Infantry Brigade Combat Team Scout Platoon Anti-Armor Engagements at the Joint Readiness Training Center

by CPT Christopher R. Brown

Often operating forward of the brigade's main body, scout platoons may come into contact with enemy armored vehicles. In a security mission, platoons must provide counter-reconnaissance, or "the act of destroying or repelling enemy reconnaissance to prevent enemy observation of the protected force."[1] The platoon may also encounter armored forces that meet their engagement criteria, which specifies when and how friendly forces initiate engagement with an enemy force.[2]

At the Joint Readiness Training Center (JRTC), scout platoons often receive screen missions during the infantry brigade combat team's (IBCT) defense portion of the exercise. Before departing the intermediate staging base, scout-platoon and cavalry-troop leadership are confident in their Soldiers' ability to use anti-armor weapons (hereafter referred to as AT for brevity) – specifically the tube-launched, optically tracked, wireless-guided (TOW) missiles, Javelin and AT-4 – to destroy enemy armored vehicles. As observers/coaches/trainers (O/C/Ts), however, we consistently see units struggle with AT engagements; at the troop-and-below level, units are ill prepared to properly plan for and execute effective engagements against enemy armor. Because scout platoons in a screen can expect to observe and engage armored targets with their organic direct-fire weapons, this ineffectiveness reduces the protected force's ability to react to the enemy's course of action.

Based on O/C/T observations over three IBCT training rotations, cavalry-squadron AT engagements are generally less effective than what gunners and leaders expect. These engagements are ineffective primarily due to engaging at very short ranges, lack of effective engagement-area (EA) development and a lack of operator mastery of AT systems. Failure to remedy these issue will have major repercussions in the country's next major conflict.

Observations

We collected data concerning the IBCT cavalry squadron's use of organic AT weapons during three JRTC rotations. When Soldiers fired these systems, the unit's assigned O/C/T reported the type of weapon fired and the damage to the target. (Note that this data does not take into account instances in which a Soldier attempted to engage a target but operator error resulted in failure to fire.) If the projectile (or Multiple Integrated Laser Engagement System laser) struck the intended target, the O/C/T reported this as a hit, regardless of the adjudicated level of damage.

The data show that, of the 27 AT engagements observed, only about 19 percent were effective (defined as a registered hit), averaged across all AT systems. Although the data may appear to show that, as a raw percentage, Javelin engagements are more effective than TOW engagements, there is not enough data to demonstrate a statistically significant difference in effectiveness among the three systems (via chi-squared proportion test, $p \approx 0.24$). Therefore, we cannot definitively conclude that scouts are better at the employment of one system than any other, but effectiveness is generally low.

We attribute low effectiveness rates to a lack of understanding of engagement distances and insufficient detail in planning for employment of the systems. (Note: Although on the modified table of organization and equipment (MTOE), no cavalry squadrons brought M3 Carl Gustaf systems to JRTC during the data-collection period, so that system is excluded from this analysis.)

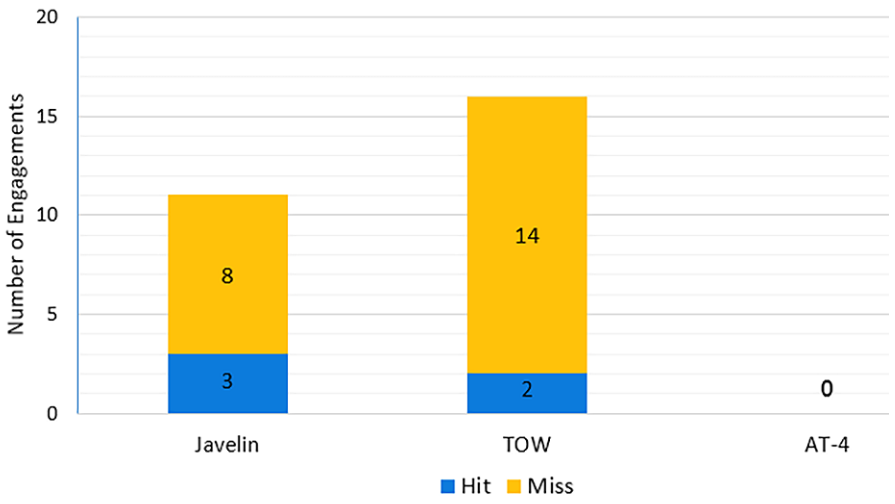


Figure 1. Number of hits and misses by system.

