Exploiting Precision Maneuver

An Experiment to Evaluate M1A2 Tactics, Techniques and Procedures

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The United States Army is investing heavily in modernizing and "digitizing" its heavy forces. This follows the clear assumption that such an investment will pay off in forces that are far more capable than the Army that won the Gulf War. Much thought and discussion has revolved around the capabilities of UAVs, long-range precision artillery, and proliferating sensors that enable us to hit a target with smart weapons. The Army clearly is focused on the operational impact of these systems. At the same time, however, not as much thought or analysis has gone into how all of this impacts conditions at the point of the spear. How will the digital capabilities of modern tanks and Bradleys change the way companies and platoons fight?

Observations at the NTC and Fort Hood might lead to a simple conclusion — not much. People who watch training at these sites often comment that, although digitization is changing the way things happen in JANUS computers, our tank platoons and company teams pretty much do things the way they have done them for 20 years. Indeed, a bit of research on tactical doctrine reveals that doctrine has not changed the way we operate much. Our field manuals (FMs) and mission training plans (MTPs) promulgate essentially the same tactics today that they did in the early '70s — when the overwatch principle was introduced and the most modern tank we had was the M60A1 (and some RC units still had the M48).

Shouldn't we be doing things differently at platoon level today than we have over the past 20 years? One suspects that if all these digits are really to help us, then the answer ought to be a resounding "yes." Recently, the Directorate of Training and Doctrine Development at the Armor Center decided to conduct some experiments to find out how to do it.

Experimentation

Overview. With the full cooperation and support of the MMBL and SIMNET/CCTT, the Platoon/Company Team Doctrine Branch of DTDD conducted constructive and virtual testing of the M1A2 from 1-23 April 1998. The experimental exercises were designed to provide analytical insights useful in deployment of the M1A2. The testing also examined various tactics, techniques, and procedures (TTP) that can exploit the enhanced mobility, lethality, and survivability of the M1A2 at the platoon and company levels. Results of the experiment will be used in development of *FKSM 3-71-1D*. This manual will serve as a bridge between the "analog" manuals that we are currently producing and the next wave of manuals that will be aimed at supporting the digital force. The manual will also update our lowest-level tactics to fit modern combat systems of significantly increased capability.

Background. The 1st Cavalry Division at Fort Hood, the first U.S. Army unit equipped with the M1A2, identified critical doctrinal shortcomings of TTPs available for this tank. These units cannot take full advantage of the enhanced capabilities of the new platform using the old TTPs.

Focus. The experimental focus was on two parameters: movement techniques and size of battlespace for the platoon and company team. We were looking to answer the following questions:

Based on the enhanced target acquisition capabilities of the CITV, and on the C2 capabilities afforded by the IVIS, can the tank platoon's frontage increase beyond the current doctrinal limit of 500 meters?

Given the enhanced target acquisition, situational awareness, fire control stabilization, and survivability of the M1A2, does the deliberate process of bounding overwatch become obsolete?

Testing

The following paragraphs summarize the results of the experiments conducted at Fort Knox.

Constructive Testing. A total of 47 cases were run using the Battlefield Environment Weapon System Simulation (BEWSS) model in the Interactive Distributed Engineering Evaluation and Analysis Simulation (IDEEAS) synthetic environment. A matrix of 10 runs was executed for the M1A1 tank as a baseline comparison; the remaining tests were made using the M1A2 tank. Several parameters were varied to assist in evaluating new TTPs. These parameters included the following:

- Two terrain data bases: Germany and Southwest Asia (SWA).
- Variable vehicle dispersion distances for both movement to contact (MTC) and defense missions: 100, 250, and 500 meters in SWA and 100, 200, and 300 meters in Germany.
- In the defense, three types of defilade positions: hasty, hull-down, and turret-down.
- In the offense, three types of offensive TTP options (illustrated in Figure 1):

Option 1 – current TTPs. This option entailed use of current doctrine and TTPs.

