

Current-Generation Light Forces Do Not Fare Well Against a Powerful, Armored Opponent

AS WE SAW IN CHAPTER ONE, WHEN LIGHT FORCES WERE USED in a rapid-reaction capacity to confront the heavier forces of Saddam Hussein's Army in Operation Desert Shield, they succeeded in their mission. However, as noted, they succeeded only by default, since the attack never came. In essence, the light forces performed as a deterrence force. But what if deterrence had failed and the attack *had* come—if Saddam's heavy forces had advanced and engaged the much lighter and less mobile American force that was screening the critical Saudi ports? Of course, that was August 1990. More than a decade later, how well would a light force equipped with modern capabilities fare in repelling a larger heavy force? When we conducted the analysis, the results were not encouraging. *Even with air and attack helicopter support, the current-generation light force proves to be at a significant disadvantage when confronting a capable heavy force.* Following a brief discussion of the context for the analysis, we discuss this finding in more detail.

Setting the Context for Analysis

To answer the question, analysts looked across three scenarios that vary across terrain type, threat, mission, and force mix, as summarized in Table 2.1. In essence, the first and second scenarios are the same except for the terrain. In the Southwest Asia (SWA) scenario (which is played out in Saudi Arabia), the terrain is open with long lines of sight (LOS), whereas in the East Europe scenario, the terrain is much closer. This variation enables analysts to explore the impact of terrain on force performance, particularly more stressing conditions (i.e., more limited LOS) and their influence on technology. Whereas in the first and second scenarios a full light infantry brigade (DRB) faces a heavy threat in a prepared defense, in the Latin America–Atlantic Command (LANTCOM) scenario a partially attrited DRB in the second phase of a forced-entry operation faces a slightly less heavy threat from a hasty defense.

As for the force mixes, the Blue forces shown for the first two scenarios are comparable to what the 82nd Airborne DRB consisted of in the Desert Storm time frame (around the time that the initial analysis was performed). Generally, this DRB has one airborne brigade headquarters company, three airborne infantry battalions, one artillery battalion (105mm towed), one air defense artillery battery, one attack helicopter company, one armor company, and

one artillery battery (155mm towed). All told, the DRB includes 4,297 short tons of equipment and contains 3,450 soldiers. For the LANTCOM scenario, the Blue forces are similar (though attrited). Four armored gun system (AGS) platforms were included, since they were envisioned to be a key direct-fire system in the force. Although acquisition decisions have since eliminated this particular program, it was used here as a surrogate for a notional future direct-fire capability.

The Red forces possess some sophisticated weapons, including T-72S with AT-11 (fire-on-move) missiles, BMP-2 armored personnel carriers (APCs) with AT/P-6 missiles, self-propelled 120mm multiple rocket launchers (MRLs),

Table 2.1—Three Basic Scenarios and Key Distinguishing Parameters

Scenario	Terrain	Threat	Mission	Force Mix	
				Blue Forces	Red Forces
SWA	Open and flat, with moderate trafficability; LOS=3–5 km	Red heavy division consisting of two armor regiments attacking along two primary avenues of approach	Blue light infantry conducting prepared defense	15 HMMWV-Scouts 58 HMMWV-TOWs 54 Dragons 18 Stingers 6 Apaches 14 Sheridans 8 155mm howitzer 18 105mm howitzer	323 T-72S (Tanks) 219 BMP-2 (APCs) 35 RTR-60 (APCs) 30 120/180 MRL (rocket artillery) 72 152 SPH (cannon artillery) 16 HAVOC/HIND (helos)
East Europe	Close and rough, with limited trafficability; LOS=1–3 km	Same as above	Same as above	Same as above	Same as above
LANTCOM	Close and rolling hills (partially covered), with limited trafficability; LOS=1–5 km	Red heavy division (-) consisting of two brigades and a battalion attacking along three primary avenues of approach	Partially attrited Blue light infantry conducting hasty defense following a forced entry	34 HMMWV-TOWs 4 AGS 24 Javelin 6 Apaches 8 155mm howitzer 18 105mm howitzer	131 T-72S 131 BMP-2 6 120/180 MRL 12 152 SPH 6 HAVOC/HIND

and 152mm (2S3) howitzers, which are considered to be medium-to-hard targets, and mobile air defense units (2S6) with radar track 30mm guns and SA-19 missiles. The enemy does not have sophisticated overhead RSTA and must rely on command vehicle forward-looking infrared (FLIR) and visual recognition for the direct-fire engagement.

With this context, we now turn to discussing the main finding presented above.

Light Forces Lose, Driven Mostly by an Inefficient Indirect-Fire Battle

That the light forces do not fare very well is not surprising, given that the light forces are significantly outnumbered in the scenarios; the more interesting question is determining why the result occurs, something the analysis helps to uncover.

Figure 2.1 shows the timelines of the simulated battles for the three scenarios, broken up into two “spaces”—the indirect-fire and direct-fire battles.

