ARSENAL™: ROLLING POWER

The combat capability of the modern army depends on a careful balance of many types of advanced weapons, all of them fast moving, all of them deadly. This episode of ARSENAL will show you a battle-tested example of how today's armies are organized to most effectively use their rolling power.

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The basic combat formation of the modern land army is the division. Divisions contain all of the elements needed to wage land combat, including infantry, armor, artillery, and other supporting arms. Divisions are substantial in size, from 10,000 to 20,000 troops, with nearly 500 armored vehicles and 2,000 other vehicles. The United States' Army breaks down its divisions into two groups: the heavy maneuver divisions such as armor and mechanized infantry divisions, and the light divisions which include light infantry, airborne and air assault divisions.

Although all divisions, from light infantry to heavy maneuver, contain the essential components needed for *effective* land combat, in this programme we will examine the rolling power of the heavy maneuver division, the largest and most powerful fighting unit on today's battlefield. It combines a deadly mixture of armored vehicles, infantry, artillery, attack helicopters and logistic support. Two types of heavy maneuver divisions exist, armor and mechanized infantry. The names of these divisions might suggest that they are substantially different in composition and equipment. But in fact, armor and mechanized infantry units today are very similar to each another.

You'll find that all the Heavy Divisions, be they Infantry or Armor, pretty much are a mirror of each other except from one difference of one battalion, one armor battalion. We'll have a mix of Bradley fighting vehicle Infantry battalions, and M-1 Tank battalions. That mix gives us a good balance for firepower, for movement and for communications command and control. With that we'll have self-propelled Artillery to back them up. A 155 mm. plus a battery of the Multiple Launch Rocket System that was so effective in Southwest Asia. There's a battery in each division. We also have an Aviation Brigade which includes one battalion of Apache helicopters. Day/night, long range, precision weapons and a battalion of general support aviation, Black Hawks and some Hueys and we also include with that some of the small observation helicopters that are used to designate artillery, precision artillery fires. [COL LeMoyne]

The composition of mechanized infantry and armor divisions is due to the evolution of land tactics since World War I. In the First World War, before the invention of the tank, most armies were based around infantry divisions. During the war, infantry divisions alone proved lacking when faced with new innovations in tactics and technology, especially the new machine guns and artillery. Tanks were a technological solution to part of the problem. But a greater problem remained. How should modern combat arms: the tank, the infantry, the artillery, be organized to best perform on the battlefield? World War 2 saw considerable experimentation with new tactics, including units based mainly around tanks. By the end of the war, a consensus called combined arms began to emerge. The divisions which had proven most successful were a careful blend of infantry, armor and artillery. Each had their strengths and weaknesses. But the strengths of one often overcame the weaknesses of another. So was born the modern heavy maneuver division.

The importance of the maneuver division today does not mean that other forms of combat have been ignored or abandoned. Take the case of infantry. Mechanized infantry is a heavy maneuver version of infantry, but more traditional forms still exist. Heavy maneuver divisions are well suited to high intensity conflicts such as in Europe or in the deserts of the Mid East, as was so clearly demonstrated during Operation Desert Storm. But light infantry has proven essential in low intensity conflicts and guerrilla wars which proved to be unsuitable for heavy maneuver divisions, such as in Korea, Vietnam, Grenada and Bosnia.

The maneuver divisions are so named for their tactical mobility, or their ability to deliver a powerful response to the heart of the action. The heavy maneuver divisions substitute rolling power for human endurance.

An Army division is a complex organization built around many smaller combat formations. The smallest unit is a squad. Several squads make up a platoon. Several platoons form a company. Several companies form the basic maneuver element, called a battalion. A tank battalion has about 50 tanks. Several battalions together form a brigade. A division is made up of several brigades. This episode of ARSENAL examines four types of combat units in a division to see what their roles are in the broader framework of modern land combat.

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Some theorists in World War 2 were convinced that the tank could dominate the battlefield by itself. But it soon became quite clear that in many situations, tanks without infantry would be vulnerable.

A heavy maneuver division, such as the 24th Infantry Division, uses mechanized infantry battalions. The biggest difference between mechanized infantry and traditional infantry is that the mechanized battalion uses armored infantry vehicles like we see here to transport soldiers to the battleline.

