellence ratings by raters who did not justify the rating with an achievement, penalizing the NCO who may have actually been deserving of an excellence rating.

When PERSCOM boasts of the lack of inflation in the NCOER system, I must shake my head. There are too many commissioned and noncommissioned leaders who feel that the NCOER exists to make the sergeant feel good. This is rubbish! The NCOER exists to tell other leaders and centralized promotion panels **the truth** about an NCO's service over the rating period. A good rule of thumb to use when deciding whether the bullet rates an Excellent or a Success rating is: if the NCO should have been relieved for **not** accomplishing the bullet, then it is a Success.

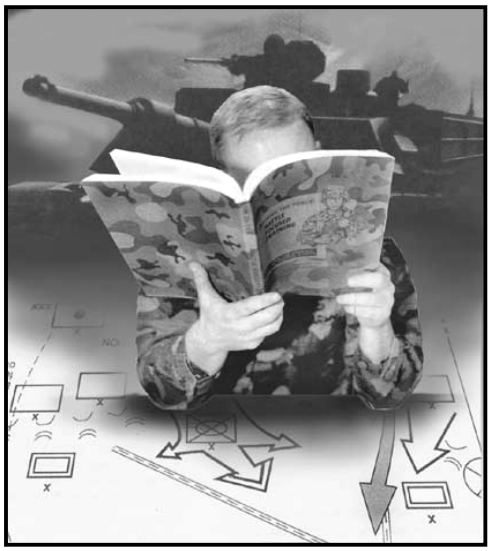
The panel saw some soldiers staying in TDA assignments for too many years. For instance, instructors who became drill sergeants or recruiters. In some cases, there were soldiers who had been instructors, drill sergeants, and recruiters back to back, and in some cases were away from their MOS for eight or nine years! TDA assignments do not hurt promotion opportunity. In fact, IAW the *Professional Development Guide*, it was considered a good thing for an NCO to have some diverse assignments (especially as school instructors, drill sergeants, recruiters, AC/RC and OC positions). However, the panel considered it a good thing only if the NCO was certified and had relatively recent experience with troops (within 4 or 5 years). My guidance specifically reminded the panel that four years on Fort Knox would cause back-to-back TDA assignments, but my reassignment policy over the last two years has caused NCOs to leave the Home of Armor after 48 months of service, allowing for further certifying opportunity.

General Officer Letters of Reprimand (GOLARs) and UCMJ actions were serious discriminators against an NCO. Although it is not impossible to overcome a GOLAR, a "Values NO" on the NCOER, or UCMJ action, NCOs were only competitive for promotion after extensive, sustained, excellent performance over a very long period of time.

Finally, the panel results show the excellent overall quality of the Armor soldier, and of the soldiers chosen to instruct at the Armor School. The accelerated velocity of soldiers onto and off of Fort Knox (increasingly, three years is the standard tour at the Home of Armor) has allowed Armor Branch to identify more certified soldiers to come to Fort Knox as instructors and drill sergeants. The quality of their certifying service, combined with the quality of their specialty service, led to fully one third of the selectees coming from Fort Knox. Do not let your soldiers think that Armor Center service is a career-ender. If Fort Knox was a rest home at any time, it is not so now. We bring in excellent NCOs to produce the excellent soldiers and leaders of the future. We develop them and work the devil out of them. They are selected for their excellence and they are rewarded for their excellence.

Take these comments into account as you counsel your soldiers and make your own career decisions. To our 386 selectees: Well Done! You are excellent, and I am absolutely confident that you will continue to lead your soldiers by your superb example.

"SERGEANT, TAKE THE LEAD"



Editor's Note:

Mission 2000 - Making an Issue of Doctrine

Armor soldiers and cavalrymen are by profession men of action, chosen to carry out the close combat mission of engaging and destroying the enemy. For many of these men, the very mention of the word "doctrine" triggers the sleep reflex faster than a movie on the Lifetime Network.

But doctrine is critical to how we fight. It is our way of thinking about fighting, an agreed framework that also defines how we train.

Sometimes, our doctrine does not suit the fight we later encounter. When this happens, the classroom of combat quickly redefines the doctrine on the basis of on-the-job training and learning. One example is the way the U.S. Army adopted its weak and incomplete doctrine on urban fighting during the course of World War II, a transition described in **Captain Ken Casey**'s article in this issue, **"Urban Combat in World War II."** He describes how the city fight evolved from an infantry-dominated struggle to an effective combined arms partnership keying on cooperation between infantry, armor, and combat engineers.

Brigadier General (Ret.) John Kirk, in **"Move It On Over,"** approaches the importance of doctrine from another direction. The repeated losses of BLUEFOR units to the OPFOR at the NTC, he argues, is not the "good training" some would make of it, but indications of doctrinal failure. He says we don't understand our doctrine, leaders don't mentor it, and as a result, soldiers can't follow it. General Kirk's article is a call for everyone to get involved in the review of the upcoming FM 100-5, *Operations*, our keystone doctrinal manual for the next seven years. General Kirk's opinions are validated by a lifetime of service, culminating in assignment as Director of Training, ODCSOPS, at the Pentagon, and including two victorious rotations at the NTC with one of the Army's then-lowest priority units. A reply from **Colonel Robin Swan**, Director of SAMS, follows.

Ralph Zumbro, whose **"Lighten Up, Guys"** appears in this issue, is another author who has been there and done that. He was a tank sergeant in Vietnam, terrain never doctrinally considered to be "tank country" until tanks began to operate there successfully. Zumbro, who has written three books on armor operations since his retirement, urges soldiers to look upon peacekeeping and stabilization deployments as "training wars" in which units can practice many of the mission-essential tasks they would accomplish in an actual conflict. But we need to be able to get there, he says, and that means developing the doctrine and hardware to deploy lighter armored units to the world's trouble spots.

Urban Combat in World War II

How Doctrine Changed as the War Progressed

by Captain Ken Casey

But it came to pass on the seventh day that they rose early, about the dawning of the day, and marched around the city seven times in the same manner. On that day only they marched around the city seven times. And the seventh time it happened, when the priests blew the trumpets, that Joshua said to the people: 'Shout, for the Lord has given you the city!'... And it happened when the people heard the sound of the trumpet, and the people shouted with a great shout, that the wall fell down flat. Then the people went up into the city, every man straight before him, and they took the city.[1]

Unfortunately, urban warfare has become much more complex than in the days of Joshua. In World War II, the U.S. Army would take an immature urban warfare doctrine in its infancy, test it, develop it, and change it, based on the new tactical realities, much as it had to do with the rest of its doctrine. World War II presented the U.S. Army with many challenges it had not previously faced on such a grand scale.

It would have been difficult to predict the precise set of tactics and combinations of weapons that would be needed to be successful in combat in both major cities and small villages. So, the Army set forth a basic doctrine on how to apply combat power, but left the executors of these fights to develop the specific details. In most cases, the Army got it basically right, but in some cases failed to appreciate the possibilities inherent in their new weapons and doctrine, from the use of air power in support of attacking forces to the use of tanks and tank destroyers.

One of the great lessons the Army would have to learn would be to adopt a more integrated approach to fighting. "Rather than relying on either the infantry, tanks, artillery, or air power alone to get the job done, the American Army discovered it could only win battles by using all available manpower and mate-

rial resources in coordinated, combined arms operations."[2] Overall, though, the U.S. Army entered World War II with a solid basic doctrine that it adapted in the crucible of war. This adaptation can be seen best in the Army's changing techniques and tactics in many areas, but in the area of urban combat, the Army was forced — because of tactical realities — to modify not only its tactics, but also its basic assumption that the urban fight was an infantry fight with only limited support from the other arms.

Prior to looking at specific examples of operations in Aachen and Brest, an examination of the Army's urban warfare doctrine, as well as its pre-war training, is necessary to appreciate the Army's starting point. A quick look at the capstone manual for all U.S. Army doctrine, the 1941 edition of *Field Manual (FM) 100-5 Operations*, reveals that the Army had not completely developed a doctrine for urban conflict: the 300-page manual has only two pages directly covering urban combat, in Section IV, "Combat in Towns."[3]

FM 100-5, however, did offer a good description of some of the characteristics of urban fighting. The manual stated that fighting in towns offered concealment for troops and weapons, as well as protection from the effects of fire and protection from mechanized attack. Towns were described as being naturally strong defensive areas, but that they are also a "conspicuous topographical feature," the details of which can be readily discerned. The manual also pointed out that fighting in towns would be characterized by close combat and not sweeping maneuver. Additionally, difficulties in command and control would make the nature of the fight decentralized, with the outcome resting largely on the "initiative and aggressive leadership of subordinate commanders."[4] Next, the manual described the basic method for attacking a town: The town was to be isolated from its surrounding terrain and neighboring defenses. Like other attacks, the attack on the town should seek a flank or the rear of the main defenses. If the town had been turned into a heavily fortified position, then the attack should be made "strongly supported by artillery, combat aviation, and other supporting weapons."[5] Once these fires are lifted, the attack should proceed by bounds through the town to the far side where the unit was to prepare a defense against counterattack.

FM 100-5 accurately predicted that troops would need detailed intelligence of an urban area. It recommended the use of reconnaissance, to include aerial photos. Actual operations would bear this out, confirming that extremely detailed reconnaissance gained through patrolling and the commanders' personal observations was vital to the success of attacks.

Operations failed to appreciate the critical role tanks and tank destroyers would play, and advised *against* their use in cities: "Mechanized troops are of little value in combat within a defended town. Their use for such combat will probably result in excessive casualties, both in personnel and vehicles."[6]

Experience would prove otherwise. An emphasis on urban combat for armored forces was absent in the Tennessee, Louisiana, and Carolina maneuvers in 1941. While fighting generally resulted in capturing towns, units didn't practice fighting within them.[7] As *FM 100-5* succinctly put it in its description of the offensive operations of armored divisions, "Defended towns and cities are avoided."[8]

Unfortunately, the Germans weren't going to allow us to conveniently bypass their villages and cities. In fact, the German Army's doctrine on urban warfare was much more developed, particularly in developing defenses.[9] Their doctrine called for a series of well prepared, mutually supporting positions that could be used to blunt enemy attacks. Once the main attack was contained, the Germans would use their reserves to counterattack. The Germans pre-stocked water, food, ammunition, and medical supplies forward, because during actual operations movement would be difficult.

They also understood that the main line of resistance should not be established on the edge of a town because an attacker can bring all his weapons to bear on the structures on the edge of a town. Instead, they defended within the town in an irregular pattern to make it difficult for an attacker to distinguish the main defense. Additionally, the Germans would integrate large stone and concrete buildings into their defenses as these buildings made natural strongholds. Heavy machine guns in dug-in positions at the corner of blocks would dominate the streets and open areas, from parks to cemeteries. Obstacles and barriers would keep out mechanized vehicles. The sewers and subways became routes for resupply, relief operations, and infiltration. Even on the defense, the Germans would seek to maintain the initiative by using their reserves to counterattack the flanks and rear of the enemy. Although that was German doctrine, the reality for the Germans would be decidedly different as well. They lacked enough reserves to maintain a counterattacking force.[10] In addition, U.S. soldiers would use their machine guns to cover the open streets so that the Germans found it practically impossible to maneuver across streets to reposition forces. Buildings that U.S. artillery had reduced to rubble further limited the movement of any potential German counterattack force. Based on these realities, the urban fight in Germany ended up as a "close quarters slugging match."[11] This is the type of fight where accurately applied firepower generally wins.

Later in the war, other manuals also elaborated on the urban fight, particularly *FM 31-50, Attack on a Fortified Position and Combat in Towns* and *FM 17-36, Employment of Tanks with Infantry*; however, both manuals weren't published until early 1944, too late for the fighting in Italy.[12] Meanwhile, military journals like Fort Benning's *Infantry Journal* and Fort Knox's *Armored Cavalry Journal* were filling the void by publishing articles on urban fighting.

The fighting in Italian cities might well have prompted the expeditious updating of doctrine and training. *Infantry Journal* described the fight in Cassino as "a testing ground on which the lessons are learned; lessons in tactics, lessons in the uses and application of weapons."[13] In addition, lessons being learned here were sent back to the United States for inclusion in the training program of the divisions yet to be deployed.[14] In October 1942, additional training was specifically ordered to prepare for combat in cities. The additional training took the form of a "combat in cities exercise" in which small units attacked through mock villages, clearing houses of hostile forces that were simulated by "pulley-controlled dummies" designed to pop up unexpectedly.[15] It wasn't much, but it was a start, and coupled with the recent publication of *FM 31-50*, the Army was headed in the right direction.

FM 31-50 covered both combat in towns and combat against fortified positions like the Siegfried Line. Although both problems were included in the same manual, they were considered separately. Much detail was provided about the effects of aircraft in close air support. Also stressed was the penetration capability of various guns against concrete fortifications and bunkers. Yet, when one moves to the chapter on combat in towns, such

details are not covered, nor is there as much discussion about the roles of tanks, tank destroyers, and artillery. The interrelatedness of the two forms of combat seems to have been missed. If more thought had been given, one could see that towns and cities are fortified positions and that many of the same techniques and tactics described in *FM 31-50* could be used for both.

The manual recommended that it was preferable to bypass a built-up area rather than attack it. In order to bypass a locality filled with enemy forces, an attacker must leave some friendly force behind to block the bypassed force from attacking the rear of the attackers. In addition, the terrain (like that in Germany) might not allow one to bypass a location. In Germany, towns often dominated the road networks and the occupation and defense of these towns could allow a defender to hold up numerically superior forces for extended periods of time.

FM 31-50 also described the urban battlefield almost verbatim from *FM 100-5*. It then went into much more specific detail regarding actual tactics and techniques. One aspect of urban fighting discussed was the difficulty in command and control caused by the fact that the commander could not see all of his forces. Additionally, buildings blocked the signals of FM radios, so the manual recommended use of messengers and wire communications, both of which were later effectively used.

Next, the manual covered the possibilities of night operations with the bold statement that, "Much fighting in towns will take place at night."[16] The theory behind this concept was that areas effectively covered by enemy fire during the day can be used at night because the enemy can't see them. Given the command and control problems already inherent in urban fighting, operations at night would seem to be even more difficult to control. In practice, actual fighting at night rarely happened, although some units used the night attack successfully against small villages. Units did use the cover of darkness to conduct reconnaissance patrols, resupply, and rest.

Field manuals stressed the need for detailed planning. Units would take these recommendations to heart and use city maps, aerial photos, even hand-drawn sketches, all to ensure that everyone understood the plan and their responsibilities. Next, the manual described the operations of each element in the attack, starting with the infantry regiment and working its way down to the squad. For the regiment, guidance was given on the need to train and rehearse actions prior to the attack. In addition, planners were told to look at the strength of the defenses in terms of the "type of construction and density of buildings" within the regiment's area.[17] Concerning the use of mechanized forces, the manual stated that tanks are generally kept in reserve for other missions. What *was* allowed was the limited use of individual tanks and tank destroyers. The guidance was that armored vehicles "may be used as accompanying guns to attack by fire strongly fortified buildings and to assist in reducing barricades."[18] In practice, they were invariably used for these purposes. The manuals noted the fact that attacking tanks were vulnerable in built-up areas, and the need for close infantry support, which repeatedly borne out in many operations. Also mentioned was the use of flame-throwers as potentially effective in neutralizing enemy resistance. In fact, their use would prove extremely effective. Although the use of artillery and engineers was mentioned in general, they were not given the level of emphasis that their true roles would eventually merit.[19]

Once the manual moved to the battalion level and below, it offered a few more specifics on the integration of tanks, stating that they would remain under company or battalion control and would be brought forward as needed. In practice, tanks moved forward under the close-in protection of infantry and conducted reconnaissance by fire, shooting at any areas even suspected of being defended by the enemy.[20]

At the squad level, soldiers were cautioned to avoid moving on streets as "they are usually well covered by enemy fire."[21] Instead, it was preferable to move through buildings, over rooftops, and through backyards. Blasting entry holes in walls with explosives was preferable to entering through doorways and windows that would be covered by the enemy within the building. In general, soldiers were instructed to enter the building from as high as possible and fight downward to drive the enemy into the street where he could be killed by supporting forces.[22]

One additional manual that laid out techniques for attacking a town is *FM 17-36, Employment of Tanks with Infantry*, which covered the general characteristics of integrating tanks with infantry. The infantry was described as "protecting tanks from enemy personnel executing anti-tank measures, while passing through towns..."[23] Tanks meanwhile, supported the infantry by fire and destroyed automatic weapons holding up the infantry's advance. Both roles would be vital in urban combat. Other than that, there were three short paragraphs dealing with the attack of towns. Tankers were cautioned that tanks could be canalized by streets and were vulnerable to falling into the basements of buildings. What was described well is how tanks could be employed against small villages. Tanks would encircle the town and cut off reinforcements, or would assist the infantry in attacking the defenses surrounding the town, both roles the tankers would undertake. A short mention was made of tanks advancing with the infantry and firing at hostile forces.[24]

The same manual later described the attack on a pillbox, with a detailed description of a special tank-infantry-flame-thrower team attacking, with the tank firing armor-piercing rounds to penetrate the pillbox, followed by either high explosive (HE) rounds or a burst from the flame-thrower. This description accurately described the tactics the Americans would eventually use in cities once they started applying tactics for attacking a fortified line to urban fighting. Finally, in Supplement No. 1 to *FM 17-36*, an illustrated problem was provided for an attack on a village; however, the attack described made no use of many of the combined arms available, like close air support from medium bombers. Additionally, the attack made little imaginative use of artillery or the engineers. This supplement did go much farther in describing the maneuver of the tanks with the infantry, although it didn't discuss how each element would communicate or how leaders would command and control.[25]

Overall, the U.S. Army entered urban combat with an immature, untested doctrine. "Americans had little practical experience in street fighting and drew most of their know-how from publications and training."[26] Fortunately for the Americans, they were fast learners in practice, and they would wisely adapt to the different tactical situations they would face.

The battle for Brest, a coastal city on the Brittany Peninsula, would provide the Americans with their first broad experience in urban combat. The Allies decided to attack Brittany because of the need for additional ports. The Normandy beachhead was incapable of handling all of the logistics needed to sustain the invasion.

Brest was a fortress city of 80,000 people with good port facilities.

Major General Middleton's VIII Corps drew the mission to seize the city. He had the 2nd, 8th, and 29th Divisions available, with around 50,000 soldiers. Unfortunately, his corps tank battalions had been given to 3rd Army for their drive across France.[27] Middleton's plan, in keeping with doctrine, called for occupying the dominating hills around the north of the city to encircle it. Then he would demand Brest's surrender. If the Germans failed to comply, Middleton would attack with a series of offensives to take the city.[28]

For the Germans, Generalleutnant Herman Ramcke was under orders to defend Brest to the last man. Ramcke knew he couldn't defeat the Americans with only 30,000-odd defenders, but he could make the U.S. pay dearly for its capture and generally waste time and ammunition while he took actions to destroy the port facilities. Ramcke organized the soldiers in his command in a defense in depth, taking advantage of the terrain around Brest. His plan incorporated a number of old French forts dating from before the Franco-Prussian War, along with more modern concrete pillboxes, gun emplacements, minefields, and other obstacles. He further augmented his defenses with "dual-purpose antiaircraft guns and guns stripped off of ships sunk in the harbor by Allied planes."[29]

If Ramcke's forces were pushed off the heights, he would displace into Brest and take up a house-to-house fight. Once in Brest, the German defenses had every street intersection and the approaches to the intersections covered by machine gun fire.[30] In addition, pillboxes and dug-in positions "were generally located at multiple street intersections with all-around fields of fires."[31] Snipers were also emplaced to protect the machine guns from close assault.

By August 18, 1944, the Americans were in position on the key terrain around the city, and by the 25th, they had started a heavy bombardment of the city and surrounding terrain with heavy and medium bombers in addition to corps artillery. On September 8, Middleton launched all three divisions and drove the Germans off the high ground. From the 8th to the 18th of September, the Americans received their "baptism by fire with street fighting."[32] The first lesson the Americans would learn would be the need for combined arms operations. The use of close air support from the Air Corps developed, with bombers attacking enemy antiaircraft facilities, strong points, and defenses in Brest. Their main function developed into attacking strong points at least 1,000 yards behind the front. The pilots also experimented with the use of napalm with some success.[33] In addition, the planes strafed and bombed German positions and conducted aerial reconnaissance for ground forces.[34]

The engineers, who had previously been almost ignored in urban warfare doctrine, directly supported the attacking infantry with demolitions teams that blasted holes in buildings so that the infantrymen could avoid the bullet-swept streets.[35] This technique was an innovative solution to the problem of moving freely on the urban battlefield. By blasting new entrances to buildings, the infantry could surprise the defenders in the building, who were expecting them to use the door. The Americans also discovered that this approach decreased their own casualties at the same time.

The engineers also detected and cleared mines, removed obstacles, cleared streets of rubble, and repaired cratered roads.[36] Minesweeper teams followed directly behind the assault platoons and cleared the roads of mines so the supporting tank destroyers could get into position to support the infantry by blasting enemy defenses at point blank range, a tactic they had learned in Italy.[37] Prior to the war, the doctrinal task for tank destroyers was just that — to destroy tanks. The tank destroyers had been designed to fight in battalions as the corps reserve to stop massed armor formations of German tanks, but because of Germany's production problems, massed formations of German armor failed to appear on the battlefield. So, tank destroyers took on many missions, one of which was close support of the infantry.

Armored vehicles also helped in the same way the engineers did, by providing alternate entrances to buildings by either blasting passageways or merely ramming the building. Infantry guided the tank destroyers into position and provided them with protection against bazooka fire.[38] Flame-throwers were also effective, either mounted on tanks or carried by the infantry. In one attack on an outlying fort, British Crocodile flame tanks shot at the apertures of the fort while engineers placed explosive charges to create a breach in the outside wall. The attack was successful.

As expected, command and control was difficult as squads and platoons could be easily isolated in buildings and rooms. Normal graphic control measures and military maps weren't useful.

Commanders also learned that the tempo of operations was much slower than expected. Instead of a "simultaneous grand effort," the battle was characterized as "large-scale nibbling."[39] Several techniques were developed and implemented. Commanders drew sketch maps and identified objectives and coordination points with numbers and letters. In addition, they numbered buildings to more easily identify them.[40] Platoons received objectives in terms of buildings, with squads having missions in terms of rooms and basements.[41] Radios that didn't work were discarded and wire communications became the primary means of talking, as doctrine had predicted. Another doctrinal concept that was validated was the need for detailed planning. Coupled with methodical execution, detailed plans led to success.

In terms of organization, some platoons reorganized from three squads and a headquarters section into two sections, one assault and one support.[42] The assault section contained two Browning Automatic Rifle (BAR) teams, and at least one bazooka, and was augmented by an engineer demolitions team and a flamethrower team. They would move rapidly and aggressively, clearing all floors and basements. The support section covered the assault section with machine-gun fire, kept the streets leading into the platoon's flanks covered, and repelled counterattacks.[43]

The fight of Company F, 2nd Battalion, 23rd Infantry is a great example of a unit putting these innovative techniques into effect.[44] Between 10-13 September, the company was ordered to seize a city cemetery defended by the Germans, who had anchored their defense on machine gun positions in huge mausoleums and marble vaults. They covered all of the open areas and entrances to the cemetery with heavy cross-fires and grazing fires. The company tried two attacks on successive days, and both were repelled. The mausoleums protected the Germans from mortar fire, whereas the Americans attacked in the open and found that ricochets off the headstones aggravated the effects of the enemy's fire. The third attack made much better use of combined arms. First, the company's mortars started a concentrated barrage on the positions. As the infantry assault platoons moved into position, tank destroyers (TD) with infantry escorts moved into

position and took the marble vaults under direct fire with excellent results. The TDs also blasted snipers out of the outlying buildings. With the Germans' heads down, the infantry platoons, augmented by engineer demolitions teams, blasted a hole in one building and cleared it. Instead of moving to the next building via the covered street, they blasted a hole in the side of the adjacent building, and continued until they had slowly cleared the street and were able to place fire on the cemetery from the upper floors. The end result was that the buildings were cleared and the infantry had outflanked the Germans in the cemetery. The following day, the Americans swept through the cemetery with little resistance. Company F's attack was symbolic of the combined arms efforts to capture Brest. "The actual conquest of the garrison had come as the result of action by the combined arms — heavy artillery fire, infantry assault, engineer blasting operations, and the use of flame-throwers."[45]

The next operation that illustrated the developing American urban combat prowess was the Battle of Aachen. First Army's original plan as it approached the vicinity of Aachen was to breach the West Wall of the Siegfried Line and bypass Aachen in accordance with American doctrinal thinking. Lieutenant General Courtney Hodges, First Army's commander, saw Aachen as an obstacle, not an objective. Developments would alter that plan, however. The Americans met stiff resistance from the Germans, and Hodges believed he lacked the forces to both contain the Germans within Aachen and continue the attack to the Rhine.[46] So, Hodges decided to reduce Aachen. Aachen's pre-war population was around 165,000; now only 20,000 or so civilians lived there. Colonel Wilck of the 246th Volksgrenadier Division, with around 5,000 soldiers, assumed responsibility for its defenses, along with elements of the 1421st Fortress Battalion.[47]

Once again, Hitler had ordered a fight to the last man, and Wilck planned on carrying it out. Groups of two to ten Germans defended each house. In addition, the Germans controlled the sewer system and made great use of it to move securely throughout the city immune to artillery and air attack.[48] The 1st Infantry Division under General Huebner received the mission to seize the city, but Huebner had only the 26th Infantry Regiment available with one of its battalions already serving as the division reserve. The regiment's plan was to attack from east to west with two battalions abreast, 3rd Battalion in the north, and 2nd Battalion under Lieutenant Colonel Derrill M. Daniel in the south. It was hoped that this orientation of attack would surprise the Germans whose defenses appeared to be oriented to the south.[49]

LTC Daniel task-organized his companies into combined arms company teams.[50] Each rifle company received three tanks (Shermans) or tank destroyers, two towed antitank guns, two bazookas, one flame-thrower, and two heavy machine gun teams. The companies further task-organized these supporting forces down to the platoon level. He assigned zones of action to the companies who then assigned each platoon a single street. Given that the battalion's sector was very wide, he maintained no reserve, but planned on repelling counterattacks by shifting his forces laterally across his front. Knowing that urban fighting used tremendous amounts of ammunition, he established an ammunition dump forward and made plans to move it forward again during the attack. His plan called for artillery and mortars to hit the enemy deep in order to isolate the area, pin down reserves, and generally hammer the enemy's defenses. His battalion adoption of the motto "Knock 'em All Down" should give one an appreciation for how Daniel planned on using firepower. He instructed his men to maintain a heavy volume of fire throughout the attack.[51]

The attack kicked off on 11 October with two days of bombardment by over 300 fighter-bombers and 12 battalions of artillery. They dropped over 200 tons of ammunition onto the city in the first day alone, but patrols that tested the defenses in the early evening found no appreciable lessening of German fire."[52] On 13 October, the battalion methodically attacked for the next eight days. Like the soldiers in Brest, they quickly found that survival meant staying out of the streets. In addition to using tanks and demolitions to blast holes in building, they also used bazookas to breach walls. Much more so than in Brest, artillery was much more effective. Light artillery and mortars kept the volume of fire up several streets ahead of the attackers, while heavy artillery pounded the Germans further to the rear. The battalion found that they could call artillery fire in fairly close to themselves because the stone buildings protected them from fragments.