Option 2 – travel to contact. In this option, the company team used the traveling movement technique until contact was made. It then transitioned to fire and

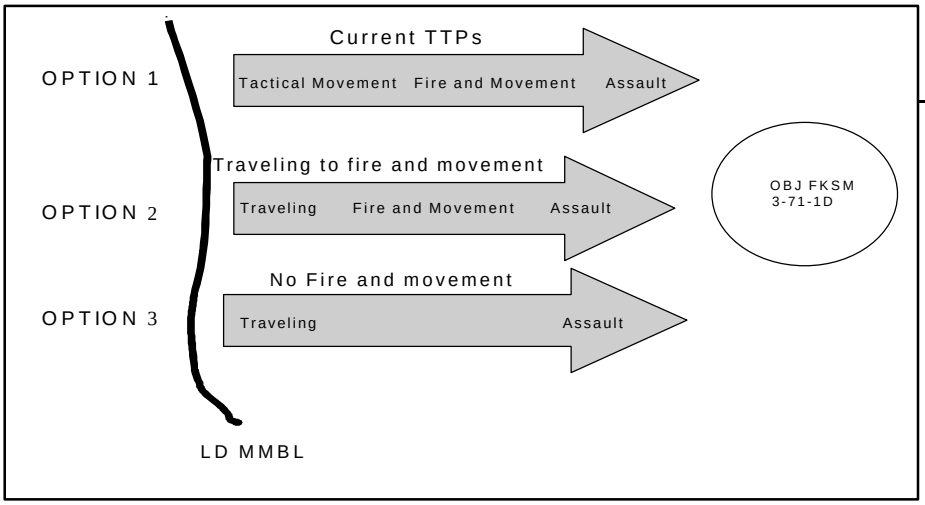

Figure 1. Offensive options in constructive testing.

movement, employing bounding overwatch. This option makes the traveling overwatch technique obsolete. Bounding overwatch is used only after enemy contact is made.

Option 3 – no fire and movement. The company team used the traveling technique, then transitioned directly to the assault upon enemy contact. The team did not execute fire and movement, instead orienting weapons on the enemy and firing on the move. This technique, which acquired the nickname "drive-by tactics," is discussed further in the "Conclusions" section of this article.

Each case or combination of these parameters was run for 20 iterations. Each case was then compared using average loss exchange ratios (LER). Each LER is in terms of one friendly vehicle.

Insights in Constructive Testing

OFFENSE

SWA: Options 2 and 3 are significantly better than Option 1; 100m dispersion is slightly better than 250m.

Germany: Option 1 is significantly better than Option 3. Option 1 has only slightly higher LERs than Option 1 in the German terrain. There is no significant difference among the three frontages.

DEFENSE

SWA: Turret-down is significantly better than hasty defense and somewhat better than hull-down. The 100m dispersion is significantly better than the 250m and 500m dispersions.

Germany: Turret-down is significantly better than both hasty and hull-down positions. Also, hull-down is significantly better than hasty positions. There is no significant difference among the three frontages.

Virtual Testing. Using the four M1A2 CCTT simulators at the SIMNET building, with 12 personnel from DTDD and MMBL and four from 16th Cav, we conducted platoon exercises to explore our parameters. After three days of station training and practical exercises and two days of trial runs and internal platoon SOP development, we began running missions. We conducted platoon missions as a part of company/team-level operations where the other two platoons were Modular Semi-Automated Forces (MODSAF) platoons (one tank and one mech), all controlled by one "Black 6" OC. We ran four missions a day and collected SME observations and insights through AARs. We ran five days of movement to contact (MTC) and three days of defense, all on the NTC terrain data base.

Insights in Virtual Testing

OFFENSE

Option 2, with up to 250m dispersion (METT-TC dependent), proved most successful.

Dispersion of 500m made formations difficult and reaction times longer on battle drills.

During contact, reporting should be by FM first, with follow-up by the appropriate digital report as time permits.

The loader must assist the TC with maneuver of the tank while TC is "down" using IVIS/CITV.

Crews were less effective when forced to fight their tanks buttoned up. However, they were able to fight open protected almost as well as open while in the simulator.

Platoons failed to successfully execute offensive missions when required to fight buttoned up and send digital messages over IVIS during contact.

DEFENSE

Dispersion between vehicles up to 250m (depending on METT-TC) proved most successful.