Infantry vehicles evolved along with mechanized infantry tactics. The US Army infantry vehicle of World War 2 was the half-track. Although it had a limited amount of armored protection, its rear tracks gave it better mobility in rough terrain than an army truck. In the 1950s and 1960s, infantry vehicles evolved into fully tracked armored personnel carriers such as the M113.

The 113 APC, Armored Personnel Carrier, was literally a carrier. It carried the Infantry to the fight and at that point they dismounted, got out and fought as traditional Infantrymen have done for centuries. [COL LeMoyne]

These vehicles were completely armored, though not as thickly as a tank. In the 1980s, the Bradley infantry fighting vehicle came into use. The main advantage of the Bradley over earlier vehicles is its tremendous fire power: a 25mm autocannon and a pair of TOW guided anti-tank missiles on the turret.

Today's armored infantry vehicles, such as the Bradley Fighting Vehicle, are far more effective than their predecessors. They provide greater cross-country mobility and offer superior firepower. Earlier infantry vehicles were armed with only a heavy machine gun. The Bradley has a 25mm cannon, anti-tank missiles, and firing ports for its infantry passengers. The older generation had armor that was barely adequate to stop machine gun fire. The Bradley is protected from guns up to 23mm.

The Bradley is built in two versions, the basic M2 Bradley infantry vehicle, and the similar M3 Bradley cavalry vehicle. The cavalry version is used for scouting mission and carries fewer troops in the rear compartment.

The Bradley is the most sophisticated of the infantry combat vehicles in service today. Compared to most European infantry combat vehicles, it has superior firepower. Although the 25mm Bushmaster cannon is not significantly more powerful than the cannon on other infantry vehicles**,** its fire control system makes it much more effective. The gun is stabilized, allowing the Bushmaster to be accurately fired even while the vehicle is moving. In addition, the Bradley is fitted with a thermal imaging night sight, which allows it to fight day or night.

Such weapons represent a general trend in the evolution of infantry firepower. Since World War I, the infantry squad has grown smaller, but its firepower has grown immensely. In the First World War, a typical infantry squad was 20 or more men armed only with rifles. An infantry squad in a Bradley has seven men, two of them armed with squad machine guns and the rest with assault rifles. In addition, the squad can carry a Dragon anti-tank missile, as well as other weapons such as anti-tank rocket launchers. But the heaviest firepower is on the vehicle itself. Besides the Bushmaster cannon, the Bradley also carries two TOW missiles which are capable of destroying nearly any tank on the modern battlefield.

Infantry fighting vehicles expand the tactical options of the infantry commander. In some situations, the infantry can remain inside their armored protection. But if the circumstances demand it, they can get out of the vehicle and conduct their mission on foot, using traditional infantry tactics. The Bradley's infantry squad enters and exits from a large drop down ramp at the rear end of the vehicle.

Though the tools of the infantrymen have evolved greatly over the years, their mission has remained one of the enduring realities of land combat. Once the infantry leave the armored shelter of their vehicles, their task remains to close and engage the enemy in combat on foot. Even in an age of rolling firepower, the foot soldier remains the anchor of all land battle tactics.

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Tanks provide the greatest shock force of all the armored vehicles in the maneuver division, overwhelming an enemy with firepower and mobility. They protect themselves with thick shields of armor. The US Army's current main battle tank is the M1A1 Abrams, a modernized version of the M1 Abrams, first introduced in the 1980's. In addition to sporting a main gun which has grown from 105 to 120mm, the latest versions also incorporate important improvements in communications and armor protection.

As imposing as such a tank is, there is still the need for close cooperation between the infantry and the tanks on today's battlefield. One of the threats that most worries tankers is the enemy infantryman armed with small portable anti-tank rockets and missiles. When enemy infantry is present, tankers need friendly infantry.

Tanks and infantry can be used side by side. But normally combined arms tactics mean using tank units and infantry units: for example, a company of mechanized infantry and a company of tanks operating on the same mission. When used in such a fashion, the geography and enemy dispositions will dictate the tactics.