Forward observers also experimented with delayed fuzes that allowed rounds to penetrate through several floors before exploding, rather than exploding harmlessly on the roof.[53] One additional use of artillery was rediscovered when the battalion encountered a building that the tank destroyers could not penetrate. The battalion used a self-propelled 155mm-artillery piece in point-blank direct fire, leveling one building with one shot.[54] The regimental commander so liked the results, he gave a 155mm gun to 3rd Battalion as well. Under the cover of tank and TD fire, the infantry assaulted a building augmented by the demolitions teams and flame-throwers. The mere threat of the flame-throwers frightened some of the enemy to surrender.[55]

The best combination of tanks and infantry seemed to be two tanks per infantry platoon. "The infantry preceded the tanks by 100 yards, thoroughly searching the houses on both sides of the street. The tanks provided machine gun and tank cannon fire as requested."[56] The tanks placed fire on all known or suspected enemy positions before the infantry assaulted. This close support provided the infantrymen with a feeling of security, knowing that they had such firepower on their side. Additionally, the infantry knew that they had to "protect their protectors by constant reconnaissance" which they did by assigning four riflemen to the tank commander.[57] These soldiers provided close-in security, acted as messengers, and kept the tankers informed as to where the friendly infantrymen were.

Despite *FM 31-50's* dictum to conduct urban fighting at night, the 26th Infantry Regiment conducted its attacks during the day, and used the night to rest, reorganize, and resupply. In the realm of logistics, soldiers also improvised when they realized their wheeled ambulance couldn't negotiate the roads because of glass, debris, and rubble. The soldiers converted half-tracks into ambulances to give themselves not only some protection from fire, but also some mobility to make it through the cluttered battlefield back to the aid station.[58] An additional headache for the Americans was the Germans' use of the sewer system to mount counterattacks, move patrols behind their lines, and infiltrate snipers to their rear.[59] As they attacked, the Americans soon learned to locate and seal every manhole cover and sewer grate.

On 21 October, Colonel Wilck surrendered. At the conclusion of the battle, the effects of firepower were seen in that 80 percent of all buildings were either destroyed or badly damaged.[60] Overall, Daniel's reasons for his success were a slow, thorough search of every area; the use of all available firepower; the use of daylight operations to enhance command

and control; the close integration of infantry, armor, artillery, and engineers. In addition, the regimental commander remarked, "We employed common sense, normal tactical principles, and maximum firepower."[61]

The U.S. Army in World War II learned multiple lessons on the nature of urban combat and the techniques and tactics that would make its conduct successful. The Army adapted thanks to the initiative of its soldiers and leaders who did not feel constrained by doctrine, but understood that doctrine was a guide for the conduct of operations, and was by no means a replacement for common sense. A quick review of today's *FM 90-10-1, An Infantryman's Guide to Combat in Built-up Areas*, reveals the codification of many lessons learned by World War II soldiers, yet the very name of the manual, *An Infantryman's Guide*, makes one wonder if we haven't reverted back to thinking about the urban fight in terms on an infantry-only affair. In the invasion of Panama in 1989, the 82nd Airborne Division was supported by its Sheridan-equipped 3-73 Armor. A few of the lessons learned seemed remarkably familiar, "Sheridans were absolutely critical to fighting in built-up areas by providing direct fire support to infantry, as well as surgical fires capable of penetrating reinforced concrete buildings," and "Strip maps, with individually numbered buildings, are a must for operations in a built-up area."[62] With the world's increased population, industrialization, and urbanization, the U.S. Army will sooner or later find itself in a major urban warfare fight; hopefully, the U.S. Army will be able to apply the same level of common sense it did during World War II, even if the conditions do not allow for the unrestricted use of firepower.

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Notes

[1]Joshua 6:15-20, NKJV (New King James Version).

[2]Michael D. Doubler, *Closing with the Enemy: How GIs Fought the War in Europe, 1944-1945* (Lawrence, Kan.: University Press of Kansas, 1994), 1-2.

[3]War Department Basic Field Manual 100-5, *Field Service Regulations: Operations* (Washington D.C.: Government Printing Office, 22 May 1941), 209-210.

[4]Ibid., 209.

[5]Ibid., 210.

[6]Ibid.

[7]Donald E. Houston, *Hell on Wheels: The Second Armored Division* (Novato, Calif.: Presidio Press, 1977), 59-101.

[8]*FM 100-5,* 270.

[9]Doubler, 90-91.

[10]Ibid. 91.

[11]Ibid.

[12]War Department Basic Field Manual 31-50, *Attack on a Fortified Position and Combat in Towns,* (Washington D.C.: Government Printing Office, 31 January 1944); War Department Basic Field Manual 17-36, *Employment of Tanks with Infantry* (Washington D.C.: Government Printing Office, 13 March 1944); War Department Basic Field Manual 17-36, Supplement Number 1, *Employment of Tanks with Infantry, Illustrated Problems* (Washington D.C.: Government Printing Office, 7 July 1944).

[13]W.F. Shadel, "Street Fighting in Cassino," *Infantry Journal,* LIV, No. 6, (June 1944), 27.

[14]Robert R. Palmer, Bell I. Wiley and William R. Keast, *The Procurement and Training of Ground Combat Troops,* United States Army in World War II (Washington D.C.: U.S. Army, Historical Division, 1948), 448.

[15]Ibid., 449.

[16]*FM 31-50, 65-66.*

[17]Ibid., 71.

[18]Ibid., 73.

[19]Ibid., 73-74.

[20]War Department Pamphlet No. 20-17, *Lessons Learned and Expedients Used in Combat* (Washington D.C.: Government Printing Office, 1945), 58.

[21]*FM 31-50,* 81.

[22]Ibid., 79-91.

[23]*FM 17-36,* 27.

[24]Ibid., 77.

[25]*FM 17-36,* Supplement No.1, 25-27.

[26]Doubler, 88.

[27]Ibid., 92.

[28]Blumenson Martin, *Breakout and Pursuit: United States Army in World War II,* Washington D.C.: U.S. Army, Office of the Chief of Military History, 1961, 632-637; Doubler, 90.

[29]Blumenson, 638.

[30]Headquarters, 38th Infantry Regiment, 2d Infantry Division, "Notes on Street Fighting," Records Group 407, Entry 427, National Archives, 22 September 1944, 1.

[31]Blumenson, 638.

[32]Doubler, 91.

[33]Blumenson, 642, 653.

[34]Doubler, 92.

[35]Blumenson, 646.

[36]Ibid.

[37]Doubler, 92; J. P Barney, "Tank Destroyers in Direct Support," *Infantry Journal,* LV, No. 5, (November 1944), 17-19; 38th Infantry Regiment, 4.

[38]38th Infantry Regiment, 2-3.

[39]Blumenson, 643.

[40]Doubler, 92-93.

[41]38th Infantry Regiment, 1.

[42]Doubler, 92-93.

[43]38th Infantry Regiment, 2.

[44]Doubler, 93-96.

[45]Blumenson, 652.

[46]Doubler, 96-97.

[47]Charles B. MacDonald, *The Siegfried Line Campaign,* United States Army in World War II, (Washington D.C.: U.S. Army, Office of the Chief of Military History, 1963), 307-308; Headquarters, 1st Infantry Division, "Breaching the Siegfried Line and the Capture of Aachen," Records Group 407, Entry 427, National Archives, 7 November 1944, 8.

[48]Headquarters, 26th Infantry Regiment, 1st Infantry Division, "After Action Review: October 1944," Records Group 407, Entry 427, National Archives, 4-7.

[49]1st Infantry Division, 12.

[50]Doubler, 97-101.

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[52]MacDonald, 309-310.

[53]Doubler, 100.

[54]26th Infantry Regiment, 7.

[55]Ibid., 8.

[56]William R. Campbell, "Tanks with Infantry," *Armored Cavalry Journal,* LVI, No. 5, (September-October 1945), 50-51.

[57]Ibid., 51.

[58]MacDonald, 311; Lawrence Loewiuthan, "Medical Evacuation with a Reconnaissance Squadron," *The Cavalry Journal,* LIV, No. 2, (March-April 1945), 36.

[59]Doubler, 100.

[60]Ibid., 101.

[61]Ibid.

[62]Kevin J. Hammond and Frank Sherman, "Sheridans in Panama," *ARMOR,* XCIX, No. 2, (March-April 1990), 14.

Uncle Sam Wants YOU to...

MOVE IT ON OVER

(Move Over, Old Dog, 'Cause a New Dog's Gotta Move In)*

by Brigadier General John Kirk (Retired)

FRAGO, ATTACK.

Task Org: No Change (TFs Arm, Armd Cav, Armd Inf)

CAC (Combined Arms Center) floats new draft "keystone" manual, *FM 100-5, Operations*, Jan '99, that will control Army's slice of the nation's destiny, and your futures, for seven years-plus.

TOE/TDA forces make vigorous formal/informal attack to enhance the review process, help create world-class, winning American Army doctrine for wars, other missions in new world's disorder.

Combined arms team attacks to secure OBJ GROUNDTRUTH, vic Leavenworth, KS, injects realism, standards, values, imagination, simplicity, common understanding in doctrine. Exploits results in derivative manuals, readiness, combat operations, operations short of war. Concept is every man/woman to be a player in an expanding torrent of straight-up AARs, USRs, and electronic idea-sharing.

Coord Instr:

-Axis is from present position to GROUNDTRUTH.

-Reinvent selves to lighten up, fly, and fight right.

-Get/keep NCOs involved.

-Mental Ventilators ON, Submissive Silence CANCELLED, Soft Sell OFF.

CS/CSS SOP. Command with TF Armor. Break squelch twice to acknowledge.

Life Ain't Easy in the Armor Force

Troopers in Bosnia and Kosovo are doing a helluva job. Going or staying behind ain't easy. Those who've done time in Korea, Vietnam, Bosnia, and other trouble spots know that. Well done!

Now there's a new mission, review and comment on draft *FM 100-5, Operations*. Without you, its staffing for comment could be a *pro forma* drift down approval lane. We can't afford that. There's too much at stake in the nation's, Army's, and your futures. It'll be front-loaded with fancy language that rightly paints a knotty world picture for our Army's future operations. Then it has to cut through complex ideas and people to get operationally simple. Gotta make *FM 100-5:*

- Lead our senior officers and NCOs to see and fix what's broke, then keep it fixed.
- Be the baseline of the Army's entire value system, with a clear, firm line on standards. It must establish and sustain the toughest possible ethical standards to create the interdependence, mutual trust, and confidence we need as the foundation for fighting to win. All concepts and systems, ALL, must grow from this rootstock.
- Create stable, common-sense doctrine. Doctrine sets the tone for success in mission readiness, operations, and war. All depend on relationships between people, their outfits, and systems — combat, combat support, service support — *and the joint members of the team*, more than fancy concepts and processes.
- Express our doctrine clearly and simply in:

-Soldierly terms that allow one-word mission taskings and don't need New Age or scientific dictionaries to decode.

-Simple pictures, that *show* how things work and relationships between every noun, adjective, or adverb intoned as "doctrine."

-Clear, determined orientation on the future.

- Drive reinvention of the armor, cavalry, and armored infantry to include fly anywhere, fight or make peace anywhere combined arms teams, not just heavies.

The Black Canyon

Lots to fix. We have to start with standards, ethics, and candor. We haven't

squarely faced and bridged the huge gap between what senior leaders see, are told, seem to believe, and how well our "doktrine," people, and systems it creates really work down where it's dirty.

Assertions of "doctrine's" effectiveness don't match with: uncrewed tanks and Bradleys; busted thermals; rucks already too heavy without all their ammo; or punchless light infantry. Catastrophic losses to the OPFOR at NTC are called "great leader training."

The OPFOR commander at the NTC, who has seen units continually fail, testified before Congress that our soldiers — from platoon to brigade — including commanders, their staffs, and their line units, are displaying a decreasing level of knowledge, skill, and ability to plan, prepare, conduct, and sustain combat operations.

Here's another indicator: In June '99, scores of tanks and Bradleys were potentially deadlined by rule, world-wide. Some were critically short crew. Others couldn't qualify the crews they had. Not all were accurately reported.

In his 27 July *NY Times* column, Bill Safire built a shoe that exactly fits our bureaucratic feet: *"We have stumbled into...no-fault government. Blamelessness is next to godliness; nobody in authority is held responsible for blunders, no matter how costly... Only institutions may be chastised in this blame-free society...not those...who make the...mistakes."*

Finally, the School for Advanced Military Studies (SAMS) has been tasked to draft the manual. The '93 edition of *FM 100-5* totally failed the issue. SAMS' website "vision" statement looks up, not down, and seems biased toward tutorials on the works of the regiment's Honorary Colonel, MG Freud von Clausewitz and the 3GS (Great German General Staff).

A revealing example of the effects of the 3GS attitude appeared in the June *Army* Magazine. Two proponents of a new bomb-shelter career management field, CMF 59, said, "It releases [selected] officers from the needless burden of becoming tactical and operational masters en route to becoming strategists."

Being All It Can Be. Many of you've been, or thought you were being, more than you could be for a long time. A lot of you have. Our doctrine hasn't lived up to your high standards. It hasn't had the qualities needed to organize, equip, train, measure readiness, deploy, and sustain your operations that future missions demand — a world-class, American product. We can't repeat these past misfires:

FM 100-5-'86. So bad it was unsigned by even a file clerk. Who was responsible/accountable (R/A) to whom?

FM100-5-'93.

--*"The global realities of today are in a period of significant change."* (p. 1-3). Hooaah!

--*"...Levels of war — tactical, operational, and strategic — define the entire range of military operations..."* (p. 1-5). (Which is why and how we're in Bosnia and Kosovo today.)

--*"Inflicting physical damage is sometimes necessary for offensive success."* (p. 7-1). Hoo!

--Unsigned by any general officer, this made it official: *"(S) Milton H. Hamilton, Administrative Assistant to the Secretary of the Army."* He's R/A?

Commandant, USMC, personally endorsed his 100-5 equivalent. 'Nuff said.

Don't We Just Need Fixes And an Update?

No! Revolution's more like it. *You troopers and the logisticians have been magnificent for decades.* Despite the praise we've gratuitously heaped on us for and since Desert Storm, the performances of combat units and their combat support have often been less than best. For twenty years or more, many outfits haven't met reasonable, ready-to-fight expectations considering the resources in men and women, materiel, bucks, and time plowed into doing the readiness job. There were conflicts and challenges — real ones — between missions, training, deployments, families, manning, money, and time to get it all done. Some actually degraded readiness. Others may have been more perceived than real. In any case, we failed to make our case in stark terms that Congress, a President, or SecState could understand. Whatever the cause, the effect remains. We gotta better these unmasterful results:

- In Desert Storm, the Army's "ready" forces took six barge-months to deploy and get ready to fight, a job their last home station USR reported they were ready to do.
- CENTCOM's recommended course of action was to punch mass/firepower up the gut against Saddam's mass/firepower like two sumos bumping bellies. Took the Chairman of JCS, SecDef, and President turning tacticians to get an envelopment.
- "Maneuver" by history's most mobile, lethal corps was more suited to riot control or parades than freedom of action and fast decisions by classic armor operators and operations. Saddam's really bad guys mostly got away.
- We're doctrining "peace," "stability," and "support" as we go.
- And at the NTC, the BLUFOR, with greatly upgraded systems, lost to the aging OPFOR again, and again, and again.....

Ouch!

The cheerleader-historians of D Storm were self-serving in praising its "success" instead of doing hard analyses, perhaps reaching unpleasant, realistic conclusions. Lack of a commonly understood, Army-wide operational theme, some pedestrian concepts, verbose OPORDs/FRAGOs, and obscenely long "intent," from platoon to Army, were symptoms. Churchill remarked that we and the British were "two peoples separated by a common language." It's worse. Our joint and combined arms teams were and are *severed* from each other by yuppie-speak, divergent concepts, divorces from reality, unfamiliar missions, branch and service parochialism, and post-grad lingo. We *manufacture* "fog of war" with OPORDs seemingly valued like the King of Egypt once earned his pay — body weight.

The Gelding: Sophistry, Blinders, and Rationalization in "War"

Nearly twenty years ago, the Army established SAMS and the National Training Center (NTC), more or less at the same time. Besides instructing students, SAMS was tasked to develop and spread "correct" doctrine throughout the Army.

'Til then, delusional readiness had limited itself mostly to "commander's subjective upgrades" in Unit Status Reports (USR). Bad enough! But when the OPFOR was fielded at Ft. Irwin to produce the Army's future leaders, the "doktrine," our forces, and a well-trained OPFOR began to collide at our newest measure of readiness, the NTC. Bad results got worse fast. Without simplicity and a coherent flow or pattern of concepts and terms, commanders couldn't understand the stuff or mentor it, and troopers couldn't do it.

In man's toughest profession, the NTC is a '60s-like gradeless college of doctrine and leader professionalism. None of

you would send your sons or daughters to a school where everything and everyone passes. The Army's unwillingness to grip, admit, and fix weaknesses about its losses there casts a haze of "How come?" questions over, around, and through the force. The winner's circle at Ft. Irwin's a lonely place. Not so in Loserland, where legions of brothers-in-losing, authors of failed doctrine, and some pet rock projects live happily and tiptoe up the Stairway to the Stars together, unaffected by their "combat" performances. We're fooling ourselves and failing the troops.

So, having been there, done that, with the then-bottom division on the Army's Master Priority List, I say again: Given adequate manning, materiel, and training resources, losers at the NTC don't have a doctrine that works, haven't professionally prepared themselves for their leader/mentor duties, haven't done them, or lack personal combat skills.

Why We Fail at the NTC ...and Fail, and Fail

In familiar maintenance terms, at the NTC we inspect, detect, but *don't* correct.

Here's a simple, systemic method for analyzing NTC results (see below). INPUTs go through a PROCESS to produce an OUTPUT. If OUTPUT's bad, INPUT, PROCESS, or both are screwed up. Let's look, in reverse order.

OUTPUTS. Scratch 'em. They're the symptom(s), not the disease.

PROCESS. Mostly a fair game. "Their ground's" a cop out! Anywhere U.S. forces are sent is some other guy's ground. The OPFOR were born to lose! Make 'em!

INPUT. Manning's a wash if OPFOR's scaled to BLU strength. Cohesion only favors OPFOR if BLU isn't smart enough to create it by regimentalizing. BLU has enjoyed a huge systems/logistics advantage for a decade — the world's best gear by battle test. OPTEMPO has doubtless affected some outcomes since Bosnia, now Kosovo. Despite those caveats, the long-term inputs that have produced bum performance are bad: doctrine; leadership; mentoring; and training. *Deficiencies in leadership, mentoring, and training are measures of the effectiveness of doctrine, its effect on leadership, and how well leaders can understand and use it.* Translation: The doctrine's bad, is misunderstood by leaders, isn't trained or mentored well. OUR DOCTRINE NEEDS FIXING!

Doctrine's About People

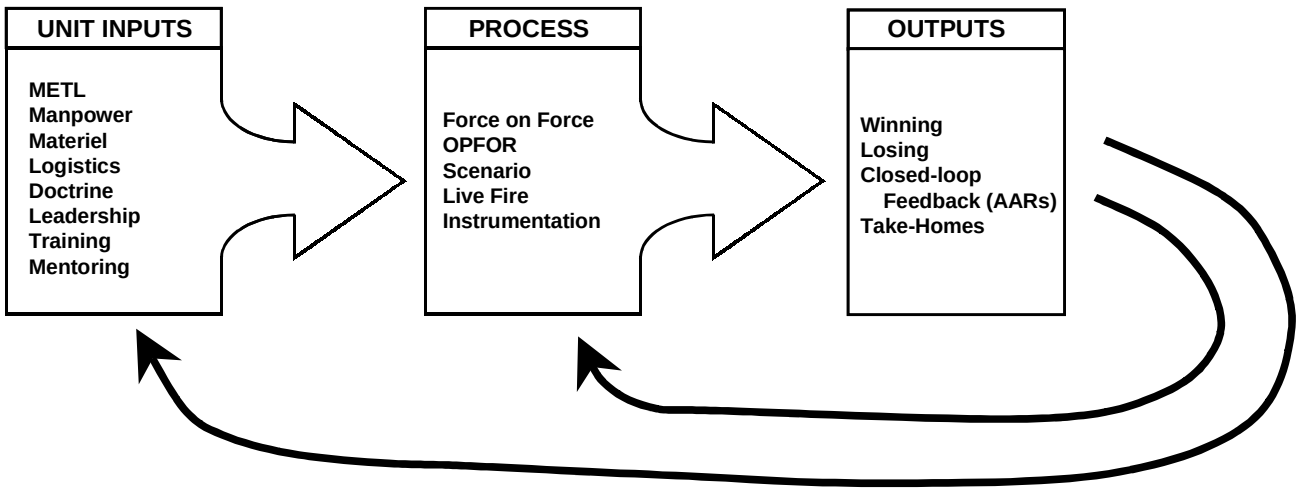
The Army's prioritized, mission-oriented doctrine must be as much or more about people than abstract theories or machines of war. Doctrine enables our soldiers of all ranks to do their jobs. It must create the knowledges, comprehension, relationships, self-discipline, and tools for people to perform under inhuman stress. Its purpose is for our Army to WIN, enabling our country to impose its will on an enemy or accomplish other missions as needed. Doctrine must serve our open society. Our citizens deserve their birthright from us — truthful information, served up as fast and straight as we can consistent with the mission and welfare of our soldiers. Public knowledge and understanding are the stuff of national goals, will, and support of our people in a fight. It'll get distorted by press, prejudices, and the immediacy of modern commo. Comes with the territory. Expect and respect it for what it is. Be ready for it; don't fear it.

Finally, ethics must consciously permeate the structure of our doctrinal readiness and operational concepts. There's no room for less than perpetual, brutal honesty if we are to retain the trust of soldiers, the Congress, the public — AND WIN!

Doctrine's an Anthem for Winners

The doctrine for winning now, in the near future, and over a more distant horizon should be no less vibrant than the nation it serves. *FM 100-5* must inform, guide, *and inspire* the American Army, not merely instruct it with precise, fune-

A Systemic Method for NTC Performance Analysis



real enthusiasm. It must convey the tone and tint of America's free-wheeling, optimistic outlook toward challenges and the urgency of an impatient, fast-moving young nation. It should reflect our country's distinctive personality and character — going for the carotid artery and winning economically with integrity, confidence, speed, economy, panache, and concern for the human aspects of the outcome.

Doctrine, Move It On Over

FM 100-5's development has got to be right, even historic, in the completeness and integrity of its method and results. We have to move its intent and content, if not title, over from mere "Operations" to "Winning Operations." It must become America's doctrine for America's Army, reflect our national experience — and WIN. No exceptions, no exemptions! Its millenial edition needs to reach for the highest attainable goals to correct existing deficiencies and positively drive the future. It must reflect the best minds of the past, present, and estimated future, as well as our own historic best performances.

To do so, we must exploit the individual and collective strengths of our people, strengthen weaknesses, and use individual and group characteristics to educate and train soldiers on how to think, organize, decide, and operate — FAST. Special emphasis is needed on the unique nature of our soldiery and the socio-economic system from which they come. To get doctrine we all understand and that works, we need to make Candor Street an unjammable two-way, not one-way thoroughfare, and sign up for our responsibility and accountability up front.

It's critical that the authors and CAC listen to the men and women in the field, not just the top of our pyramid. In draft and final form, *FM 100-5* will form the molds for the Army's entire suite of manuals, from platoon to corps — combat, combat support, and service support. It'll also set the tone for our future in schools, centers, personnel, training, intelligence, operations, equipment, and logistics. Its authors will try to blend their understandings of theory, history, and threat estimates into a single foundation for everything the Army does. Others at each echelon will interpret what *they think* 100-5 means and add their parallel, often obfuscating pile. Above and beyond all other standards, the doctrine must be clear and simple!

CAC's Plan for *FM 100-5*

The Army's doctrine for an unstable world is a national challenge, not a parochial one. It mandates participation by the best and the brightest of the country, in and out of service. CAC's plan modestly revises past hierarchal methods, but won't yank our doctrine into Century 21. Its planned paper and electronic debate is new. Battalions through/above corps and active duty men, women, and DA civilians from schools/centers, combat training centers will be included. There will apparently also be unnamed, invited participants, including some general officers. The rest of the interested universe seem uninvited, leaving the process narrow and concealed from really tough review.

A Doctrinal Methodology

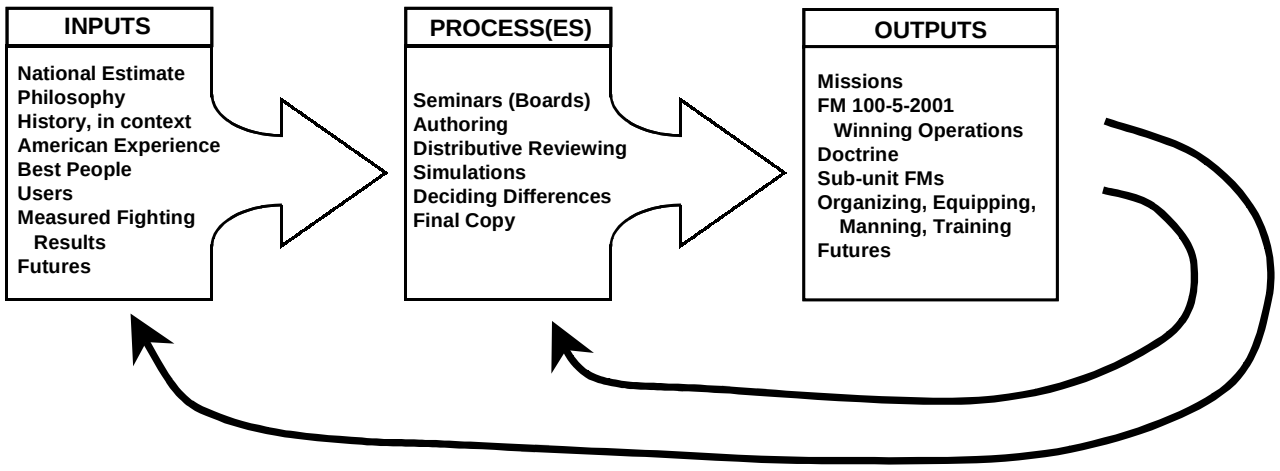
We've already said that doctrine largely determines the effectiveness of leadership, training, and mentoring and is the major uncritiqued, unrepaired variable in the NTC equation. Let's compare CAC's plan for *FM 100-5* with a method for doctrinal development using the same general scheme we did to analyze NTC outcomes (see below).

Input: Get the Best People

They say that a man who represents himself has a fool for a client.

The country's entered a new strategic and operational world with missions of greater diversity, sensitivity, danger, simultaneity, and force-wide exhausting stress than it's ever seen. As the major ground force component of national military power, it's our job to win anywhere, any time, with both the operational concepts and tools of our profession. Doctrine for 2000 and beyond isn't just an "insider" issue. We need the depth and

A Systemic Method for Developing FM 100-5



breadth of every knowledgeable person in the Army's discourse on *FM 100-5*. That's where and why we need you — and many others!

All of the best of the universe of minds in either the Army or the nation have not been invited to the doctrine party. *They must be*, over the year scheduled for review! Convergent and divergent views and outright challenges are needed to make the new doctrine the "best" way to win decisively at least cost to our nation in *your blood* and its other resources. Every element in the academic community and echelon in the force should be plumbed for its contribution, vertically and horizontally linked into teleconferenced boards and seminars. The electronic media provide an unparalleled opportunity to expand the process in both dimensions. The doctrine must be free of careerism, ego contamination, and detached academic righteousness. Authors and participants must reach out for simple solutions to probable future challenges with the humility that dealing with the lives of American men and women deserves.

Input: Mind Your Own Business

Winning's everybody's business! You mortals must have freedom to contribute with proven, compelling recommendations. The new *FM 100-5* will be our Army's "keystone," nearly Gospel. You and your soldiers will win, lose, live, die, or accomplish other missions by it. With layers of filters from battalion through corps, CAC's work has to be a disciplined landmark of clear, clean concepts that evolve easily through multiple layers into doctrine every trooper of every branch in the Army understands at their level. After Army-wide staffing and approval, it's locked for seven years.

