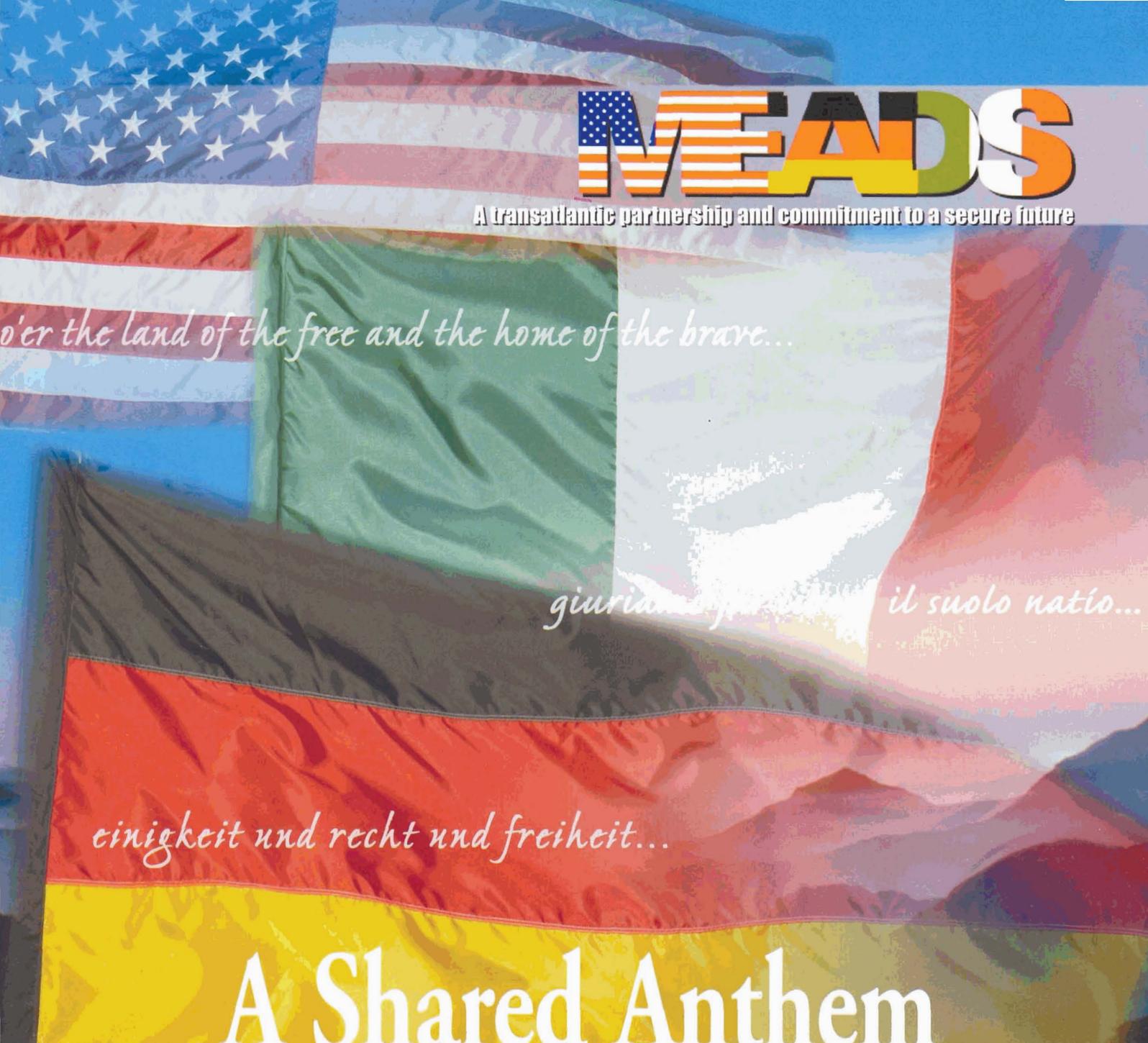


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Table of Contents

- 4** Operation Iraqi Freedom | ADA soldiers encounter triumph and tragedy on the road to Baghdad
by Lt. Gen. Joseph M. Cosumano, Jr
- 12** Clear Skies | Air defenders deploy to protect National Capital Region from terrorist aerial attacks
by Maj. Rousell Thomas and Jaj. Kevin Hutchison
- 13** Where We've Been, Where We're Going in Space | Envisioning integrated global air and missile defense systems
by Lt. Gen. Joseph M. Cosumano, Jr
- 16** Task Force Cobra | U.S. and Israeli air defenders provide two-tiered missile defense to shield Israel against missile strikes
by Specialist Kris Steward



Front Cover:

A Patriot missile launcher prepared for action during Operation Iraqi Freedom.



ADA and Operation Iraqi Freedom

by

Maj. Gen. Stanley E. Green
Chief of Air Defense Artillery

The issue of the Air Defense Artillery Yearbook highlights the participation of ADA soldiers and units—including the now renowned 507th Maintenance Support Company—in Operation Iraqi Freedom. It presents the story of ADA soldiers who battled their way from Kuwait City to Baghdad or defended Israel and Jordan in broad strokes; there will be more detailed, more authoritative retelling once information now classified can be released.

The Operation Iraqi Freedom saga is a heroic one with enormous implications for Air Defense Artillery. The bravery and dedication of ADA soldiers has once again been confirmed while our present and future doctrine—including the requirements for even more effective, more mobile theater air and missile defense systems—have been revalidated on the field of battle.

The smoke of the Iraqi battlefield obscured other dedicated ADA soldiers who continued to crew Avengers and Sentinel Radars in Afghanistan or deployed with the same systems to defend the National Capital Region against terrorist aerial strikes. But Operation Iraqi Freedom has lent new urgency to the creation and integrated, global network of missile defenses, Homeland Air Defense, and the accelerated deployment of Ground-Based Interceptors to defend America against long-range missile attack.

Meanwhile, the rescue and jubilant homecoming of Fort Bliss, Texas, prisoners of war who wore Quartermaster insignia but ADA unit patches became the war's major media event. This is appropriate because Operation Iraqi Freedom was a gigantic rescue mission. In the face of fierce resistance and at great risk to themselves, U.S. and Coalition soldiers, sailors, airmen and marines rescued millions of Iraqis from tyranny, torture and oppression.

—Maj. Gen. Stanley E. Green



Maj. Gen. Stanley E. Green, chief of Air Defense Artillery, visits a 4-5 ADA Avenger crew deployed to protect the National Capital Region from terrorist attacks.

Iraqi Freedom

ADA Soldiers Encounter Triumph and Tragedy On the Road to Baghdad

by Maj. Rousell Thomas and Maj. Kevin Hutchison



Their mission accomplished, U.S. air defenders celebrate the toppling of Iraqi dictator Saddam Hussein by unfurling the Stars & Stripes and ADA banner at Baghdad International Airport.

At the outset of Operation Iraqi Freedom, no one would have imagined that a maintenance support company from Fort Bliss, Texas, would turn out to be the war's most publicized unit; nor would anyone have predicted that one of its supply clerks, Pfc. Jessica Lynch, would emerge as the war's most celebrated soldier. By contrast, the Patriot brigades, battalions and batteries that the 507th Maintenance Support Company supported were closely watched from the very beginning of Operation Iraqi Freedom.

The world expected a rematch of the 1991 Gulf War duel between Patriot missiles and Iraqi Scuds. "Would the new Patriot Advanced Capabilities 3 (PAC-3) missiles with their hit-to-kill technology prove more effective than the PAC-2 missiles employed during the first Gulf War against corkscrewing Scuds over Saudi Arabia and Israel?" Many people thought that the future of homeland missile defense as well as theater missile defense rested on the answer to that question.

As it happened, the sharply anticipated rematch between U.S. Patriots and Iraqi Scuds never occurred, although U.S. and Kuwaiti Patriot batteries dramatically proved their effectiveness against shorter-range but more accurate Iraqi missiles. U.S. Central Command credited U.S. and Kuwaiti Patriot units with downing every Iraqi missile fired into Kuwait or against Coalition field forces, except those that fell outside the Patriot's protective engagement envelope or crashed harmlessly into the ocean or empty desert. Patriot accounted for nine intercepts, two of which were scored with "hit to kill" PAC-3 missiles.

"Soldiers, marines, airmen, and civilians quickly developed overwhelming confidence in the Patriot Weapon system," said Col. Charles A. Anderson, 32nd Army Air and Missile Defense command chief of staff. "The CFLCC [Coalition Forces Land Component Command] headquarters was under attack twice by TBMs [tactical ballistic missiles], and a Patriot battery less than a kilometer away launched missiles and destroyed the incoming TBM overhead. In fact, on one occasion, pieces of shrapnel from the TBM could be heard falling on top of the 32nd AAMDC headquarters roof. Patriot never missed, and not a single TBM had the opportunity to hit its intended target. We are proud that no lives were lost and no equipment was destroyed by a TBM."