If it is likely that enemy tanks will be encountered during an attack, tanks are likely to be in the vanguard. The tank's unique combination of armored protection and firepower makes it an ideal antidote to enemy tanks. Though infantry vehicles can withstand heavy machine gun fire, they are not well protected against heavy tank fire.

On the other hand, if the enemy is heavily dug in, with infantry and anti-tank missiles, the infantry vehicles are likely to be in the lead. They will disembark their teams away from the enemy lines, and the battle will be conducted on foot. The infantry vehicles and tanks will provide covering fire from the distance, using use their superior mobility to exploit the breakthrough when the enemy defenses are overcome.

The composition of a combat team is also dependent on terrain. The ultimate aim is to configure the combat team to provide the maximum flexibility and strength, overwhelming the enemy with a shattering combination of armor, mobility and firepower.

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The maneuver division has an impressive amount of firepower at its disposal. Besides the direct fire provided by the guns from the armored vehicles, indirect fire from artillery battalions and the firepower of attack helicopters can further contribute to the combined arms battle. Artillery has long been called the "king of battle". Artillery can pound enemy positions before an attack, gravely weakening an enemy. In maneuver formations, such as the 24th Infantry Division, this firepower is concentrated in the field artillery brigade.

Artillery can be categorized into three basic types, related to the flight paths of their projectiles: mortars, howitzers and guns. These days, mortars are mainly used as the "pocket artillery" of the infantry: light weight and easily moved.

Howitzers are the most common weapon of the regular artillery, varying considerably in size and appearance. The two basic categories of howitzers are the traditional towed howitzers, and the self-propelled howitzers.

The artillery weapons in maneuver formations are mounted on self-propelled vehicles to ensure that the artillery can move with the tanks and mechanized infantry. These vehicles, with their long gun barrels, can easily be confused with tanks. There are two main differences: they lack the heavy armor of tanks and their cannon are designed to fire at much longer ranges. The backbone of the division's artillery is the M109 self-

propelled 155mm howitzer. There are two battalions of howitzers in the division, totaling 48. These battalions can each deliver a ton of projectiles and high explosives in a single devastating salvo.

In recent years, a new vehicle, called the FAASV has been developed for the artillery. The FAASV is an armored ammunition handling vehicle. In the past, ammunition for the M109 was brought forward by unarmored vehicles, which were vulnerable to enemy fire. The new FAASV better protects the ammunition, and has handling equipment inside such as a conveyer belt, to speed the loading of the M109 howitzer.

One of the most significant technological revolutions in artillery has been the advent of new computer navigation equipment. The accuracy of artillery is very dependent on knowing precisely where the artillery is located in relationship to the enemy target. In the past, this was done by laborious and time-consuming surveys. Newer systems, like the improved M109 Alpha 6 Paladin we see here, contain their own positioning systems. Previously, howitzers had to be clustered together at a surveyed site. Their proximity to one another made them vulnerable to enemy counter-battery fire. But with their own automated navigation equipment, the self-propelled howitzers can roam the battlefield independently. This makes them far less vulnerable to enemy artillery fire, and immensely increases their survivability against other modern artillery systems. In addition, the computer assisted navigation data makes it possible for the artillery crew to aim and fire their weapon much more quickly. This greatly enhances the firepower of the field artillery.

Although the M109 is the most numerous howitzer in the division, a second type, the M110 is also in service. The M110 is a 203mm howitzer which provides heavier fire power. It can fire normal ammunition 12 miles and rocket assisted ammunition up to 18 miles. The projectile fired by the M110 is about double the weight of the M109s'.

Besides traditional cannon artillery, the US Army is now using rocket artillery systems, called MLRS for Multiple Launch Rocket System. The main advantage of rocket artillery over traditional cannon artillery is range and firepower. The rocket artillery can reach targets futher away, and with a much greater high explosive payload. The rocket system is mounted on an armored tracked vehicle derived from the Bradley infantry vehicle. Each launcher vehicle is equipped with twelve rocket tubes. Each individual rocket is armed with 644 submunition grenades. A single rocket can devastate an area the size of a football stadium.