Engagement distances

To protect the firer from the blast and debris created when the projectile detonates on contact with a target, the projectiles of these systems must travel a certain distance before the projectile is armed. In most ineffective engagements, Soldiers tried to engage targets short of the system's arming distance.

In one case, we witnessed a gunner fire his humvee's mounted TOW-2B system from his position in the treeline toward an armored column breaching a minefield on the adjacent road. There were fewer than 100 meters between the firer and the target, and the engagement was unsuccessful.

During the after-action review the next morning, when asked about the engagement, the gunner was aware of the approximate distance from his humvee to the target but believed this to be enough for a TOW engagement. (See figures in Figure 2 for comparison of arming distances between systems.)

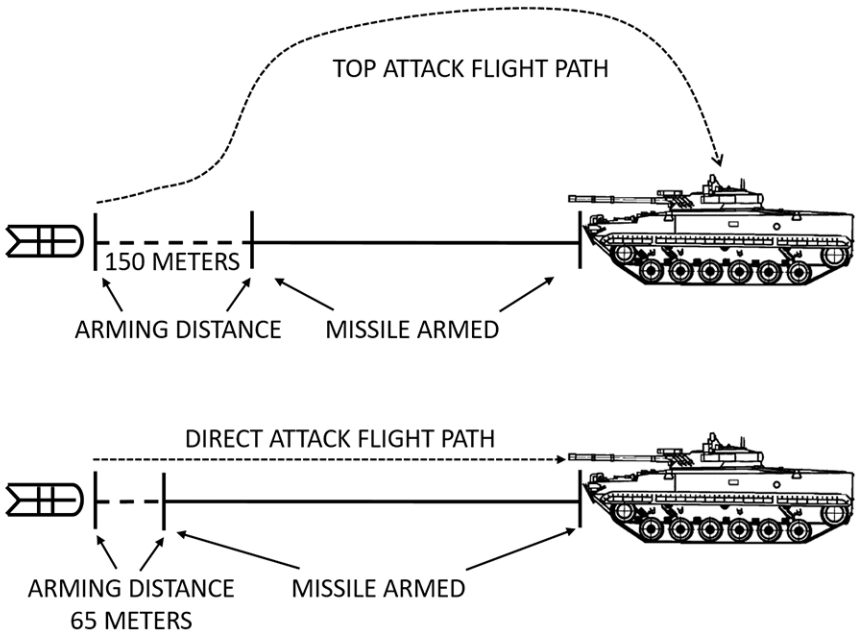


Figure 2. Javelin arming distance (500m to target).

This illustrates a problem we see in many units' AT engagements: Soldiers and leaders do not understand the ranges required to employ these systems. Engagements, particularly with the TOW and Javelin, are often short of the system's arming range. At such distances, these become, at best, non-explosive kinetic projectiles and will certainly not defeat armored targets. Gunners must understand the minimum engagement distance of their organic AT systems, and leaders must plan for maximum standoff to detect targets, prepare the system, track the target and fire.

As one of the world's most effective man-portable anti-tank missile systems, scouts should be well-trained in the employment of the FGM-148 Javelin. This system requires, at minimum, 65 meters for a direct shot and 150 meters for a more effective top-attack shot (Training Circular (TC) 3-22.37). Leaders shouldn't simply use 65 meters as a minimum distance to let gunners get closer to the target but should determine the risk inherent in having less standoff available, the type of vehicles the enemy is likely to employ and how the enemy is expected to maneuver. (Platoon leadership should pay particular attention to the squadron S-2's assessment of the enemy composition and course of action to determine how to array the platoon for the desired effect on the expected enemy.)