That you doers understand the doctrine is critical. It's time for the flagpole to salute you, not your time to salute the flagpole again, or be politically correct. Stars to chevrons and back up, Armor soldiers need to make *FM 100-5* and all derivative manuals clear, simple sets of combined arms operational concepts that accomplish missions fast, with freedom of action down to the lowest competent level — the "Strategic" Sergeant or 2LT. Remember that what doctrine says and how it's understood is what puts yours and your troopers' buns on its bottom line. The fact that *FM 100-5* is high-level stuff must not keep folks from taking part or sinking simplicity in a sea of "not your business — above your grade level."

Input: Move Over, Old Dogs

Our doctrine's content and tone needs dramatic change. Its stilted language and stiff context increase risks of continued failures in comprehension and communications. Our roots lie in Europe, Africa, Latin America, and Asia, but we're treating ourselves as a colony, not a dynamic nation-state. Adopting and exploiting the good ideas of others is smart. Over time, we've adopted: Frederick's drills and disciplines; English law and language; Napoleon's organizational concepts; Clausewitz's principles; and French staff organization, among others.

We've tended toward Clausewitz's massed firepower and troops as the determinants of battles and war. Since Vietnam, we've added baggage — carryover paranoia from public criticism; German terms; and Soviet small unit organizations. In the early '80s, our doctrine emerged as distinctly Euro-continental, in language that had the stilted properties of translations. The effort failed completely to create common understanding, simplicity, freedom of action, initiative, and execution that are essential to successful American operations.

Let's hit the turret blower and ventilate the Army's "clauset." The indexes of a shelf-full of books by some pretty good guys reinforce the remarks of historians Rothfels and Paret about Clausewitz. His name is not referenced as an influence on the operational concepts, decisions, or conduct of operations in memoirs by Guderian, Rommel, Patton, Manstein, von Mellinthin, MacArthur, Churchill, Stilwell, Bradley, Eisenhower, or Zhukov. Hitler, yes. Message? You bet! Clausewitz isn't bad, we are! Army-wide, he has Nostradamus-quality interpreters.

Today's doctrinal team must have the historical, experiential, and attitudinal base and authority to challenge the "old masters" dogma, update or modify it in our language — or, unapologetically trash it if right to do so. We must challenge old assertions by hard-nosed academic, intellectual, and practical examinations (simulations, field, NTC, combat, other experiences).

Writers must put their thoughts in the framework of American life and soldiery, especially the psycho-socioeconomic parts of the equation. There should be no assumptions of the "rightness" of anything. The product must be uniquely American, built to last, yet flexible enough to lead change before it's forced on us by the successors of Mao, Castro, Ho, and the former Soviet Union. It should underwrite dash, flair, and carefully reasoned risk.

Input: Lost American Transitions

The fast-paced evolution of today's and likely future geopolitics and threats demand high readiness, sound concepts, and fast, measured but decisive, farsighted actions by all of our armed forces. We've lost our own heading in the maze of fighting a war our *soldiers* didn't lose, orienting on the Warsaw Pact, resurrecting 18th century European history, bloodying (but not beating) Saddam, and making peace between ancient enemies.

Many military scholars and theorists have downplayed the contribution of Americans to military art and civic action. The tendency has been magnified to damaging proportions by recent revisionism. Writers are often unhappy, even contemptuous, because they find few profound American writings as quotable "authority" crutches for their often-lame ideas. Many dismiss the notion that Americans have contributed significantly to the body of professional thought because they'd have to work to find where we've been, and ought to be going. Articles, books, and our FMs seldom get beyond convenient quotes from the *Roots of Strategy* volumes, or Pattonisms. We've abjectly failed to capture the dynamics of American political, industrial, and military heritage and imbed them in our doctrine. We must! It needs a fresh effort — and time.

Nations expend their intellectual capital on what's important to them. In the lifetimes of some of the "greats," unsophisticated land, sea, and political power were the military universe — hence the narrow context of their studies, analyses, and philosophizing. And they had time and patronage by monarchs and rich guys. We've been graced as a developing nation by being "protected" by two oceans and unthreatening neighbors. But WWII forced us to think globally; sea power, air power, and thermonuclear weapons became our dominant concerns. We focused minds on what counted — use of new strategic tools to extend national power beyond our boundaries in the interests of our own and international security.

As an Army today, we perform within a distinctly American-created concept. For general war, our concept employs a strategic troika of land, sea, and air power and a triad of thermonuclear weapons. Navy implementation of selected Mahan theories gives us the freedom to deploy safely (although damned slowly) by sea anywhere in the world. The USAF, Bernard Brodie, Herman Kahn, the young Henry Kissinger, et al., and a coterie from think tanks, academia, and foreign affairs extended Mitchell's and Seversky's thoughts into what is now an air-thermonuclear team. It created concepts which used the Army's ground containment of the Pact, Navy's control of the seas, and our dominance of tactical and strategic aerospace power, to win WWIII bloodlessly. "Winning" the Cold War deserves our huge tribute to all of these *American* military theorists.

While we Army-ites focused on the "big war," *we failed to project our probable future — lesser wars and "peace."* A sound-thinking, committed minority of vocal "lighten up" critics of our strategic deployability and tactics were wrongly categorized as pests and ignored. The longer term has proved them right, and the majority strategically wrong! When we needed futuristic projection, then creation of an integrated body of new thought, we got studies of the obvious, splendidly isolated from reality, with events interpreted to fit someone's comforting preconceptions. Copy-catting aging theorists and fast-fading heavy armor doctrine were non-starters. We're left with a gross deficiency in well thought-out, deployable, strategically and operationally sustainable ground force capabilities and concepts.

Input. The Dogfaced American Soldier Quotient

Rightly led, equipped, trained, fought, or otherwise employed, Americans are unmatched as professional or conscripted soldiers. You are the products of a politico-socioeconomic system unforeseen by man four centuries ago. Flawed as many of our structures and systems may be, no other citizen or immigrant of a modern industrial society has the rights, freedoms, benefits, and economic advantages shared by you and your countrymen. Our new soldier is, on average, the most well-paid, informed, educated, independent, media-blitzed, technically hip, self-reliant trooper on the globe. These soldiers properly demand an answer to their birthright's incessant question: "Why?" They are absent some skills that were once national strengths. Oddly, they remain as false underlying assumptions in some training — stress resistance, hazard exposure, and land, mechanical, and shooting skills. Motivation may also differ from assumptions, with an increased "job vs. career" psychology needing modified leadership approaches. By nature, our soldier is inquisitive, initiative-taking, independent, skeptical, but not naturally obedient or patient. Our doctrinal, educational, and training guidance must be conceived and written to identify and sustain strengths and shore up weaknesses while ruthlessly rooting out self-defeating methods or content that limit the soldiers' native initiative, independence, and self-reliance.

Doctrine must not be fixed on a single personnel acquisition strategy or training model. Politics, economics, and strategy will govern the composition of the Army. Doctrine must recognize that different considerations apply to volunteer and mixed volunteer/conscript armies. Each demands a tailored leadership style and training approach. The only generality that applies is that America's men and women are best led by persuasion and example. Our Army has no place for authoritarianism or personal philosophies imposed on groups larger than one. Mobilization concepts, still a post-WWII/Korea hangover in training, schools, and centers, don't fit our general needs. Tailored training does — shaped to the individual or group, and using peers extensively to jump-start leader development.

Input. Americanizing the FrancoAmerikanischerGuardsArmee

American operations have historically exhibited many characteristics other than "attrition warfare" that are essential to a vibrant, winning, future Army. Some were written and unwritten hallmarks that got lost in our fascination with "big shows," or lost in the files, and deserve rediscovery and codification as part of doctrine. While often of small scale, hence of little interest to "grand scale" theorists, many past American battles and campaigns deserve more serious study and to be embedded in our "way of war." They often demonstrate *patterns* of behavior and performance that should be extrapolated to higher levels to capture inherent abilities of our people and our technology and to demonstrate how, not what, to think while countering weaknesses. Problem is you have to dig 'em out, plant them in memory, never forget what's right. Here are a few examples of lessons we never should have forgotten, and that have us struggling today:

Strategic Mobility. Past lessons and the future were and are clear. Doctrine's ignored both, seldom considering capabilities/limitations of air/sealift as a realistic part of our core organizational and systems design criterion. The Army's the "differently mobiled" child of global Joint strategy. We fit almost nothing but low/slow, except with airborne. Airframes and ship design will always reflect commercial needs. We need to design us toward that reality, not the wish lists of inflexible tankers, artillerymen, and logisticians. Weapons systems, fuel, and munitions need huge reductions from technology.

Operational Mobility. Our virtual birthright is grossly neglected. From the great Khan to Napoleon to native Americans to the cavalry that won the West, to Vietnam and beyond, speed and mobility have often proven decisive factors in war. Fuel and ammunition have become our sea anchors. Doctrine must grasp their importance to present day operations, drive for solutions. When mobility, firepower, fuel, and convenience conflict, mobility should normally govern.

Combined Arms. The need for protected, highly mobile combined arms teams is profusely recorded, should need no repetition. We must blow fresh air through our collective mental catacombs, lighten up, and fly to and fight in right places — like anywhere. From the top down, we need understanding and candor among and between all branches (combined arms) and a crusader's will to do the right things.

Cavalry. Cavalry, in its classic roles, is KBN (Killed by Neglect), dead! Our potentially most flexible arm have forgotten their historic missions, the kinds of forces needed to do those critical jobs. The legacies of American cavalry, from the Revolution through WWII and Vietnam, need revival, as do those of the British Long Range Desert Group (LRDG), Soviet and German recon. Assumption of some classic cavalry missions by Special Operations Forces in D Storm is a travesty born of deserted or forgotten history.

Despite superb performance, 73 Easting was never where or how a cavalry troop, squadron, or regiment should have been, except in an economy of force role.

Light Infantry. American battlefields from Manassas to Vietnam have been strewn with gear senior officers thought essential, the infantryman, excess. Rommel complained of inhuman loads that reduced the mobility of infantrymen in *Infanterie Greift An*, his experiences in WWI. The load he complained about was 85 lbs. Today's is 85 lbs. In 70 years, we've solved little with technology, left infantry overburdened, hence undermobile, badly under-weaponed.

Artillery. History's clear. The pattern for employment of artillery was/is/should remain highly mobile units, whether in area or precision fire missions. Artillerymen allowed NBC and firebases to turn them into what they never should have been, stationary precision systems. Taylor's Washington's Artillery in Mexico, Pelham in the Civil War, traveling guns of WWII armored units, 5 Mech's "Sturmartillerie" at NTC, arty performance in D Storm are right. A trend toward "firebasitis" in the linkage of "certain knowledge" platforms with "precision" munitions is already visible.

Resourcefulness. Conversion of the M113 to ACAV in Vietnam, and its employment, was a superb example of resourcefulness and courage in the face of a deficiency in operational capability that shouldn't have existed. Long a strength of our soldiers.

HUMINT. People intelligence (HUMINT) remains a huge weakness. Critical to both war and peacekeeping, it's submerged in a sea of gadgetry and special interests. Army doctrine, in particular, must drop the technical hype, demand both technical performance and restoration of national and service HUMINT capabilities at low levels. Intel (as distinguished from data) must get to divisions/regiments/brigades FAST!

Contemporary Civil Sector. Industry's recently relearned the lesson we need to: PRODUCT, not PROCESS, determines your bottom line. Brutal downsizing can improve efficiency, productivity, and results. We need to take that lesson to heart, including slashing the heads off the hydra-headed headquarters monsters our doctrine/organizations/ training created.

Other Examples

-Advanced Guard 1675-6. Benj. Church, leading colonial and Indian forces, used the advanced guard formation to counter Indian ambushes in King Philip's War. Its organization was by name and function virtually the same as today's.

-FOCUS, deception, maneuver. Grant was complex at Vicksburg. His diversion with Grierson and turn of the fortification were masterpieces. Related operations exemplified FOCUS.

-Mobility, Flexibility, Initiative, Deception, Security, Speed, Objective, EnInfo. Grierson's Raid embodies more American characteristics in a single operation than perhaps any but Jackson's Valley, Crook vs the Apaches, Nez Perce/Looking Glass against us. Popularized by J. Wayne's "Horse Soldiers," it was an extraordinary piece of work by any standard. Fact that Grierson was a militarily untrained musician by trade should send human factors/sociological people scrambling to research intuitive leaders, including Native Americans. Rommel copied Crazy Horse as a master deceiver.

-The Sioux, Apaches, Utes, and Nez Perce knew terrain, ambush, winning outnumbered.

Question. Must we relearn old worldwide lessons the hard way? We've been through *all* of this before.

Output

Draft and final *FM 100-5, Winning Doctrine's* process and content must do the things below. Some are self-explanatory, others detailed here, some others in "Destiny" (Mar-Apr 1999 *ARMOR*). *Elegant simplicity, candor, integrity, plain talk, and Jointness are the "dome" (cover) for everything.*

Include a straight-up, apolitical forwarding letter co-signed by CSA/SMA saying what's right/wrong and how this doctrine will sustain the good, fix the bad. Include in final pub.

State the foreseeable, realistic, probabilistic strategic environment, threat, and missions.

Summarize up front the current American attitude toward war. No one capsulized it better than R.E. Lee/Ike ("It is well that war is so terrible..."/"No one hates war more than the soldier...".)

State up front (Chap. 1) strengths and weaknesses of U.S. forces that affect their readiness and use in pursuit of national objectives in the stated strategic environment.

Describe the atmosphere and relationships (culture?) needed to do the job. *Make competence, mutual trust, initiative, confidence, ruthless honesty, absolute reliability, decisiveness, integrity, etc. structural, not adjectival or adverbial cosmetics.*

Include human factors: Strengths and weaknesses of the American soldier; systemic integrity; "digitization" impact on human interactions; how this doctrine will exploit strengths, compensate for weaknesses.

Give American military history and thought their places in our doctrinal sun *as patterns or suites of things Americans do well*, not as mere italicized "historical examples." There's a corresponding set of things we *don't* do well, like anything needing patience at any level. Get 'em in the open.

Reconfirm old dogs, move 'em out or modernize them.

Get straight/candid about acquisition/ information systems' operational weaknesses. Include as a minimum: Operational fragility; probability; human factors, including invasiveness; horizontal interference; second-guessing; immediacy shock (panic).

Imbed systemic integrity so that no soldier of any grade will have to choose between "telling like it is" and looking good. Doing the former *IS* the latter. Emphasize corrective actions in readiness-related systems and operational control measures.

Create a flowing context for principles of operations and their offensive, defensive, other uses. Push trust, initiative, freedom of action and decision-making down to the lowest *competent* level. We've had plenty of "Strategic" Sergeants (Philbrick) and "LT James'." Empower them!

Prescribe competencies, minimized operational control measures, and systems that will create and sustain combat-essential relationships. Regimentalization's overdue. Do it!

Prescribe "administrate in peace as we do in war" rules to be changed only with approval of the VCSA or a MACOM.

Give flowing, clear descriptions of how to fight and win with what we have now.

Clarify *FM 100-5-93's* distortion of Battlefield Operating Systems. We emphatically didn't design them for use in decision checklists/matrices/lines!

Embrace jointness at every level.

Kill failed and non-military terms: "synchronization," "synergy," "real time," and "end state."

Describe what's needed to fight/win in the *probable foreseeable future.* Define drivers that will push R&D and operational experimentation into producing the tools of future victory. Focus on threats.

The Capitol Staircase

Besides being winning stuff for soldiers and outfits, our new doctrine has a special need to enable the Army to sing hit songs to DoD, JCS, Congress, the President, and the American people on manning and budgets. We're on an obvious collision course for our most difficult funding decade in a half century. There are discomfiting parallels with the '50s, when the Strategic Air Command, the nuclear Navy, think tanks, and congressmen had us on the ropes in manpower, budget, and R&D. We nearly surrendered the ring with dumb decisions on organizations, tactics, and nuclear weapons.

Our recovery owes more thanks to a cranky Warsaw Pact than our own initiatives. Now we're again in a fight-for-life with the USAF, USN, and USMC for battle and budget parity. To start winning, America's ground forces doctrine must:

- Fix deficiencies in mission performance with what we have now — national/joint training centers, and strategic deployability inclusive — and prove it in the halls of the mighty.
- Get everyone involved, including critics and dissenters. Create a harmonious team in and out of uniform, without a knee-jerk compliance mentality.
- Articulate future operational needs to cure performance, deployability, mission and other shortfalls. Doctrine must support our operating and R&D budget cases at the JCS and Congress compellingly.

Fixing What We Can: Where Do You Fit?

There are plenty of tasks. Of them, making candor the common bond, getting the basics into a context of "how to fight," Americanizing the doctrine, and making all of you players in distributive reviewing are the tough nuts. Rationalizing the principles and other guides was much of what "Destiny," in the March-April *ARMOR* was about. It's omitted here. Here are things members of the force can and should do:

Get ready to take part in the process — know where it's been, is, is going, is coming from.

Try your chain of command first. Ideally, each Bde and TF commander in the Army will form doctrinal teams that include company and platoon officers *and NCOs,* as well members of the battalion "slice" of CS/CSS.

Identify and establish email commo with proponent authors at schools/centers at the counterpart level. Set up networks with your buddies in other branches.

Use the networks to gain some unity in what LTs, CPTs and NCOs are putting into battalion/TF forums — free exchange.

Make the Army's noncommissioned officers a central part of the process. Two avenues for them; co-authorship with commanders at each echelon; use of the NCO/NCOES channels, including students.

Put it all, even high-level stuff, in common language and relationship diagrams that captains and sergeants can understand.

Don't approach participation with an "over to you" or "I told 'em so" attitude. Offer to help with authorship if sharing the workload will help get the job done.

Fixing What We Can

It's time to use the Internet to give voice and power to the combined arms team. That means that commanders and their noncommissioned counterparts of all branches and echelons, *up, down and across the Army,* need to get together electronically to sock a little "horizontal integration" to the vertical hierarchy — Armor to Infantry to Artillery to Engineers to service supporters as well as each other — you get the picture.

If done right, the internet gives men of Armor and Cavalry an unprecedented chance to take part in controlling their own futures *and* those of other members of the combined arms team. As each echelon of manual development takes place, from CAC's FM down through platoon manuals, from crew/squad/section up through regiment, corps, and army, sergeants can and must be contributors to future doctrine. Doing so will mean a high degree of organization, preparation, and some sacrifice of personal time, but it's a must-do job. Try these:

TRADOC: Publish the doctrinal network (or review) schedule, websites, and POCs at each school/center from corps down through platoon-level, Army-wide.

MACOMs: *Supportive* overwatch.

Corps/Divisions: Establish doctrinal *teams* at MSC, *TF* levels, and empower each to communicate with corresponding websites direct.

TFs/Bns: Establish/sustain doctrinal Officer/NCO TF, Tm, Plt officer/NCO teams. Submit inputs to branch material POCs designated by TRADOC.

All: Establish lateral counterpart chat lines on official/personal PCs as required/desired. Stick to issues, not gripes. Demand fixes for the present, definition of a clear future.

Editors, professional journals gear magazine issues to the field manual network (review) schedule at each echelon, soliciting reader input, furnishing results to TRADOC POCs. Encourage out-of-the-box ideas.

Pending publication of an aggressive, HARMONIZED, systemic review organization and process for the "new" doctrine, the force as a whole might suggest hiring Messrs. Ambrose and Clancy to do the job fast.

GOOD HUNTING!

Notes

* With apologies to H. Williams

BG John Kirk says he spent 24 of 27 years "happily undiversified" in command, operations, and training. Seven consecutive years of "grime time" as 1AD G3, brigade commander, and chief of staff and 5th Mech ADC (M) preceded terminal posting as Director of Training, ODCSOPS, DA before his retirement in 1983. He is the author of "Controlling Armor's Destiny," which appeared in the March-April 1999 *ARMOR*. His email address is: jmkirk@wolfenet.com

Director of the School of Advanced Military Studies Responds to "Move It On Over"

The 2000 edition of *Field Manual (FM) 100-5, Operations*, establishes the Army's keystone doctrine for full-spectrum operations. Full-spectrum operations are the range of operations Army forces conduct as part of joint, multinational, and interagency organizations in war and military operations other than war (MOOTW). Within full-spectrum operations, *FM 100-5* recognizes warfighting as the primary focus and most dangerous undertaking of Army forces.

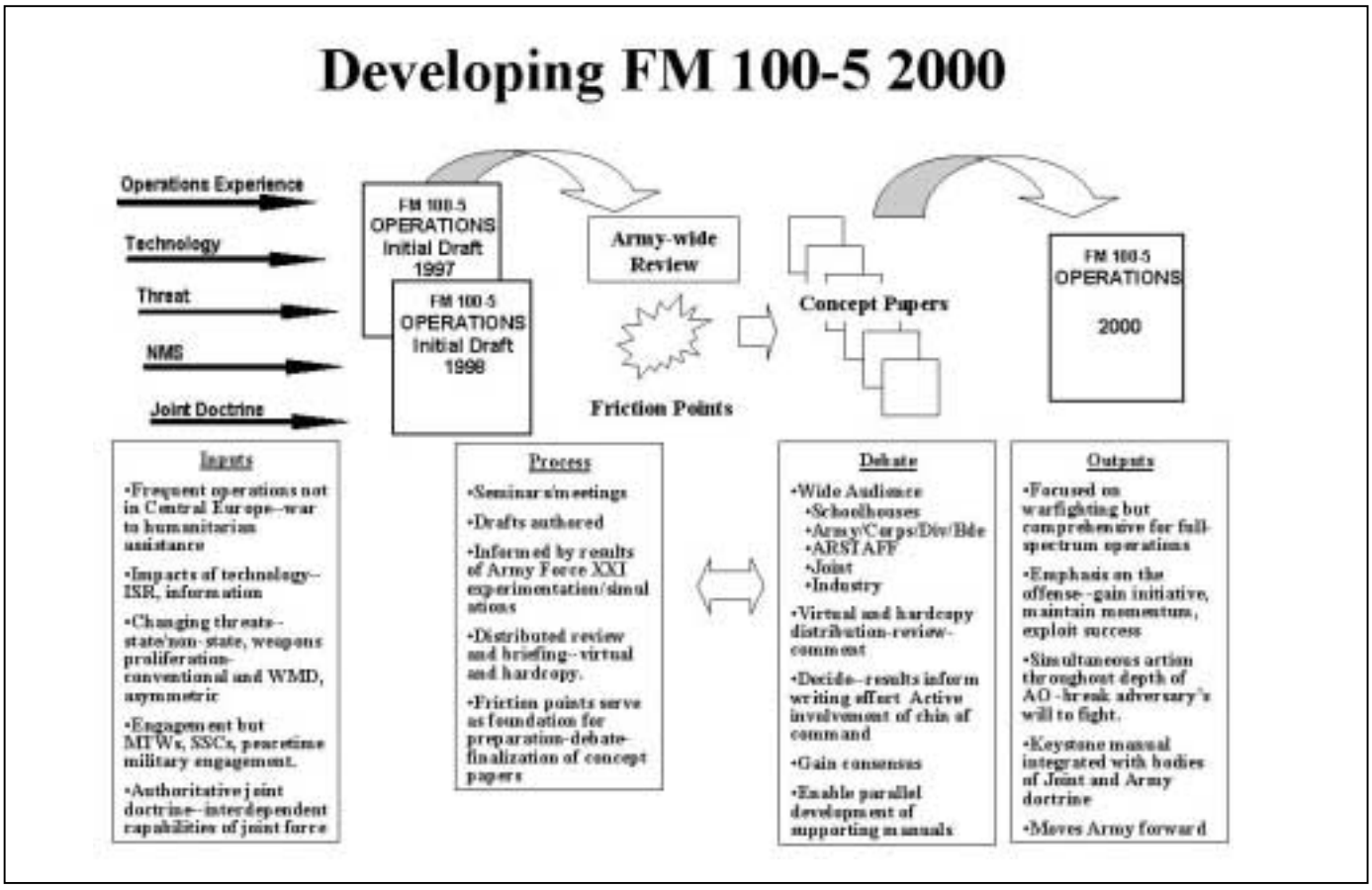
FM 100-5 expresses the Army's understanding of the contemporary operations environment. It addresses warfighting and the range of operations, both violent and nonviolent, that Army forces will execute in the foreseeable future. It confirms that the nation will continue to call on Army forces to conduct a wide range of operations simultaneously with or beyond the scope of major theater war. It establishes a comprehensive doctrine to be carried out by today's soldiers and leaders with the equipment that is currently or will soon be present in Army units. It reflects the lessons of post-Cold War experience, assessments of technological advancements, validated concepts of Army experimentation, and an appreciation for proven fundamentals and principles.

The manual embraces a wide audience — active and reserve components. From battalion through corps to echelons above corps, officers and senior noncommissioned officers must internalize the doctrine and measure it against their own experiences. They must take it apart, figure out what makes it work, and use it. If this doctrine is to be useful, it must be second nature. Full-spectrum operations — especially war — are a tough, complicated business. They demand thought, boldness, creativity, and initiative. They demand discipline and iron will. They require educated judgment and professional competence. Developing these traits begins with each of us being part of the manual development process. It continues as we work to master the fundamental doctrine found within *FM 100-5*.

Within TRADOC, the School of Advanced Military Studies is the Combined Arms Center (CAC) Commanding General's proponent for the manual. Because of the significance that *FM 100-5* holds for the Army, do not think for one minute that SAMS and CAC are the content and final approval authorities of the manual. Rule Number 1 in the doctrine writing business is that to be doctrine, a manual has to be universally understood, accepted, and applied. Rules 2 through … read "see Rule Number 1." The Army's chain of command will not permit the manual to see the light of day unless it fulfills Rule 1 and provides the necessary direction to enable Army forces to dominate any enemy, any situation, anywhere.

In the preceding article, General Kirk described a systemic method for developing *FM 100-5*. It is comprehensive with far-ranging inputs and focused outputs. The model is very similar to, if not exactly like, the model currently in use within the Army to develop this edition of the manual. (See figure below.)

The process of writing the next edition began in late-1995 and, to date, has produced an initial draft and a coordinating draft. Inputs include the analysis of Army operational experiences in full-spectrum operations, the impacts of ever-increasing



information, C2, and weapons technologies on the conduct of operations, the definition of multi-dimensional threats, the contemporary National Military Strategy, and the authoritative direction of a constantly expanding body of joint doctrine. Both drafts received wide audiences within and external to the Army. As a result of comments received from the field on the June 1998 coordinating draft, we developed, and the CG TRADOC approved, a writing strategy that continued the writing effort with the preparation and debate of a series of concept papers.

The concept papers tackled several tough issues that surfaced as friction points during review of the manual drafts and several seminars. The field made their voices heard, and we got to work setting the stage for Army-wide discussion and debate on several tough questions. Concept paper topics included the need for a comprehensive, full-spectrum doctrine, the integration of Army and Joint doctrinal concepts, the operational framework, and the relationships between Army operations, training, and leadership doctrines.

We distributed the concept papers hardcopy to an audience of over 170 recipients, including every one of our operational and tactical headquarters to division level. In some, if not all, divisions, the papers were distributed to the brigades and battalions. Distribution also included the proponent schools and centers, the Army Staff, many joint headquarters and doctrine centers, and select defense industries. In addition, we placed the papers on a *FM 100-5* website for access by any interested party within DoD.

Debate of the concept papers has been comprehensive and insightful. It reflects a broad range of Army experience — Korea, Persian Gulf, Bosnia, Kuwait, Kosovo and others, and fulfills several purposes:

- It seeks inputs from the entire Army and leverages the total of Army experiences to inform the writing effort.
- It clarifies doctrinal concepts and provides data points to decide final direction.
- It works to gain consensus on manual content — remember Rule Number 1.
- It enables consistency with joint doctrine and facilitates parallel development of supporting Army doctrine.
- It keeps the writing effort honest by demanding clear and concise expression.