Sirens wailing in Kuwait City, gas masks and personnel scrambling for bunkers reminded reporters of Dhahran and Tel Aviv during the 1991 Gulf War. Press reports attributed the first combat firing of a PAC-3 missile and Operation Iraqi Freedom's first missile intercept to Spc. Nicholas Bunch, Sgt. Michael Harris and 1st Lt. Marsha Hackett of Delta Battery, 5th Battalion, 52nd Air Defense Artillery, 11th ADA Brigade. According to a *Los Angeles Times* story, the Patriot missile scored a direct hit on an Iraqi missile bearing down on Camp Thunder, a 101st Airborne Division (Air Assault) staging area near the Iraqi border.

"It just came out of nowhere," Bunch told *Albuquerque Journal* reporter Miguel Navrot "At first, we didn't think it was real. We were all just sitting there, watching the screen. You don't really expect it in real life."

"Sitting a few berms over from the Patriot," Navrot reported, were lines of CH-47 Chinook and UH-60 Blackhawk helicopters belonging to the 101st Airborne, as well as their tented quarters. They were using a strip of closed-off highway to land and maintain the birds."

"The missile was coming for the helicopter stockpile," said Bunch."

According to the *Milwaukee Journal Sentinel*, soldiers of the 159th Aviation Brigade, 101st Airborne Division (Air Assault), gave the 5-52 ADA soldiers a "standing ovation" for downing the missile before it hit the Screaming Eagles' helicopters.



Soldiers of the 159th Aviation Brigade, 101st Airborne Division (Air Assault), gave 5-52 ADA soldiers a "standing ovation" for downing an Iraqi missile before it hit the Screaming Eagles' helicopters.

Iraqi missile launches and Patriot intercepts continued as Coalition forces surged into Iraq during the opening days of Iraqi Freedom. Each intercept drew accolades from reporters "embedded" with the protected forces.

"Saddam's missile was aimed squarely at the Camp Doha [Kuwait] command post for the Coalition land assault," reported a Fox News journalist. "Had it hit, American and British commanders of the land war may well have perished. This crucial Coalition headquarters could have been wiped out. We understood perfectly that Patriot had thwarted what might have been a crippling blow."

Fox News analyst Oliver North, traveling with a group of marines, praised Patriot units for guarding an airbase that sat in the sights of Iraqi Scuds. "It has been struck four times," says North. "Not one of those missiles, whether they were Scuds or Frogs or the Al Samoud missile, got through thanks to the Patriot missiles that surround it. There's a lot of marines, soldiers, sailors, airmen and guardsmen who are very grateful for those Patriot PAC-2 and PAC-3 missiles."

"Those of us who spent last week in the Kuwaiti desert are here to tell you ballistic missile defense works, providing civilians and troops alike with a marvelous shield against nasty dangers," reported the *American Enterprise*. "American antiballistic-missile technology was demonstrated to be the defensive bulwark of our future."

This time, however, the Iraqi missiles were aimed not just at population centers, assembly areas or large airfields, as during the 1991 Gulf War, but also at U.S. advancing armor and mechanized infantry columns and mobile tactical operations centers.

Soldiers of Alpha Battery, 2nd Battalion, 43rd Air Defense Artillery, 108th Brigade, were elated to learn they had been picked to defend key bridges over the Euphrates, an assignment that pushed them forward just behind the advancing 3rd Infantry Division (Mechanized). "We feel that we are the best unit out here," Sgt. Christopher Cook of Alpha Battery told ABC News reporter Stephanie Gosk "We're getting the mission we deserve, and that's the tip of the spear."

But the battery's heavy Patriot missile launchers sank into the sand soon after the 2-43 ADA convoy, headed for a location west of Nasiriya, crossed into Iraq. "Patriots were not made for this, not made for this at all," battery commander Capt. Douglas Lynch told the ABC News reporter.

"Soldiers in the unit let out air in the tires and struggled to chain the stranded launchers to other, more desert-worthy vehicles," Gosk wrote. "But the victory of getting the trailers moving again was replaced by new frustration, as the launchers sank again after rolling just a few feet."

After the weary Patriot battery finally rolled into position after a day and a half of non-stop travel, she noted, "In less than an hour, the Patriot missiles were set up, and it was the moment of truth for the computers and the radar. Everything worked and everyone was relieved. Maybe Patriot systems were made for this, after all."

Soldiers who took part in the dash for Baghdad no doubt wished the lighter, more mobile Medium Extended Air Defense System—scheduled to replace or complement Patriot sometime in the future—had been fielded before Operation Iraqi Freedom, but the decision to push Patriot batteries forward, in accordance with established doctrine, paid off.

"Just to the right of the 110-vehicle convoy, a Patriot anti-missile battery answered, with the sparkling contrails of two missiles clearly visible as they soared toward an impact point nearly six miles away," reported a National Journal correspondent touring Iraq with the marines. "The Patriot battery reported a successful intercept and confirmed that the [Iraqi missile] would have hit the ground less than a third of a mile in front of the convoy."

A Central Command press release dated April 1 announced the first Operation Iraqi Freedom Patriot intercept: "For the first time during Operation Iraqi Freedom, a Patriot firing battery destroyed an Iraqi ballistic missile launched against U.S. and Coalition forces in Iraq today. The intercept, with a PAC-3 missile, took place at approximately 9:00 a.m. (1:00 a.m. EST) on Tuesday. The eight intercepts prior to this have taken place against missiles directed towards Kuwait. It is not known at this time what type of munitions the Iraqi ballistic missile was carrying. United States and Kuwaiti Patriot units continue to provide defense for Coalition Forces."

"The Iraqis have sought to disrupt the logistical push," wrote Michael R. Gordon of the *New York Times*. "On Tuesday, the Iraqis fired an al-Samoud surface-to-surface missile at the Americans. An anti-missile battery fired a PAC-3 interceptor at the Iraqi missile and knocked it down over Bushmaster, an assembly area in Iraq for Army forces. Debris from the intercept rained down on a commander from the 82nd Airborne Division."

Recognizing the gravity of the missile threat, the division pushed 5-52 ADA forward to the newly captured and newly rechristened Baghdad International Airport. As a result, Patriot fire units were on hand at the gates of Baghdad as Army and Marine units advanced into the Iraqi capital.

"There's a lull now, but there was intense fighting for the past few hours," reported Lisa Rose Weaver, a KFOX-El Paso news reporter embedded with 5-52 ADA. "Here at the airport with 5-52nd ADA, we were hearing Iraqi incoming rounds. The ground vibrated but we were not under direct attack. There were

bright flashes on the horizon, officials here estimating it was about eight kilometers away," she continued. "Also, U.S. mortars as well as heavy artillery could be heard. Earlier in the evening, missiles from multiple launch rocket systems could be heard. So there has been a wide variety of different type of armaments, and extremely heavy pounding and intense barrages at certain points."

Helping Patriot soldiers celebrate the intercepts was Pvt. Carlos Depina of Echo Battery, 2nd Battalion, 43rd Air Defense Artillery, 108th ADA Brigade. At 17, Depina was the youngest Patriot launcher missile crew member deployed for Operation Iraqi Freedom. Before moving into Central Iraq, Depina's battery had engaged and destroyed the second Iraqi missile fired into Kuwait. However, the exultation over the Patriot's performance was dampened by two friendly fire accidents that claimed the lives of one American and two British pilots.

In Kuwait, a Patriot missile intercepted and destroyed a British Tornado, killing its two pilots as they returned from a mission over Iraq. The friendly fire incident became an international incident. The Patriot brigade commander visited the Royal Air Force detachment to pass on his condolences to the families of the dead pilot and navigator. In a second friendly fire event, a U.S. Navy F/A-18 Hornet may have been shot down by a Patriot missile battery deep inside Iraq.

"By the fifth day in the desert protecting the Karbala Gap, Echo Battery's only action of note had been to shoot down what was thought to be a short-range Scud missile—followed by the morale-sapping news that in all probability, Echo had accidentally shot down a U.S. Navy jet instead," reported 5-52 ADA's embedded reporter, Lisa Rose Weaver.