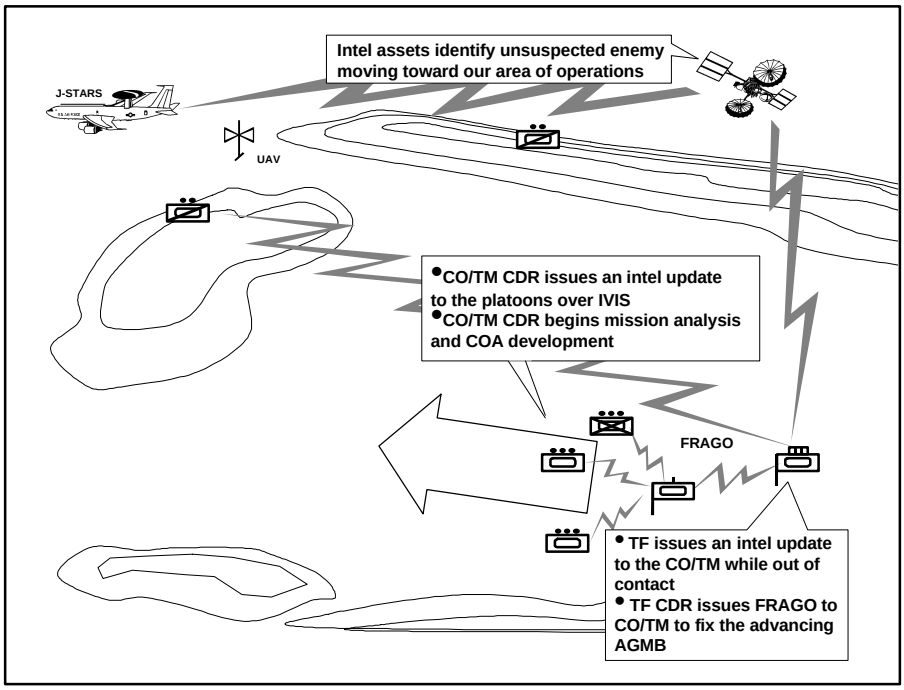

Figure 2. Company team receives intelligence and orders.

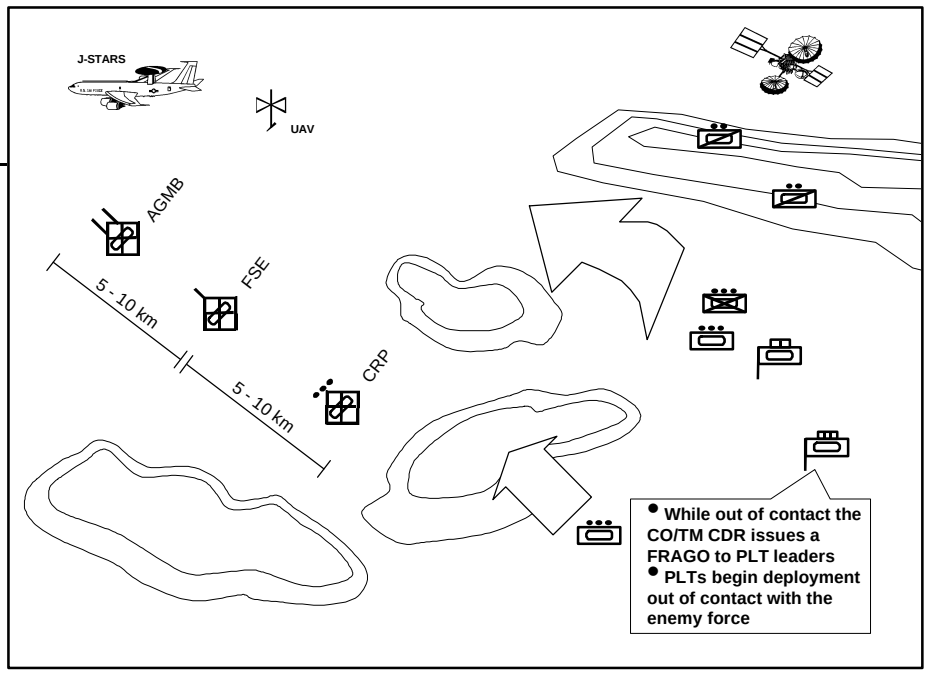

Figure 3. Company team deploys.

More than 250m between vehicles made it difficult to maintain mutual support and overlapping fields of fire, preventing the platoon from being able to mass fires on the enemy.

The M1A2's dual target acquisition capabilities, including CITV, were extremely effective.

The 3,000m trigger line was very successful.

Digital reporting may be used more in the defense than in the offense; SITREPs proved useful for reporting logistics status to the platoon sergeant.

When displacing or repositioning, TCs preferred to go open hatch; otherwise, they could fight open protected or buttoned up just as effectively as open.

Dismounted observation posts (OP) are no longer necessary because of the CITV; however, dismounted listening posts (LP) may still be useful depending on METT-TC.

Digital sector sketches proved an efficient way to get useful information to the platoon leader for use in development of the platoon fire plan.