For example, a direct shot against the rear of a T-80 is likely to result in a catastrophic kill, whereas a frontal shot would have minimal effects. By obtaining more than 150 meters of standoff, Javelin gunners can achieve a top-attack shot, which is catastrophic against most armored vehicles. (Note: JRTC does not currently replicate Active Protection Systems (APS), which are becoming more common among potential adversaries. The tactics discussed here assume that enemy vehicles are not fitted with any type of APS.)

TOWs require at least 200 meters standoff (TC 3-22.32) for all 2B missile variants, which are the type most commonly in use. Similar to the Javelin, these can be used in both top-attack and direct-fire modes, but both modes require 200 meters to arm the missile.

Leaders should also be aware of the specific missile type they are using, as some variants use different guidance methods. Wire-guided variants are susceptible to interference when the guidance wire falls across electrically conductive materials, and vegetation may sever the wire, particularly in heavily wooded areas like most of JRTC's training areas; radio-frequency-guided variants do not have this problem.

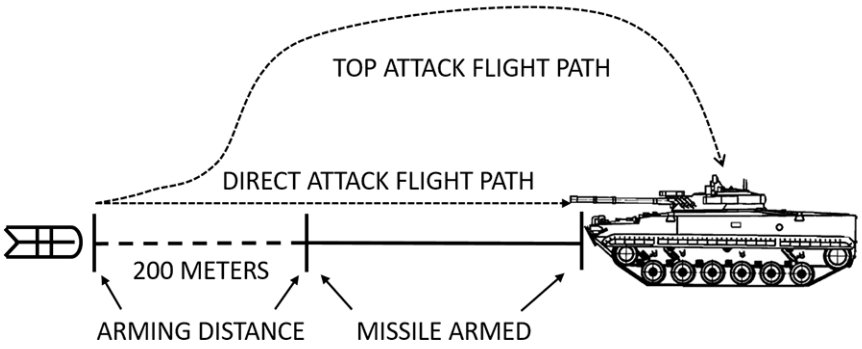


Figure 3. TOW arming distance (500m to target).

Obtaining enough standoff for AT engagements at JRTC can be difficult. With the exception of drop zones, some of the larger helicopter landing zones and a multi-purpose range complex in the west side of the training area, sightlines are obstructed by pine forests and rolling hills. Leaders must be deliberate in their selection of battle positions (BPs) if they want to effectively engage the enemy.

While the restrictive terrain impairs both enemy and friendly forces, the terrain often allows the adversary to maneuver close to the scout platoon and within the arming distance of Javelins and TOWs. The scout platoon, with the minimal protection afforded by armored humvees, is then vulnerable to the enemy's high-caliber weapons. However, opposing-force vehicles are often restricted to areas favorable to Javelin and TOW engagements, especially roads and wider trails, where Javelin and TOW gunners may be able to observe enemy vehicles rounding a corner with sufficient standoff to engage before they can be detected.

When terrain is too restrictive for TOW or Javelin engagements, scout platoons often have the AT-4 at their disposal. Although significantly less effective than other weapons, it can be employed at much shorter ranges due to its 10-meter arming distance.

When planning AT-4 engagements against armored targets, anticipate the need to bring multiple weapons to bear against the same target, in a coordinated-volley fire, to compensate for the smaller explosive payload.