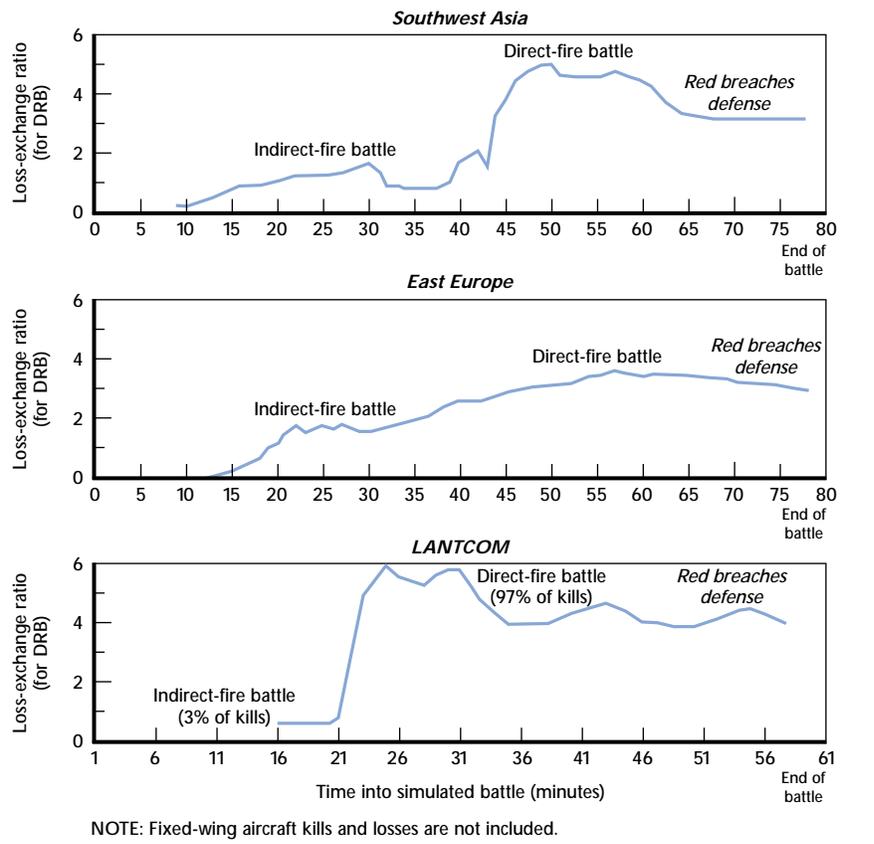


Figure 2.1—In All Three Scenarios, the DRB Loses the Battle

The pattern across all three scenarios is the same: The current-generation light force is unable to inflict enough damage on the advancing enemy armor with today's indirect-fire weapons, thus leading to an intense direct-fire engagement.

The timeline plots the DRB's loss-exchange ratio (LER)—the chosen outcome measure here—over the course of the simulated battle. The LER captures the ratio of Red system losses to Blue system losses. It is important to remember that in all scenarios, Red forces significantly outnumber Blue forces; thus, low ratios (even though positive for Blue forces) still result in poor overall battle outcomes. In general, the lower the ratio, the worse the outcome. In other words, LERs below about 5:1 or 6:1 usually mean that the Blue force loses the battle, while LERs up around 9:1 usually signify a draw and those above 10:1 usually constitute a win—i.e., Red is defeated in place and Blue has sufficient systems to continue to fight another engagement.

In examining the indirect-fire battle, we find that the current artillery systems, towed 105mm and 155mm howitzers (cannons) and the associated rounds (dual-purpose improved conventional munition (DPICM) and high explosive (HE)) do not provide significant attrition against the armored, mobile Red force—e.g., less than 3 percent of the attrition in the LANTCOM scenario. In the direct-fire (close) battle, the DRB's direct-fire weapons—led by the HMMWV-TOWs and the Sheridans and supported by the Apaches—outperformed those of the attacking force. With longer-range sensors and weapons reach, the DRB was generally able to start the close fight before the attacking force. This advantage, however, was short-lived. As the Red force continued its advance, the DRB range and reach advantage was reduced, resulting in a notable reduction to the overall LER—ultimately, between 3:1 and 5:1, depending on the scenario.

Direct-Fire Systems Are Vulnerable

The current-generation direct-fire systems are also very vulnerable. At the end of the close battle, the Blue forces had relatively few direct-fire systems intact. For example, of the original 58 HMMWV-TOWs in place at the start of the battle, only about 25 percent (15 weapons) remained at the end in the SWA scenario, and fewer remained in the East Europe scenario; the results were even worse for the 14 Sheridans, with only two remaining in SWA and one in East Europe. The main problem is that the two systems are forced to engage the enemy at points on the battlefield where they are exposed (within the LOS of the missiles and main guns of enemy systems).

The Results Across Scenarios Vary by Terrain Type

While the patterns of the results across the scenarios were all fairly similar, the results themselves did vary by terrain type. As shown in Table 2.1, the three scenarios were chosen to examine the impact of terrain type on DRB systems, varying from fairly flat terrain in SWA with long LOS to the close and rough terrain of East Europe, with much smaller LOS. Interestingly, the DRB did relatively better in the open terrain of SWA, where its TOWs could exploit their long range, whereas in the closer terrain of Eastern Europe and LANTCOM, the outcomes were worse, since the enemy could close the range into a more advantageous direct-fire battle. In addition, the terrain in East Europe precluded a successful Apache standoff attack.