Conclusions

We believe that the results of our experiments contain important implications for the heavy force and the way it should fight during the next decade. We set out to see if the M1A2-based armored unit should fight differently from the way its M60 (or even M48!) forebears did. To be honest, we expected to find that our digitized and modernized units would, with almost no exception, use very different TTPs. Many of our results did indeed bear out this assumption. Some, however, surprised us. In many ways, the M1A2 platoon and company team should fight in much the same manner as older units. In other situations and conditions, our modernized forces can fight very differently indeed, exploiting situational awareness and the capabilities of their modernized systems to be a far more agile and lethal combined arms team. The M1A2 can be the agent for bringing true precision maneuver to the battlefield.

Traditional Tactics Apply. Our first conclusion reinforces traditional tactical principles. In direct fire combat against an identified enemy, the attacking force should establish a base of fire with one part of its force and maneuver to a position of advantage over the enemy with another. Our experimenters tried different ways of "rushing" the enemy while trying to exploit the ability of an M1A2 to acquire the enemy and fire on the move. Nicknamed "drive-by tactics" by our experimenters, these invariably resulted in higher casualties or even mission failure. Rather, it was the tactics of fire and movement — one element covering the advance of another with fire — that most often led to success with minimum casualties. This is not to suggest, of course, that the M1A2's formidable abilities to move and shoot are superfluous. A maneuvering element should fire when it can. Further, although situational awareness provides unprecedented knowledge of the enemy, chance contact cannot be entirely eliminated, especially in relatively restricted terrain. Thus, reacting to contact will always be an important tactical task, and one at which the M1A2 excels. Finally, even (or perhaps especially) in armored combat, morale and shock effect are still of crucial importance. The psychological effect of seeing a company of tanks on line, advancing at speed and firing on the move, should not be underestimated. Our virtual and constructive experiments could not adequately portray this. Certainly, against a shaken or weak enemy, this remains a valid tactic. An additional benefit is that the M1A2 is devastating in the base of fire or overwatch role.

Our experiments demonstrated clearly the tremendous combat multiplier effect of the commander's independent thermal viewer (CITV). The ability of an "A2" platoon to acquire, engage, and kill multiple targets far exceeds that of previous systems. Thus, while the M1A2 may most often use traditional tactics in direct fire combat, it will be far more capable than previous tanks of executing these tactics to devastating effect.

Voice Commo Is Still Needed. Our second conclusion surprised no one. Digitized units will communicate digitally before the direct fire fight, but once close combat with the enemy begins, voice communications rule. Digital communications are too cumbersome for the heat of the direct fire battle. We do not see this changing in the foreseeable future, no matter how "user friendly" digital devices become. We plan to make the principle of "digital communications during the approach, voice commo during the fight" a doctrinal tenet.

Some Changes Are Small (But Distinct). Our experimenters also came to some interesting "how to fight" lessons learned regarding the M1A2 tank itself. These observations suggest that some changes and improvements to our capabilities are incremental, rather than truly dramatic, in nature.

First, and most important, the duties of the loader increase substantially — especially those on the platoon leader's and company commander's tank. With the commander busy with the CITV or FBCB2, it often fell to the loader to keep

his head up, watching the rest of the unit to maintain formation. In some situations, he even had to guide the tank from one place to another or was required to participate actively in keeping tank movements safe.

Second, in the defense, TCs almost always fought from their CITV (except when moving), while in the offense the most popular choice was fighting from the "open protected" position. Unfortunately, the M1A2's design prevents the use of the .50 caliber from the open protected position, a distinct disadvantage.

Finally, in the defense, the use of OPs proved unnecessary, although the crews felt that LPs are still important in certain situations.