The MLRS was the first US Army artillery system to take full advantage of the revolution in computer navigation systems, helping it to obtain pinpoint accuracy. Each launcher vehicle has its own onboard navigation system. At the beginning of the mission, the vehicle drives up to a pre-surveyed spot where it obtains its location data. From that point on, the navigation system automatically keeps track of where the vehicle is located. When target data is received by the launcher vehicle, it is inputted into the vehicle computer. The computer then analyzes the target data and its own location data, resulting in a solution to automatically aim the rocket launcher at its target.

The Multiple Launch Rocket System has been designed to operate with a minimum of personnel. There are only three men in the crew, compared to eleven on an M110 howitzer. The loading of the large rockets has been simplified by automation.

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Helicopters have added a new dimension to the classic maneuver division. The division's aviation brigade performs a wide variety of roles, using several types of helicopters. The combat chopper is still used as a basic troop carrier, a role which was inaugurated during the Vietnam War. Helicopters also provide heavy lift capability, providing transportation for vehicles and light artillery to areas otherwise unreachable. The most recent role performed is that of the attack helicopter, exemplified by aircraft such as the AH-64 Apache which serves with the division's attack helicopter battalion.

Army aviation is an integral part of every single one of our Army divisions. It performs a variety of missions all the way from general support, which can be anything from carrying critical items of supply to moving personnel about the battlefield, to command and control to courier type missions to attack helicopters capable of going and extending the reach of the division commander out in front of his forces. [LTC Stewart]

For firepower support, nothing matches the attack helicopter. A maneuver division such as the 24th Infantry has a single attack helicopter battalion with a total of 18 Apache helicopters. The attack helicopter can provide the ground forces with three main types of fire power. Lightly armored vehicles can be destroyed with a 30mm cannon, and the 2.75-inch rocket pods provide high explosive fire power, much like an airborne artillery platform. But the most lethal weapon in the attack helicopter's arsenal is the anti-tank missile. The Apache carries the Hellfire missile. It is laser guided, having a range in excess of five miles and able to destroy any tank in existence. Attack helicopters can serve as the division commander's reaction force. Because of their great speed compared to ground vehicles, they can race to nearly any trouble spots and provide concentrated, pinpoint firepower.

...if it's within Artillery range, I think the commanding general would use Artillery and his ground forces to take care of it. When it's out on the fringes of that capability, then he would use attack helicopters. Now when you think about the firepower that you get from both Artillery, ground forces and the attack helicopter, it's just a dynamite combination. [LTC Stewart]

The helicopter provides the ground force commander with a combination of mobility and heavy firepower, unmatched by any other army weapon.

For an army to effectively employ its rolling power, it must train realistically. For the past decade, the United States Army has learned the hard rules of war in unique wargames conducted at the National Training Center in California's Mojave Desert. On this barren terrain, the Divisions of the United States Army have pitted themselves against a battle-hardened enemy, taking away invaluable combat experience, essential for survival on the mechanized battlefield.

For centuries, armies have practiced the difficult art of war by peacetime training. The more realistic the training, the more effective the learning. Modern mechanized warfare has proven especially difficult to practice with its vast scale and its complex blend of infantry, armored vehicles, artillery and aircraft. In the 1970's, advances in laser technology opened new opportunities to safely and realistically simulate modern weapons during training.

Like a modern gun, laser beams travel in a straight line, and hit with pinpoint accuracy. Unlike a gun, low power lasers do no damage to the target they hit. Advances in laser technology led to military training systems such as MILES, the Multiple Integrated Laser Engagement System. MILES consists of two elements: a laser which fires a beam at the target, and laser detectors which determine whether the soldier has been hit.

The MILES harness and the halo are simulated for battle purposes to tell when a soldier gets shot or injured. Every weapon, like the M16, has a laser. When it's fired, it sends out a beam. When the beam hits any of these little black sensors here, you have a buzzer here that will go off. You can't shut it off by yourself unless an evaluator comes and shuts it off for you. That goes the same for the halo here. If it hits you in the head anywhere here, then it automatically sets off this sensor right here and you're dead. [SP4 Elliot]

Before this system was put into place, traditional methods of wargames were very much like children's games of cowboys and Indians, with soldiers arguing which side had won. The ruthless realism of MILES eliminates any guesswork regarding the effectiveness of each side's fighting.