Armed with many inputs and viewpoints, we are currently drafting the chapters for the final draft. As we draft each chapter, we conduct an internal review within the Command and General Staff College, particularly with the Corps and Division Doctrine Directorate. Once satisfied with content, we then post the chapters on the Internet for virtual collaboration with a circle of subject matter experts within TRADOC, including the Armor Center. When we complete these steps, CAC will then host seminars with broad representation to dissect every word, every concept, and every thread of continuity chapter by chapter.

By the time you read this, you may be able to view the first several chapters on the *FM 100-5* website. If not, it is only because we have yet to post them. After your review, enter the debate — the writing team is only a DSN phone call or email note away. When the debate is finished and the manual is published — read it, digest it, and implement it.

Yes, we limit access to the website. We do so because we did not want the likes of *NorthKorea.com* or *Hussein@iraq.despot* to have immediate access to emerging Army doctrine. Currently, you can read and comment on the concept papers (manual chapters shortly). Call the writing team at DSN 585-3452, and we will provide you a password. One caution — if you read the papers, do not expect to read draft doctrine. You will be reading an essay designed to provoke informed discussion. Read the content, understand the context, draw your conclusions, and state you views.

Several final points on *FM 100-5:*

- Focuses on warfighting with emphasis on offensive action to gain the initiative, maintain momentum, and exploit success.
- Reinforces the warrior ethos of the American soldier. At its core, the warrior ethos grounds itself on the refusal to accept failure. It is about selflessly persevering under the worst of conditions, to fight through those conditions to victory in any environment no matter how long it takes, no matter how much effort is required.
- Is proactive, not passive. It recognizes that the simultaneous actions of Army forces throughout the area of operations coupled with the interdependent capabilities of joint, multinational, and interagency organizations produce complementary and reinforcing effects that decisively break an enemy's will to resist.
- Is full spectrum — offense, defense, stability, and support. It recognizes that the ability of Army forces to dominate stability and support operations rests with their ability and credibility to take the fight to the enemy and dominate anyone, anywhere.
- Is fully integrated with joint doctrine.
- Retains time-tested and accepted constructs.

This is the first time in recent *FM 100-5* history that the manual will be published with several very close companions that detail the "how to" of Army operations. These manuals include: *FM 100-7, Decisive Force: The Army in Theater Operations; FM 100-10, Combat Service Support; FM 100-20, Stability and Support Operations;* and *FM 100-40, Tactics.* At the company, battalion, and brigade levels, *FMs 71-1*, *71-2*, and *71-3* will be nested with *FMs 100-5*, *100-20*, and *100-40*. All of these manuals deserve your attention and require your participation in development.

Our soldiers require and deserve the best doctrine of any force in the world. The ongoing *FM 100-5* process within the Army has this requirement as its singular, focused aim. Everyone involved brings his or her unique insights, talents, and experiences to bear. We want and need all of you to take part in this important task — not only as it relates to *FM 100-5* but to the many complementary doctrinal manuals as well. If you remain in the stands and not in the game, you are missing a great opportunity. The *FM 100-5* Writing Team stands ready to receive your comments and help. Send written and electronic correspondence to the following addresses:

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Lighten Up, Guys

To Remain Relevant, We Must Revise Our Doctrine Toward Lighter Forces and Better Deployability

by Ralph Zumbro

The moving hand writes, and having writ, moves on. By now, it should be pellucidly clear to anyone whose brain is not encased in a depleted uranium cranium, that the times are changing for the armored force. We are, right now, exactly where the old horse cavalry was in 1940. Having had the time recently to do some intensive reading, this old soldier sat down in the Armor School Library and read **ALL** of *ARMOR* Magazine, starting in 1888, when it was the *Cavalry Journal*. When I got to the point in history where the Chief of Cavalry, General Herr, refused to give up even one horse, and lost it all, I began to get an eerie sense of déjà vu.

Granted, the general was the victim of terminal bureaucracy and compartmentalization, but the old, "been there, done that," feeling began to surface. For the Vietnam generation, remember, RVN wasn't "tank country." And a generation or two earlier, tanks weren't proper mounts for a cavalryman. For those of you who don't know the story, the title in *ARMOR* is "The Ten Lean Years," by General Robert Grow. It was serialized in the first three issues of 1987 and ought to be required reading at the Armor School. The school library keeps a copy in their vertical file and it can be checked out.

At the same time General Herr was proposing a giant cavalry-mech organization, General Adna Chaffee was walking into the War Department with the TO&E for a panzer-style armored division in his briefcase and George Patton in his pocket. The rest is history, and we are now right THERE.

It is a known and admitted fact that we cannot deploy the Abrams in any significant numbers in any credible period of time. In other words, we are no longer a significant deterrent to international chicanery and adventurism. Remember, it took six months to build up for Desert Storm. The next international shivaree is more than likely to be a come-as-you-are affair... And we've been getting smaller and heavier for nine years.

Remember the old saw, "You can't get there from here"? We have been there before, and have had to make the choice. We made it in 1942, and we can make it now. For those who haven't read Dick Hunnicutt's book, *FIREPOWER*, a prototype of the M-6 heavy tank, the 60-ton big brother to the Sherman, was delivered just EIGHT months after Pearl Harbor, long before the German Tiger tank had even been thought of. A regiment of those suckers could have wiped Rommel off the African continent....IF we could have manufactured, crewed, and shipped them. The War Department had the choice, but the finger landed on the M-4 for several reasons, deployability being the most important, but also because of manufacturing considerations and the availability of adequate engines.

The realities have not changed in half a century. We had shipping problems then, and we have shipping problems now. For the shipping space and weight of one M-6, the Merchant Marine could ship two 30-ton Shermans or four half-tracks... For the shipping space and weight of one Abrams, the Merchant Marine can ship two 30-ton M3A3 Bradleys or four M113s in ACAV configuration. Nothing has changed, including our attitudes. If we don't reconfigure SUDDENLY to an all-cav configuration, we are gonna get left out of a lot of peachy little wars. Remember this: the only reason that we now have a separate Armor Branch is the mental rigidity of the command structure of the cavalry of the 1940s.

J.F.C. Fuller was fond of saying, "The only thing harder than getting a new idea into the military mind is getting an old one OUT." His book, *General Officers, Their Diseases and Cures*, is in the Armor School Library and worth the read. General Patton, so the story goes, always kept several copies and delighted in shipping one to whomever he thought could benefit from the information. The military mind is extremely conservative, and for the most part, rightly so, as battlefield experimentation can sometimes lead to an excess of widows and orphans... But conservatism can also lead to lost battles and missed opportunities. For the student of history, it is painfully obvious that our spiritual predecessor, the armored knight, was not shot off the battlefield; he simply refused to learn the art of maneuver warfare. Remember that the only thing that protected the English flanks at Crecy were open woodlands through which any competent modern commander would have sent a force of flankers. But the only thing the French knights knew how to do was to up-armor. Sound familiar? When it got to the point where a crane was necessary to lift a French knight into the saddle of his Percheron, the jaws of history were closing on him, just as they are squeezing us now.

Do not misunderstand me. We will always need the heavy force to handle the T-90s and their successors, in whomever's hands they are sent to battle. The problem is simply that the Abrams and its ilk are too much of a good thing. The beast is the world's most perfect breakthrough machine, and no foreseeable foe can stand against a full armored division of them. They are not, however, campaign tanks. All the veterans of Desert Storm to whom I have talked... and that is a LOT of tankers, as I move around a bit... tell me that the Abrams is a thirsty beast, that third world bridges are a problem, and that the ammunition selection is limited, and so on. The men from Bosnia say that the Bradley is a long step in the right direction, and that the old ACAV might just be the right machine... And we have about 25,000 M113s in the inventory at any given time. It wouldn't take much to put turrets and extra armor on them and still keep the easy air mobility that makes the old "Battle Box," such a valuable asset. It is probably our most mobile piece of hardware. The M113, remember, is a combat machine that can be lifted by helicopter.

The name of the game is credibility and deployability. We desperately need something that is air-deployable to the AO and

helicopter-mobile once it's there on the battlefield. For the next decade or so, we are not going to be fighting Saddam, although he or someone like him is waiting in the wings for us to go soft again. Instead, we are probably going to be protecting caregivers, resettling presidents, squashing petty dictators, eliminating warlords, etc., for the foreseeable future, and that is not a bad thing, if looked at in the proper light.

One could look at each deployment as a "training war," if that's a fair term. These OOTWs are where we locate and battle-test our new generation of leaders, test new weapons and doctrine, and generally work the bugs out of our organization. Each one will involve long distance deployment, light armor, some maneuvering, some logistic problems, and the interaction of air, infantry, and mechanized/armored units. This is a training opportunity not to be sneezed at. Think of them as minimized AirLand operations and the concept becomes considerably more palatable than spending a whole generation going stale in the motor pools, waiting for "Our Kind of War." AND, remember always, the whole world will be watching. A good performance will be graded by the whole planet, and a lethal lesson just may prevent more ill-advised international adventurism.

There is, however, a large, heavy Sword of Damocles hanging over our necks, and it gets lower with each swing of the nightly news. Sooner than later a shriek of urgent need is going to come echoing out of Washington and we won't be ready. There is much more interest in light forces and deployability in the Marines and the National Guard than there is in the heavy force, and where will that leave US when the call goes out? If the Marines get a sudden deployment because they can move and we can't... THERE ARE NOT ENOUGH OF THEM... And the nation gets another black eye. We do not need another Beirut, or a Mogadishu incident. Further, the Marines deploy by sea and are not configured to get really far inland. Deep inland, deep raids and strikes are our job, the traditional job of the Cavalry, the maneuver force that we have always been... until recently. The sad thing is that we already have the hardware. We only have to reconfigure what we already own, if we will.

Back during the Vietnam War, the 25th Division found out that a CH-47 can lift an ACAV and move it across about 20 miles of battlefield. We CAN jump tall buildings with a single bound, if we will only remember that we once could. We still own those exact same machines, 30 years later, but have forgotten how to match them up. Better yet, we now have a helicopter which can move a HMMWV-equipped scout or a slingload of motorcycles... Even mountain bikes, out to where some serious Humint can be gotten. The drill would be to insert whatever scout forces are necessary to get our information and then land in what force the situation requires.

Bradleys in Bosnia – "One could look at each deployment as a 'training war,' if that's a fair term. These OOTWs are where we locate and battle-test our new generation of leaders, test new weapons and doctrine, and generally work the bugs out of our organization."

We already know where most of the C-130-capable airstrips or level stretches or road are, in any given nation. Drop a couple of planeloads of paratroopers on a selected location and you've got an airhead. Two companies of Screaming Eagles and a company of ACAVs will give most small countries and ANY warlord a permanent case of involuntary digestive trauma. Bring in the heli-lift capability and you can razzle-dazzle any normal military force into impotence. NO ONE is trained to handle the possibility of an enemy who creates a third flank with airborne armor. For the record, it was done just once, by the Russians in one of the Somali-Ethiopian wars, and it worked beautifully. One armored heli-lift and the war was over. They, however, seem to have forgotten the concept, as it was not used in Afghanistan.

Once you have an airfield, you can bring in the Engineers and upgrade it to a condition where the heavies can land. This, of course, brings up yet another consideration, fractioned operations. I would recommend a re-looking at an old RVN-era series of articles by Col. Riggs. The titles are "We Need A Few Tanks To..." (M-J '69) and "Tanks For Non-Tank Country" (J-F and M-A '70). The colonel is since deceased, and we miss him at reunions, but his work is his monument. The RVN-era tankers and the Bataan and Guadalcanal tankers before them learned a whole bag of tricks that are in danger of being lost. It is distinctly possible for tanks to go out in support of infantry, perform noncombatant evacuation, beat the bushes for guerrillas, and run medical civil action patrols (MEDCAP), escort convoys, act as artillery, and still be available for concentrated armor-heavy raids. You just have to be mentally flexible. To quote Col. Battreall, "You have to think fast or get out of the Cavalry." And Armor designation or not, Cavalry is what we all are, and we need to remember that we are a light maneuver element as well as a battering ram.

That is where our minds seem to be jammed up at this point in history, and we cannot afford, nor can this nation afford, a mind-set that says, "The Russians/Chinese/Islamics are coming," and forgets that the warlord, the partisan, the smuggler, the drug lord, the tribal wars, the border jumpers, the slavers, and the mass murderers are here NOW. What is missing is a credible deterrent. Tempting though it may be, the use of atomic weapons is not an option in warlord extermination, nor is a full-scale "Hail Mary," sweep with an armored division. What has to be done is to go into the woods, deserts, and jungles, grab the miscreants by the stacking swivel, drag them out to a fair trial by a duly constituted government, and hang them.

To quote Ralph Peters, who writes in *Parameters*, among his other credits: "We are facing a new breed of 'Warrior,' who is capable of acts of atrocity which challenge the descriptive abilities of the language"... The two-legged varmints

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HQ 33 from A/1-77 Armor guards a Serb church in Klokot, Kosovo province.

An Armor Battalion in Kosovo

by Lieutenant Colonel Timothy R. Reese, Major Kevin W. Farrell, and Captain Matthew P. Moore

Sending a tank battalion to the Balkans to conduct peace operations is no longer as strange an idea as it might once have seemed; in fact, it is now routine. The implementation of a tank battalion as part of KFOR (Kosovo Force) is still, however, fraught with challenges. This article will highlight some of the unique aspects of the mission faced by a U.S. Army tank battalion deployed to Kosovo. It will begin with some general points concerning the mission as a whole, then move on to address specific lessons learned by the Steel Tigers of the 1st Battalion, 77th Armor, and will close with some thoughts for future deployments of tank battalions to the region.

KFOR's mission is to (1) enforce the provisions of the Military Technical Agreement (MTA) between NATO and the Former Republic of Yugoslavia (FRY) and the Undertaking for the Demilitarization of the Kosovo Liberation Army, (2) to establish and maintain a safe and secure environment including public safety and order, (3) and to provide assistance to the UN Mission to Kosovo (UNMIK), to include providing core civil functions. At the battalion task force level this translates into: (1) enforcing the terms of these international agreements with the Serbian military along the border with FRY and inside Kosovo with the Kosovo Liberation Army (KLA), (2) providing law and order at all levels by serving as the police, and (3) working with the UN to establish local civic administrations and supervise their functioning, and working with the IGOs/NGOs to provide relief to the region.

An Unstabilized Situation

The mission in Kosovo is not just another Bosnia mission with a new name. Although nearly all active-duty tank battalions now have soldiers who are veterans of a deployment to Bosnia, previous Balkan experience proves to be a double-edged sword. The situation in Kosovo is in no way stabilized and the nature of the

mission changes on a weekly basis. The mission of KFOR is more akin to IFOR, not SFOR; the routine has yet to be established. There is no zone of separation, no effective international police force, no functioning civic governments, very few public services, and the economy is just above subsistence level. For most intents and purposes, KFOR serves as the military, the police, and the government.

Tankers as Nation-Builders

Tankers in Kosovo can expect to conduct a lot of tactical and road movements, sometimes coming under and returning fire. They can expect to function as police for crime prevention, apprehension, and investigation, and adjudication of property disputes. In the area where TF 1-77 is now deployed, a major operational issue is the protection of the minority Serb, Croat, and Roma (Gypsy) populations against random and deliberate acts of violent revenge by Albanians. They should be prepared to work with business owners to set up work rules for ethnically mixed work forces.

Tankers may also find themselves developing school registration and districting policies. Tankers will spend time guarding everything from their own company CPs, to religious structures, to schools, to medical facilities and finally, providing convoy escort for civilian vehicles as they traverse ethnically hostile areas. They should be prepared to clean up the gruesome aftermath of fatal machine gun, mortar, RPG, and grenade attacks on civilians, including children, and to treat traumatic gunshot and fragmentation wounds as well as other injuries.

As in Bosnia, there are no clear "good guys" or "bad guys." Yet unlike Bosnia, ethnic populations in Kosovo are interspersed with one another in either mixed communities of mutually hostile Albanians and Serbs, or Serb enclaves surrounded by hostile Albanian communities committed to revenge. The international police force is just now beginning to arrive in Kosovo and is a long way from providing normal police functions. The majority of a unit's time is spent doing police work.

Although ethnic tensions are commonplace throughout Bosnia, what immediately distinguishes Kosovo is the high level of violence occurring on a daily basis. Usually the violence is directed against the minority population and only occasionally against the soldiers of KFOR. In the first six weeks of peace operations in our area of operations (AO), there were at least 11 homicides and over 100 acts of armed attacks, arson, and looting. Although the violence has diminished somewhat by September (time of this article), there is little chance that it will disappear completely.

Another difference from Bosnia is the disposition of U.S. forces. Rather than being confined to a base camp with daily missions originating from and finishing in the base camp, the vast majority of maneuver units' assets are positioned and live within the assigned areas of responsibility. Day-to-day operations are conducted at the company level and lower, with the battalion task force providing guidance and resources; this is a platoon- and company-level "fight." Operating in this fashion creates a number of benefits and challenges. By living within the local area, leaders and soldiers are able to develop a thorough understanding of the ethnic makeup of the population, identify local concerns, and establish meaningful relationships with the people in the area. Instead of doing a "drive-by" patrol once or twice a day, soldiers are always present in the community and, in turn, reassure a threatened minority population.

Naturally, living within the AOR and outside of Camps Bondsteel and Montieth involves risk as well. Force protection is more difficult, and those resources dedicated to maintaining command posts, living support areas, and force protection detract from other missions, such as presence patrols and manning checkpoints. In the current fluid situation, such risks are far outweighed by the benefit of having a continuous presence. Living and operating with the local community provides the only hope of understanding the dynamics on the ground and being able to respond to disturbances in a timely fashion. It is also the long-term presence and continuity of personnel that allows the civilian population to trust the tankers.

Specific Issues Related to a Tank Battalion in Kosovo

When it comes to shock effect, mobility, and sheer intimidation, the M1A1 has no rival in peacekeeping operations. It provides the maneuver commander with a tremendous asset that allows rapid and unmatched escalation in times of crisis. The arrival of M1A1s during a firefight or a civil disturbance serves to quiet the situation rather quickly. It is vital that a tank battalion remains in the American sector of Kosovo for it provides a useful deterrent against any cross-border intervention from Serbia. Usually, it is a combination of assets: tanks at a checkpoint in combination with intensive dismounted patrols and occasional mounted patrols that provide the best solution. At the battalion task force level, we are task organized with two tank companies, one mechanized infantry company and one airborne infantry company, giving us a very flexible set of capabilities.

Implementing a tank battalion in the Kosovo environment also presents some unique challenges of its own. First of all, the sheer size and weight of the M1A1 tank makes its use in the rural Vitina Obstina (county) of Kosovo a daily challenge. The transportation infrastructure of Kosovo was already fragile before the bombing campaign, and it is now even more precarious. While trafficability in itself is not a problem for our tanks, the damage they cause works against the long-range goal of bringing Kosovo to an improved state of economic viability. Simply put, over the long run, our tanks (and Bradleys) will destroy the roads and bridges, and will worsen those fields and parking areas where we place them. Thus, the use of the tanks must be weighed against the damage they will do in every situation in which they are used.

"...The presence of heavy forces did provide a great opening movement to display to the local population that law and order had arrived."

Maneuvering in a Small Place

The crowded nature of the villages and towns of Kosovo pose a second problem in the use of armored vehicles. Narrow streets and congested traffic serve to complicate an already bleak urban situation. The overabundance of curious children and reckless drivers increases the risk of civilian casualties every time tanks are employed. The arrival of up-armored HMMWVs (M1114) in the near future should alleviate a majority of these problems.

Even though it was sometimes difficult to integrate the use of armor into the symphony of peacekeeping operations, the presence of heavy forces did provide a great opening movement to display to the local population that law and order

A soldier from TF 1-77 Armor provides security during a search of the village of Zitinje.

had arrived. An initial "thunder run" throughout the AOR served to announce that our major combat forces had entered the area and communicate our high level of resolve. Initial visibility was further enhanced by using tanks to support traffic control points (TCPs) along major MSRs, and by using tanks to conduct mounted partrols between villages. How better to protect a facility at risk than to park a 70-ton chariot of destruction next to it? We let the population know what our priorities were by placement of our tanks. This tactic was especially effective when the facility was located adjacent to a major LOC. Also, clamping down on an area of increased violence usually meant an increased presence of tanks at TCPs or on commanding terrain overlooking the area in question. The psychological effect of armor provides a distinct advantage but only if ones takes conscious measures to increase its visibility.

Coupled with the tank's psychological effect, the weapons capabilities of the M1A1 bring a lot to peacekeeping operations. From well-chosen terrain, a tank can observe and engage targets over one mile away in all weather conditions. This capability proved very useful in providing security for Serb farmers harvesting their crops and for deterring the "bad guys" from attempting to dismount and bypass secured and established KFOR checkpoints along roads. Mounted OPs utilizing the tank's thermal sight (TIS) are extremely effective in anti-mortar and other security operations. The TIS can also be used to vector friendly dismounts to suspected "bad guys" from a great distance. When addressing the subject of using tanks for security missions, technology, terrain analysis and a little discipline can go a long way in stretching your span of control.

In Kosovo, tankers must be prepared to participate not only in traditional mounted operations but also in dismounted patrols as well. The necessity to get in close with the local population and the shortage of infantrymen require that tankers dismount to patrol. This is a role for which most tankers are unprepared. Therefore, tank battalions preparing to deploy to Kosovo must train dismounted patrolling.

Instead of throwing our hands up in disgust, we chose to adapt. We quickly accepted the fact that our tankers would dismount and addressed the following shortfalls:

Organization: Faced with only 16 soldiers in the platoon (versus 30 in an infantry platoon), we created small four-man "fire teams" based on the tank crews. Presence patrols are normally conducted at the fire team or squad level. We essentially use the tank crew and section as an infantry fire team or squad, with a contingency to "mount up" when required. It also allows the other section to perform security, maintenance, and serve as a QRF if needed. Additionally, this maintains the normal command relationships essential to maintain small unit integrity.

Equipment: Once we created our fire teams, we faced the problem of how to equip them. Each tank platoon has only eight M16s, no dismounted communications, and no crew-served weapons. While only two of the crewmembers are qualified on the M16s, we accepted that it is better to have a rifle than a pistol on a patrol. We conducted familiarization firing prior to deployment in an attempt to offset the qualification problem.

In order to provide dismounted communications, we transferred some of the dismount radio kits from the scouts and mortars to the tank companies. We have not yet been fielded the M240 dismount kit. Luckily, our scouts and headquarters fielded the M240B. Instead of turning in the displaced M60s, we transferred those to the tank companies for their use.

Training: While not accustomed to conducting dismounted operations, our tankers proved they could rapidly adapt. Based on TTPs learned from the various infantry manuals (FM 7-7, 7-8, 7-7J), our small unit leaders quickly developed SOPs to deal with the missions we are likely to encounter. These missions include vehicle and personnel searches, reacting to a sniper, reacting to direct fire, entering and searching a building, and detaining suspects. Combat Lifesaver training is an absolute must; the more tankers trained to do this the better. The battalion developed SOPs on threat assessment, mission planning, pre-combat checklists, and risk reduction to aid platoons and companies in their daily operations. We also learned a great deal from having an airborne infantry company attached to the battalion task force.

Learning and applying the ROE and operating with live ammunition on a daily basis proved to be more challenging than we expected. In comparison to other deployments, the liberal ROE establishes a lower threshold for firing and using deadly force, and grants that authority to leaders at the lowest level. Leaders must apply their best judgment in a very complex environment. USKFOR has also developed a Weapons Control Status (WCS) which guides the use of ammunition and weapons. Soldiers must clear their weapons before entering a base camp, WCS GREEN. Soldiers must load a magazine whenever they leave their base camp, WCS AMBER. Any leader is entrusted to order WCS RED (round in the chamber) or WCS BLACK (round in the chamber and weapon off SAFE) if they believe their mission requires it and to open fire when necessary without permission from higher headquarters. Ensuring that leaders and soldiers understand the ROE and WCS policies is a matter of life and death.

Of course, no professional discussion of employment of armor would be complete without discussing logistics. We took great measures to get our breaching assets (tank mine plows and rollers) fully mission capable prior to deployment. The first two weeks of operations included numerous hours of mine clearing and proofing, resulting in a significant increase in our use of class IX suspension parts. Due to the added weight of the mine plow and rollers, the battalion used 350 road wheels during the first two weeks of operations in the AOR. Units should stock or pre-order the most commonly broken and replaced tank plow and roller parts in order to keep their breaching assets operational. Bottom line: if you plan on conducting mine-clearing operations, anticipate significant increases in replacement of class IX tank suspension and plow replacement parts.

In their roles as both soldiers and police, tankers of A/1-77 Armor search Albanian detainees for hidden weapons.

During the first 30 days of operations, we experienced six times the normal optempo rate in our M1A1 fleet (a half year of optempo in only one month). This also led to a noticeable increase in the use of suspension and automotive parts. The wear and tear on all vehicles, especially the M1A1s, proved to be an operational readiness rate challenge. As we became more familiar with our tactical situation, we overcame the OR rate challenge by moving units closer to anticipated trouble areas within our AO. Additionally, the time lag within the supply system was eventually reduced, allowing the mechanics to work their magic. The normal deployment lag of the class IX repair parts system, coupled with the high optempo experienced while operating in an unfamiliar environment can have severe impact on readiness if not properly anticipated.

Conclusion

In preparation for deployment to Kosovo, tank battalions should definitely continue training for the mid- to high-intensity level of conflict. Soldiers in USKFOR and TF 1-77 have been involved in firefights with both Serbians and Albanians. Combat is still a possibility and the worst thing a unit could do would to be to deploy to Kosovo under the impression that combat was unlikely. Soldiers should also be prepared to fight as infantrymen on dismounted patrols. Furthermore, they should arrive with a decent understanding of the unique historical events that have led to the ethnic hatred so widespread throughout the region; read at least one of the many books that have been recommended elsewhere. (See "Books on the Balkans," May-June '99 *ARMOR* - Ed.) In addition, negotiating skills and crowd/riot control are essential tasks that need to be trained *prior* to deployment.

The nature of the mission here has changed significantly since we arrived in late June and will be different still for follow-on battalions. The relative division of labor for us has shifted from enforcing the peace agreements, to quelling violence and establishing some kind of law and order, to performing civil affairs functions. Leaders at every level must be prepared to adapt their focus and tactics as the situation on the ground develops.

LTC Tim Reese currently is the commander of 1-77 Armor "Steel Tigers," 2nd Bde, 1st ID in Schweinfurt, Germany. Previous assignments include company XO, 1-8 Cav, 1CD at Ft. Hood, Texas; commander, D Company and HHC, 4-67 AR, 3AD in Friedberg, Germany; S3 and XO of the 1-32 AR, 2nd ID, Ft. Lewis, Wash.; and operations officer in the Operations Directorate of the U.S. European Command in Stuttgart, Germany. The 1-77 AR Steel Tigers are currently deployed to Kosovo.

MAJ Kevin W. Farrell is the operations officer for 1-77 Armor "Steel Tigers." A 1986 graduate of the U.S. Military Academy, he has attended AOB, IOAC and CGSC and holds a Ph.D. in history from Columbia University. Previous assignments include: platoon leader and XO with 3-32 AR, 1st CD at Ft. Hood, Texas, and commander of B company, 3-68 AR, 4th ID at Ft. Carson, Colorado.