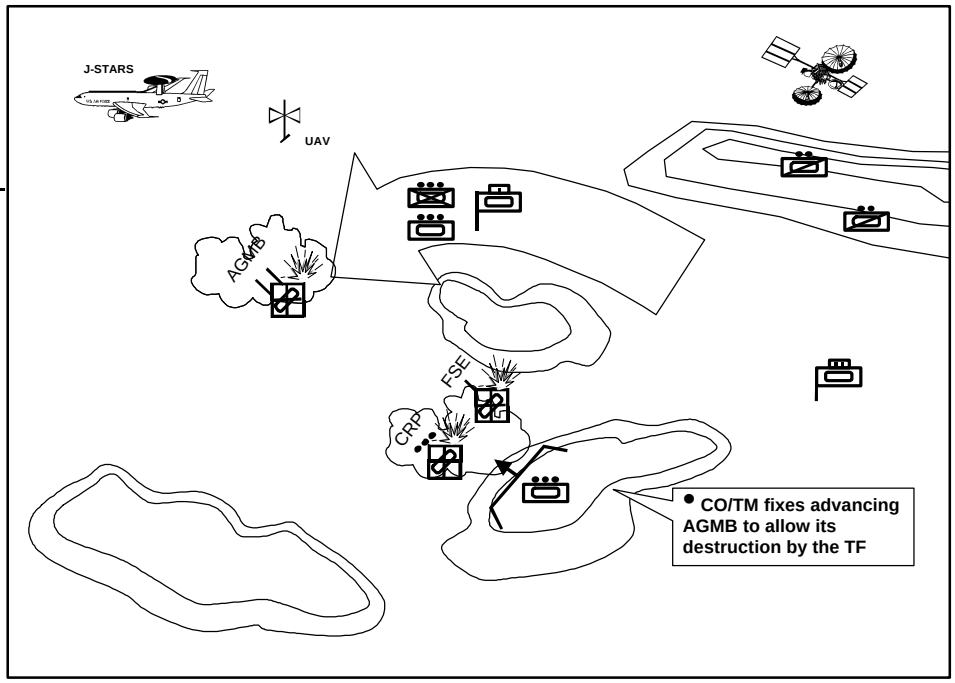

Figure 4. Company team fixes enemy's AGMB.

Battlespace Expands. A key difference in the way M1A2 units fight is an increase in the size of the battlespace they can influence mainly as a result of the dual target acquisition capabilities of the CITV. For example, dispersion between vehicles can increase up to 250 meters. Unit frontages can increase as well. Platoon frontages will grow up to 1,000 meters, and company frontages up to 3,000 meters (all figures are METT-TC dependent). While increasing the size of the area the tank unit can cover, however, expanded battlespace will stretch the unit's logistical resources in terms of CASEVAC, resupply, and maintenance.

Movement Techniques Change. Probably the major difference revealed by our experiments is in the way M1A2 units approach the enemy. Situational awareness made the use of "traveling overwatch" unnecessary and reduced the use of "bounding overwatch" to situations in which the unit is in very close proximity to the enemy. Units would employ the "traveling" movement technique to move quickly to the enemy's location and then attack him. Normally this movement would be in a practiced formation, allowing more effective control and reaction. During this rapid approach, platoon leaders and the company commander could sketch out and disseminate a rough plan to the unit using the FBCB2; the plan would describe how the unit would execute the attack upon reaching the enemy. In our experiments, this technique enabled the unit to rapidly finish off the enemy with fewer casualties. These quick-moving formations could also be more dispersed than in previous experience. Situational awareness, coupled with enhanced target acquisition capability, enabled platoons to occupy wider frontages and to control more terrain. Defensively, this obviously means that digital/modernized units can defend more territory. It is the offensive implications, however, that may be more important. The demonstrated ability to move rapidly in dispersed formations to critical battlefield locations, and then to strike the enemy with an overwhelming blow and finish him before he can react, is a finding of major importance. Figure 2 through Figure 4 illustrate this capability.

A Final Word

It is important to remember that the experimenters in our M1A2 tests were not bookish maneuver warfare theorists. They had no agenda other than to keep trying different tactical techniques until they found what worked.

What worked was something akin to what TRADOC thinkers are calling "precision maneuver." The modernized and digitized force seems in this experiment to represent an offensive striking force of great power. Having gained information dominance, and guided by excellent friendly and enemy situational awareness, this force can move quickly to the critical points on a nonlinear battlefield, where relatively small forces maneuver over and control great areas. Moving dispersed, these formations create a target that is difficult for the enemy to see and mass his combat power against. Further, they can move at unprecedented speed, relatively (but not entirely) free from fear of chance major contact or ambush. Once at the critical locale, these units can employ direct and indirect fires with tremendous effect, achieve a decision, and be prepared to move to the next critical spot.

This represents a different manner of fighting than the linear breakthroughs and exploitations to which we are accustomed. It is perhaps reminiscent of the type of fast-moving, hard-hitting cavalry operations of Nathan Bedford Forrest and James H. Wilson during the American Civil War. It is important to remember, however, that to realize fully the awesome capability of modern digitized equipment, units must develop, and then implement, a high-quality training program. Our experimenters benefited from repetitive practice, and one obvious assumption is that they could not have demonstrated the agility and lethality that they showed without having reached a very high level of proficiency. And this was a simulation — real life and its fog of war is undoubtedly more difficult. Digitization and modernization provide only potential. The Army of tomorrow will require superbly prepared and extensively practiced soldiers to reap the benefits of this revolutionary promise.

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