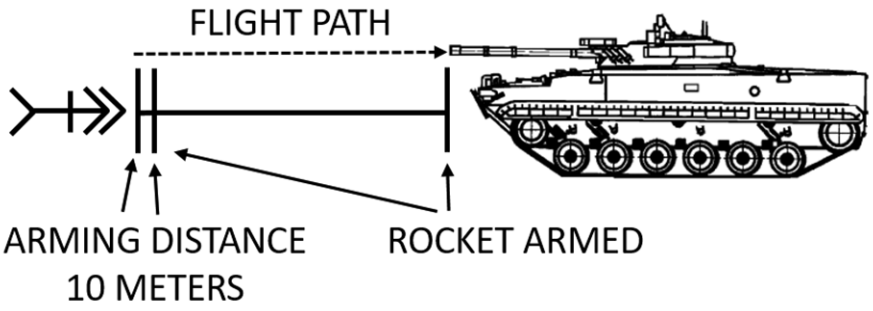
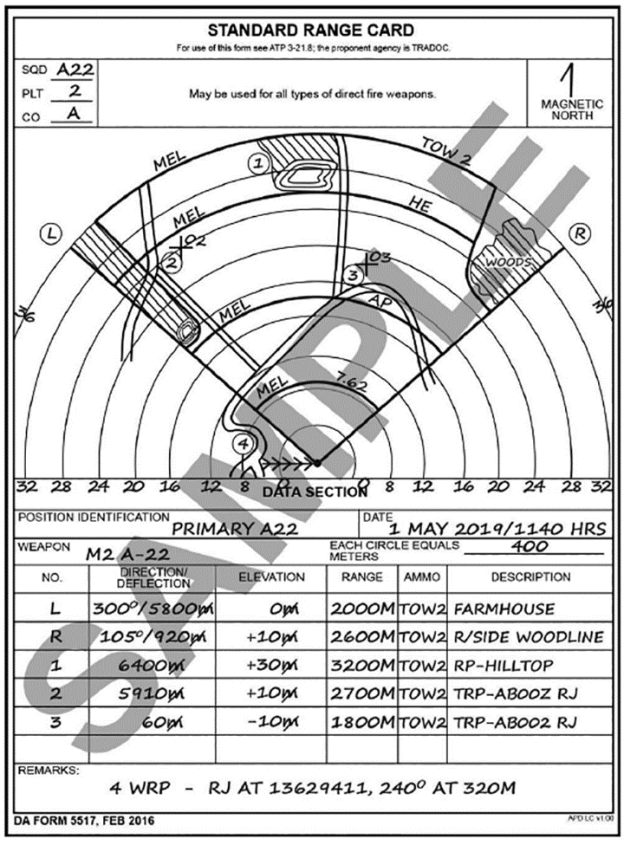


Figure 4. AT-4 arming distance (200m to target).

Solutions

Beginning at the section-leader level, leaders must have an understanding of EA development and the capabilities of their organic weapon systems. But it is not enough to memorize the steps of EA development or the minimum and maximum effective range of different systems. Leaders should practice, if only on a map or whiteboard, thinking through the development of an EA, how they will place their personnel and systems, and how they will engage the enemy. When possible, commanders should take their units to a piece of land in the training area to practice selection and occupation of observation posts (OPs) and BPs.



STANDARD RANGE CARD

For use of this form see ATP 3-21.8; the proponent agency is TRADOC.

SQD A22 PLT 2 CO A

May be used for all types of direct fire weapons.

MAGNETIC NORTH

MEL TOW 2 HE MEL AP MEL 762 WOODS

32 28 24 20 16 12 8 4 0 8 12 16 20 24 28 32

DATA SECTION

POSITION IDENTIFICATION: PRIMARY A22 DATE: 1 MAY 2019/1140 HRS

WEAPON: M2 A-22 EACH CIRCLE EQUALS METERS: 400

NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION
L	300°/5800M	0M	2000M	TOW2	FARMHOUSE
R	105°/920M	+10M	2600M	TOW2	R/SIDE WOODLINE
1	6400M	+30M	3200M	TOW2	RP-HILLTOP
2	5910M	+10M	2700M	TOW2	TRP-AB002 RJ
3	60M	-10M	1800M	TOW2	TRP-AB002 RJ