CPT Matthew P. Moore is currently the S3 (Air) for the 1-77 AR "Steel Tigers." A 1992 graduate of the University of Wisconsin-Whitewater, his previous assignments include tank platoon leader, scout platoon leader, and troop XO in A Troop, 1-7 Cav, 1CD; and brigade S4 for 2nd BDE, 1st ID in Schweinfurt, Germany.

DoD Seeks Gulf War Field Sanitation Teams' Observations

The Department of Defense Office of the Special Assistant for Gulf War Illnesses is asking U.S. Army Gulf War veterans who served as field sanitation team members during the war to provide eyewitness accounting of potential environmental exposures. Investigators are seeking information from Army troops who served in Bahrain and Saudi Arabia during Operations Desert Shield and Storm and in Iraq and Kuwait during Operation Desert Storm, in a search for potential linkages between environmental exposures and the illnesses that some veterans are experiencing.

"We really don't know a lot about what the Army field sanitation teams did and what they saw during the war. Their observations could have an impact on a variety of investigations," says a member of the environmental occupational exposure division.

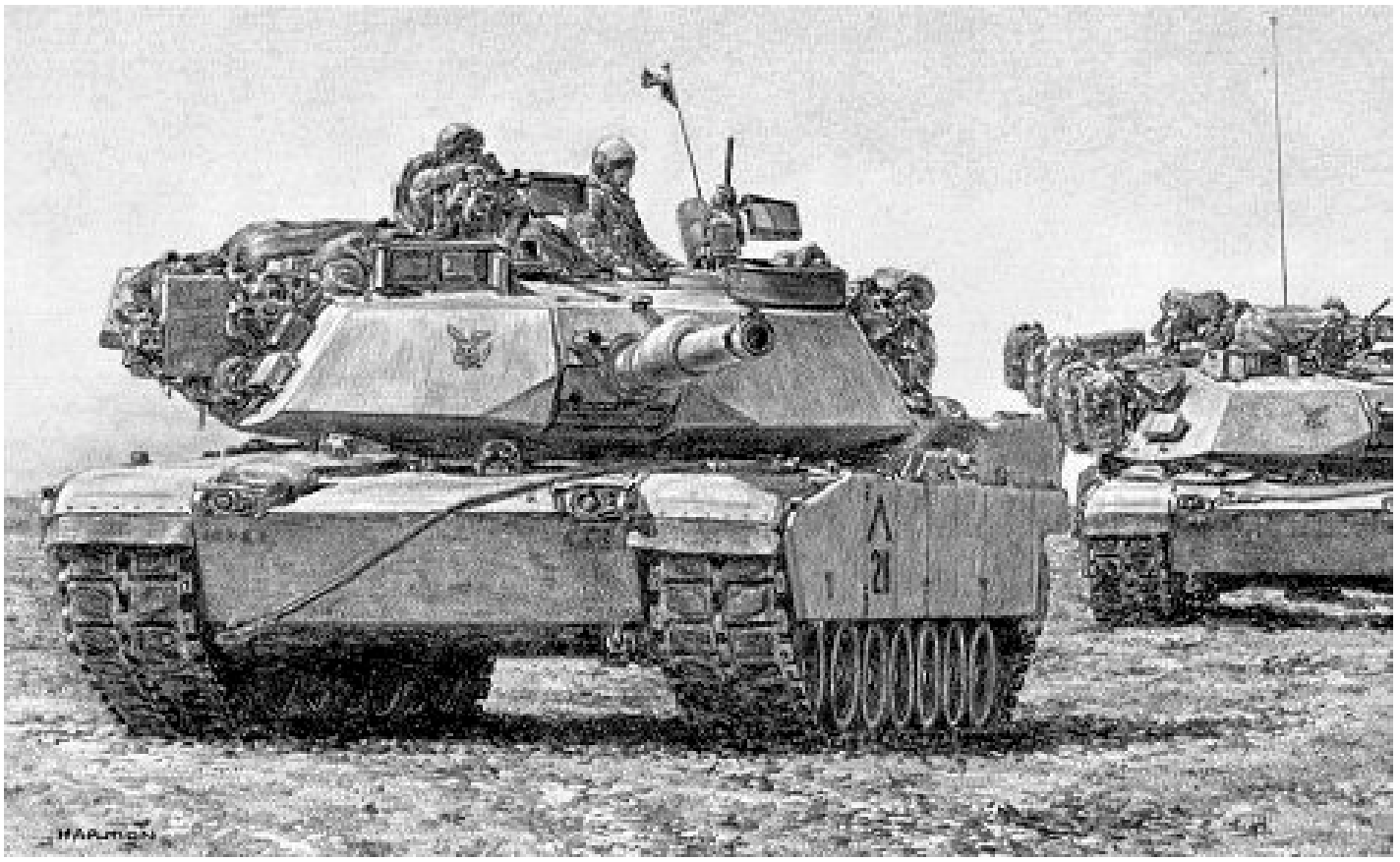
Aside from hostile fire, the principal threats to force readiness are naturally occurring diseases and illnesses caused by environmental exposures. For example, hot and cold weather injuries, insects, pesticides, unpurified water, vehicle exhausts and other potentially hazardous elements prevalent in a deployment area can be real threats to troops. The responsibility to minimize those threats rests with the unit commander.

A field sanitation team's key responsibility is to advise and assist the unit commander in reducing unit disease and non-battle injury. Ultimately, the success or failure of a military operation can rest upon effective preventive medicine measures within operational units.

Investigators in the Gulf War illnesses environmental division have had difficulty in obtaining feedback from Gulf War field sanitation personnel because this function is normally an additional duty and cannot be identified by occupational specialty codes. They request individuals call the special assistant's office toll-free number at (800) 497-6261 to report their observations. Topics under investigation include food-service sanitation, water supplies, waste disposal practices, control of insects, medical threats associated with heat and cold during the war, and team training.

This effort is part of a Department of Defense initiative to ensure that veterans' accounts of their Gulf War experiences are incorporated into investigations. To date, the office has published 14 case narratives, two environmental exposure reports, and two information papers.

The Defense Department expects to use many of the findings and lessons learned from the Gulf War to implement changes to future DoD policy and doctrine that will increase readiness and improve service members' survivability in future deployments.



CECIL'S RIDE

A Tank Platoon Leader In Desert Storm

by Captain David Norton

After an extended delay caused by a maintenance problem, we were finally ready to continue our journey. The pilot pulled the 747 to the end of the runway and stopped. Over the intercom, he said there was something he wanted us to hear.

He switched the radio on over the intercom and the main body of the 1st Battalion, 34th Armor, sat on the runway at New York's Kennedy Airport and listened as the ball dropped in Times Square. Never before, and never again, will the New Year carry such a vivid memory as that night. The men who would control the combat power of an M1A1 tank battalion sat in total silence. Thoughts of family, friends, home, and happier times mixed with fear, doubt, and anxiety about what lay ahead. As the cheers of the New Year's crowd swelled on the intercom, the engines' whine increased and the plane moved slowly forward. The 1st Battalion, 34th Armor was going to war.

After the long, long flight to Saudi Arabia, we stepped off the plane, greeted by a cool breeze and a darkened airfield. I don't know what I expected, but the emptiness just seemed to engulf us as we formed up. It was probably less than a quarter of a mile, but the walk to the point where we would meet the buses seemed much longer. When we reached the bus pick-up point, we were given bottled water and told to start drinking. When we finally boarded the buses to the warehouse that would be our home for the next two weeks, most of us were sorry we had consumed so much water. We arrived at the warehouses at around 0230, and by the time we had our bags separated, it was 0330. We couldn't get an area until around 0600, so we simply dropped our bags and laid down on the cement to get some sleep.

Rumors were the order of the day for the next week. We didn't know when we would move, where we would move, or if we would use our M1 tanks or draw M1A1s. Finally on the 10th, we learned that we would turn in our M1s and draw M1A1s sent from stocks in Europe. For the next three days, Charlie Company turned in M1 tanks, and drew and prepared M1A1 tanks for combat. The tanks we drew were not new, and our last tank was late getting on a truck due to a maintenance problem, but in spite of the problems and the rush, Charlie Company had its tanks loaded and moved north on the 14th.

I had never experienced anything similar to our deployment into the desert. The company was loaded on two buses which followed the trucks carrying our tanks. Prior to leaving the port, the company commander had called all the platoon leaders together and updated us on the situation. Intelligence was predicting the Iraqis would attack on the night of the 14th. This was based on the January 15th deadline imposed by President Bush. So, as we rolled off to face the enemy, we were riding on buses and only the platoon leaders had any ammunition. Needless to say, this is not the picture a tanker normally imagines when he thinks of going to war.

When we climbed off the buses on the morning of the 15th, we found ourselves on the flattest piece of earth I have ever seen. Most of our tanks and the M998s with the commander, first sergeant, and support personnel had arrived ahead of us. When I went to find my tank, I was in for some bad news. The driver offloading the tank was not used to driving in sand, and he turned too sharply, throwing a track. As we worked to get this problem corrected, the truck carrying my wing tank pulled in. Unbelievably, this truck had side-swiped another which was also carrying a tank. Only the front left side of each tank made contact, but this tore the number one and number two skirts off, crushed six track blocks, and dented the bustle rack and sponson box. After replacing the bad track blocks, the tank was able to move under its own power and operate normally.

We finally got all our personnel and equipment together, and word came down for us to pull through a logistics site to get fuel and ammunition. As we were moving through the logistics site, the 1SG came and found me. He told me that, due to the classified nature of the armor in the skirts of the M1A1 tank, we would have to retrace our route and try to find my wing tank's missing skirts. Four or five hours later, after searching up and down the main supply route, we received word that the skirts had been picked up by another unit. By the time we made it back to the company, it was dark, and we had no reference to guide on. Somehow, we found the company and I returned to my platoon. As a new platoon leader with only three months in the company, my first day in the desert had not exactly been a rousing success.

January 16th was a better day. We organized our tanks, secured our gear, and prepared our weapons for combat. We also drew a mine plow per platoon and one of the tanks in 1st platoon was fitted with a mine roller kit.

Nothing exciting happened until I was awakened at 0330 on the morning of the 17th. We were told to go to REDCON One and stand by. At 0400, we began to see flashes to the north as Operation Desert Shield turned into Operation Desert Storm. I remember having my gunner and driver pop their heads out of the tank and look north. As we sat and watched the explosions flash across the sky, I told my crew they were watching the start of a war.

The next six weeks were filled with fear, anxiety, and extreme boredom as we waited to see if a ground war would be necessary. The days turned to weeks, and then we learned that if a ground war came, our parent unit, the 1st Infantry

Division (Big Red One) would be the breach force for VII Corps. In preparation for a ground war, we moved to a firing range and tested all our weapon systems. After ensuring that all our systems were functioning properly, we started a series of rehearsals. Beginning at the platoon level, the rehearsals grew in size and scope. The final rehearsal was the movement of VII Corps to its attack position.

We also conducted leaders' recons into the neutral zone that separated Iraq and Saudi Arabia. These recons gave us a good feel for what we would see when we moved into the attack. I can't imagine a force ever being better equipped or better prepared than we were.

When I talk to people who weren't there, I hear how Desert Storm was such an easy war. Sometimes I even feel that way when I look back at how things turned out, but sitting in the desert waiting, I sure didn't feel that way. As we prepared for our mission, we were told that as the breach force, the Big Red One could expect 10% killed in action (KIA) and 30% wounded in action (WIA). As a tank platoon leader, that equals four or five soldiers and at least one tank lost. When you look at numbers and turn them into names and faces of men that you are responsible for, easy is not the word that comes to mind.

On the morning of 24 February, I climbed out of my sleeping bag and secured my gear, knowing that in a few hours we would begin our attack north. I went from tank to tank in the platoon to ensure each crew and vehicle was ready to go. As I checked my tanks, I found a stenciled picture of Cecil, the cigar-smoking rabbit, on the front slope of each turret. I soon learned that Cecil was the combined work of all the junior enlisted members of the platoon. Prior to our arrival in Saudi, 2nd platoon had been looked upon as a bunch of troublemakers. Cecil was a sign that this group, ranging in age from 19 to 46, had finally pulled together. I was proud to carry Cecil's image on my tank as we moved off to face the Iraqis.

With every weapon checked, every bustle rack secure, and every crewmember in his place, we waited for the order to move. Finally the company radio net came to life, "short count follows 5, 4, 3, 2, 1," as the number one rang out, 14 radios were switched off and the sound of 14 M1A1 tank engines filled the desert air. A minute later, the company commander was back on the radio and we began our move. We were the right side of the company wedge formation, and waited for 3rd platoon to move so we could form up on their flank. When the time came for us to move, I keyed the intercom and told the driver to move out. Instead of hearing the engine gain power and feeling the tank move, I heard the driver yelling, "Sir, it won't move!" There we sat as the rest of the company moved around us. I was frantic; I called for the maintenance team and the entire crew began to troubleshoot the problem. Five minutes later, we were screaming across the desert as fast as we could go, to regain our place in formation. My driver, who was tall and slender, had accidentally bumped the throttle cable when he climbed into his seat, jarring it loose. This simple and unforeseen problem was in some ways a sign of things to come.

"As I checked my tanks, I found a stenciled picture of Cecil, the cigar-smoking rabbit, on the front slope of each turret. I soon learned that Cecil was the combined work of all the junior enlisted members of the platoon...."

I can't begin to describe the feeling that ran through me as we moved north. We passed units of all types, and everyone must have been out to watch us pass. Each unit we passed greeted us with waves, cheers, and shouts of encouragement. Knowing that we had the support of our families, the American public, and the rest of our comrades in arms was a great feeling.

When we moved past the field artillery, I knew we were getting close. Shortly after passing the artillery, we stopped. We were waiting on orders to continue or to wait until the following morning. While we waited, contact reports began to come across the radio. The first report was that enemy attack helicopters were spotted moving in our direction. This report was followed by a report that the unit to our right was under chemical attack. These reports all proved to be false, but they did help to keep us alert while we waited. Finally, orders came down to continue the attack.

The battalion shifted forward and left, to get lined up on the lanes that would be cut by Task Force 5-16 Infantry and Task Force 2-34 Armor. 1-34 Armor, as a tank-pure battalion, would move through these lanes, destroy enemy second-echelon forces, block any enemy counterattack, and open the way for follow-on divisions to pass through. Once in position, we watched as truckloads of Iraqi prisoners of war moved past us to the rear. More concerned with what was going on to my front, I didn't really notice the battery of eight-inch guns that set up a couple hundred meters behind me. This quickly changed when the first volley of the prep fire exploded over our heads. I nearly had to change my pants. Watching and listening to the size and violence of the prep fire, I closed my eyes and thanked God that we were not the ones on the receiving end.

Even before the last rounds impacted, the lead elements moved forward. I have to admit that after watching the prep fire, having 60 tons of steel wrapped around me gave me a real safe feeling. On the other hand, I began to think of the men who would have to dismount and clear the battle-hardened Iraqis from their trenches. To everyone's surprise, word that the trenches were clear and the lanes were open came quickly from the breach task forces. We moved forward and as we neared the breach lanes, I was glad that we were not facing serious resistance. Dust and smoke made visibility a real problem that was compounded by the large number of vehicles in such a small area. Several vehicles nearly collided as we moved through the lanes with everyone trying to maintain position in line.

The training and rehearsals paid off as the battalion quickly moved into a diamond formation after exiting the lanes. Buoyed by the limited resistance during the breach, we moved forward with careful confidence. Leading the task force, the scout platoon and Charlie Company were first to make contact with the enemy. Hot spots began to appear in our sights at ranges in excess of 3,000 meters. Unable to positively identify what was out there, we continued to move. We stayed under very tight fire control, and no one was given permission to engage until we identified the hot spots as towed guns and wheeled support vehicles. The guns and some of the support vehicles were destroyed with main gun rounds as we continued to move forward. These guns were anti-aircraft guns, and were part of an enemy trench and bunker system. We rolled right over the top of the bunker system using machine guns to

suppress suspected enemy positions as we moved.

We didn't see any Iraqi soldiers around the equipment or in the first set of bunkers as we passed. It wasn't until we crested a small ridge at the rear of the bunker complex that we began to pick up movement in the distance. Approximately 2,000 meters to our front was a second bunker complex. Through our thermal sights we could now see soldiers moving in these distant trenches. The turret distribution valve went out on my tank at the same time that we first identified what appeared to be the main bunker in the complex ahead. No longer able to traverse my turret quickly, I told my driver to pick up a tight weave. This made it possible for us to scan our sector and enabled me to control the platoon. My three tanks had also identified the large bunker to our front, and after clearing fires, I told my gunner to hit it with a HEAT round.

The impact of the HEAT round and the Iraqi reaction were simultaneous. Before the dust had even cleared, a sea of white flags went up throughout the enemy position. The battle area that just seconds before was filled with machine-gun fire and the crash of tank main guns grew deathly quiet. We pulled into an overwatch position as the scouts, assisted by the engineers, rounded up the enemy prisoners of war. We soon learned that we had captured an Iraqi infantry brigade, including the commander and staff. Information that the Iraqis had no idea who was to their front filtered back to us on our tanks. They expected to see an Arab force comprised primarily of infantry. The sight of 58 M1A1 tanks was devastating, and they lost all their will to fight as soon as that tank main gun round impacted their bunker.

Day quickly turned to night as the last enemy prisoners were gathered up and the command bunker cleared. With the day's objectives secured and the battalion arrayed to defeat an enemy counterattack if it came, we stopped for the night. As soon as we got word to stop for the night, soldiers began to clear the area around their tanks. Knowing that tankers are not really trained or equipped to clear bunkers, and with all the unexploded artillery bomblets in the area, the battalion commander ordered everyone back on their tanks. We had come too far to get someone hurt or killed needlessly.

The adrenaline that pumped through our veins during the day began to slowly leave our systems. Soldiers began to wind down, and as soon as we established security, we rotated guards so soldiers could get some rest. I was still too wound-up to rest, so I teamed with my loader to take the first watch, allowing my gunner and driver to get some sleep. Near the end of our watch, Alpha Company, to our right, reported three Iraqi dismounts moving across their front. They were told to continue to observe but not to engage unless necessary. A short time later, my three tank reported that the dismounts had moved into his sector. Tired of manually traversing my turret, I decided to use my tank to watch the Iraqis. This left my three good tanks free to scan our sector.

Time passed slowly as I continued to track the Iraqis moving from right to left across our sector. Watching them, I noticed that one of them was carrying something over his shoulder, but I could not make out what it was. I became concerned as they moved between our scouts and us. Each time they came near a Bradley, they would stop, drop to their knees and face the Bradley. I could see well enough to know that they never pointed any type of weapon at the scouts, but I wasn't sure of what they were up to. After a minute or so, they would get back up and continue on their way. Once they crossed in front of my tank, the battalion commander, who was about 100 meters to my left rear, decided they had gone far enough. He ordered the scouts to button up, then had his gunner fire a burst of coax a safe distance in front of the Iraqis. The Iraqis dropped to the ground and didn't move. Several minutes later they got back to their feet and continued to move. This time the battalion commander told his gunner to fire a little bit closer. Once again the Iraqis dropped and didn't move for what seemed like a very long time.

I was surprised when I again heard the rattle of machine-gun fire. I called on the radio to ask the executive officer what was going on. Apparently the battalion commander's gunner had seen the Iraqis start to crawl toward the scout vehicles and awakened the commander. The commander, concerned for the safety of scouts, told his gunner to fire a burst at the Iraqis. I stayed awake all night keeping an eye on the three forms on the ground eight hundred meters to my front. Two of the men laid perfectly still, but the third one reached his hands out like he was in pain. Soon he quit moving, and as I watched through my thermal sight, his image turned from green to gray as the heat of life drained from his body.

At the first light of morning, two of the Iraqis got up and with hands raised, began to walk towards our position. They came up between my tank and my wingman. While we covered them from my tank, my wingman checked them for weapons. They said that their friend had been wounded and needed a medic. Not wanting to send a medic out alone, my commander told me to move out and secure the area. When we neared the Iraqi, I knew he was dead before we had even stopped moving. We were told to search him for documents, identification, and any personal property that his family might want returned. We were then told to bury the remains and mark the site for future recovery. This presented a situation that I don't know if anyone is ever really prepared for. This was the first time I had ever handled a dead body. The smell and the gore caused by a single 7.62mm round surprised me. No movie or picture can come close to real life. When we finished, we turned the soldier's belongings in to the battalion commander, and I was glad when we moved out of the area.

I honestly don't know how far we moved, or where we ended up. We were off the maps that we had, and the entire company was relying on the company executive officer, who had a Global Positioning System (GPS) and one large-scale map. When we stopped, we pulled into a blocking position and received word that follow-on divisions were passing forward. The Big Red One had successfully completed its mission, and would now become the corps reserve. We completed resupply and maintenance checks, and once again moved out, only this time we were following VII Corps. Even as the reserve, we maintained our battalion diamond formation and never let our guard down as we moved across the desert.

On the afternoon of the 26th, we began to receive reports that the 2nd Armored Cavalry Regiment was in contact with an armored division of the Republican Guard. Unknown to any of us, someone at an extremely high level decided to move the Big Red One forward to destroy the Tawalkana Division of the Republican Guard in a night attack. Unaware of what was going on, we were relieved and happy when we stopped to refuel just before dark. After hours of riding through wind-blown sand and dust, any rest was welcome. Not until later, when we were once again on the move, did the company commander come up on the radio and tell the platoon leaders to go green. Riding through the night with the wind in my face and the sand in my eyes, I learned of what was to come.

I don't remember being afraid when we went through the breach on the first day of the war. I was excited, nervous and anxious, but I don't remember any real fear. That changed as I listened to what the company commander had to say. Not only were we going to conduct a forward passage of lines with a unit in contact, but we would be doing it from the march and at night. When we exited the passage lanes, we would face a Republican Guard Division equipped with T72M1 tanks, dug in and waiting.

Fanning the flames of doubt and fear was a briefing the company had received prior to deployment. The briefers told us all about the T72M1, and that it was a great tank, almost as good as the M1. We were going to conduct one of the most dangerous maneuvers possible against a well-equipped and prepared enemy, and I couldn't even brief my platoon properly. The shortage of secure communications equipment made it impossible for everyone to have a secure system in their tank. So over a non-secure radio net, I became very creative in letting my platoon know what was happening.

Unbelievably, the passage of lines went smoothly. We simply used battle drills to move through the lanes and re-deploy on the far side. The fact that it went smoothly didn't make it any less exciting. We flowed through the lanes as artillery fired overhead, and the horizon was dotted with burning Iraqi combat vehicles. Soldiers who just moments before were dead tired and dragging, came to life as the adrenaline of combat once again began to flow. We used the burning vehicles to guide on, and as I passed a burning Iraqi tank, we were told that we no longer had friendly forces to the front.

The 2nd Armored Cavalry Regiment (ACR) had destroyed everything in range of their weapons, allowing us to fully deploy before we made contact. We began to pick up vehicle movement to our front as we moved in front of the 2nd ACR. The scout platoon, approximately 1000 meters to my front, was using 25mm and machine guns to recon by fire. They were firing at bunkers and unidentified hot spots. Suddenly, a SABOT round went right through the Bradley to my left front. We weren't sure who fired at the scouts, but we did know that it came from the direction of friendly forces. The scout platoon leader, not knowing where the round came from, moved his vehicle to support his damaged track. His vehicle was also engaged as it moved into position. The battalion commander quickly moved Bravo Company forward to secure the area so the medics could treat the injured. The gunner on the platoon leader's Bradley was killed, and the platoon leader was injured. Miraculously, no one on the first vehicle hit was seriously injured.

Only the soldiers involved in evacuating the wounded knew the extent of the damage, but everyone in the battalion knew we had suffered our first casualties. The battalion commander moved the remaining four scout tracks back, and Charlie Company moved out to lead the attack. With no one to our front, we began to engage targets at ranges of 3000-3500 meters. We were not going to take the chance of getting too close and giving the enemy a chance to fight back. Riding up in an open hatch, I used AN-PVS-7B night vision goggles to keep track of our place in formation. I only dropped into the turret to look through the sight to identify long-range targets. After destroying several vehicles, to include at least one tank and some armored personnel carriers, we began to see numerous trucks and trailers. I told my guys not to fire unless they identified a combat vehicle or an enemy fighting position.

We identified a large logistics site, and were soon moving through a corps-level supply area. Along with all the trucks and trailers were a large number of enemy dismounts. We also skirted a large fenced-in area that turned out to be a major ammunition holding area. Most of the dismounts we came across didn't want any part of a fight, so they simply dropped their weapons and we sent them to the rear. My platoon sergeant's wingman reported eleven dismounts 3000 meters to his front. I told him to keep an eye on them but continue to move. A few minutes later, he reported that the dismounts had taken up a position in a bomb crater. I told him to watch them, and if they did anything stupid, we would deal with them when we were within machine gun range.

The company's direction of travel put the Iraqi position directly in front of my tank. We kept them under continuous observation, and they didn't move or take any hostile action as we approached. When we were close enough and they got a good look at our tanks, they began to stand and drop their weapons. I pulled my tank up beside their position and yelled for them to leave their weapons and move west. Most of them started to move, but just at that moment my loader and I noticed two guys with machine guns trying to sneak around a berm. Knowing that we couldn't traverse fast enough, I screamed at my driver to back up, right track! The engine roared, the dust flew and a squad of drop-jawed Iraqis found themselves looking down the barrel of a 120mm smoothbore cannon. Mouths were open, hands flew up and a couple of them began to pray. I nearly came out of my turret yelling at them to drop their weapons. I can't begin to list or even remember the stream of profanity that came out of my mouth. All I remember, is that I really didn't want to kill these guys just because of a couple of idiots. After a few seconds of yelling, I suddenly stopped and calmly asked if any of them understood English. One guy who was white with fear, slowly raised his hand. I said OK, and began screaming again. I told them that if they didn't all want to die, the guys with the machine guns better drop their weapons.

Paralyzed by fear and the sight of a crazy American yelling at them from the top of a tank, it took the Iraqis a few seconds to react. Finally, one of the Iraqis near the last guy with a weapon reached over and knocked it out of his hands. Knowing that I was falling further and further behind the company, I was out of the turret and on my way down the front slope before the machine gun hit the ground. Without stopping to think, I found myself on the ground in the middle of a Republican Guard infantry squad. I realized as I collected weapons and sent the Iraqis marching west to be picked up by follow on forces, that I was armed only with a 9mm pistol. In reality, I wasn't armed at all since my pistol was still holstered, and I didn't even have a round in the chamber. Fortunately, I didn't need a weapon, and my loader dismounted to assist in destroying the captured Iraqi weapons.

We smashed the Iraqi weapons between the track and the sprocket of the tank, ensuring that they could not be used in the future. I scanned the area after remounting the tank, and saw M1A1 tanks about 500 meters away. I told my driver to kick it so we could catch up quickly. When we were close enough to identify the tanks, I realized that they belonged to Delta Company. Delta was at the rear of the task force diamond, meaning we would have to pass through the center of the task force formation to catch the company. I quickly called the company executive officer to have him notify the rest of the task force that our tank would be moving through the center of the diamond. I was worried that someone would see a lone tank out of formation and mistake us for the enemy. When I received

"Aside from my love for my wife and family, I have never experienced such strong emotions. I learned more about myself as a soldier, an officer, and a man in the hundred hours of Desert Storm than in the rest of my 35 years."

word that it was clear, we moved as fast as possible to join the company.