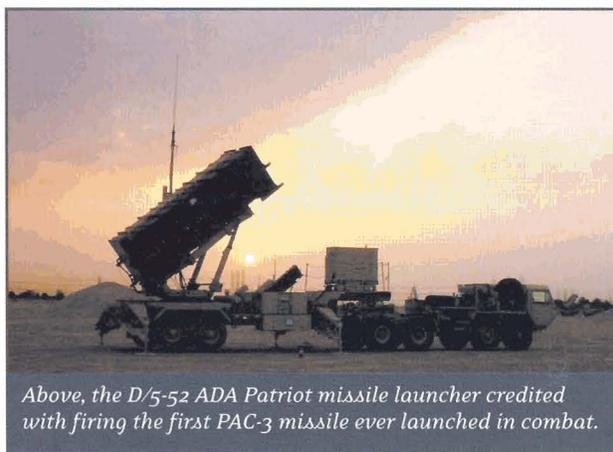
"Certainly it is tragic to lose an airplane in any light, and it is particularly tragic when you have any kind of fratricide or blue on blue," said Lt. Gen. Michael Moseley, commander of the Coalition Forces Air Component Command, at an April 5 briefing. "I would ask you to think about the conditions that we're operating in out there. I'm not willing to assess blame on a Patriot commander who is in the

middle of a moving fight with missiles being fired, and missiles have been fired, with real chemical and biological threats. And that afternoon, we were dealing with those particular problems. We were in the middle of a raging fight on the surface, [conducting] strikes into Baghdad and multiple strikes—at least a thousand sortie strikes—on the Republican Guard ahead of these Army units."

Iraqi Freedom friendly fire deaths seemed to stand out more than in previous wars because the number of U.S. and Coalition soldiers killed by enemy action, despite fierce fighting, was relatively low. Anti-war elements of the British press turned the Tornado shoot-down into a minor international incident while anti-missile defense critics in the United States seized on the blue-on-blue incidents to argue that Patriot, and therefore national missile defense, were unreliable.

"There have been some blue-on-blue incidents," said Lt. Gen. McKiernan, commander, Third U.S. Army and U.S. Army Forces Central Command and the Coalition Forces Land Component Command, who rose to Patriot's defense during an April 23 Pentagon briefing. "We take every one of those extremely seriously. Every one is investigated individually. And it's premature for me to comment on any of them, because, to my knowledge, none of those investigations have been completed. There were a couple that involved Patriot, but I would tell you on balance that every surface-to-surface missile that was fired that Patriot engaged was destroyed. Some of them we didn't engage because they landed out in places in the desert where they weren't a threat or they landed out in the North Arabian Gulf. But I will tell you the Patriot's been a big winner over here in our theater missile defense plan."

Many ADA soldiers served with family members in the same theater of operations. For Sgt. Gary Hemingway, a U.S. Patriot soldier, this turned into a family tragedy. His older brother, Terry, a Bradley Fighting Vehicle commander,



Above, the D/5-52 ADA Patriot missile launcher credited with firing the first PAC-3 missile ever launched in combat.

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was killed when a car exploded beside his vehicle at a Baghdad checkpoint. Gary got the bad news as his Patriot unit waited in Kuwait to move into Iraq in support of the 4th Infantry Division (Mechanized), the Fort Hood, Texas, "digital" division whose entry into the war had been delayed by Turkey's refusal to host U.S. forces. Gary escorted his brother home to America on a military transport. "This is what we do," Gary told *New Jersey Times* reporter Robert Stern. "We make sure that all Americans can enjoy freedom, and if this spreads out throughout the world, then we've done a perfect job," said Gary.

As Coalition forces closed the noose on Baghdad, a Stinger section parachuted into Northern Iraq with the 173rd Airborne Brigade. Once on the ground, the paratroopers joined forces with Special Forces and Kurdish militia to perform a mission originally envisioned for the 4th Infantry Division (Mechanized), which had been denied permission to enter Iraq through Turkey.



Brig. Gen. Howard Bromberg, 32nd Army Air and Missile Defense commander, counsels 507th Maintenance Support Company soldiers who survived the ambush at Nasiriya.

Meanwhile, other divisional air defense units moved forward out of Kuwait into Iraq with their supported units. Deprived of a rotary or fixed-wing air threat and denied permission to fire on what they identified as Iraqi drones or lighter-than-air vehicles, they found other ways to make themselves useful.

On March 24, soldiers of the 1st Battalion, 3rd Air Defense Artillery, received orders to move a Bradley

Linebacker platoon to the town of Al Kifl and guard a bridge. Army commanders believed Iraqi fighters were crossing the bridge en route to ambushing U.S. forces along the main supply route. As Sgt. 1st Class Matthew Gruidl's Linebacker platoon moved through the center of town, it was hit by a hail of rocket propelled grenades and small arms fire. It was the beginning of a nasty

four-and-a-half-day fight in which the Linebacker platoon used its machine guns to fight off constant attacks by "homicidal not suicidal" civilian vehicles. Finally, a relief force of U.S. Bradley Fighting Vehicles and battle tanks arrived. "I think we did it above and beyond," Spc. Sherman Barto told a Savannah Morning News reporter. "We were finally given a mission, which is what we always wanted."



A U.S. Army Avenger provides air defense protection for Coalition maneuver forces in Southern Iraq.

Soon after the climatic toppling of Saddam's statue in downtown Baghdad, Avenger crewman James Vogel found himself upside down in the turret of his submerged Avenger in a Baghdad canal. According to embedded U.S. News reporter Julian E. Barnes, Vogel and his team chief, Sgt. Brian Jimenez, were providing armed escort for a psychological operations loudspeaker truck when, blinded by smoke, they drove the Avenger into the canal.

"Within seconds," wrote Barnes, "the Avenger flipped upside down into the canal, landing on its turret. 'It was like slow motion; I was in the turret and then everything went black and water started rushing in,' Vogel said. Vogel, 26, looked around. He was still sitting in his gunner's seat, but now he was upside down, his head under water. For two minutes he twisted around in his seat thinking about his wife, thinking he was going to die, praying that he would not. Finally he managed to get to the small air pocket in the turret.

"In the front of the truck, Jimenez tried to open his door," Barnes



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continued. "But it was jammed against the bottom of the canal. Jimenez began to panic. He thought of Vogel, trapped in the top of the turret. Jimenez stripped off his body armor, mask, and Kevlar helmet, then squeezed out the window. "Vogel, are you taking on water!" Jimenez shouted. Yes, came the muffled response. Jimenez looked around and saw the ax strapped to the bottom of the Avenger. Jimenez shouted for Vogel to move his head away from the side of the turret and took a swing at his truck with the ax.

"To help cut top heaviness, the turret is made of fiberglass and wood, not metal," Barnes recounted. "Jimenez hacked a hole in its side, then grabbed Vogel's head and pulled it out of the flooded turret. A few more minutes and a few more ax swings and Vogel was completely out of the truck and on the side of the road. 'That is something you can't teach a soldier to do,' Lt. John Brock, the platoon leader, said later. 'It was extremely quick thinking by Sergeant Jimenez. If most people were in his shoes, Vogel would be dead.'"

Other ADA units spent Operation Iraqi Freedom outside the theater of operation, but made the invasion possible by providing a shield against Iraqi missiles. In Israel and Jordan, U.S. Patriot soldiers manned fire units to serve as a deterrent against the possibility that Iraq, in a repeat of its 1991 Gulf War strategy, might launch Scud missiles at Israel or neighboring countries. Patriot soldiers in both countries were breaking new ground. The historic and, at first, secret, deployment of Patriot into Jordan placed Patriot soldiers in the midst of a potential hostile population and underscored the seriousness with which neighboring countries view the Iraqi missile threat. In Israel, U.S. and Israeli Patriot soldiers, for the first time, integrated their system with an upper-tier missile defense system, the Israeli Arrow.

The decision to stand down Patriot fire units in Israel came after Coalition forces overran surface-to-surface missile launch areas in Iraq. "We came here to



Pfc. Jessica Lynch of the 507th Maintenance Support Company became the war's most publicized soldier following her rescue. Other released 507th POWs, like Spec. 4 Shoshana Johnson, left, returned home to jubilant welcomes.



assist an already existing air defense system,” said Maj. Gen. Stanley Green, commander of the U.S. Joint Task Force in Israel, at a ceremony marking the end of the U.S. mission. “Our mission here was to deter, and if necessary defend. Deterrence worked.”

The *Associated Press* reported that some U.S. Patriot soldiers regretted that they hadn't seen any military action in the war while others said they were simply looking forward to getting home. “I really miss my Mom,” said Pfc. Anthony Johnson, from Texarkana, Ark. “But that's the Army.”

Despite the friendly fire incidents, which are under investigation, Patriot soldiers convincingly demonstrated the effectiveness of the enhanced PAC-2 and PAC-3, as well as the validity of theater air and missile defense doctrine. Divisional air defense units, once again, proved their versatility in combat on the road to Baghdad and in peacekeeping operations that followed the crushing of the Iraqi regime. Their performance against a more-varied-than-anticipated air and missile threat was not ignored, and will have a significant impact on future doctrine, but it was almost totally eclipsed in the public consciousness by the ordeal and ultimate redemption of the 507th Maintenance Support Company.