REMARKS: 4 WRP - RJ AT 13629411, 240° AT 320M

DA FORM 5517, FEB 2016

Figure 5. Sample of completed range card. *(Adapted from Figure 4-20, ATP 3-20.98)*

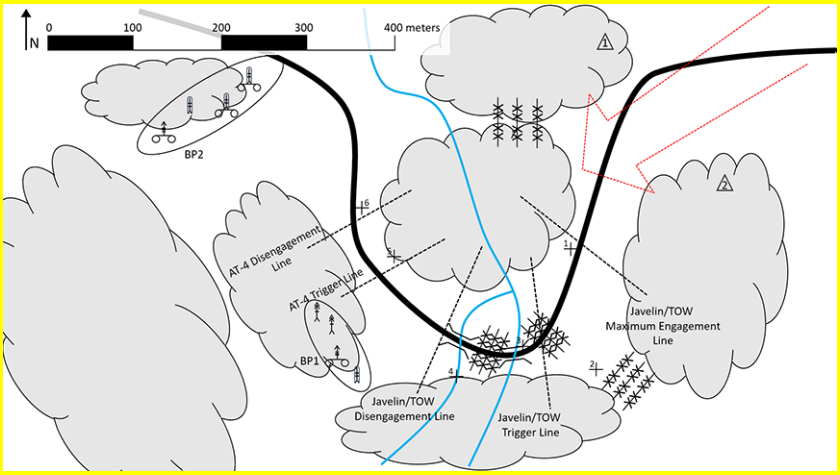


Figure 6. Platoon sector sketch.

Example scenario

The brigade S-2 expects the advance of enemy mounted reconnaissance elements, likely reinforced with a small number of T-80s. The troop commander has directed a platoon to screen the area depicted in this platoon sector sketch to identify enemy reconnaissance elements and destroy armored vehicles to disrupt the enemy's reconnaissance efforts and provide reaction time and maneuver space for the main defense.

Because of the terrain's restrictive nature, the platoon leader has placed two OPs to the east to detect and identify advancing enemy elements. These OPs are dismounted and can therefore remain well hidden to avoid compromise by the enemy. Wire obstacles are placed and integrated with the terrain to canalize enemy vehicles and force them to either cross the bridges at the bend in the road or bypass the bridges by fording the creek. Either course of action will slow the enemy advance, allowing Javelin and TOW gunners time to fire on their targets.

BPs are selected to provide enough standoff to allow gunners to prepare their weapons for firing, and track and fire upon multiple targets in the engagement area. Each BP is assigned a mounted M2 to augment local security and destroy any dismounts.

OPs 1 and 2 first hear the approach of vehicles, including tracks. They visually identify specific vehicle types and transmit that information to the platoon leader. When enemy vehicles reach the Javelin/TOW trigger line, Javelin teams and mounted TOW gunners at BPs 1 and 2 fire in top-attack mode. The Javelin at BP 1 keeps fires between Target Reference Point (TRPs) 1 and 2 (physically marked on the ground or using terrain features as a reference) and fire as far as the maximum engagement line to avoid endangering the OPs. The two TOW gunners and single Javelin team at BP 2 fire between TRPs 3 and 4 while the enemy is attempting to breach or bypass wire obstacles on the bridges.

In a field environment, subordinate leaders should plan and emplace their positions, then create range cards (Figure 5) at each position. The platoon leader then incorporates those range cards into a sector sketch (Figure 6), with which he can begin to refine the plan and develop direct-fire-control measures. These control measures should include trigger lines and disengagement lines for each system, which take into account maximum and minimum engagement distances.

Each OP and BP should have these direct-fire-control measures on their respective range cards and, when possible, visibly marked on the terrain.

Once platoon leaders have developed a tentative plan, another vehicle or dismounted troops should traverse the EA from the expected enemy direction of advance. This will allow platoon leadership to rehearse and understand how the terrain impacts the use of their AT systems and the effectiveness of the direct-fire-control measures.