The real thing is that there's no question who shot you. It's not somebody's judgment call. Well, he shot you first. First draw wins if you're on target. [LT Kramer]

Realism is enhanced by coding the laser signal. Each type of weapon, from the infantrymen's M-16 rifle to the massive 105mm gun on an M1 tank, has its own special laser code. This way an M16 rifle cannot take credit for destroying a tank during a wargame, just as such an outcome could not possibly occur in a real battle.

A small buzzer on the infantryman's back is set off when he is hit by an opponent's laser. On armored vehicles, a flashing yellow beacon light signals that the vehicle has been knocked out. The MILES computer then shuts off its laser transmitter so the armored vehicle can't fight any longer. Lasers are invisible, so blank ammunition is used by infantrymen to simulate firing. Tanks use a small explosive simulator to mimic the flash and smoke of a real battle, since blank ammunition is not practical for their guns.

Generally, these lasers have a very good fidelity with real systems. If you get killed, you would have been killed by a real system. I am very much in favor of it. I don't know of a better way to do it. It's an excellent training aid. [LTC Dees]

In the late 1970s, while recovering from the Vietnam trauma, the Army's focus shifted back to its main mission of defending Europe from the massive forces of the Warsaw Pact. Taking a cue from the Navy's Top Gun program, the Army planned a realistic training area to teach soldiers to fight outnumbered and still win.

The desire for more realistic training was combined with the new laser training technology to form the National Training Center at Fort Irwin. Fort Irwin is located in southeastern California, in the Mojave Desert, south of Death Valley. Its harsh environment, nearly barren but for a few coyotes and scorpions**,** has provided the setting for the U.S. Army's most realistic force-on-force training since the early 1980's. At the heart of this facility is the Operations Center, locally nicknamed the Star Wars building. The operations center has extensive communications and video links to the battlefield, enabling each exercise to be monitored and studied.

The Star Wars building is primarily used to monitor brigade operations out in the field. Our primary job here is to monitor operations and be able to graphically take a look at the operations and provide some feedback to the player unit by virtue of tracking their systems out in the field and taking particular shots, as we call them, of certain operations that occur so that we can provide them feedback. CPT Tritch

MILES forms the first layer of the NTC network. Each armored vehicle is fitted with a transmitter which emits a signal that is tracked on the computer screens at the Star Wars building.

The ultimate purpose of recording the battle is to prepare an After Action Review for the visiting units engaged in the mock battles.

The purpose of an After Action Review here at the National Training Center, is to facilitate for the unit that's out here to bring out the lessons learned. What was done in the battle? What was done right? What did the unit not do? And then ask the question: Why? Why did it happen or why did it not happen? [CPT Crosson]

At Ft. Irwin, the training experience is not all computers and lasers. The other critical ingredient is a realistic enemy force to fight the visiting unit. Here at the National Training Center, the enemy force is called the OPFOR, short for Opposing Forces. The OPFOR is patterned on the former Soviet Army. They use Soviet-style tactics and battle formations. The Soviet pattern was selected due to the Army's concentration on its Central European mission in the early 1980's when the training center was founded. In the 1990s, with tensions declining in Europe, the OPFOR began preparing an alternative pattern based on Middle East armies such as the Iraqis. Still, the existing Soviet pattern proved helpful since so many Third World armies were equipped and trained by the Soviets. The OPFOR troops differ from actual Soviet soldiers in one important respect. They are far better trained. They are no paper tiger. In fact, many feel that they are the best mechanized unit in the entire United States Army.

They're deadly. They're real deadly and don't care. They're going to walk through you. If you mess around and give them half an inch, they're going to take the rest of it. They will kill you. SFC Barber

The Opposing Forces unit uses tanks modified to resemble standard armored vehicles of the former Soviet Army. These visually modified vehicles, called VISMODS for short, are mostly built on surplus Sheridan light tank chassis. The Soviet T-72 tank forms the inspiration for the OPFOR's tank force. Unlike the actual Soviet

equipment which is thickly armored, the T-72 VISMOD has a turret shell made of fiberglass. The heart of the Soviet mechanized formations is the BMP-1 infantry combat vehicle. The BMP VISMODS cannot actually carry an infantry squad, but visually duplicate the vehicle on the battlefield.