March 23, with 33 killed in action—most of them at Nasiriya—was the bloodiest and the darkest day of the war. The story of how the 507th convoy was ambushed at Nasirya, the daring Special Forces raid that rescued Private Lynch, and the eventual rescue of five 507th prisoners of war has been splashed across the front pages of magazines and newspapers around the world. The maintenance company's dead and wounded were not forgotten. They were eulogized at an emotionally charged ceremony at Fort Bliss, Texas, and grieved for at smaller, sadder rituals in hometown cemeteries. Meanwhile, video clips of 507th POWs in captivity and during the moment of their release following the fall of Baghdad replayed endlessly on network and cable news. On April 19, thousands turned out at Fort Bliss's Biggs Army Airfield to welcome home five returning 507th POWs.

U.S. Central Command is still investigating what happened at Nasiriya, but few reporters thought to ask what became of 507th soldiers who escaped the lethal ambush and captivity. The 507th had no “embedded” reporter, and their story has been untold.

The 507th Maintenance Support Company is assigned to 5-52 ADA, 11th ADA Brigade, which is subordinate to the 32nd Air and Missile Defense Command, an organization created specifically to coordinate and exercise operational control over all air and missile defense units within a theater of operations. During Operation Iraqi Freedom, some Patriot batteries defended Kuwait, Jordan and Israel from missile attack, but other Patriot units, including Patriot battalions assigned to the 11th ADA Brigade, followed maneuver units like the 3rd Infantry Division (Mechanized) into Iraq and the violent swirl of combat. Trailing just behind the Patriot missile units came the 507th Maintenance Support Company.

Soldiers headed into combat sometimes prefer to let their relatives assume they won't be in harm's way. That the 507th would operate in combat zones just behind the front line came as a revelation to many 507th parents, who had assumed their sons and daughters would sit out the war in the relative safety of huge rear area installations. This illusion seems to have been shared by many of the parents of Patriot soldiers, who were unaware that doctrine pushes Patriot units forward as mechanized infantry and armored units advance.

“My mother would freak out if she knew I was here,” one 5-52 ADA soldier told Lisa Rose Weaver. The soldier, wrote Weaver, “represents a minority of soldiers who have not even told their loved ones that they're in Iraq; instead reassuring them that they remain on one of several U.S. military bases in Kuwait.”

Another 5-52 ADA Patriot soldier told Weaver that “They don't need to know that we've been mortared, they don't need to know we've been fired upon by RPG's [rocket propelled grenades.] They just don't need to know.”

As a combat service support company, the 507th closely followed the Patriot batteries it supported across the battlefield to perform on-the-spot repairs. Their presence on the battlefield helped keep the firing batteries up and operating and was essential to mission success.

Reporters frequently described 507th Maintenance Support Company soldiers as “mechanics” who were not “real combat soldiers.” While a maintenance company is not equivalent to a rifle company in combat effectiveness, all soldiers receive training in infantry tactics and weapons.

Commanders don't purposely send support units into firefights, where they are likely to be outgunned, but mechanics, cooks and supply clerks have picked up rifles and engaged the enemy in previous wars.

The fight at Nasiriya was the bloodiest of the war, and it would have been a tough fight even for a rifle company. Outgunned and caught in an impossible situation, the soldiers of the 507th, according to published accounts, gave a good account of themselves. And they quickly recovered from the shock of battle and carried on with the mission.

Current doctrine, which calls for rapid movement across a "fluid" battlefield, quickly toppled Saddam Hussein's regime, but it exposed support units like the 507th to greater hazards. In fact, the recognition that support units are likely to be exposed to combat on 21st-century battlefields is one of the driving forces behind the Army's decision to open more direct combat positions, including those in Avenger air defense units, to women.

The ambush at Nasiriya, which seemed to indicate the cost of victory might be high, and the howling sandstorms that followed, were the darkest days of the war. 507th soldiers wrote the names of their dead, wounded, missing and captured on their helmets and on the hoods of their Humvees.

"Specialist Brooke Wicke, monitoring the radio, suddenly shouted, 'She's out! They reported it! Specialist Lynch is out!'" wrote Weaver, the KFOX-El Paso reporter embedded with 5-52 ADA. 'A moment of joy erupted as troops learned that Army Pfc. Jessica Lynch, 19, who had been taken prisoner by the Iraqis on March 23, had been rescued. Many of the soldiers in the Patriot unit had known her, as she belonged to their maintenance company—the 507th from Fort. Bliss. 'A tiny little thing, very young'" was how one colleague described her."

Along with millions of Americans, soldiers of 5-52 ADA and the 507th cheered the "Saving of Private Lynch," the war's first "good news" story. And they later were elated to learn that the remaining POWs had been freed.



Top, 507th Maintenance Support Company soldiers carry on the mission.

Proponents of placing women in combat say the conduct of the 507th's females under fire prove that women can handle the stress of combat. Spc. 4 Lori Piestewa of the 507th was the only female U.S. soldier to die in Operation Iraqi Freedom. Pfc. Lynch and Spc. 4 Shoshana Johnson of the 507th were the war's only female POWs. Opponents of placing women in combat point out that Piestewa was a single mother, as is Johnson, who suffered two gunshot wounds.

The 507th soldiers who, so far, have escaped Operation Iraqi Freedom

unscathed will march in victory parades with other U.S. and Coalition units, but they will never receive nor begrudge the publicity and adoration showered on the rescued POWs. They'll never forget the rattle of AK-47s, the "hiss-bang" of rocket-propelled grenades, or the dead and wounded they left behind on the road to Baghdad. They will return to Fort Bliss as seasoned combat veterans. Some will pursue college degrees and civilian careers. Others will discover that combat has reinforced rather than weakened their attraction to the military, their love of country, and their dedication to duty. These soldiers will prepare to lead other generations of soldiers on future battlefields.

A cheering crowd of thousands greeted the freed POWs upon their April 17 return to Fort Bliss, but in Iraq, the lives of ADA soldiers were still at risk as combat operations evolved into peacekeeping operations.

Retired Lt. Gen. Jay Garner, the man handpicked by the Bush administration to begin Iraq's reconstruction as a true democracy, arrived in Baghdad on April 21. As his plane descended toward Baghdad International, perhaps Garner looked out the window and saw the Patriot batteries still defending the airport. "What better day in your life can you have than to be able to help somebody else, to help other people, and that is what we intend to do," Garner told reporters as he deplaned.

The military campaign that toppled Saddam Hussein in three short weeks was a smashing success, but soldiers sometimes worry that politicians and diplomats will throw away the hard-earned victories of the battlefield. ADA soldiers old enough to remember Garner when he commanded ADA units, served as Fort

Bliss's deputy commanding general, or fought the branch's funding battles in the Pentagon, felt reassured as they watched him stride through the Iraqi capital. They felt that America was well on its way toward keeping its covenant with its war dead, and that their deaths will not have been in vain.

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Patriot Advanced Capability-3 (PAC-3) Radar
High Power Discriminator
Cobra Judy
Cobra Dane
Space Based Infrared System (SBIRS) Low

Interceptors

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STANDARD Missile-3
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Operation Clear Skies

Air Defenders Deploy to Defend National Capital Region Against Terrorist Aerial Attacks

by Maj. Rousell Thomas & Maj. Kevin Hutchison

A 4-5 ADA Avenger with the Washington Monument in the background.

In mid-March, the Homeland Security Office ratcheted the Threat Alert Level up to “Orange,” and the news media began broadcasting startling images of Avenger air defense systems and Sentinel radars with the Washington Monument or U.S. Capitol looming in the background. A new phase of Operation Clear Skies, Air Defense Artillery’s slice of Homeland Air Security, was underway.

“Clear Skies” is the name of a series of air defense exercises and operations conducted by joint and interagency entities in the aftermath of the terrorist attacks on September, 11, 2001. Following these attacks, the Director of the Joint Staff initially tasked the Joint Air and Missile Defense Agency to assume the lead role for developing long-range operational concepts and architectures for the Homeland Air Defense mission areas (the National Capital Region—Washington, D.C.—and other key U.S. sites) in coordination with the North American Aerospace Defense (NORAD) Command and the Armed Forces. Homeland Air Defense is a subset of the interagency Homeland Air Security organization. An interagency group of subject-matter experts, including the Department of Defense, Intelligence, Law Enforcement/U.S. Customs, Civil Aviation, and joint military communities, was formed to address the full spectrum of Homeland Air Security.

Since the current concept of operations (CONOPS) and architecture were drafted, Clear Skies exercises have been the means to develop, validate and enhance these requirements for the HAD mission, in conjunction with Operation Noble Eagle.