We attacked through the night, stopping just before sun-up. I can't say exactly when the passage of lines started, or exactly when we stopped, but I do know that the night of 26-27 February was the longest of my life. Morning held little change from days past. Fuel and ammunition came forward, allowing us to resupply and we did some very basic maintenance on our tanks. Later, with no sleep and only an MRE, we once again moved out in pursuit of the retreating Iraqi army. We moved all day and into the night. We passed through the worst tank country I have ever seen. The S3 called it "The Valley of the Boogers," some type of strip mine in the desert. As we started through it, we went to platoons in column, then companies in column, then the entire task force was in a single column. We moved along a single trail, all aware that a relatively small force with light anti-tank weapons could have stalled our move indefinitely. We didn't meet any resistance, but we did see a number of dismounted Iraqis as we continued to move. The night grew extremely dark. Due to the hazardous terrain and soldier fatigue, we were forced to stop. The commander ordered the task force to halt, establish local security, and get a few hours rest so we could move again at first light. I stopped my tank and had my platoon jockey around to provide all-around security. The road was so narrow that by the time we were in place, I could jump from tank to tank.

I knew how tired everyone was, so I told my tank commanders to get their soldiers as much sleep as possible. We went to 50% security, with two soldiers up in each turret. We heard reports of Iraqi dismounts in the holes and ravines around our position, but no one in the platoon saw any. Approximately 100 meters to our front, where the rest of the company had stopped, we heard machine-gun fire as tank crews tried to frighten Iraqis out of the area. After making my rounds, checking on soldiers and ensuring security was in place, I rolled out my bag for some much-needed sleep.

I had my bag rolled out on the blowout panels and was just getting ready to pull my boots off when the tank commander of my three tank jumped across to mine. He informed me that his gunner had spilled boiling coffee on himself. I grabbed my helmet, mask and weapon, and went to check on the injured soldier. After being briefed by the combat lifesaver, I called to get a medic to evaluate the burn. The medic vehicle was up with the rest of the company and, due to the narrow road, couldn't get to us. Because of dismounts in the area, we didn't want the medic to cross the 100 meters to our position on foot. I told the commander to have the forward platoons hold their fire, so I could come get the medic. I started up the road to get the medic, and the injured soldier's tank commander joined me because he didn't want me to go alone. As it turned out, the burn wasn't serious, and the soldier was able to continue to perform his duties. After returning the medic to his vehicle, I climbed back on my tank.

Before going to sleep, I thanked God that we had come so far without serious injury in the platoon. I also thanked Him for the way Second Platoon had come together and I drifted off to sleep. A short time later, I was awakened by the explosion of two mortar rounds near our tanks, but exhausted by the past three days, I asked if anyone was injured, rolled over, and went back to sleep.

We moved out at 0600, amid rumors of a pending cease-fire. Charlie Company moved out ahead of the task force, taking the shortest possible route to block the route of Iraqi forces retreating north. The company executive officer (XO), who was leading the company, used a GPS to navigate our way out of the "Valley of the Boogers." Topping a small rise in the road, the XO reported an enemy tank to his front. A SABOT round at 500 meters set the enemy tank ablaze, and we continued to move. A few minutes later, as my platoon passed the burning tank, the XO reported more enemy vehicles to his front. These vehicles were facing in the opposite direction, and appeared to be unmanned. The commander told the XO to continue to move and not engage the enemy vehicles. We would use thermite grenades to destroy the vehicles and save our main gun rounds. I asked the commander to allow my platoon, the trail platoon, to destroy the vehicles. The road was so narrow that I was worried about my tanks passing so close to burning vehicles as their ammunition exploded.

We destroyed three tanks, one ZSU 23-4, and some APCs prior to battalion telling us to leave the rest of the vehicles for follow-on forces. We picked up the pace of our move as word came down that a cease-fire would go into effect at 0800. We moved through the fog and haze, bypassing several enemy vehicles and dismounted soldiers to establish a blocking position facing south just prior to 0800. Sitting in the desert under a sky darkened by the smoke of oil well fires, we all slumped a little and felt the fatigue wash over us as 0800 passed, and the war came to an end.

Exact dates, times, and places on a map hold little importance in my memories of Desert Storm. The things that stand out are the people and the emotion that can never be fully explained by those who fought, or fully understood by those who didn't. I remember the immense pride that swelled within me when my loader pressed PLAY on his Walkman and I heard Lee Greenwood's *God Bless the USA* as we moved forward into the breach. I remember the loneliness and pain I felt writing letters home to my wife, kids, and family, knowing that we would soon be fighting. The fear of the unknown...was I ready? Was there anything more I could do to prepare myself or my platoon? This was the self-doubt that soldiers at all levels must feel prior to combat. Aside from my love for my wife and family, I have never experienced such strong emotions. I learned more about myself as a soldier, an officer, and a man in the hundred hours of Desert Storm than in the rest of my 35 years.

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Designing the Future Infantry Vehicle

Do We Want a Tank with Dismounts?
Or a Close Assault Vehicle for Mounted Infantry?

by Stanley C. Crist

What is the optimum configuration for the future infantry vehicle? The assumption expressed in most essays on the subject is that it will be an evolution of the Bradley Fighting Vehicle, but is that really the best choice? Or might there be other options that would be better suited to the challenges that lie ahead? Answering those questions will require an examination of the alternatives, from existing hardware to theoretical concepts.

The Armored Personnel Carrier

Although tanks were invented and employed by some of the combatants in World War I, armored transport for foot soldiers was not made reality until the eve of the Second World War. At that time, the German Wehrmacht and the U.S. Army simultaneously developed the concept of mechanized infantry, and created the armored personnel carrier (APC) to equip their high-mobility units.[1] Like its German counterpart, the M3 "half-track" was a thinly-armored, open-topped vehicle that provided some protection from small arms fire and shrapnel, but left the infantry squad vulnerable to air-bursts of artillery shells.

Because of the limitations inherent to its design, doctrine intended that the APC would be employed as a "battle taxi"; that is, it would give the troops a degree of protection en route to the objective, but the infantry would dismount to make the attack while the vehicle remained at a safe distance. In actual use, half-tracks were often driven right onto the objective, thereby enabling the onboard infantrymen to fight while mounted, firing their individual weapons over the sides of the squad compartment.[2] When the half-track was employed in this manner, the vehicle's armament — typically a single, pintle-mounted, M2 .50-caliber heavy machine gun (HMG) — added greatly to the firepower of the squad.

After World War II, there was a succession of full-tracked, armored personnel carriers — the M39, M44, M75, and M59 — none of which satisfactorily met Army requirements.[3] Finally, in 1960, the M113 APC arrived on the scene. With a hull made of a special aluminum alloy, the "one-one-three" was light enough for parachute delivery, buoyant enough to swim without preparation, yet tough enough to protect the occupants from artillery fragments and rifle bullets.[4] Also, the troops inside are shielded from artillery air-bursts (a significant weakness of the WWII half-track) when the cargo hatch is shut on the fully-enclosed design, but they are unable to use their weapons until after they exit the vehicle. This is in keeping with the "battle taxi" concept, but — once again — wartime practice overturned peacetime doctrine when the M113 was used in the Vietnam War.

In that conflict, it did not take long for mechanized soldiers to realize that the APC was quite usable for mounted warfare; with the cargo hatch locked open, as many as four men can stand up in the opening to fire their rifles during a mounted attack. Although they were then partially exposed to enemy fire, the risk proved to be well worth the benefits, and the idea was soon taken a step further. By installing a pintle-mounted, 7.62mm machine gun on each side of the cargo hatch, the fightability of the vehicle was essentially triple that of an issue M113, which only had the standard APC armament of a single .50-caliber HMG. With armor shields added to each of the three machine guns, the gunners were fairly well protected from small arms fire, and the configuration became known as the armored cavalry assault vehicle (ACAV).[5]

While the ACAV performed capably in Southeast Asia, there was doubt in the minds of many planners that it would have been adequate for the high-intensity conflict that could have resulted if the Cold War had turned hot. Clearly, the ACAV conclusively proved the validity and usefulness of mounted combat by the infantry,[6] but it was also apparent that the exposed gunners would be extremely vulnerable to the nuclear, biological, or chemical (NBC) hazards that might have been encountered in a war against Warsaw Pact forces. After the Vietnam War, a few combat-savvy veterans continued to employ the "A-kit" shield and hatch armor[7] made for the commander's cupola, but the "B-kit" shields for the side-mounted M60 machine guns disappeared from use. In contrast, the Israeli Defense Force (IDF) apparently found the ACAV concept worthwhile, and adopted a variation of it that they continue to use to this day. Perhaps because their primary opponents are light infantry, IDF armored personnel carriers are typically armed with three 7.62mm medium machine guns rather than the .50-caliber and two "seven-six-deuces" of the ACAV. Oddly, the Israelis rejected the use of ACAV-type gun shields until about 1996, when gun shields of a more sophisticated design were seen on some IDF M113s operating in Lebanon.[8]

The M113's minimal level of armor protection is easily defeated not only by the shaped-charge projectiles fired from recoilless rifles and hand-held antiarmor weapons like the RPG-7, but also by the bullets from 12.7mm and 14.5mm heavy machine guns.[9] This happened numerous times in Vietnam, and to Israeli mechanized units in the Middle East. The IDF has attempted to cope with this by attaching additional armor to many of their M113s, but this effort has only reduced the severity of the problem, not eliminated it.[10] The latest version of the APC to be adopted by the U.S. Army — the M113A3 — is also capable of accepting add-on armor, but such armor has yet to be fielded.

The Infantry Fighting Vehicle

As early as 1963, U.S. Army leaders recognized the limitations of the M113, and initiated a quest for a replacement.[11] Nearly two decades later, after some false starts, budgetary difficulties, and program delays, the M2 Bradley infantry fighting vehicle (IFV) was born. In its original incarnation, the Bradley offered four ma-

jor improvements over the armored personnel carrier: increased armor protection, superior cross-country mobility, greater vehicle firepower, and *the capability for mounted combat by all of the onboard infantrymen*.[12] This last characteristic was fundamental to the IFV concept as developed by Russia, Germany, and the United States, for it allowed the infantrymen in the M2 (and M2A1) to fight from within the vehicle, under armor.

Although the M2 was made primarily with aluminum alloy of the same type and similar thickness as that of the M113, effectiveness of the armor was increased by the shapes and angles incorporated into the construction, and side skirts of thin steel functioned as spaced armor, providing some additional resistance to penetration. To improve the survivability of the track commander (TC), the open cupola of the APC was discarded in favor of a fully-enclosed, armored turret. Vehicle firepower was made several orders of magnitude greater, as the solitary .50-caliber machine gun of the M113 was superseded by a high-velocity 25mm cannon, a coaxial 7.62mm machine gun, a twin-tube TOW missile launcher, and six 5.56mm firing port weapons (FPWs).[13]

In a move that is both curious and interesting, the Army later abandoned the concept of fighting mounted when it added, on the newer M2A2 and M3A2 vehicles, steel applique armor on the turret and hull, with extended side skirts that block the firing ports on the left and right sides.[14] Apparently, the increased level of protection was deemed more important than the infantryman's ability to fight from within the vehicle. This course of action seems to actually reduce survivability, particularly in the close terrain of jungles, forests, and cities, because the mounted soldiers can no longer neutralize any RPG gunners who attempt to ambush the vehicle from the sides.

In a further note of irony, the steel/aluminum armor combination provided only a negligible increase in protection against the RPG-7, which is able to penetrate an RHA (rolled homogeneous armor) equivalent of up to 600mm[15] — more than 10 times the RHA equivalent of M2A2 armor! This vulnerability was tragically illustrated on 27 February 1991, when a Bradley of 4-66 Armor was struck by an Iraqi RPG round that punched through the crew compartment, instantly killing the driver, severely wounding the TC, and inflicting minor wounds on the gunner.[16] Unquestionably, the armor does offer enhanced protection from heavy machine gun and autocannon projectiles, but, even so, there were reports from Operation Desert Storm of Bradleys being "holed" by HMG fire.[17]

Since the armor configuration of the M2A2 mandates that the infantry team must dismount in order to engage the enemy, it certainly seems that we have come full circle — from battle taxi (the M113), to infantry fighting vehicle (the M2/M2A1), and back to battle taxi (the M2A2). Actually, it might be more accurate to label the M2A2 a light tank — one that carries a small number of infantry, but a light tank nevertheless. As such, it is inferior to the M113 (especially the ACAV version) as a vehicle for mounted combat by the infantry, and it is grossly inferior to the M1 Abrams for tank combat.

The Combined Arms Tank

Although it definitely has a more potent weapon system than the standard APC, the M2A2 has neither the armament nor the armor to allow it to go "head-to-head" with enemy main battle tanks (MBTs). The notion that IFVs only need sufficient gun and armor to do battle with enemy infantry vehicles seems to ignore the lessons of history. As long as they have enough ammunition and time available, tankers have a strong tendency to shoot anything that can be considered a legitimate target, and that certainly includes IFVs. During Desert Storm, for example, 1st Armored Division tankers readily destroyed the many Iraqi BMPs that came into their sights,[18] and there was at least one Bradley gunner who was forced by circumstances to use his 25mm gun to engage a T-55 tank.[19]

Rather than continuing to field an infantry-carrying light tank with thin armor and a small-caliber gun, wouldn't it make more sense to produce an infantry vehicle that has the survivability and combat power of a main battle tank? After all, the time is long past when it was acceptable to consider the infantry as expendable "cannon fodder"; the emphasis on keeping friendly casualties to an absolute minimum, as seen in operations conducted since 1990, clearly calls for vast improvements in IFV protection levels. Also, a large-caliber, high-velocity main gun would enable more effective and versatile supporting fires from the vehicle. The trend to increasing the bore size of the main armament of the infantry vehicle is paralleling that of the tank: the M113 has a .50-caliber HMG; the German Marder is armed with a 20mm autocannon; the Bradley has a 25mm weapon; the British Warrior has a 30mm cannon; and Sweden has adopted the CV90, which is equipped with a 40mm gun. It's a safe bet that calibers will continue to increase in the future, so why not skip the intermediate steps and go directly to the 120mm tank gun?

The combined arms tank (CAT)[20] is the logical successor to the Bradley series. Like the M2A2, the CAT would carry an infantry fire team, but with the combat capability and survivability of the Abrams main battle tank. So far, the closest thing to a CAT in the real world is the Israeli Merkava, an MBT that has sufficient internal space to transport a few foot soldiers, and a rear hatch that makes ingress/egress practical when under fire. While the Merkava was not designed expressly to be an infantry-carrying tank, it has been pressed into service in that role during some of the fiercest battles in Lebanon.[21] Some Merkavas have taken multiple hits from antiarmor weapons, but because the shaped charge warheads were unable to penetrate to the interior of the vehicles, in most cases the tank crews (and any onboard infantrymen) were uninjured and able to complete their assigned tasks. In one instance, a Merkava Mk3 survived an astounding 20 hits from antitank guided missiles (ATGMs), with the sole casualty being one crewman who had his head outside the turret![22] It takes little imagination to envision what would happen to a Bradley — and the soldiers inside — if struck by even half that many ATGMs.

Adoption of a CAT would have other advantages beyond greatly magnifying combat power and survivability. Logistics would be simplified and, since there would be only one vehicle type for both Infantry and Armor units, there would no longer need to be separate stocks of parts and tools for IFVs and MBTs. Also, training of crewmen and maintenance personnel would be simplified. because there would be only one set of vehicle operation and maintenance procedures.

The combined arms tank offers a degree of operational flexibility that cannot be matched by either the infantry fighting vehicle or the main battle tank. Unlike the Bradley, the CAT can operate without tank support, because it is a tank. Unlike the Abrams, the CAT can operate without accompanying infantry vehicles, because it has its own onboard infantry. The combined arms tank unites the best characteristics of the IFV and the MBT, and the result is a multi-role

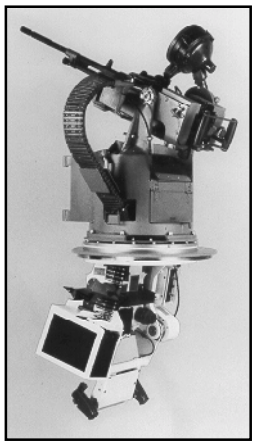
combat vehicle suitable for employment across the operational spectrum.

The Close Assault Vehicle

Unfortunately, the CAT also shares two potentially significant disadvantages with the M2A2: the infantrymen would have minimal spatial awareness while mounted, and no means to engage the enemy until after dismounting. The IDF, which has extensive and prolonged experience with the use of mechanized forces in military operations in urban terrain (MOUT), has addressed these issues with the creation of the Achsarit infantry vehicle.[23] The Achsarit — which can carry ten infantrymen — is created by removing the turret from an obsolete T-55 tank, replacing the old engine with a new, more compact diesel that is offset to the left in the engine compartment, installing a rear access hatch and passageway to the right of the engine, and adding 14 tons of advanced composite armor to the hull. Armed with three 7.62mm machine guns, the Achsarit is a "super-ACAV" that allows the infantrymen to have excellent awareness of the surrounding terrain, enables them to fight while mounted, and gives them near-invulnerability to antiarmor weapons!

The Russians, too, have developed a heavily-armored infantry vehicle (the BTR-T)[24] in response to the devastating losses of conventional IFVs during the savage fighting in Chechnya. Also built on a T-55 chassis, the BTR-T differs from the Achsarit primarily in armament, troop capacity, and entry/exit hatches for the infantry. Whereas the Israelis have in essence made a heavy ACAV, the Russians have basically created a heavy IFV; the BTR-T is armed with a 30mm cannon that is externally-mounted on a low-profile, unmanned turret, augmented with an ATGM. Troop capacity is only five men, and the soldiers must enter and leave the vehicle through roof hatches, as the engine and transmission are unchanged from the original.

The Achsarit and BTR-T are low-budget approaches to developing a close assault vehicle (CAV) for mechanized infantry, and the same methodology could undoubtedly be followed to make a similar combat vehicle from M1 tank hulls.[25] However, it would be far more desirable to develop a state-of-the-art CAV, with a full-width exit ramp, forward-located engine, maximum armor protection, and optimal armament. As for armament, the auto-cannons currently in vogue do not seem appropriate for infantry vehicles, in part because the excessive amount of hull space required by the turret system reduces the number of infantrymen that can be carried, but also because use of a large, two-man turret would interfere with any viable weapon stations for the mounted infantrymen.



Top, overhead weapon station (OWS) assemblies mount 7.62mm machine guns above day/night sight unit and internal controls. Flexible chute feeds ammunition from 230-round box. Above, an internal view of an M113 with overhead weapon stations installed. Single gun unit is at right. OWS machine guns can be also fired from the open hatch, as shown in top photo. (Photos: Rafael, Israel)

There should be a minimum of four weapon stations, arranged so that each gunner would have primary responsibility for a separate sector of observation and fire. Fields of fire should be overlapping, though, so that at least two weapons could be brought to bear on targets in any one sector; this would minimize dead spots, and provide some redundancy in case a gun was put out of action.

Armament should be the 25mm objective crew served weapon (OCSW) — if and when it is fielded — or 7.62mm or larger machine guns (5.56mm lacks sufficient range and penetration capability[26]). Such weapons would be far more effective for mounted combat than either the standard M16A2 rifle or the M231 FPW, which have extremely limited (30-round) magazine capacities, and have very low hit probabilities when fired from a moving vehicle. There are at least three usable methods for installing the weapons: on a pintle mount (with or without a gun shield), as on Vietnam ACAVs and IDF M113s; on an overhead weapon station (OWS),[27] another Israeli development; or on a cupola, similar to that on the Abrams MBT. Pintle mounts would be the easiest to implement, would permit the greatest number of gun positions, and would allow maximum utilization of the vehicle's internal volume; a disadvantage of this method is that the gunners would be exposed to small arms fire, shrapnel, and the NBC threat when manning their weapons.

Weapons mounted on the overhead weapon station can be operated from either within the vehicle, or by the gunner standing up in the open hatch, thereby giving him the choice of having maximum protection or maximum spatial awareness; one drawback to this system is that the OWS mechanism and the gunner's seat occupy a considerable volume, thereby significantly limiting troop capacity. Use of the M1-style cupola would provide comparable protection and about the same number of weapon stations as

Still in development, the Objective Crew-Served Weapon, at right, is touted as the successor to the machine gun. Its 25mm ammunition is seen above in comparison to 40mm and .50 caliber ammo. The ammunition family would include air-burst fragmentation, armor-piercing, and training rounds. (Photo: GD-Primex)

the OWS, but might take up less internal space, and allow a full infantry squad to be carried; also, the cupola would offer a greater degree of traverse than the OWS, especially when operating with open hatches.

All of these options for mounting the vehicle armament allow mounted combat by the infantrymen, with the most significant difference between them being the number of soldiers that can transported when the weapon systems are installed. A decision as to the appropriate size for the infantry team[28] would, by default, indicate which weapon mounting method to select. Regardless of the type of weapon and mount that might be chosen, a close assault vehicle would enable the infantry to fight effectively while mounted, with survivability far exceeding that of conventional infantry vehicles.

Conclusion

Pending the creation of either incredibly advanced lightweight armor, or extremely effective active defense mechanisms, it would seem difficult to justify the continued development of lightly armored, infantry combat vehicles. A downsized Army cannot afford the losses of personnel and equipment that have historically occurred when light armor has been employed in high-intensity battles. Whether it's the M113 in Vietnam and Lebanon, the BMD in Afghanistan, the Malaysian Condor in Somalia, or the BMP in Chechnya, engagements with determined opponents who were well supplied with antiarmor weapons have too often resulted in disastrous losses of men and materiel, regardless of whether the battle was won or lost.

There is no reason to think that the M2A2 Bradley would fare any better, especially in the urban combat scenario that so many individuals think is likely.[29] If what is really desired is a tank that carries a few dismounts, don't make the future infantry vehicle another undergunned, underarmored, light tank — make it a lethal, survivable, combined arms tank. On the other hand, if what is wanted is a vehicle that permits and promotes effective mounted combat by the infantry, then develop a close assault vehicle that has the weapons and armor that will enable the infantrymen of the future to win the mounted fight, and live.

Notes

[1]Steven J. Zaloga and LTC James W. Loop, *Modern American Armor* (London: Arms and Armour Press, 1982), p. 48.

[2]Ibid., p. 48.

[3]Ibid., pp. 48-50.

[4]U.S. Army TACOM, *M113 World Class Systems Data Book,* 1995, p. 2.

[5]Zaloga and Loop, p. 52.

[6]COL R. R. Battreall, "The Origin of the ACAV," *ARMOR,* Nov-Dec 1998, p. 3.

[7]SFC Gregory T. Dean, "The ACAV Lives...in Bosnia," *ARMOR,* Mar-Apr 1999, p. 50.

[8]LTC David Eshel, "Armored Anti-Guerrilla Combat In South Lebanon," *ARMOR,* Jul-Aug 1997, p. 29.

[9]TACOM *M113 Data Book,* Appendix C, p. 5.

[10]Eshel, p. 29.

[11]Zaloga and Loop, p. 56.

[12]Ibid., p. 58.

[13]Ibid., p. 58.

[14]United Defense L.P., *Bradley A2 — M2/M3 Fighting Vehicles* (brochure).

[15]Lester W. Grau, "The RPG-7 on the Battlefields of Today and Tomorrow," *INFANTRY,* May-Aug 1998, p. 6.

[16]Tom Carhart, *Iron Soldiers* (New York: Pocket Books, 1994), p. 301.

[17]CPT Jonathan J. Negin, "DESERT STORM — The First Firefight," *ARMOR,* Mar-Apr 1994, p. 8.

[18]Carhart, pp. 243, 265.

[19]Ibid., p. 224.

[20]CPT Harold L. Spurgeon and Stanley C. Crist, "The Tank Is Dead — Long Live The Tank!" *ARMOR,* Mar-Apr 1987, pp. 45-46.

[21]*The Armored Fist* (Alexandria, Va.: Time-Life Books, 1990), p. 88.

[22]Eshel, p. 29.

[23]Ibid., p. 29.

[24]Jim Warford, "The Resurrection of Russian Armor: Surprises from Siberia," *ARMOR,* Sep-Oct 1998, pp. 30-32.

[25]Gregory A. Pickell, "Designing the Next Infantry Fighting Vehicle," *INFANTRY,* Jul-Aug 1996, pp. 22-32.

[26]MAJ James B. Baldwin, "Machineguns in the Infantry," *INFANTRY,* Nov-Dec 1995, pp. 7-8.

[27]Rafael, *OWS — Overhead Weapon Station* (brochure).

[28]The published consensus among currently-serving mech infantrymen is that the Bradley's 4-6 man dismount section is inadequate, and that the future infantry vehicle should be built to carry a full-sized, 9-11 man squad. For a prime example, read the letter by MAJ Mark D. Winstead, *ARMOR,* May-Jun 1999, pp. 3-4.

[29]MG George H. Harmeyer, "Armor and MOUT," *ARMOR,* May-Jun 1999, pp. 5-6.

Stanley Crist served as a tank commander, tank platoon sergeant, training NCO, and scout section leader in the 3rd Battalion, 185th Armor. He has published numerous articles about armored fighting vehicle design in *ARMOR* and other defense-related publications. He currently works as a consultant and writer, specializing in the testing and evaluation of small arms and ammunition.

A Lieutenant's Plea to Company Commanders

Mentoring Can Focus Initiative on the Bigger Picture

by First Lieutenant J.P. Clark

SITUATION:

Imagine yourself as a company team commander attacking through the Central Corridor of the NTC. Your mission is to set a support by fire (SBF) as part of a task force breach. The battle heats up and artillery comes down all around your position. Auto-masking is in effect, and you have difficulty understanding even the simplest transmission. Platoons are bounding forward and backward performing survivability drills. Frantic reports come in from the other teams and the engineers. Everybody is stepping on each other over the net. You strain to understand what is being said on either net. As the platoons make their moves you lose situational awareness of your own company.

Meanwhile, your junior platoon leader bounds his platoon forward to avoid artillery. He sees a small depression leading towards the obstacle which looks inviting. As far as he can tell, it provides a good covered and concealed route for his mine plow. He tries several times to ask for permission to send his wingman forward to breach, but he cannot get through to you. Should he send the plow through or not?

It is an impossible question; the short vignette does not provide enough information. Has your task and purpose changed since LD? Has the task force's task and purpose changed? Where are the other teams in relation to you or the point of penetration, and what is their current combat power? Where are the engineers? Have they moved forward yet? Are their MICLICs still alive? Even if your company is operating in a vacuum, are the conditions set for his platoon to move forward? There is not enough information to decide. Most likely, the lieutenant will not have that information when he makes his decision either, but he *will* make a decision. So, then, what information is he basing his decision on? What factors is he considering? Have you given him the tools to make the right decision?

The majority of armor company/teams operate as three separate platoons being controlled by the company commander, rather than operating as a cohesive company. This system quickly breaks down under the friction and fog of war that exists on the modern battlefield. The junior platoon leader is about to make a decision that will have a dramatic, if not decisive, effect on the entire battle, and the company commander will have no input other than his instructions during the OPORD and any FRAGOs. Never forget, Murphy is an honorary colonel of the 11th ACR and also probably has a commission in the army of our next real-world adversary.

Platoon leaders lack the training to prepare themselves before battle and then, once contact has been made, lack the training to make the correct decisions during the battle. Lieutenants do not lack aggressiveness; that is not the problem. The problem is the lack of mentorship from company commmanders to their platoon leaders. Your platoon leader thinks that initiative is good. If he sends his plow forward, he is taking initiative, *ergo* send the plow forward. He will do a quick assessment of whether it is practical on the *platoon* level and if the answer is yes, he will execute. The possible result is that a good portion of your combat power is on the other side of the obstacle. Are you willing to write off so much of your company's combat power and not support that platoon? If your whole company is committed, is the battalion commander ready to write off so much of his combat power?

Depending on how the battle turns out, that lieutenant may have won or lost the battle. But did he make the decision in a conscious effort to support the team, task force, and brigade missions, or did he take initiative for the sake of initiative? Each company should have five officers thinking like company commanders. That goal requires company commanders to be aggressive in training their lieutenants long before they reach a CTC.