Troop commanders should then integrate their platoons' sector sketches into a comprehensive troop sector sketch. This master diagram of the troop's sector gives the troop commander a detailed visualization of how his platoons are arrayed, allowing him to easily identify and address any gaps in the security plan. A troop sector sketch also allows for easier battle tracking and streamlined reporting, giving the troop commander better situational awareness.

Many scout platoons fail to rehearse actions upon enemy contact at JRTC, although they often have ample time to thoroughly develop their EAs. Rehearsals, as the final step of EA development, are often an afterthought and seen as unnecessary. As a result, security plans often fail upon direct fire contact with the enemy.

Leaders seem to know intellectually what their EA area should look like but need practice to experience how it should feel in reality. Actually taking the time to train EA development in a field environment will help our scout platoons experience what does and doesn't work in differing environments.

In planning and rehearsals, platoon leadership must think through the steps of the engagement process: detect, identify, decide, engage, assess. This is the decision cycle the platoon uses, either explicitly or implicitly, upon contact with suspected enemy.[3] The platoon must detect potential targets; identify the target to characterize and classify (friendly, neutral or enemy; if enemy: composition, location and level of threat); decide whether to engage and with what weapon systems; engage the target with the appropriate system; and assess whether the engagement resulted in the desired effect. Leaders must attempt to reduce the time to execute this process to more quickly react to threats and make decisions faster than the enemy can react to them.

In restrictive terrain such as that at JRTC, it can be beneficial to employ dismounted OPs ahead of BPs. This allows the platoon to make enemy contact with the smallest-possible element, allowing them to retain freedom of maneuver in accordance with the fundamentals of reconnaissance. Dismounted OPs can conceal themselves better than humvee-mounted or carried AT weapons, allowing the enemy to approach closer without compromising the platoon.

In this manner, the dismounted OPs act as "hunters" and the mounted TOWs or dismounted Javelins as "killers." In this hunter/killer configuration, the dismounted OPs can maintain radio contact with the rest of the platoon, providing early warning of enemy vehicle advance. This will allow the "killer" crews time to prepare (system startup and thermal cool-down) their weapons, shortening the reaction time needed to engage the targets.

This method can shorten the "decide" and "identify" steps of the engagement process. When platoons use this tactic at JRTC, they are able to achieve more hits on moving vehicles than those that sacrifice depth for width or concentrated firepower.

Clear and thorough engagement criteria is important to shorten the "decide" step of the engagement process. Engagement criteria should specify what type and number of targets should be engaged by which weapons. For example, if the platoon encounters two or fewer T-80 tanks, Javelin gunners will engage with top-attack mode, one per target. Implicit in this criterion is the requirement that Javelin gunners ***not*** waste a missile on lesser targets such as a *Boyevaya Razvedyvatelnaya Dozornaya Mashina* (literally, "combat reconnaissance patrol vehicle").

With clear engagement criteria, the troop or platoon leader has already made the decision to engage. All that is left is to engage the target and assess damage.

The Infantry School at Fort Benning, GA, offers an institutional solution to some of the problems presented here in the form of the Heavy Weapons Leader Course (HWLC), aimed at 11B and 19D Soldiers. This course teaches Soldiers to plan for and employ the Javelin and TOW systems in offensive and defensive missions from the section to troop level. This course is underused among 19Ds, likely because they are ineligible for the associated additional-skill identifier (ASI) (B8), but it presents a great opportunity to make experts of scout leaders who can return to their home stations and serve as experts in AT operations, using their newfound expertise to train others in their units.

To facilitate the emphasis on AT training, we should consider allowing 19D Soldiers to earn the B8 ASI and adding B8 positions to the cavalry-squadron MTOE.