NORAD and the joint community have conducted three Clear Skies exercises to date. Clear Skies I involved Sentinel radars and command and control elements from 1-3 ADA, 3rd Infantry Division, based at Fort Stewart, Georgia. One of the major goals of this exercise was to determine if Sentinel radars could effectively interface with and contribute to this experimental integrated air defense architecture. The Sentinel performed well, impressing the joint community with its low-level accuracy and rapid, Enhanced Position Location Reporting System or EPLRS-based update rate.

Clear Skies II was an exercise intended to test and validate the communications architecture and command and control structure that brought together multiple military and Federal Aviation Administration (FAA) sensors and designated firing units. Sentinel Radars and Avengers equipped with slew-to-cue (STC) modifications from 4-5 ADA of the 1st Cavalry Division at Fort Hood, Texas, deployed to the National Capital

Region area for the exercise. STC allows the Avenger to be digitally cued, preventing the gunner from having to search the sky for the target.

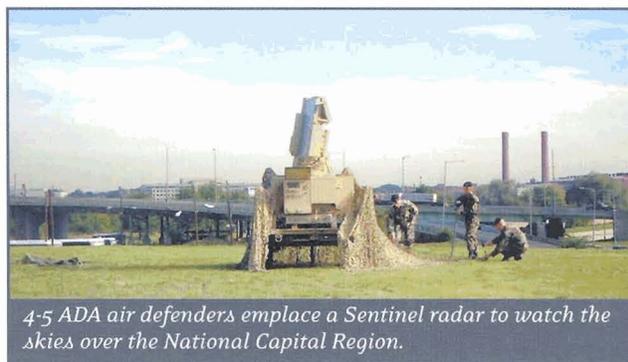
With very little notice, the exercise suddenly evolved into an actual operation. When officials, reacting to information about possible terrorist attacks, decided to up the threat level to Orange during last year’s commemoration of the Sept. 11, 2001, terrorist attacks, 4-5 ADA was ordered to upload its Avenger systems with live missiles. This marked the first time since the early 1960s that the military had uploaded live missiles on military equipment in our nation’s capitol. The Department of Defense released the following statement:

The Secretary of Defense announced today a transition of air defense assets from Exercise Clear Skies II into an Operation Noble Eagle deployment. This transition involves the movement of missiles from storage in the local area to the deployed systems, beginning later today. This is not a response to any specific threat, but is a prudent precaution to increase the radar and air defense posture in the National Capital Region. For security and deterrent reason, we will not disclose exact locations of the air defense equipment.

The soldiers from Fort Hood adapted well to the change in mission, performing their duties very professionally and impressing joint and interagency personnel throughout the National Capitol Region.

Clear Skies III was an exercise conducted to continue tests and evaluations that could not be completed in Clear Skies II because the deployment changed from an exercise to an operation. The mission, again assigned to 4-5 ADA soldiers, was conducted at another key site outside of the NCR to allow more freedom in the conduct of the exercise and enhance data collection efforts. Again the soldiers from 4-5 ADA performed brilliantly, having diligently applied their lessons learned from Clear Skies II and focusing their training for the unique requirements associated with Homeland Air Security.

All three exercises were designed to conduct operational tests and evaluations of integrated air defense procedures in support of Operation Noble Eagle. The testing community has collected and analyzed significant data to validate the architecture and performance of the various interagency systems and platforms involved in the exercises. Preliminary analysis indicates that the Sentinel radar is one of the most accurate radars available to protect our nation from aerial threat. Initial reports also verify the correct function of the STC system and the



4-5 ADA air defenders emplace a Sentinel radar to watch the skies over the National Capital Region.

enhanced reaction time that STC provides, particularly in an urban environment. Organizations at the U.S. Army Air Defense Artillery School have been present at Clear Skies I-III to assist in the development and refinement of tactics, techniques, and procedure for future Homeland Defense operations, and to capture that information for publication.

One of the lessons learned from previous versions of this exercise is the importance of proper use of ground-positioning systems during initialization or emplacement. The only times the Sentinels or Avengers provided poor data or did not function properly was when their location or DLRP was incorrect. Likewise, when moving a firing platform from a hide position to a firing position, it is essential to keep the LandNav function On so that digital information displays are correct in relation to positional data—particularly for STC operations.

Key participants in Clear Skies from the ADA community have been the 32nd Army Air and Missile Defense Command, 35th ADA Brigade, Fort Bliss Army Training and Evaluation Center, 1-3 ADA, 24th Infantry Division; 4-5 ADA, 1st Cavalry Division; U.S. Army Training and Doctrine Command System Management Office-Lower Tier, Directorate of Training Doctrine, U.S. Army Air Defense Artillery School; and the Operational Test Command.

In April, 2003, 170 soldiers from the 1st Battalion, 204th Air Defense Artillery, arrived at Fort Bliss. These Mississippi Army National Guard soldiers will train to relieve 4-5 ADA soldiers in the continuing defense of the National Capital Region.

As the Army continues its transformation towards the objective force, Army leadership is seriously considering the relevancy of many weapons platforms and systems. Our inclusion and participation in these integrated air defense exercises and operations—at the request of NORAD and the Department of Defense—is indicative of the significant contributions of the air and missile defense force to Homeland Air Security in defeating any future asymmetrical aerial threats to our nation.

With our powerful radars, proven firing platforms—which will only improve when the SLAMRAAM is fielded—and the impressive digital situational awareness and sensor-to-shooter link provided by the Air and Missile Defense Planning and Control System suite of equipment, we are one of the few systems identified in a recent Future Combat Systems (FCS) White Paper as having technology advanced enough to be included in the FCS command and control system.

We are proving our relevance daily by executing missions that no other asset can in protecting our nation's skies with technology that is ahead of our contemporaries.

"...And our current forecast calls for continued Clear Skies across the nation."

Maj. Rousell Thomas is the Operations Officer, Directorate of Training and Doctrine, U.S. Army Air Defense Artillery School, Fort Bliss, Texas. Maj. Kevin Hutchison works maneuver air and missile defense, and command, control, communication, computers and intelligence issues for the U.S. Army Training and Doctrine Command System Manager for Lower-Tier Air Defense Artillery, Fort Bliss.

ADA
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A prototype Ground-Base Interceptor streaks skyward during a test of the Midcourse Missile Defense System.

Where We've Been, Where We're Going in Space

Space and Integrated Missile Defense

by Lt. Gen. Joseph M. Cosumano, Jr

We have been saying for a long time that "Space Enables Transformation" and "Space Enables Missile Defense." The truth of those adages has been proven by recent events that have again highlighted for the American public we serve just how much, and how well, its military can use products provided by space-based assets and leverage information and data that pass through the medium of space.

In the Global War on Terrorism, two examples in particular come to mind: the successful Predator-Hellfire attack on a vehicle in Yemen carrying a top Al Qaeda leader and the extensive use in Afghanistan of Global Positioning System guided munitions. Both cases were made possible by space-based Intelligence, Surveillance and Reconnaissance (ISR) and positioning-navigation capabilities, and facilitated by space-based communications that allowed rapid decisions and immediate execution.

In the missile defense arena, testing of the Ground-based Missile Defense (GMD) System has been assisted by space-based sensors and communications. The demonstrated successful use of reconnaissance UAVs linked via satellite to command and control centers made "Scud-hunting" much more effective than it was in Operation Desert Storm.

Other events that might not have made the nightly news were just as important. Immediately after the attacks of September 11, 2001 the North American Aerospace Defense Command (NORAD) and national authorities called on the Army to assist in developing and coordinating space and missile defense support to Operation Noble Eagle.

As operations commenced in Afghanistan, Army Space Support Teams (ARSSTs), including the first Army National Guard ARSST, were deployed to enhance the intelligence and planning capabilities of units on the ground in Operation Enduring Freedom. Joint Tactical Ground Station (JTGS) detachments provide combatant commanders with in-theater missile attack warning.

To support U.S. Space Command, we formed an Army Space and Information Operations (IO) Element to synchronize Space and comprehensive IO support to the combatant commanders. The Space-Based Blue Force Tracking Mission Management Center is allowing commanders to maintain situational awareness of their forces and systems, while the personnel manning the Army Space Operations Center continue to provide a vital "reachback" source for space operations officers around the world.



Meanwhile, the Army has continued to perform our equally important research, development and acquisition (RD&A) tasks in the development and testing of the Ground-Based Missile Defense (GMD) system, as well as other space and missile defense technology efforts.

In 2002, the Secretary of Defense announced a major reorganization of the management of our Nation's Ballistic Missile defense development efforts—establishing the Missile Defense Agency and redirecting its activities toward development of a single, layered and integrated Ballistic Missile Defense System (BMDS) that will eventually include ground, sea, air and space-based elements. USASMDC serves as the user representative and "warfighter advocate" in the development of the GMD system, the most mature component of the BMDS. Army active duty and National Guard soldiers will operate the GMD system. USASMDC is working with MDA and the Joint Program Office to ensure the Army's needs are addressed in the system design.