My first suggestion: Decide whether you want platoon leaders or platoon sergeants on the company net. Each company I served in, or observed, brings up the same AAR comment: "We need to cross-talk better." Most armor teams seem to have a problem with the most basic level of cross-talk, platoons keeping each other informed about their position and their ability to mutually support each other. That is only the beginning of what is needed. Each platoon also needs to have at least one leader, if not two, on the net who thoroughly understands the commander's thought processes. They need to understand not just his plan but also the various courses of action; no plan survives contact with the enemy. Can a platoon sergeant — who did not even attend the company OPORD in most instances — possess this level of understanding of the commander's mind? The majority of platoon leaders lack this understanding and they *were* at the OPORD. The conventional wisdom, that the platoon sergeants do the majority of reporting and talking, is based on two fallacies.

The first is that most of the information that needs to go over the company net is the mere reporting of location, combat power, and enemy actions. This mindset is a big part of our problem. If the platoons send up simple SITREPs and little or nothing else, which happens in the majority of companies, then the decision cycle is incredibly simple, wasteful of subordinate talents, and breaks down extremely quickly. The platoons provide raw data, the commander processes it and provides instructions. As soon as communications, maintenance, environmental problems, or even death, prevent the commander from receiving that data and sending back his orders, the company fragments. The XO or a platoon leader will attempt to take the commander's place as the "big brain" who commands all of the "drone tanks," but that will work no better than it did for the commander. My proof is the perennial AAR comment, "We need to improve our cross-talk." Cross-talk is impossible in a company where the platoons are only sending up raw information. But it is a natural by-product if the platoon leadership is actively thinking not only on their level but also on the company level as well.

The decision cycle should be a report of information coupled with a recommendation of a course of action that supports the company, and even task force or higher

mission and intent. That requires the company commander to trust the subordinate making the recommendation, a trust that is not mere blind faith because the company commander and his subordinates have discussed his intent for this mission, not just in the OPORD, but throughout his entire planning process, and before they even left garrison. Certainly, I would not trust that a subordinate knew my intent well enough if he had not even been present at the OPORD. So, why do we do this throughout the Army so regularly?

The second fallacy is that the platoon leader needs to be fighting his platoon and does not have the time to be on the company net. It is true that platoon leaders need to fight their platoons, but a properly trained platoon will be able to execute off of a very brief transmission. Listen to one of your platoon nets sometime; your average lieutenant breaks squelch much too often and for much too long. Within a few months, this lieutenant will be an executive officer and within a few years, a company commander. If the platoon and company nets are too much, how then will they cope with company and task force nets?

Here is my vision of a highly functioning company: A platoon makes contact with an unexpected enemy that — due to either location, composition, or some other factor — has a major impact on the task force plan. The platoon leader gives a quick order to the platoon, some combination of action/contact drill and fire command. At the same time, the platoon sergeant gives a contact report over the company net. If the company commander and executive officer are outside of visual contact, the platoon leader in contact, or another platoon leader in visual range, quickly realize the importance of the contact to higher and make a recommendation to the commander on a proper course of action. Due to the earlier training of his subordinates, the commander trusts they can identify what is important to him and make a good recommendation that matches his intent.

I have several recommendations on what the commander needs to do to increase the lethality of his platoons and company. The bulk of this effort must happen in garrison; the commander does not have time to train his lieutenants in the field.

First, train your platoon leaders in the Troop Leading Procedures (TLPs). The proper execution of TLPs is the platoon leader's primary job and is taught poorly (if at all). Too many platoon leaders simply regurgitate the company OPORD to their platoons; they have not been taught to think at the proper level.

Begin by sitting down with your lieutenants and an old task force OPORD and show them how you do your company-level Intelligence Preparation of the Battlefield (IPB). Go through the whole process, have them make a SITTEMP and then discuss the significance of your conclusions from the IPB. Often, what little IPB is done at the platoon-level is given to the platoon as, "when we cross PL Dumb we will be in artillery range, when we cross PL Dumber we will be in AT-5 range, when we cross…" That does little good and indicates your platoon leader lacks a clear mental picture of what the enemy will look like on the ground. Point to the spot on the map where all of the red circles that depict maximum engagement ranges intersect. Explain to your lieutenants that it is a very bad spot of ground. You might have to go through there, but get them thinking about it. Explain that there is a good chance their platoon (or company or task force) mission will very likely change once you reach that point. Then train them to look beyond the information they receive in paragraph one and on the SITTEMP and to look at other possible crisis points. If you show your lieutenants how you identify possible crisis points at the company-level, they will be able to do it for their platoons. If this is not done on their level, your lieutenants are caught fighting the plan instead of the enemy.

At AOBC, I received a course on IPB from an E-6 with no platoon sergeant time. Later, before getting my platoon, I served as a BICC during an NTC rotation. In that capacity, I realized that what I had learned at Ft. Knox was not only incomplete, some of it was dead wrong!!! Commanders, unless you train your platoon leaders in IPB, that staff sergeant will be their only instructor.

After conducting a proper IPB and identifying potential crisis points, your platoon leaders will naturally start coming up with a mental picture of what that will look like on the ground and possible reactions. This is the difference between "Draw your sabers and charge over the hill" initiative and cunning, deadly, battle-winning initiative.

Once you have reached this point, your lieutenants are primed and ready. Increase their efficiency by taking every opportunity to instruct them in company-level tactics. The platoon tactics will be improved automatically. Use sand tables, personal experiences, staff rides, tactical vignettes, and even some of the better computer games out on the market right now as a basis for discussion. The important thing is that you concentrate on conveying what you will be thinking as the battle progresses. What conditions do you want set before a breach? What concerns will you have during an attack? A movement to contact? A defense? What factors will make the difference between one course of action being chosen over a different one in a certain situation? What do you perceive as your strengths and weaknesses versus a particular enemy? How do you take advantage of those? The important thing is not to give your lieutenants a set reaction for every possible contingency but instead to give them a better idea of your thought processes. The benefits of that are obvious: better execution of your intent with simpler instructions, better recommendations, decisions that better support your intent when out of communications, and finally lieutenants who can better reason through tactical problems because they receive the benefit of your prior experiences. Most importantly, your company leadership has a much stronger common core of thought. Perhaps you have just assumed command; maybe all three platoon leaders were trained (or not trained) by your predecessor. Do you want to roll to the field, content that he trained them the way you would like?

When you get to the field, take advantage of your highly trained lieutenants and reinforce their skills. Next time you are the task force reserve, have all your lieutenants come up on the company and task force nets. As you track the battle, talk to them on your net about the significance of reports from other teams. Tell them how that might change your mission. Tell them what you would be doing if you were the commander for that other team. That gives even better, more immediate training on battle tracking as well as improving situational awareness. The platoon sergeant will always be able to come up on the company net to reach his platoon leader if there is a problem. If you do not do this, each platoon leader will institute his personal rest plan, drooling on his gunner's head while his head rests on the GPSE. To reinforce their skills, inspect their graphics after the battle to ensure they were tracking the battle.

Finally, attempt to give your lieutenants as complete a picture as you have. If you can, integrate them into your planning and wargaming. That way they understand why you may have chosen one course of action over the other and what assumptions you made in making those decisions. If those assumptions are incor-

Continued on Page 47

The Urban Field Trains

Taking the Field Trains Out of the Field

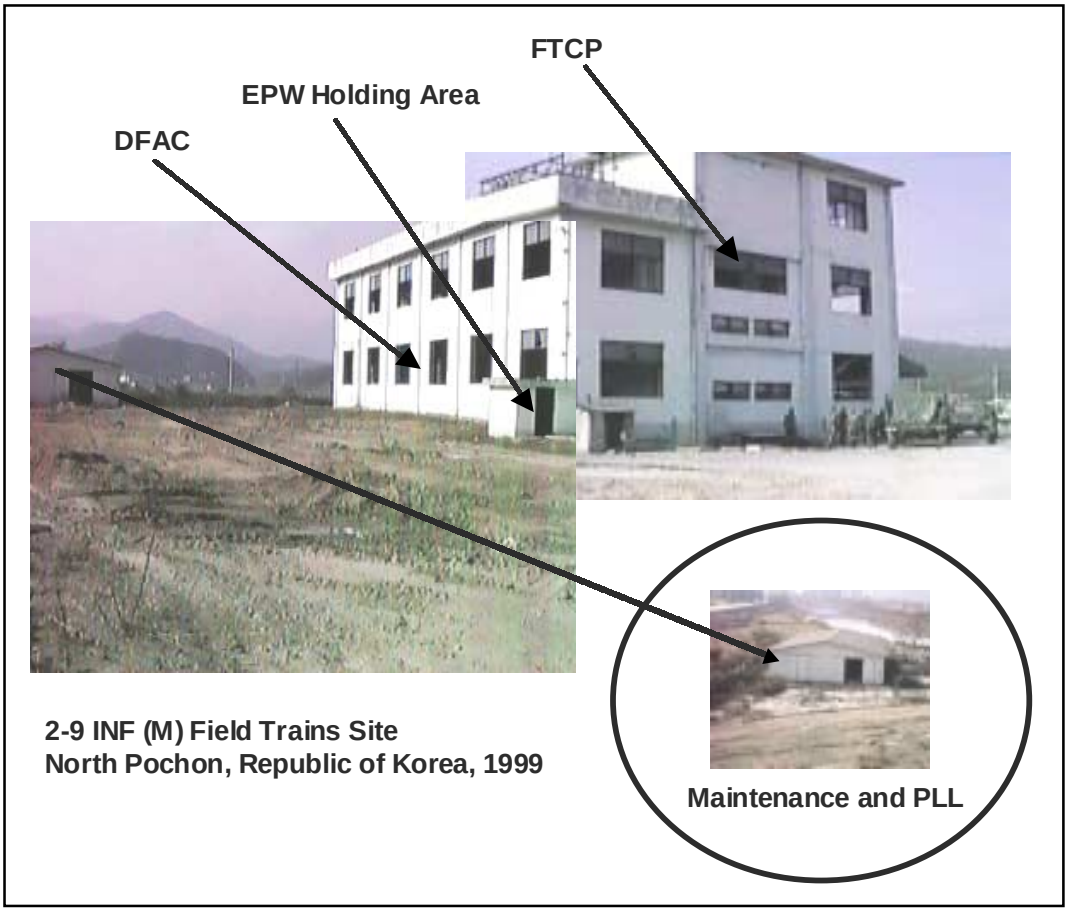
by Captain J. M. Pierre

The modern heavy task force is supplied by the battalion field trains, which serves as its lifeline, not only for food and ammunition, but for all classes of supplies. The trains supplies routine logistical packages (LOGPACs), or can also react on shorter notice to provide what are known as "emergency pushes."

Headquarters and Headquarters Company, 2nd Battalion, 9th Infantry (Mechanized) experimented with establishing an urban field trains configuration in an abandoned warehouse, learning several lessons in the security and the functionality of such a setup.

The unit was fortunate to find a structure perfectly placed in the heart of the Korean farm country. The size of the building allowed all the trains personnel to stay under one roof, thereby increasing the effectiveness of overall command and control. The building was within 10 kilometers of our parent unit, and was accessible to a major highway (Hwy. 43). The two-story building, which included a large garage, was situated adjacent a highway intersection. The area of operation was bounded by a river to the east and Highway 43 to the west, and the local rice paddies afforded us an unobstructed view for up to two kilometers in all directions.

The main building housed the field trains command post (FTCP), the dining facility, kitchen personnel area, troop replacement area, and a detention area for enemy prisoners of war. A second smaller building served as our maintenance area. The area around the building was suitable for mounting possible sling load operations.



2-9 INF (M) Field Trains Site
North Pochon, Republic of Korea, 1999

Security

ARTEP 7-94-MTP, the mission training plan for the infantry battalion HHC and CS/CSS platoons, covers the sequence of quartering and final establishment of the field trains:

- Key leaders conduct a leader's reconnaissance of the site.
- The quartering party secures the location prior to the arrival of the main body.
- Communication is established with the task force.
- The main body arrives and moves into assigned sectors.
- Leaders survey the terrain to finalize the defense plan.
- Leaders designate locations of observation posts.
- Leaders plan for indirect fire.
- Fighting positions and sectors of fires are designated.
- Fields of fire are cleared.
- Security and OP teams move to their assigned positions.

On our perimeter, we employed triple-strand concertina wire, booby traps, and early warning devices. These protective obstacles

and countermeasures were overwatched by dug-in M2 and SAW fighting positions, as well as a continually roving guard.

The concrete walls of the warehouse enhanced our defense by providing 360-degree cover. Reinforced with sandbags and wood, the windows served as formidable fighting positions from which we were able to fend off attackers while sustaining nominal "losses." The trains personnel slept close enough to their positions that the average response time to reach 100 percent security during alerts was two minutes.

From the rooftop, one roving guard could observe the entire perimeter in a matter of minutes. At night, this guard had PVS-7 night vision goggles and a spotlight. From his location, he could quickly identify enemy dismounts, our greatest threat in the Korean theater. He was able to easily alert the trains and our quick reaction force.

Functionality

In our building setup, we could support our battalion with less stress in our daily operations. This was most evident in our food service. Dining facility personnel dismounted their equipment from the mobile field kitchen and were able to prepare food free from the confining enclosure of the field kitchens. The concrete floor was also more sanitary, and could be frequently mopped with hot water and bleach, reducing the risk of microbes forming in standing water.

Kitchen in the urban field trains. Increased space and concrete floors improved operations for dining facility staff.

Rations arriving from the Forward Support Battalion were driven into the building through the garage entrance and offloaded with our forklift, so the food was secure from theft by local inhabitants (a real-world problem) and more accessible to the cooks.

Our mechanics, from their garage, could provide maintenance and services around the clock in a heated and lighted work bay.

The FTCP had a view of the facility from the many windows on the second floor. The gate was always under its observation and direct fire.

The main disadvantage of concentrating the field trains in a single area is vulnerability to enemy observation and artillery attack. While dispersing the trains reduces the potential for total loss, a consolidated facility can easily be rendered ineffective by a single attack.

Nighttime in the urban field trains North Pochon, Republic of Korea.

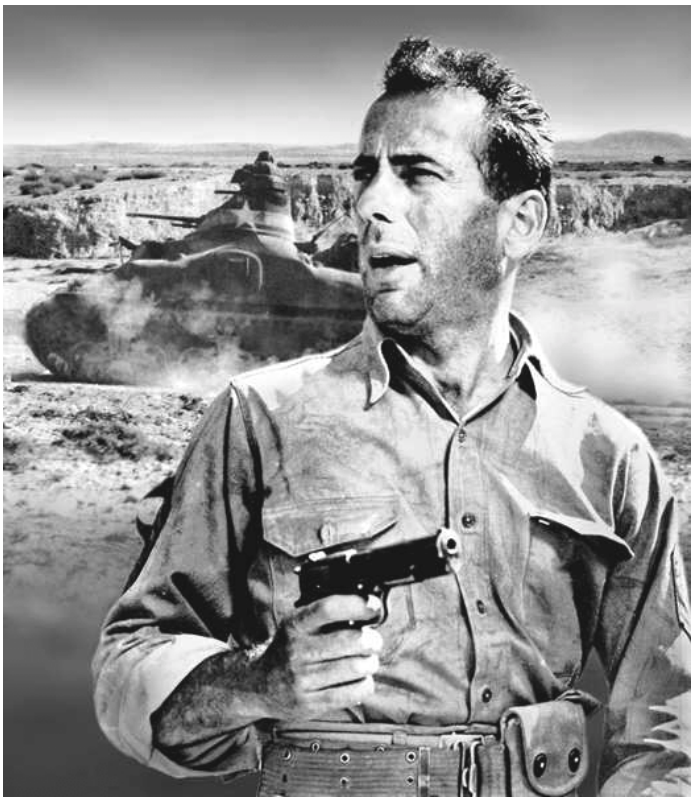
Conclusion

The field trains must be able to supply the force around the clock in all types of weather and terrain while protecting against a dismounted threat. When available, a building serves as an ideal place to establish the field trains. This type of location reduces the manpower necessary to secure the facility, can improve hygiene during food preparation, and can improve the command and control of the facility.

CPT J.M. Pierre was commissioned through the Fordham University ROTC program in 1992. He has served as a tank platoon leader and tank company executive in 1-67 Armor, 2AD. After AOAC he commanded Alpha Company, 1-72 Armor, 2ID. He is currently in command of HHC, 2-9 INF (M).

Armor Movie Classics:

Your Nominations Please....



Computer Montage by Jody Harmon

by Jon Clemens, Managing Editor

It's probably foolish to try to explain one's compulsions, like the irrational desire to stay up late and watch tank movies, but there you have it. It's midnight, Orville Redenbacher has done his thing in the microwave...it's time for field duty! Up tonight on the ol' Cable Classic Movie Network is Humphrey Bogart in **"Sahara,"** not a great movie, actually a lousy movie by Bogart standards. The movie really stars an M3 Medium named "Lulabelle," its crew thirsty and lost, as they struggle across the North African desert.

The M3 was a stopgap tank built early in WWII, tall and ungainly, seeming to bristle with turrets. The tapered barrel of a 75mm cannon stuck out the right side like an afterthought — not a great weapon for hull-down fighting positions. But in the movie, it's a thrill to see this confused-looking moving van of a tank pitching and rumbling across the sands. Actually, these are the sands of California's San Felipe Hills, west of the Salton Sea, near the Desert Training Center where Patton had honed his new sword. The movie was made in 1943, and the tank was certainly borrowed by the filmmakers from the Army, who probably needed it back soonest if they were to Save the World for Democracy.

As the story unreels, Sergeant Bogart's crew keep encountering people as they travel through the desert — a lost German, a lost Italian, there's a Brit — a remarkable mix of ethnic backgrounds considering the situation. And each one seems to have a political speech to make. After all, this is a 1943 war movie, and seen from our perspective, it is pure propaganda. But pay no attention. Just enjoy "Lulabelle" and her crew as they hold an oasis against a unit of thirsty Nazis who are ultimately forced to surrender. (Incredibly, this story was re-made for cable in 1995. James Belushi is no Bogart.)

With the approach of Memorial Day or the Fourth of July, the networks usually do their patriotic duty by showing war movies, including a few tank movie classics. For example, there's **"Kelly's Heroes,"** an almost surrealistically confused film about misfits with automatic weapons who also Save the World for Democracy while, oh yes, robbing a German gold hoard. This film reflects its time: It was a "war movie" made in 1970, at a time when war and the military were not well regarded, but its subject was World War II, when they were. So we have jive-talking, pacifist soldiers giving "V" signs as they road march toward Berlin. Loony? Yes! But it was filmed in Yugoslavia — back when there was a Yugoslavia — and all the military equipment in the film was dead-on genuine.

The filmmakers appear to have rented the entire Yugoslavian Army, and the vehicles are genuine because we gave all this stuff to the Yugos after Saving the World for Democracy in — yes — World War II. (A lot of this same equipment still makes an occasional showing on the evening news, driven by Serbs.) One of the Shermans in **"Kelly's Heroes"** is TC'd by Donald Sutherland, wearing what appears to be a Korean War-era winter "Ridgway" cap. Go figure. But it's fun to watch those Shermans, halftracks, and Hellcats running around.

A gnawing problem for tank movie addicts is the category of tank movies made without the proper tanks. Maybe it's a case of too much knowledge being a dangerous thing, but there's something totally unsatisfying about watching M48 "Tigers," painted gray with German crosses, attacking our troopers in the Bulge. Yes, you have to sympathize with the filmmakers — there weren't a whole lot of real Tigers left in one piece by the mid-'60s — perhaps a few in museums, but most, by that time, had been melted down by the French to make Renaults and fine gourmet cookware.

Both **"Tobruk"** (1967) and **"Raid on Rommel"** (1971) are sort of tank movies about the North African campaign. Again, lots of phony equipment, but enough stuff blows up to keep you awake. These two films have an eerie similarity, which is no mystery when you learn that "Raid" was mainly made because the film company had miles of action-scene out-takes from **"Tobruk."** Filming for the second movie took about a week. This shows.

Occasionally, a sleeper turns up that is such a good tank movie that it doesn't appeal to anyone but tank movie fans. In this category, I'd nominate **"The Beast,"**

Allied soldiers and their prisoners struggle through a desert sandstorm to reach the shelter of an ancient desert fortress in "Sahara," which starred "Lulabelle," an M3 Medium Tank...and Humphrey Bogart.

PHOTO: SONY Pictures. Used with permission.

a most unusual film made in Israel in 1988 about the Russians in Afghanistan. Like "Sahara," the dynamic pivots on the relationship between a tank, in this case a real Russian T-62, and its crewmen, like Sergeant Bogart's men, who are lost in hostile, desert territory...some questioning why they're there at all. True tank movie fans know enough to take mere technicalities like plot and characterization with a grain of salt, but this one has a mood of despair about it that is really effective. You end up sympathizing with these Russians, lost and trapped and waiting to get picked off. The downbeat mood of this film makes you wonder if it might have reflected Israeli disillusionment with their invasion of Lebanon, but maybe that's making too much of a mediocre movie.

In a setting closer to home is the preposterously plotted **"Tank,"** a 1984 James Garner fantasy co-starring a Sherman. Not a war movie, but a morality tale about a Dad who comes to the rescue of his son, jailed by a scoundrel of a county sheriff. How does he do this? Easy...he just happens to own his own Sherman tank! As he smashes everything in his way trying to save his boy, you can't help but identify. Who hasn't wanted to do this once or twice in their lives, faced with stubborn left-lane hogs out on the bypass?

Seldom seen anymore on TV is a 1951 film called **"Here Come the Tanks,"** which was partially filmed at Fort Knox's Otter Creek. That's what I'm told by LTC (Ret.) Burt Boudinot, who grew up on Fort Knox prior to WWII. He says that an earlier film with the same name was also made at Knox in 1939.

Now, let's get to the mission: If this article stirs any memories, why not share your favorites with fellow tank movie nuts? If we get enough response, we'll publish your nominations to the Tank Movie Hall of Fame in a future issue. Frivolous, no! Good professional development? Of course!

Editor's Note: In another world, long ago and far away, ARMOR's managing editor — now in his second career — used to occasionally review movies for two daily newspapers.

Bogart, at right, discusses his next scene with Zoltan Korda, director of "Sahara," while on location in the California desert.
PHOTO: SONY Pictures. Used with permission.

TCPC with TWGSS, and significant increases in UCOFT time before live-fire training.

Maintenance training is embedded through the course during tactical and gunnery training. Training to maintain is accomplished by evaluating maintenance tasks each time students work with the tanks. Students will be tested on each step of PMCS, as opposed to the sampling of steps which are tested today.

The changes incorporated into the Armor Captains Career Course over the past year significantly improved the quality of training for company-level mounted leaders. Converting from a 20-week Program of Instruction (POI) in AOAC to an 18-week AC3 POI necessitated prioritizing the tasks we train in order to continue to train to standard. These changes include redesigning the course to balance planning and execution, as well as metering the pace of instruction to allow students to absorb the skills, knowledge, and attributes in the course.

AC3 incorporates the latest doctrine, tactics, techniques, procedures, and technology. Performance-oriented training is integrated throughout the course using CCTT, Janus and BBS simulations. CCTT has been incorporated into 14 days of the instruction period and allows the student officers to apply concepts with relevant tactical situations during company/team operations training. This is a net increase of six tactical missions at company level. A Janus situational exercise is under development for integration into the course to allow students to visualize and understand the art of command at the company level. The use of BBS and Janus simulations have been expanded to provide the student officer better conditions to execute tasks as part of a battalion- or brigade-level staff. BBS is also the prime vehicle for the seven-day BN/BDE CPX exercise. Realism is added to training during the CPXs by including current or future battalion and brigade commanders in command positions during the exercise. Throughout each phase of AC3, CS/CSS planning is incorporated, both in the classroom and during practical exercises. The course end state remains providing the field with adaptive captains prepared to command, in addition to having the skills necessary to serve as assistant battalion and brigade S3s. These improvements will keep AC3 as one of the premier courses trained here at the Armor Center.

Development of the Mounted Leader Digital Training Course is currently under way, with a pilot course scheduled for the 3rd quarter of FY2000. The objective of the course is to provide the force with officers who have the base skills necessary to leverage Army Tactical Command and Control System (ATCCS), and Force XXI Battle Command Brigade and Below (FBCB2) to enhance C3I at company through brigade level.

This course conducts performance-oriented digital training for AC3 and Armor Pre-Command Course students. It will initially constitute a three-week follow-on course for AC3 graduates enroute to ATCCS-equipped units. Eventually, this training will be embedded in AC3, and modified for inclusion in APCC as well.

The challenges faced by the Army and the mounted force are immense. However, we are up to the task. The Armor Center remains committed to providing the force with mounted leaders who have the skills, knowledge, and attributes required to meet the demands placed on Armor and Cavalry units throughout the world. We will train adaptive mounted leaders who will be decisive warriors, enlightened in Force XXI precepts, yet grounded in the realities of the deployed Army on mission across the full spectrum of conflict.

Forge the Thunderbolt and Strike First!

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Lighten Up from Page 25

who make war on women, children, and the elderly have no discernible place in the scheme of things. They need to be terminated.

Right about this time though, things begin to get really tricky, and it is my opinion that only light armor (Bradley/ ACAV) can do the job. The problem is that many of these little Third World brouhahas require the use of selected, personalized, less than lethal force, and that means mechanized transport. Water cannons, foam projectors, sonic boomers, and whatnot are NOT man-portable, unless the man in question is himself delivered by some conveyance. Non-lethal weapons are not an oxymoron; they are how we are going to have do business in the near future, and only light armor can carry and power up the gear. There's not a lot of room for extras inside a tank turret. It takes a lot more equipment to capture someone alive than to simply blow his head off.

It also takes a dedicated, long-term effort, and a unit with long-term cohesion, and long-term TOs. This business of "up or out," six month's combat and six month's staff to get a ticket punched is not good for unit morale. The troops want a leader they can get to know and depend on, not a transient who is just passing through. What is needed for this kind of work are long-term professional soldiers — legionnaires, if you will. While the civil government and political types are doing their thing, the regiments or battle groups become the local infrastructure and install whatever stability is needed... at gunpoint if necessary. Anyone who has been rescued from genocide is not going to complain about military government, at least for a while.

This kind of work can't be done in a few months; history indicates that you have to be ready and willing to go for the long haul. After all, it took a full generation to install some semblance of democracy in Japan and Germany and to convince them of its general superiority as a governmental system. How long will it take to install a cohesive government where none has been for living memory? Considerably longer than one combat rotation, and probably longer than the average enlistment. This kind of work is going to take dedicated professional soldiers who genuinely like their work, are good at it, and are willing to die for it, if need be. That kind of military mental manipulation, however, is outside the scope of this article, once the need has been pointed out.

What DOES need to be looked at is continuing to be relevant, and to keep our branch cohesiveness and to keep our hand in the soldiering business at hand, not ignoring the current situation and only preparing for the War in 2020. That, however, is not our only task, if we wish to remain the "Arm of Decision." Somebody else is swinging the sword that's threatening us and that is the old competition. Sooner or later, it will dawn on the infantry types that they, too, own and operate Bradleys and are not chained to a heavy force that won't give up its Abrams-heavy organization. Then where are we? Agincourt comes to mind. We need to lighten the force with an all-cav T.O. but keep our options open. It *is* possible to operate fractioned, opconned and cross-attached, and then to consolidate when necessary. You just have to be almighty good at what you do. Does anyone see a problem with that?

We need to keep an Abrams force for when its task becomes imperative, but only the light forces — armed with the Bradley as a medium tank with dismounts, and ACAVs as light tanks — can open the door for them. The light force can be the "camel's nose in the tent," so to speak, to make the opening to get the big boys in to finish the job.