There exists an ASI to identify Soldiers qualified on the Javelin and denote positions requiring that qualification within IBCT cavalry-squadron MTOEs. In the past, 19D Soldiers could earn the 2C (Javelin gunner) ASI by completing Fort Benning's Javelin course. Because this course hasn't existed since at least 2011, there is now no way to earn this ASI, and it is effectively obsolete.

If we want cavalry squadrons to take advantage of their organic AT weapon systems' fantastic capabilities, we should consider acknowledging Soldiers who have developed expertise on these systems with the associated ASIs. It would be of great benefit to the IBCT cavalry squadron to send noncommissioned officer (NCO) leadership to HWLC to learn the employment of these systems, earning the B8 ASI in the process, so they can be identified as experts in AT weapon employment.

We should send any cavalry-scout NCO who attends the Advanced Leader's Course (or any other course) at Fort Benning to HWLC, minimizing the additional cost to the Army. These NCOs can then assist in the development of TOW and Javelin gunnery programs at their home stations to qualify individual gunners. We could then keep the 2C ASI on the cavalry-squadron MTOE, and HWLC-qualified NCOs could then evaluate Javelin gunners and award them the 2C ASI at the completion of a successful Javelin gunnery.

Conclusion

In future high-intensity conflict, scouts may not be able to count on air superiority or the ready availability of external assets we have enjoyed throughout almost two decades of continuous conflict in Iraq and Afghanistan. The cavalry squadron must regain proficiency with its organic AT weapon systems to accomplish the mission they will invariably be asked to do – specifically to provide early warning to higher-level commanders and delay or disrupt enemy attacks to provide those commanders with reaction time and maneuver space, especially against a military peer.

To that end, IBCT cavalry troops and scout platoons should focus their efforts on AT gunners' individual training, understanding of systems' differing engagement distances and how they are impacted by terrain, and developing thorough EAs that mitigate the impact of terrain on AT engagements. As a cavalry community, we should allow AT weapon operators to prove their expertise, earning ASIs that would identify them as experts across the force.

JRTC is seen as the antidote to "America's first battles"; this is the idea that, as a military, we are historically ill prepared for the first few battles of a major conflict. Eventually we learn from our mistakes and are able to regain the initiative. However, this cannot work unless we spend time preparing for a large-scale, high-tempo training event like a brigade JRTC rotation.

While we do our best as O/C/Ts to ensure units learn from their experiences, we want units to be prepared to perform effectively and refine their techniques, rather than learn from the ground up in the two weeks they have available to them. Without effective training and preparation prior to arriving at JRTC, we will continue to fall victim to "America's first battles," which we cannot afford to lose.

CPT Chris Brown is the cavalry troop senior O/C/T, assigned to Operations Group, JRTC, Fort Polk, LA. Previous assignments include commander, Company E, 1st Battalion, 29th Infantry, Fort Benning, GA; plans officer, 3/3 Infantry, Fort Benning; scout-platoon leader, Company B, 8th Battalion, 1st Cavalry, Fort Lewis, WA; and platoon leader, Company B, 2nd Battalion, 1st Infantry, Fort Lewis. His military schooling includes Armor Basic Officer Leader's Course, Army Reconnaissance Course, Maneuver Captain's Career Course and Cavalry Leader's Course. CPT Brown holds a bachelor's of science degree in engineering psychology from the U.S. Military Academy and a master's of science degree in operations research from Ohio State University.

Notes

[1] Army Technical Publication 3-20.98.
[2] Ibid.
[3] Ibid.

Acronym Quick-Scan

APS – active protection systems
ASI – additional-skill identifier
AT – anti-armor weapons

BP – battle position
EA – engagement area
HWLC – Heavy Weapons Leader Course
IBCT – infantry brigade combat team
JRTC – Joint Readiness Training Center
MTOE – modified table of organization and equipment
NCO – noncommissioned officer
O/C/T – observer/coach/trainer
OP – observation post
TC – training circular
TOW – tube-launched, optically tracked, wireless-guided (missiles)
TRP – target reference point