With the demise of the Antiballistic Missile Treaty in June 2001, MDA and the Services have been able to implement a key tenet of our acquisition strategy—robust, realistic testing. The Pacific Missile Defense Test Bed, with elements at Fort Greely and Shemya Island, Alaska, Kwajalein Atoll, Vandenberg Air Force Base and elsewhere in the Pacific and western United States, will support development and demonstration of an integrated layered missile defense system including ground-, sea- and air-based sensors and weapons. Over the next few years, the test bed will be used to validate the

boost phase, midcourse and terminal defense elements of the BMDS, including supporting sensors and battle management/command, control and communications. It will allow testing of the system against faster, longer-range target missiles than we are using today, and it will allow us to test using different geometric, operational and element configurations

The Pacific testbed will also serve as the basis of the initial missile defense capability that President George Bush has directed us to begin fielding in 2004. Up to 20 Ground-Based Interceptors and kill vehicles will be available to give GMD an emergency defensive operations (EDO) capability.

As the materiel development and test and evaluation (T&E) communities design and build the BMDS hardware and testbed, the Joint Air and Missile Defense Organization (JTAMDO), the Army Staff, and USASMDC have been working to prepare a near-term "Integrated Missile Defense" concept of operations by 2004. This concept will meld theater and strategic active ballistic missile defenses into the seamless global architecture called for by the Secretary of Defense.

By definition, IMD encompasses a layered architecture of active ballistic missile defense systems integrated through a battle management/command and control network. This JTAMDO CONOPS, however, does not include attack operations and passive defenses, the other "pillars" of the IMD mission area. Offensive actions against missile launch sites and infrastructure and passive means of protection from the effects of a missile attack are assumed under current doctrine, and will be fully incorporated in the future objective concept and architecture. However, the 2004 CONOPS promotes centralized, collaborative planning and decentralized execution, and recommends a

BM/C4I baseline tied to MDA's development of the Ballistic Missile Defense System. This baseline accommodates multi-theater threats through pre-determined courses of action, preplanning, and world-wide sensor netting permitting near-real time defense changes in a rapidly developing environment. It also allows for future missile defense contributions by our allies.

Space and Missile Defense Command's Future Operational Capability-Tactical Operations Center participated in the Joint Combat Identification Evaluation Team Exercise in April 2002.

Finalizing a near-term IMD CONOPS is a first step toward fielding and operating a viable BMDS. The groundbreaking work done at the U.S. Army Air Defense Artillery School in its recently published Operational and Organizational (O&O) Plan for Army air and missile defense forces provides a key document for Army operations in Joint and coalition environments. It has been a major Army input to the overall Joint 2004

Concept. We at Space and Missile Defense Command have been working closely with USAADASCH and JTAMDO to ensure that Army concepts are embedded in the near term and Objective Joint Operational Concepts wherever possible. And this work has laid the foundation for Army support to upcoming efforts with U.S. Strategic Command and U.S. Northern Command to develop an Integrated Air and Missile Defense (IAMD) CONOPS.

Under the new Unified Command Plan, which merged U.S. STRATCOM and U.S. Space Command, among STRATCOM's assigned missions will be responsibility for global missile defense planning. STRATCOM will also assume many Space Command missile defense functions, including developing and advocating missile defense and

missile warning requirements, identifying and managing space-based support for missile defense, and providing missile attack warning for CONUS as well as other regional commands.

The new UCP also creates the U.S. Northern Command, whose commander is dual-hatted as Commander, North American Aerospace Defense Command (NORAD). As a combatant command, NORTHCOM's missions include the air and missile defense of North America, sharing many of the same space-based and ground-based sensors required by other regional commanders.

The new IAMD concept, therefore, must support the needs of both STRATCOM and NORTHCOM. To do so it must include all the operational elements of the missile defense mission area—defensive and offensive air-, sea-, and ground-based capabilities coupled with terrestrial and space based sensors. And it must protect the U.S. homeland, deployed forces, friends and allies against the entire spectrum of air and missile threats—intercontinental and theater range ballistic missiles, cruise missiles, manned and unmanned aircraft and surveillance platforms, rockets and artillery, and other aerial threats.

The Army must also continue its technology development efforts. Directed-energy systems represent a "leap ahead technology" that the Army and SECDEF are counting on to change the face of the battlefield and transform the heavy 20th Century Cold War Army into a more responsive, agile, lethal, survivable, sustainable and deployable force. The Army has long recognized the potential advantages of lasers - speed-of-light engagement, precisely controlled effects, deep magazines, low cost per kill, and reduced logistical demands. The Tactical High Energy Laser (THEL) Advanced Concept Technology Demonstrator, developed jointly with Israel, is a proven, operational laser weapon, not a



Soldiers ready the THEL test beam director for recent tests supporting the MTHEL laser concept study effort.

viewgraph or a laboratory experiment. While the THEL demonstrator is available for deployment to Israel if needed, it is also serving as a testbed for Mobile THEL (MTHEL), the next logical step toward developing battlefield laser weapons for the Interim and Objective Forces.

The THEL Demonstrator has been used to detect, track and successfully shoot down nearly thirty "Katyusha" 122mm rockets and, most recently as part of the MTHEL Test Bed, several 152mm artillery projectiles in flight. Next year a competitive award will be issued to start building a mobile laser demonstration in 2004. That laser will be tested against mortars, and possibly against cruise missiles and unmanned aerial vehicles. Once a concept is selected for integrating existing high energy laser technology onto a standard mobile platform, a prototype MTHEL should be available within five years. Additionally, we are working on solid-state laser technologies that will be able to use diesel or other common battlefield fuels to power the lasers, on a vehicle the size of a HMMWV. Fighting the air and missile defense battle at the speed of light is almost a reality and the Army is leading the way.

Another important effort in missile defense technology is the Low-Cost Cruise Missile Defense/Low Cost Interceptor (LCCMD/LCI) Program. Working in cooperation with the Defense Advanced Research Projects Agency (DARPA), our goal is to field an advanced seeker on an inexpensive interceptor, thereby reducing the need to engage cheap cruise missiles with Patriots and other sophisticated, expensive interceptors. Preliminary testing by DARPA has already begun at China Lake. Flight testing of the LCCMD/LCI is expected to begin in 2005.

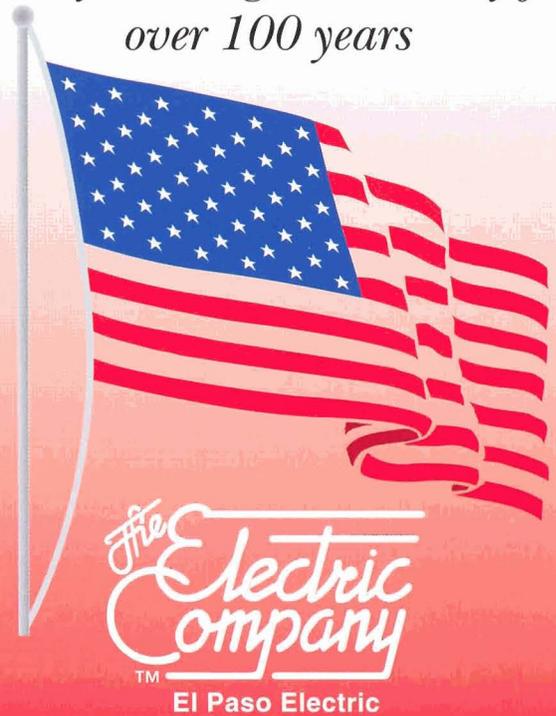
With respect to air and missile defense sensors, the United States has limited ability to detect low flying aircraft and potentially hostile maritime traffic approaching our borders. Existing ground and aerostat-based radars cannot see sufficiently beyond the horizon to provide essential warning time to scramble interceptors or other defenses. NORAD urgently needs a high altitude platform to extend detection ranges and alert times in defense of the homeland. Four regional Combatant Commanders have also signed letters attesting to their need for the capabilities of such an elevated platform for a multitude of mission applications. USASMDC has been tasked by Commander NORAD to conduct a High-Altitude Airship (HAA) Advanced Concept Technology Demonstration (ACTD). The objective of the HAA ACTD is to demonstrate whether a large, multi-mission, untethered, perhaps solar powered airship can be operated at 70,000 feet altitude for long periods of time, to validate and refine operational concepts, and to assess its utility as a platform for communications relays, sensors and other missions. This assessment will also make recommendations for transition to a HAA acquisition program.