Mechanized columns are protected from air attack by Shilka anti-aircraft vehicles. The VISMODs at Ft. Irwin are remarkably similar to the Soviet originals even though their fearsome array of four 23mm cannons are nothing more than simple steel pipes.

The BRDM-2 is the mainstay of Soviet-style reconnaissance and anti-tank units. The VISMOD version of it is based on the Hum-Vee light truck. But it is not the equipment which characterizes the Opposing Forces, but their relentless training. They conduct mock battles week after week, giving them a special home-team advantage over visiting units from distant bases.

The Opposing Forces units not only have the advantage of training and terrain, they often have numerical advantage. The purpose of training at Ft. Irwin is not to stage a fair fight between equals. It is to subject the visiting team to an experience which mimics the real confusion and stress of modern war.

On a cool November afternoon, we visit the base camp of the OPFOR as they plan an attack on a visiting unit from the 4th Infantry Division from Fort Carson, Colorado. The visiting units are designated as the Blue Force. The OPFOR headquarters is located in the cusp of a rocky mountain to keep it hidden from the prying eyes of enemy scouts. The headquarters of the OPFOR presents a thorough briefing to its unit commanders who will lead tomorrow morning's attack.

(VIDEO OF BRIEFING)

While the Opposing Forces officers are briefed, their troops prepare for the mock battle. As in any mechanized unit, there is plenty of work to keep the troops busy. Armored vehicles require daily attention, especially in the desert.

With a hard day's work done, most of the OPFOR troops bed down for the night. But there's no rest for the scouts, who head out into the desert to reconnoiter the enemy Blue Force positions in preparation for the next morning's battle.

Today's early morning attack will pit the full weight of the Opposing Forces against a small opposing Blue Force from the 4th Infantry Division. The OPFOR commanders expect to face a task force of about 30 tanks and 30 light armored vehicles. The balance is even more in their favor, 40 of their tanks facing 13 Blue Force tanks, 118 infantry vehicles against 13 Blue Force vehicles and 9 anti-tank vehicles against 9 Blue Force vehicles. The OPFOR attack will begin with a feint by a forward detachment into the northern sector of the battle area, nicknamed the Valley of Death. The forward detachment numbers about 25 armored vehicles. Then, the main attack will come in the south through a mountain pass between Furlong Ridge, and a small mountain nicknamed the Whale. Small skirmishes by scout units the night before have preceded the main battle. Reconnaissance is an essential prelude to battle.

At 05:30 in the morning, the enemy OPFOR forward detachment begins its attack into the Valley of Death. Their commander hopes to lure the bulk of the Blue Force into the northern sector while his main force crashes through the Furlong-Whale Gap. The Blue Force commander is not fooled. Team Reaper, a small force of armor, supported by Cobra helicopters, decimates the OPFOR forward detachment after they become bogged down in a minefield.

At 06:30 the main OPFOR battle group heads out in narrow columns, toward the Furlong-Whale Gap. The dust kicked up by the lead vehicles will obscure those following behind, making it difficult for the Blue Force to gauge their size.

The Blue Force commander sends out scout helicopters to determine the location and direction of the main body of the attacking OPFOR unit.

Helicopters are the modern counterpart of traditional cavalry, able to cover the flanks of the army with their speed and mobility.

Reports from the helicopters prompt the Blue Force commander to call in air support. Battle is joined at 07:00 when four Blue Force A-10 attack aircraft begin strafing the lead enemy OPFOR tank column as they are reaching the Whale Gap. Opposing Forces casualties are heavy.

The first enemy OPFOR tanks in the Whale Gap are destroyed by mines. In moments, laser beams criss-cross the desert in invisible fury as the two armored forces begin their laser duels.

Over a mile away, the Blue Force M1 tanks swing into action in an attempt to repulse the OPFOR attack.