First the two-wheeled, or dismounted, scouts, then heli-lifted M1114s, then the ACAV force, then the Bradley, and suddenly, we're in, and the C-17s are unloading the Abrams force. Should be an interesting ride.

Ralph Zumbro served as an NCO in each of the combat arms, including combat service in Vietnam. He has commanded tanks in Vietnam, USAREUR, and CONUS, and has served as a gunnery and demolitions instructor. His Vietnam account, *Tank Sergeant*, is now in its second printing. He also wrote *Tank Aces,* and his newest, *Iron Cavalry,* and co-authored two novels, *Puma Force* and *Jungletracks.*

Lieutenant's Plea from Page 41

rect, they may save you and your command by realizing that on the ground and taking the proper action to fix it. Time is short before an operation, but 30 minutes of wargaming with your lieutenants before you have gone too far into your plan to integrate their suggestions will make for a better plan and make OPORDs and rehearsals run smoother and quicker.

Life in the armor community is hectic. The training distracters are everywhere. I believe that some quality time with your platoon leaders can provide the biggest bang for your buck as a commander. It will require sacrifices elsewhere — personal time, perhaps Sergeant's Time or maintenance may not be supervised as much as you would like. Why do we train everyone except for the lieutenants? Consider the amount of tactical training they received at AOBC. My class received over a week in small group instruction around a sand table. The student-teacher ratio was 8:1. My instructor was an outstanding NCO, but a newly promoted sergeant first class with no platoon sergeant time. We discussed operations of a platoon operating independently with no higher mission or intent. It provided a good basis and achieved the training objectives, but that does not provide sufficient training for your platoon leaders. They need some training time with a 3:1 ratio. Even more importantly, they require an instructor who can show them how their four tanks tie into the larger picture.

On the other end of the spectrum, a battalion-level tactical discussion is useful and I have benefited from these, but they are not a replacement for a company commander sitting down with his platoon leaders. We all say that the battalion commander is the primary trainer for lieutenants, but how much time do they have to devote to this task? Of the time they do spend training the lieutenants, how ready are the newest platoon leaders, the ones who need the instruction the most, to speak up and ask a lieutenant colonel what they fear is a stupid question? The company commander is going to be the most effective teacher and mentor.

Wherever you have the chance, please take the time to train those platoon leaders. A company with aggressive lieutenants who take intelligent initiative will be very deadly indeed.

1LT J.P. Clark is a 1997 graduate of the U.S. Military Academy. A graduate of the Armor Officer Basic Course and Airborne School, his assignments include assistant S2, tank platoon leader, and tank company XO. He is currently the XO for HHC, 1-64 Armor.

REVIEWS

Information Warfare Book Falls Short

The Next World War: Computers Are the Weapons and the Front Line Is Everywhere by James Adams, Simon and Schuster, New York, 1998, 336 pages with endnotes, $25.00.

Chinese contributions to the 1996 Clinton re-election campaign, the contemporary relevance of Clausewitz, French commercial espionage in the post-Cold War era, and the first day of the air campaign during the Gulf War — what do each of these disparate topics have in common? More than meets the eye, but perhaps a good bit less than suggested by author James Adams in *The Next World War: Computers are the Weapons and the Front Line is Everywhere*. A veteran defense correspondent for the *London Sunday Times*, Mr. Adams displays a seasoned reporter's talent for touching lightly on these topics and many more in a relatively short book. Consequently, *The Next World War* offers readers an interesting, but less than satisfying overview of the pervasive and growing influence of computers, the internet, and information technology upon the conduct of modern warfare, the conduct of intelligence collection, and the conduct of economic espionage. His writing flows smoothly, and his narrative tone is consistently engaging. Yet for covering so much, Mr. Adams may be rightly accused of saying far too little.

Mr. Adams' message is simple. In *The Next World War*, he asserts that information warfare and information espionage are with us to stay, and require a revolutionary transformation of western militaries, their governments, and the expectations of a democratic society to adapt. *The Next World War* is structured into three separate sections in an effort to sustain this claim.

In the first part, Adams reviews the impact of information technology upon the future of conventional warfare. Here, his military background and extensive knowledge of U.S. military experiments and exercises since the Cold War serve him well while presenting basic facts. He distills recent U.S. Army, Navy, Air Force, and Marine exercises into a useful contextual narrative. He traces the genesis of global military interest in information warfare to the success of coalition air and missile strikes against Iraqi commercial electric grids and civilian telecommunications and to the streets of Somalia in 1993, where the need to avoid casualties was driven home. In describing the Army Warfighting Experiment (AWE) of 1996-97 and the Navy/USMC Fleet Battle Alpha exercises of early 1997, Adams exposes the degree to which rapidly advancing information technology has begun to affect modern militaries.

In part two of *The Next World War*, Adams describes the challenge facing the intelligence community in its quest to assimilate the information revolution. He tantalizes the reader with vignettes that clearly indicate the CIA, DIA, and NSA no longer have a monopoly on near-real time information, imagery, and intelligence. He also demonstrates that these agencies are struggling mightily to adopt increasingly irrelevant procedures and practices to an era where CNN, *USA Today,* and commercial satellite down-links often provide operational level military commanders with more useful, time-relevant information than daily intelligence briefings. En route to these insights, however, Adams drags the reader through a thick underbrush of mostly interesting if not obviously relevant tales of non-lethal weapons in Somalia and the potential for hackers to penetrate national defense computer systems while working for civilian subcontractors. The essential truths Adams seeks to highlight suffer from these multiple digressions.

Strong in entertainment value but weak in cohesion and focus, part three of *The Next World War* reaches a conclusion that fails to reach closure. Mr. Adams weaves together a loose tapestry of chapters about Russian fear of information warfare, Chinese use of campaign finance contributions to assist their steady integration of Western information technology, and French use of computer hackers for economic espionage. Adams would have the reader believe that each of these vignettes highlights U.S. vulnerability to the negative dimensions of the information revolution. In some respects they might, but not unavoidably so. Neither, however, do they offer fundamental proof that the nature of warfare has changed so dramatically that traditional military thinking, save the estimable Sun Tzu, must be relegated to the ash can of history. Yet, this is the unsatisfying conclusion of *The Next World War*.

Part three of *The Next World War* betrays its weakness. Adams' analytical segments do not meet the standards of his descriptive work. While Adams captures the essential dynamics vexing western militaries in their ongoing quest to adapt to the information revolution, he establishes a stark and intuitively false dichotomy for analyzing the pace of change. The evolutionary school, he asserts, views the information revolution as best assimilated into traditional military doctrine, where warfare will still be decided by the will of directly clashing combatants on land, sea, and in the air. The revolutionary school, he counters, argues that the information medium will be the new field of battle, thus cyber-warriors must supplant soldiers, sailors, airmen, and marines. Adams unabashedly champions the revolutionary point of view, asserting that the U.S. military is failing to concentrate sufficient resources on the revolutionary approach. However, there are many shades of gray that Adams' black and white dichotomy misses. Clearly, information technologies have impact upon the strategic, operational, and tactical levels of war. These impacts are emerging rapidly and almost simultaneously within each level of warfare. The military challenge, therefore, may be less revolutionary than Adams suggests, but dramatically more progressive than the evolutionary approach underway. The future may be brightest when the military moves to accommodate the essential possibilities from information technology within and between each level of warfare.

Adams correctly notes that inter-service rivalry has contributed to the fragmentation of military effort in synchronizing a more progressive response to the challenges of the information revolution. He thumps this theme, however, to the point that it trivializes a deeper and more compelling clash that does not originate between military services, but between the specialties within them. The intelligence, communications, and satellite control communities within each military service remain paralyzed in Cold War organizations and fragmented from each other in stove-piped communities. Training, organization and doctrine within these communities remains stagnant and disjointed despite the fact that the commercial world is rapidly forging common operating systems and corporations for the delivery of telecommunications, cyber-media and satellite imagery, acoustics, and electronic signals across a common medium. Dominated by service warfighters, the Pentagon leadership seems to lack the interest, insight, or the stomach to force progressive solutions upon these info-relevant communities. Here, military conservatism and the go-slow approach can only produce a more vulnerable military, leaving it increasingly reliant upon commercial know-how and support for real-time and near real-time information.

Armor leaders who are keen students of military history will certainly take issue with the analytical framework Adams develops to support his argument for revolutionary military change. From the outset, Adams suggests that Clausewitz is incapable of accommodating the implications of the information revolution. He seems to anchor this controversial proposition on two unsustainable interpretations of Clausewitz: First, Clausewitz speaks of the essence of battle to the practice of warfare in the human condition; and this proposition is anathema to an advocate of bloodless warfare like Adams. Second, Clausewitz wrote incessantly of the "friction [fog] of war," so he could not conceive of the impact of the revolution in information technology that would blow away the proverbial Clauzewitzian fog. Paradoxically, Adams simultaneously asserts that the writings of Sun Tzu do not suffer from this failing, intimating that today's Chinese communists covet western information tech-

nology as an involuntary cultural reflex to Sun's warning to "..know your enemy as you know yourself…if you desire victory on the field of strife." This bit of politically incorrect cultural determinism is less offensive than it is humorous. Nonetheless, it again highlights the suspect analytical framework Adams employs in an attempt to move beyond the entertaining cyber-vignette.

The book's analytical shortfalls are all the more dissatisfying because Adams squanders some very important insights. One such insight is his observation that, despite its initial promise, the Army AWE process has begun to look a bit like, "…putting a high tech-shine on an old pair of boots." He even produces a classic quote from an Army TRADOC bureaucrat that drives home the point before heading off in a different narrative direction. Later on the same page, however, Adams quotes a military analyst with much to say regarding the failings of the U.S. Army to adapt more dramatically to the information revolution. Yet he never cites Dr. Andrew Krepinevich in this context. Head of the Center for Strategic and Budgetary Assessment, Dr. Krepinevich has stated publicly that he fears the present U.S. Army approach to "evolutionary change" resembles the French military approach to the revolution of aviation and mechanization between the World Wars. While the Germans assimilated airplanes and tanks within a fundamentally new doctrine featuring a blitzkrieg approach that sought speed and shock to psychologically unhinge the will of the opponent to continue the fight, the French did not. French military doctrine remained wedded to the supremacy of the World War I infantry regiment, and focused upon the deliberate destruction of the enemy fighting force. French industry created technologically sophisticated planes and tanks for the sole purpose of reinforcing and supporting the infantry regiment in the defense and the attack…war at a snail's pace. The French force-fitted revolutionary technology to their preferred doctrine, while the Germans exploited the potential of new technology in a fundamentally new doctrine. The May 1940 battlefield clash between these divergent doctrinal approaches produced a decisive German victory that is well known, and a bit of history that Adams might have counseled the bureaucrats at Army TRADOC to study a bit more carefully.

In this vein, *The Next World War* opens the door to useful historical analogy that Adams never walks through. If he had been a bit more exhaustive in his review of military history, Adams may have found the debates regarding the future of air power during the inter-World War years eerily similar to contemporary policy discussions regarding how best to utilize information technology.

For most of the Great War, tradition-bound western militaries viewed the airplane as a tool of their signals and intelligence arms. Aircraft could help with battlefield reconnaissance and with the transmission of messages, but were too flimsy to matter in the serious business of fighting. This mirrors, almost precisely, the initial U.S. military assimilation of information technology in the early 1990s.

By the early 1920s, however, rapid advances in aircraft design and capability had airpower zealots on the rise. Led by the Italian Guilio Douhet, proponents of strategic air power argued that the modern airplane could (and should) render traditional warfare obsolete. Douhet's theory of air power suggested that the ultimate deterrent for conventional war would be a large fleet of strategic bombers. Strategic bombers, he argued, would hold the entire civilian populace of a would-be aggressor state hostage to wanton, horrific bombing campaign, thereby deterring all but the most dreadful tyrant from contemplating war. Sir Arthur "Bomber" Harris was a British disciple of Douhet, arguing in the 1930s that Britain need not have a costly and wasteful standing Army when a fleet of strategic bombers would do the trick. If deterrence failed, Harris added, then one massive bomber strike against the aggressor's homeland should break civilian morale and bring an immediate end to the hostilities. The ghosts of Douhet and Harris cast an eerie shadow across the arguments of those in favor of a radical revolution in response to the challenge of the information age, including Adams himself in *The Next World War*.

Meanwhile, inter-war German military practitioners were less interested in the strategic possibilities of airplanes than they were in the tactical and operational utility of an air arm. The *Luftwaffe*, therefore, eschewed strategic bombers in favor of tactical dive bombers and fighter aircraft combined with logistical support aircraft in order to protect and sustain racing panzer formations deep inside the enemy lines. The German focus upon the operational and tactical utility of revolutionary aerial technology mirrors the contemporary U.S. approach to the information revolution up to a point. Although Army TRADOC and its sister service doctrinal caretakers have embraced the tactical and operational aspects of the information revolution, they have yet to do so within the context of a revolutionary doctrine. Hence, Dr. Andrew Krepinevich's assertion that the U.S. military approach presently mirrors that of the inter-war French.

In the end, World War II proved that none of the "either-or" approaches to assimilating airpower were correct. Douhet and Harris were wrong: The threat of strategic airpower was not enough to deter brutal conventional war. The Germans were initially, fleetingly right in focusing upon the tactical and operational aspects of airpower, but were soon done in by their anemic strategic bomber force. In this context, "Bomber" Harris was right: A strategic bombing campaign could cripple a nation-state's war machine. However, he was also wrong about its effects on the populace: Even a devastating strategic air campaign was insufficient to break civilian morale and force a state like Germany to sue for peace before it was defeated in a decisive ground campaign. When the war was over, balance in military aerial innovation had proven essential. The Allies won the war with an air arm composed of complementary strategic bomber forces and tactical/operational air forces. Allied strategic bombers proved useful in securing operational objectives (the use of B17s/B24s to bomb key road and rail routes into Normandy in 1944, for example) to a degree unforeseen by Douhet and the strategic air proponents. Allied tactical/operational air forces operated best when supporting mobile, mechanized strike forces fighting with an operational doctrine very similar to that employed in blitzkrieg, demonstrating that World War I infantry-based doctrine could not accommodate the full potential of aerial warfare.

If the air power analogy is sound, then *The Next World War* focuses the reader upon the wrong policy question. The question of the moment is not whether information technology has supplanted conventional warfare and traditional military theory. Instead, it is about how to best capture information technology's revolutionary potential in the tactical/operational level of war while simultaneously assimilating its revolutionary strategic potential into a broader framework for understanding the art of war in the context of societal interactions. All of this, it must be said, will have to be accomplished in an environment of fiscal austerity and general public apathy about the course of military modernization.

Is the inter-war revolution in air power a worthy analogy in the present? Whether it is or not, a more historically grounded analytical technique might have made *The Next World War* a valuable contribution to the ongoing defense policy debate. Unfortunately, Mr. Adams' conclusion leaves this chore to other writers and to books that remain to be published.

In the end, *The Next World War* is an entertaining but far from important book on one of the three great challenges facing Western militaries at the turn of the millennium (the other two are national missile defense and the militarization of space). Armor leaders unfamiliar with debates regarding privacy in cyberspace, the potential for information warfare to wreak havoc with a national power grid or financial infrastructure, and the challenges to military and intelligence community norms and practices posed by the information revolution will find *The Next World War* worthwhile. Those in our armor community anxious to explore the pros and cons of potential solutions to the most vexing doctrinal challenges of the information age will find that *The Next World War* provides far too little grist for the mill.

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WWII U.S. Infantry: A Reconsideration

The G.I. Offensive in Europe, The Triumph of American Infantry Divisions, 1941-1945 by Peter R. Mansoor, (Lawrence, Kan.: The University Press of Kansas, 1999), 346 pages with index, $35.00.

In this, his first book, Peter R. Mansoor conducts a direct assault against some of the strongest assertions of modern American military history. He does so in a deliberate and methodical manner and generally succeeds in illustrating that U.S. Army infantry divisions were effective combat forces throughout the European theater during the Second World War. This is no mean feat, because, in doing so, Mansoor confronts some of the all-time heavyweights of American military history.

Taking on the still-significant historical legacies of men such as S.L.A. Marshall, Trevor N. Dupuy, Martin Van Crevald, and Russell Weigley, is not something one attempts lightly. Mansoor does so with skill and an obvious attention to detail. In this well researched and documented book, he not only illustrates logical inconsistencies in the previous works, but simultaneously paints a comprehensive and intellectually satisfying picture of his own. In doing so, Mansoor links together some of the best new works on the ETO with his own extensive primary source research to resuscitate the reputation of the infantry divisions in Europe.

Mansoor's central thesis is that the "plain vanilla" infantry divisions of the European Theater of Operations (ETO) were more effective than their German counterparts. His thesis attempts to prove that while these divisions were often hamstrung by an inefficient mobilization and training process, the Americans' ability to learn and modify their approach based upon the hard lessons of combat allowed them to become efficient combat forces. Secondary to their effectiveness was the American Army's ability to sustain their relatively few infantry divisions for extended periods, although this particular ability had both benefits and drawbacks.

It is in the qualification of the scope of his study that Mansoor makes much of his money. Prior to this study, many of the general and even academic works on the ETO focused an inordinate amount of attention upon these specialized units. This is, perhaps, one of the most damning elements of his critique of the previous historiography. Dupuy, for example, found the Germans an average of 20% more effective when using his quantitative analysis formula on 81 engagements. These fights, Mansoor points out, often pitted an "elite" German division against a "vanilla" U.S. division — in effect, comparing apples and oranges. By excluding the specially trained or equipped airborne and armored divisions of both sides he has arrived at the heart of the matter. Mansoor is comparing apples and apples, and here the American "apples" come out ahead.

Although I strongly recommend this work as one of the new defining books on the topic of tactical combat effectiveness in Europe during the Second World War, I feel that in at least one respect Mansoor slightly missed his mark. In his defense of the American infantry division, he neglected to defend the G.I. himself. I expected something slightly more revisionist when I read the title. After all, the book is titled *The G.I. Offensive in Europe,* yet in his analysis, he focused on the division level. Unfortunately, this is not where most of the criticism of the American forces has historically been focused. It is the combat skills of the lowest level — the soldier, squad, platoon, and company — that have traditionally borne the brunt of historians condemnation. Mansoor lightly dances around this by addressing the critics for the faults in their own works while using the majority of his text to address the readiness and abilities of the American Army at the division level. Thus, although the text is extremely well researched and credibly presented, I feel that its title is somewhat misleading. This does not, however, significantly detract from the value for a professional military leader or defense-minded civilian. Buy the book and decide for yourself. In any event, you will learn a lot about how a nation transitions from peace to war and the attendant growing pains that one feels when mobilizing an eight million man army.

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The Iron Cavalry by Ralph Zumbro, Pocket Books, New York, 1998, 528 pages, $6.99 (paperback).

Ralph Zumbro's collection of mounted armored history, *The Iron Cavalry,* covers a span from 1257 B.C., through the present, and into what he believes is a not-so-distant future. It is a good choice for the serious military enthusiast looking for a jumping-off point for further reading. By the same token, it is a good choice for the new trooper who knows very little about what he has gotten himself into as an *iron cavalryman*. (Actually, the vast amount of time covered is somewhat misleading; most of the book's subject matter takes place during the 20th century.)

The material covered in the 20th century is quite varied. The author covers topics military professionals and serious readers will already be familiar with from the soldiers' perspective. The chapters on less-known armored clashes offer something for those who are already well read on Cambrai and the like. These little known clashes serve as primers for further study.

The most important and recurring theme in the book is this: Iron cavalrymen have always been innovators. This is our heritage and legacy. The book is filled with examples of troopers, just like the author's intended audience, who through their creativity have come up with viable solutions to problems that confront them. Viable solutions are those that keep the crew alive and allow them to close with and destroy the enemy by means of fire, maneuver, and shock effect. Many of these viable solutions are not to be found in any field manual, but learned through trial and error with a heavy dose of creativity.

The book is not written in a scholarly manner and filled with footnotes, but the author tells the reader up front that this is not his intent. That is not to say that the book is not well researched. Clearly the author has invested much time and energy in assembling this work, drawing heavily on secondary sources and, interestingly enough, old *Cavalry Journal* articles. The chapters are structured for a single short reading session. There is no necessary requirement to read the chapters in chronological order, though some characters appear in more than one chapter. There are no maps, so a decent atlas is required for a better appreciation of the location and distances involved in some of the battles. There are a limited number of black and white photos.

Though I personally did not enjoy the chapters which tended to be more historical fiction than fact, if they capture and hold the attention of a new soldier, I'm all for them. My own copy of *The Iron Cavalry* was worn around the edges by the successive radio watches at my TOC. They all found something they liked and, more importantly, they all learned something. This is the best review that a book written by a soldier, for soldiers, can hope for.

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The 1st Cav in Vietnam, Anatomy of a Division by Shelby Stanton, Presidio Press, Novato, Calif., 1999, 246 pages w/index, 2d edition, $17.95 (paperback).

This is a book about the idea of air cavalry, expressed as a short history of the 1st Cavalry Division during the Vietnam War. Stanton traces the development of air cavalry from the days of the Howze Board to the early air mobility tests of the 11th Air Assault Division to the capture of the idea of "Cavalry, and I don't mean horses!" of LTG James Gavin. While this is an interesting history, in short form, of the trials and tribulations of Army air mobility, this book really is about the spirit of cavalry as it relates to the concept of battlefield agility.

The real idea of the book did not strike me until the last chapter, but I will get to that point. Stanton organizes the book well. His first chapter was very instructive for students of our Army and its resistance to change and new ideas, and how those new ideas must be supported. There's a great discussion of the early days of MG Kinnard and the 11th Air Assault Division. Kinnard had to fight both the U.S. Air Force and the Army establishment to gain acceptance of the idea of air mobility and air assault via helicopter. The subsequent chapters are a short story of the transformation of the 11th Air Assault to the 1st Cavalry, and therein is the heart of the idea.

Stanton organizes the remainder of the book in chapters demonstrating the utility of the air cavalry division, and the spirit inherent in the concept of cavalry. The chapters range from air assault to sustained pursuit, to cavalry exploitation. Although I do not think Stanton makes a good case for the "pursuit" aspect in Vietnam, what he was really driving at became clear in this chapter. He believes that the real spirit of the 1st Cavalry Division as a unique fighting formation was surrendered when the concept of air assault went to the 101st Airborne Division and the 1st Cavalry Division went from the early experiment of the Triple Capability Division (an infantry brigade, air cavalry combat brigade, and an armored brigade) to a standard armored division. Stanton fully cites the quotation from the LTG Gavin article in this magazine at the end of his book.

As I thought about how to review this book, I also thought that LTG Gavin's article would be worth reprinting. The thrust of the quotation calls for a light force transported by air to unexpected places so as to thoroughly disrupt the enemy force, and then return to a safe haven. The power of the air cavalry division rested in its unique form: the combined arms team of infantry, helicopters, artillery, and air-delivered fires at places the enemy least expected. It was a unique combined arms team, and Stanton concludes that this form of air cavalry is still needed in the Army today.

The question not asked, but hinted at, is how do we capture the true tactical and operational agility inherent in air mobility and air assault, as well as the power of the word cavalry? Cavalry, as we are all fond of saying, is a state of mind. I rather believe this statement, as there is an implied agility of thought expected of cavalrymen, and I mean cavalrymen of artillery, aviation, infantry, and logistics, as well as armor. The idea is rapid power projection, "freed from the tyranny of terrain," as MG Kinnard said of the cavalry division.

Would I recommend this book? Well, a qualified yes. If you are looking for a history of the 1st Cavalry Division in Vietnam, there are better offerings. If you are looking for a short work on the development of and continuing need for air mobility and air assault, in the guise and spirit of cavalry, then this is the book for you. We will always be faced with the question of how to disrupt an enemy force in rough terrain? The mobility differential inherent in an air assault force empowered with the spirit of cavalry, as Mr. Stanton states in his book, is the continuing need. The need for the 1st Cavalry Division as the embodiment of air cavalry, "and I don't mean horses."

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SOFTWARE

The Operational Art of War, Volume II, 1956-2000. Produced by Talonsoft, designed by Norm Kroger. Copyright 1998-1999. One CD-ROM Gamedisk, 1 Player's GuideBook. Price: $49.95.

With the release of Talonsoft's *The Operational Art of War, Volume II, 1956-2000*, designer Norm Kroger follows up the initially successful *Operational Art of War Volume I, 1939-1955.* As stated in the introduction, this game covers military campaigns at the operational level. It serves as a simulation of these campaigns as realistically as possible. The introduction goes on to cover some definitions of military terms and explains how the game recreates these campaigns. It also describes the scenario editor capabilities and the purpose of the Player's Guidebook.

Overall, the game proved a disappointment. While the graphics meet the current market standard of full color and vehicle icons, playing the game becomes the challenge. The game suffers from many shortcomings that take away any pleasure I first felt. The game does not have a tutorial in the game or Guidebook. This omission makes it extremely difficult to learn how to play, even for an experienced player. The scenarios do not cover much of the stated period.

Without a "how-to" section, the scenario editor becomes another source of frustration, as one cannot design his own scenarios. In attempting to play two scenarios, there were also several order of battle and organizational errors.

Upon opening the game, I read the back of the box. The game immediately appealed to me for numerous reasons. First, the iconic unit symbols could change to vehicle icons for aesthetic appeal. Second, the game covered most of the major conflicts in the time period covered by the game's title. Third, it included some future scenarios of projected conflicts. However, once sorting through the Player's Guidebook, I realized that it did not explain how to play the game. It did not provide an example of play. The Guidebook serves primarily as an explanation of the different abstractions in the game, such as air power, and how the designer deals with that abstraction. It also had a listing of the hot keys and a brief description of that key's function. This list of hot keys did not help in learning how to play the game. Undeterred, I pressed on into game play. Being an experienced wargamer of over 20 years, I quickly realized that without some instruction on how to play, the trial and error method of playing proved tedious. Choosing a modern scenario in Korea, another shortcoming appeared. The order of battle for post-Desert Storm U.S. units is incorrect. Shortcomings in the organization of other units became apparent as well.

Having stated earlier that I own several Talonsoft games, I would not recommend this game. I have given up all hope of learning to play it and am surprised because this game falls short of what I expect from Talonsoft. It does not have any user-friendly tips on play, tutorials, or examples. *Westfront,* from Talonsoft, does just the opposite. (Although it also suffers from erroneous research in orders of battle and unit organizations.)

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New Sight Incorporated in M1A2 (SEP) Tanks Improves Lethality...and Survivability

The Tank-Automotive and Armaments Command recently rolled out an improved model of the M1A2-series tank that includes a new-generation thermal sight. The System Enhancement Package (SEP) M1A2s include a 50-power sight magnification that will allow more accurate target acquisition at long ranges, compared to the present 10-power systems. The sighting system will allow both gunners and tank commanders to acquire targets faster and at greater range than current systems.

A problem identified in the Gulf War was that the M1's gun could kill targets at a greater range than the tank's sights could acquire them clearly. This may have been a factor in several fratricide incidents.

Key to the M1's survivability in that conflict was its ability to fight the enemy at "stand-off" range; in other words, the U.S. tank could acquire and kill Iraqi T-72s and T-55s before these tanks could see the M1s, and the M1's gun was accurate at far greater ranges.

The armor package on the SEP tanks, utilizing depleted uranium, has been upgraded to improve protection, and the tanks will also be capable of communicating digitally with other battlefield systems using the new Embedded Battle Command digital communication system. This system will permit an M1 crew, for example, to cue an artillery system with an accurate digital call for fire.

SEP includes color monitors, an improved navigational system, a digital mapping system, an under-armor auxiliary power unit, along with better climate control.

The SEP upgrades will be applied to all M1A2s beginning in Fall 2000. Ultimately, SEP will be installed in 1,174 of the active Army's 2,685 tanks.