The year 2003 has been a year of tremendously important and significant activities for the Army in space and missile defense. Among our major goals at SMDC for the year are:

—Moving forward on ground-based missile defense programs, including GMD, Theater High-Altitude Area Defense (THAAD), Medium Extended Range Air Defense System (MEADS) and Surface-Launched Advance Air-to-Air Missile (SLAMRAAM) development efforts, accelerated procurement of Patriot Advanced Capabilities-3 (PAC-3) missiles, upgrading of equipment for the 263rd Army Air and Missile Defense Command (SCARNG), and transition of JTAGS to the Multi-Mission Mobile Processor (M3P) configuration. We will also continue construction on the BMD Testbed. The Pacific testbed will support a more realistic and stressing GMD flight test program, and will also have an emergency operational capability as early as 2004. The Army will provide all the DOTMLPF products necessary to man and operate the system.

—Advancing the Army's efforts to bring space support, Integrated Missile Defense planning, Army global strike capabilities, and IO together into a single "Army Strategic

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Command." Commander STRATCOM requires an ability to "reach through" his service components to get the right forces and capabilities he needs to execute his missions while ensuring access and protection of space assets from cyber-attack. To do so he needs only one Army point of contact for air and missile defense, strike, space and IO/CNO support. At the request of the Chief of Staff of the Army, we have already conducted one table top seminar with participants from across the Army as well as several retired general officer "greybeards" to explore the issues of what kinds of support STRATCOM may need from the Army, and how the Army might best provide that support. Given the limited resources available and requirement for specially trained people, the Army must work and speak with one voice to integrate and optimize IAMD, space and IO to support joint and global warfighting efforts.

—Maintaining our development of innovative, affordable space and missile defense solutions for the Army, MDA and other customers, and transitioning successful technology programs to operational systems. The solutions being developed by USASMDC for defense against intercontinental and theater ballistic missiles, cruise missiles and other air threats, and the space technologies that enable command, control, and communications, are vital for the warfighter to accomplish his mission of fighting and winning on the Joint battlefields of the 21st Century.
Secure the High Ground!

Task Force Cobra

Two-Tiered Missile Defense Shields Israel Against Missile Strikes

by Specialist Kris Steward



Task Force Cobra soldiers fill sandbags to fortify a U.S. Patriot emplacement inside Israel. (Photo by Spc. Kris Steward.)

By December 2002, the build up of American troops had mushroomed in Kuwait and the clouds of war hovered over neighboring Iraq. Beyond the western horizon, Israel prepared for another showdown with Saddam Hussein.

Fearing they would be the prime target for his wrath, Israelis braced themselves against a repeat attack of tactical ballistic missiles, Hussein's preferred instruments of terror during the first Gulf War. But Israel's top leaders had already vowed to never again be bullied by this tyrant, whose surface-to-surface missiles may have killed few, but hurt Israel's pride.

Prime Minister Ariel Sharon assured his people Israel would strike back if provoked by Iraqi aggression this time around. "If, God forbid, Israel is attacked, Israel will know how to defend itself."

Even though Hussein's regime no longer had the manpower, equipment and quantity of missiles it had stockpiled more than a decade earlier, Iraq's knowledge of weapons of mass destruction had grown. Israel's chief military officers, along with U.S. air defenders, saw this growing threat and created a theater missile defense to protect the Holy Land from a possible shower of Scuds.

"We know that Saddam Hussein has only a very low capacity for launching missiles," said Brigadier General Yair Dori, head of the Israel Air Defense forces, in March. "But he will probably try to do it, and we have to be ready for that."

After 39 Iraqi Scuds bombarded Israel in 1991, the U.S. and Israel recognized the Jewish state "needed a multi-tier system, both in terms of intercepting missiles and in terms of early warning," said Maj. Gen. Stanley E. Green, commanding general of the United States Army Air Defense Artillery Center and Fort Bliss. Ever since, American forces "have worked hard with the Israelis to establish the tactical and technical procedures to create as close to a leak proof defense system" as they could possibly get.

Consequently, the Israeli missile defense system evolved from a single tier to the only operational two-tier system in the world. "In 1991 we had almost nothing, so we started building an active defense. After

10 years we've got a very robust two-layer defense," Dori said. "I have complete confidence in the system."

This new missile defense shield merged the U.S. Patriot MIM-104 with Israel's Arrow Weapon System.

"The difference between the Patriot and the Arrow is that the Arrow identifies and engages the missile in the upper layer of the atmosphere, where as the Patriot does so in the lower layer," said Dori. "Both protection systems work simultaneously in order to provide maximum defense."

The terminally-guided, Arrow-2 missile system can detect a TBM as far away as 500 kilometers and destroy it at distances greater than 40 kilometers out. The command guided, Patriot Advanced Capability 2 (PAC-2) Patriot missile can detect an incoming missile within 70 to 160 kilometers, and is able to destroy it within three to 24 kilometers from the earth's surface. This separation of engagements allows for the

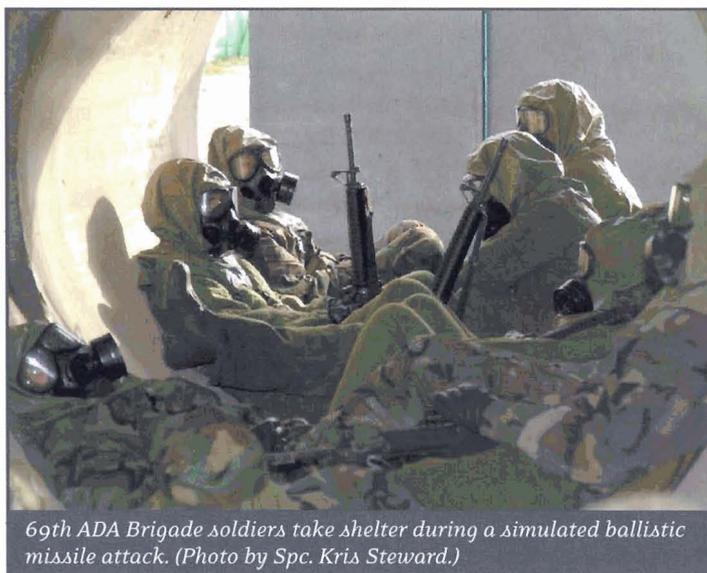
optional employment of lower-tier systems, such as the Patriot, where system crew reaction time is minimal.

Though the Arrow and Patriot are two very different missile systems, it is critical that they are compatible enough to speak to each other and see the same air picture, said Col. Pini Yungman, commander of the Israel Air Force's 167th Brigade.

"If you only have one stand-alone system, you must depend on one battery to detect and kill an incoming missile," said Yungman. "But if the systems are integrated and everybody sees the same picture, commanders can decide who has the best capability to deal with the threat. If you have a full air picture, you're alert before you even see the TBM, which allows

you to save valuable minutes. The more we're integrated, the more efficient we will be."

"These concepts have been well understood in the U.S. TMD [Theater Missile Defense] forces for some time," said Col. Roger F. Mathews, commander of the 69th Air Defense Artillery Brigade, headquartered in Giebelstadt, Germany. "Given the nature of the growing TBM [Tactical Ballistic Missile] threat, we have realized the need to have the right system available to engage a target regardless of



69th ADA Brigade soldiers take shelter during a simulated ballistic missile attack. (Photo by Spc. Kris Steward.)



A series of Patriot missile live fires served as the climax to Exercise Juniper Cobra 2003. (Photo by Spc. Kris Steward.)

what service or country it belongs to. This realization is the key driver in today's concept of a Joint Engagement Zone where a Joint Force Commander can rely on several weapons systems to engage a target. This family of systems provides great flexibility to the commander and ensures timely engagement at the greatest distance possible."

To test the interoperability between the American and Israeli air defense systems, 600 soldiers, sailors, airmen and civilians commanded by Green, with Mathews as the Joint Chief of Staff, traveled to Israel to conduct a joint simulations exercise with the Israeli Defense Forces in January.

Exercise Juniper Cobra '03 consisted of three phases: movement to occupy battle positions, a command post exercise/computer-assisted exercise that incorporated simulation of tactical ballistic missile threats with the Cooperative Air and Missile Defense Network, and a Patriot live fire.

Not only did the exercise participants get to test the missiles, but they also had the opportunity to train for scenarios envisioned as real possibilities at the onset of Operation Iraqi Freedom. Simulation support for the exercise, provided by the Germany-based Warrior Preparation Center in conjunction with the Missile Defense Agency, helped replicate TBM threats for U.S. and Israeli crews to engage.

Luke Schiffner, exercise director, said Juniper Cobra '03 was unique to other exercises. "This is the first time that I have done an exercise in a foreign country that included training U.S. forces on the land and at sea."

The U.S. Navy provided a joint interface control officer to establish a link distribution computer-generated air picture among the U.S. Navy Aegis class cruiser, the Patriot batteries and the Arrow system.