They came through and hit the obstacle. The Whale's Gap itself was smoked. The first couple of vehicles came through four or five at a time and we hit them. Then the masses came through. What they did was find out where we were, and from where we were shooting. They fixed us, held us in place and got our attention there. The rest of them just came around them to the left flank and just walked through. That is the doctrine as it should be. They've studied the tactics and work on it. When they come at you, they mean business. It's not a bunch of vehicles coming at you and saying: OK well, you killed me, no big deal. They will maneuver, zig-zag and come out. They mean to kill you. It seemed like they came out with an attitude that they're here to wax everybody that's in front of them. It's not like they're just here as a training tool. They come out here to train, they come out here to kill you.

After a half-hour of intense fighting, the enemy Opposing Forces unit has overwhelmed the Blue task force. But few OPFOR vehicles have reached the objective due to the Blue Force's tenacious defense.

...we killed, I believe, 40 to 50 tanks and about 80 to 90 light armored vehicles. My combat power was 13 tanks starting out because of prior missions, so I was extremely pleased with the way the task force did. And the soldiers, particularly at their level, observed the standards and did well.

As the wargames end, the Blue Force soldiers will return to their home base, knowing that they have faced the best. The lessons learned have been priceless. In actual combat, these lessons would have come at a very high cost in men and machines. Realistic training is as essential as high-tech weaponry on today's mechanized battlefield. This training has prepared the US Army for an even greater challenge, in another desert far removed from these bloodless laser wargames.

There is no better way to demonstrate the rolling power of combined arms than to see how it performs in actual combat. The 24th Infantry Division spearheaded the attack of the 18th Corps during Operation Desert Storm in 1991. One of the division's toughest battles took place after President Bush's declared cease-fire.

Iraqi units violated the cease-fire and tried to break out of the encirclement at the Remallyah Oil Fields, near the city of Basra.

We had overrun and routed about five more divisions who had fled and run towards Basra. We did security operations for about two more days and on the morning of 2 March the Hammurabi Division attempted to break out of the Basra area, engaged our security elements in direct fire and whereupon we sealed them into a pocket. [COL LeMoyne]

The Iraqi forces intended to break out of the Remallyah pocket across a causeway leading back into central Iraq. They substantially outnumbered the task force of Lieutenant Colonel Ware standing in their way.

I requested permission to return fire because my Charlie Company was in danger and he would have been the guy that would have been hit hardest because he was closest to the southern edge of the Remallyah oil fields. [LTC Ware]

Colonel Ware reported that the Iraqi armored vehicles had turned their weapons against his units, and that there were explosions on the ground nearby. The brigade headquarters authorized Colonel Ware to return fire.

...we had artillery seal off the southern end. We had Apache helicopters seal off the northern end. These guys were getting across a bypass on a causeway that we didn't know was there. [LTC Ware]

The Iraqis were retreating across a bypass on a causeway which was supposed to have been destroyed.

When we rolled into the battle position. Alpha Company was already engaging targets. They were almost out of weapons and ordnance. So we relieved them on station. They broke for fuel. We occupied the battle position and continued the battle. There was no delay in firepower that was being focused on those targets in the Remallyah oil field. Bravo Company stayed there on line. We were in the battle position for no more than 25 minutes. Every aircraft I had fired almost all of its weapons. We came back with only a couple Hellfires, some 30 mm. and very few rockets. There were plenty of targets to hit. [CPT Woods]

With the Iraqis tied down by the infantry and the causeway sealed off by artillery and helicopters, Col. LeMoyne ordered one of his battalions to counterattack.

On the brigade commander's order, an attack was launched into the oil field from two directions. The attack destroyed a large amount of Iraqi Armor and combat support vehicles. After only four hours of fighting, the oil field was secured —a textbook example of combined arms battle.

As was so clearly demonstrated by the 24th Infantry Division in the Gulf War, the power of modern armies depends on a combination of technology, training, tactics and organization. Hi-tech weapons alone cannot win wars. Rigorous and realisitc training, effective organization and skillful leadership are equally essential. It is this dynamic combination that gives the heavy maneuver division its rolling power.

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