Juniper Cobra '03, a U.S. European Command exercise, was largely equipped and manned by U.S. Army Europe, with Headquarters and Headquarters Battery, 69th ADA Brigade, serving as the Joint Task Force (JTF) headquarters and the 5-7 ADA playing the principle fighting organization. U.S. airmen and sailors played critical roles not only in terms of deploying forces into the theater, but also by serving in key staff positions, making this a true joint exercise.

"As part of the exercise, we practiced a quick deployment of the American anti-aircraft forces from an Israeli Air Force base in the southern part of Israel to sites where they will be located in case of a missile attack," said Lt. Col. Doron Gavish, the Israeli chief planner and organizer of the exercise.

"There are few times in history you get to train at a potential war site," said Maj. Robert Wade, JTF operations officer, in January when the exercise kicked off. "It's a rare opportunity."



U.S. and Israeli air defenders discuss intricacies of the Patriot-Arrow interface. (Photo by Spc. Jason Goldsmith.)

The chance of a lifetime turned into reality for JTF Cobra soldiers who extended their stay in February, moving to the actual sites in which they had just rehearsed, to keep a vigil over Israel as their brethren engaged in war in the Gulf.

"We essentially conducted JC '03 as a mission rehearsal exercise," said Mathews. "We couldn't have been more fortunate in our preparations for war."

Soldiers of 5-7 ADA moved missiles, each weighing about two tons, along city streets and across urban terrain to battle positions around central Israel. The city environment presented unforeseen problems



Hooah! Soldiers of the 5th Battalion, 7th Air Defense Artillery, show their enthusiasm as they prepare for the first launch of a Patriot missile during the live-fire portion of Exercise Juniper Cobra 2003. (Photo by Spc. Kris Steward)

rarely encountered by these air defenders who are accustomed to deploying to the wooded fields of Germany and the barren deserts of the Gulf.

Because tensions between the Israelis and Palestinians naturally amplified fears of terrorist attacks in the region, and encountering anti-American war protesters was always a possibility, commanders were compelled to step up force protection measures as Patriot missile batteries conveyed to and from different battle positions. Once in place, security for both personnel and equipment became the number one concern.



A jagged skyline played a leading antagonist in the set up at most sites. Tall buildings hindered signal transmissions and sacred structures, like a town mosque, made positioning of Patriots a challenge, to say the least.

Sp. Justin Wiessert, a multi-channel transmissions radio operator, of E Battery, 5-7 ADA, said he became all too familiar with obstacles 5-7 ADA encountered. He said buildings blocked antenna shots, UHF radio frequencies caused communications interference, and Mother Nature wreaked havoc on the equipment.

“Wind and weather create big problems,” said Wiessert, as he explained how winds in the area had reached speeds up to 64 knots, or 74 miles per hour. Winds that ferocious spit sand from the coastline, and even the finest grains caused the same battering affect as hail. Salt carried from the Mediterranean Sea gnawed at the equipment, throwing a wrench in the schedules of the maintenance crew who, because of it, had to do their preventative checks more frequently.

“Because the Arrow causes debris very low in atmosphere, a Patriot may need to be fired as well,” said Green. “That causes a concern about wasting missiles, so air defenders must learn to distinguish between debris the Arrow creates and a warhead that could still penetrate the shield.”

To lessen the amount of debris from a possible attack, U.S. forces must attempt to engage the missile where debris fallout is less of a concern, thus the need for a two-tier defense. And if a missile is headed outside of the urban area, for instance toward the sea or a desolate area, it is not fired upon at all.

“Why fire a million dollar missile if it’s only going to kill a cactus?” asked 1st Lt. Amanda Clare, fire control platoon leader, E Battery, 5-7 ADA.

“It’s all about making civilians feel safe,” said Sp. Tony Russell, assistant section chief of the engagement control station of fire control for E Battery, 5-7 ADA. “Israel is one of our most important allies in the

Middle East. We want them to know we’re here to help them.”

“If we had not been here, Israel would have been a very lucrative target in the form of uncovered populations,” said Green. “America’s commitment to defend Israel is a sign of our commitment to the region as well as a sign of maintaining a multi-tier defense as a requirement for population protection.

“I am terribly proud of our soldiers and of the systems that they worked so hard to keep operational in defense of the Israeli population and our own maneuver forces in the Gulf,” said Green. “Our mission here was to act as a deterrent, and that is what we have done. Our presence here allowed General Franks to focus the efforts of the Special Operations forces on Baghdad. The Special Operations forces could focus minimally on the West because we were here.”

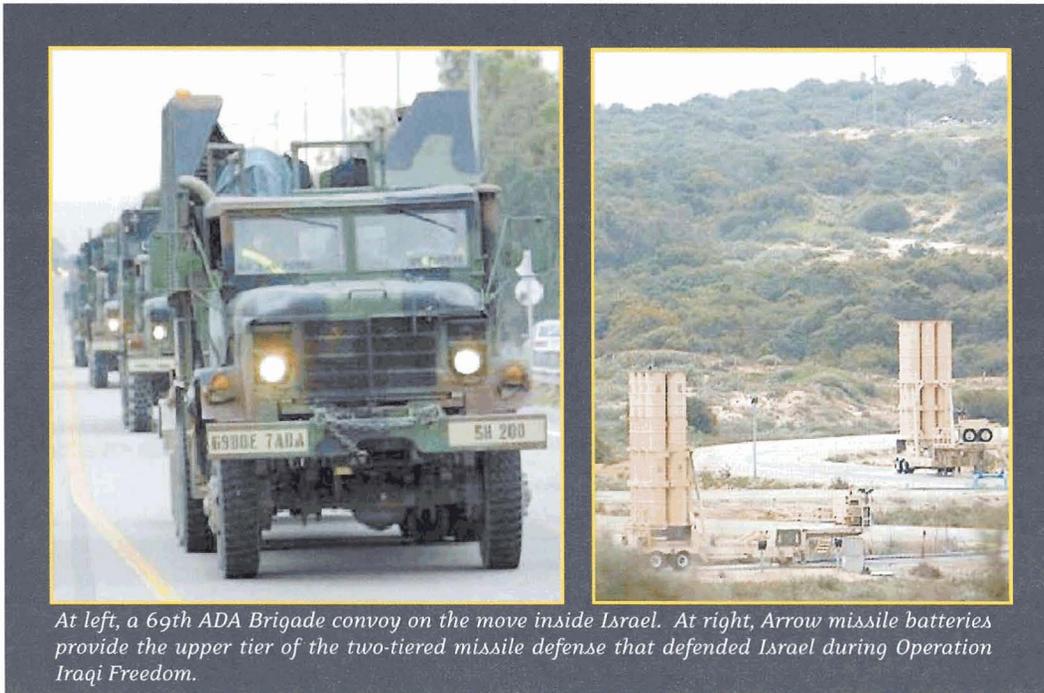
“Even though we didn’t intercept or launch missiles, other than

during the live fire, we executed the defense plan just the same as we would have executed during the war,” said Yungman. “We were always at the highest alert.”

Yungman said he has more confidence in the defense system having watched it evolve from the concept through the exercise to the live fire, when the inoperability of the weapon systems was validated.

“Now we can sign it, stamp it, and say we have the capability of two layers of active air defense,” said Yungman.

The successful creation of the two-tier system defense, which proved to be a vital deterrence during Operation Iraqi Freedom, has helped redesign Theater Ballistic Defense, and is the underpinning for future multi-tiered ADA weapons systems.



At left, a 69th ADA Brigade convoy on the move inside Israel. At right, Arrow missile batteries provide the upper tier of the two-tiered missile defense that defended Israel during Operation Iraqi Freedom.

1st Lt. Michelle Timajo, launcher platoon leader for E Battery, 5-7 ADA, and range officer in charge of one site, emphasized that when Patriot launcher maintenance crews, AKA ‘hot crews,’ were sent down range to work on the launchers, safety was critical.

“When a live missile is down range, anything can happen,” said Timajo, who said she enforced strict safety procedures to prevent injuries and something as devastating as friendly fire. “Anytime a crew needs to move downrange, they have to call me. We don’t need anybody around live birds. If they don’t need to be there, I don’t let them go.”

Timajo deployed to Israel in December as part of the JC ‘03 advanced party. She said the exercise offered realistic training with well thought out scenarios she and her crew could react to, scenarios dealing with issues such as communications loss, working while wearing Nuclear, Biological and Chemical (NBC) gear and TBM debris management.

Neither the Arrow-2 nor the PAC-2 are designed to “hit-to-kill,” but both contain warheads that are detonated by a proximity fuse. A “proxy kill” allows for either missile to destroy TBM’s through fragmentation rather than a direct hit.

“When the missile blows up, it shoots a ton of metal cubes that literally rip up everything in its path,” said U.S. Army Chief Warrant Officer 4 Donald Hendricks, officer in charge of the live fire exercise.

Public Affairs Specialist Kris Steward is assigned to the 69th Air Defense Artillery Brigade.



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