



AIR DEFENSE ARTILLERY

MARCH-APRIL 1992



# PERFORMANCE

## **Performance:**

No other word best sums up the Patriot air defense systems results witnessed during Desert Storm. Canadian Marconi Company is proud to be part of the Patriot success story as supplier of weapon system UHF communications equipment.

For the last two decades, the Communications Systems Division has been delivering L.O.S Digital UHF Radios for Patriot, Hawk and for other air defense C2 applications. In the Middle East theater, CMC equipment not only supports L.O.S radio communications of coalition forces, it also provides high quality CVSD voice and data multiplexing through application of the TD-5064 multiplexer (TD-1427 U.S. nomenclature).

Canadian Marconi is fully committed to provide its defense customers the utmost in competitively priced, reliable equipment.

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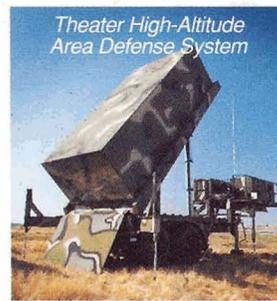
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## WHERE DO WE GO FROM HERE?

One of the most important lessons learned during the Gulf War was the value of effective missile defense. To complement its current point defense missile, the Army Air Defense Artillery needs a system that intercepts targets at longer range and higher altitude, away from populated areas. The solution is called the Theater High-Altitude Area Defense system, or THAAD.

THAAD will obliterate enemy ballistic missile warheads at a range and altitude of up to 100 miles. THAAD interceptors will be guided initially by a ground-based radar, while an extremely accurate on-board seeker will pinpoint



*Theater High-Altitude  
Area Defense System*

the target for a kinetic kill. To allow rapid tactical deployment to immature theaters, the entire THAAD

system is transportable aboard C-130s.

As the world's foremost weapons systems integrator, Lockheed will apply mature technologies to the program. As a result, we're well on our way to quickly delivering a system that is both operational and affordable.

The Army is counting on THAAD to have a striking impact on theater defense. And they can count on Lockheed to put the punch in this vital system.

 **Lockheed**  
*Missiles & Space Company*





AIR DEFENSE ARTILLERY MARCH-APRIL 1992

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## ON THE COVER

Raytheon photographer Russ Schleipman's front cover shot honors 1-7 ADA Patriot crews who celebrated New Year's Day, 1992, in the Saudi Arabian desert. Veterans of Operation Desert Storm, they were redeployed to Saudi Arabia to safeguard against the possible resurgence of hostilities.

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# Intercept Point

## ADA in Transition

On Aug. 2, 1990, the same day Iraq invaded Kuwait, Congress and the administration agreed to defense budget cuts of historic proportions. These cuts, the result of the Cold War's successful resolution, reduce the Active Army from 870,000 soldiers to 525,000 and cut our annual research, development and acquisition budget from about \$20 to \$13 billion.

Subsequently, our decisive Desert Storm victory prompted our president to proclaim a New World Order, with the United States, as the world's only superpower, in a position of global leadership. Then last August the abortive Soviet coup brought about the final dissolution of the Union of Soviet Socialist Republics. These events impelled Congress to call for a review of our national military strategy.

Today, the nation's resolve to maintain military ascendancy is counterbalanced by its eagerness to convert military spending to social purposes. In this schizophrenic atmosphere, the Army and, in turn, Air Defense Artillery, must seek out our roles, missions and priorities.

As Col.(Ret.) Harry Summers states in *On Strategy II, A Critical Analysis of the Gulf War*, the real change that has taken place in the world since our victory in the Cold War is we are no longer afraid of a regional conflict expanding into a major conflict with the Soviets. This has allowed us to abandon our Cold War strategic defensive strategy of containment in favor of a bolder strategy — the strategic offensive.

Desert Storm illustrates the advantage of the strategic offensive over the strategic defensive, a strategy that, at best, produces stalemates such as Korea and Vietnam. Saddam Hussein clearly expected us to follow the containment strategy in the Persian Gulf. Instead, we surprised not only Hussein but the rest of the world by attacking and forcing him out of Kuwait.

AirLand Battle doctrine and the emerging doctrine of AirLand Operations reflect our shift to-



Maj. Gen. John H. Little  
Chief of Air Defense Artillery

ward a force and a doctrine designed to deal actively with a wide range of regional contingencies. Our new doctrine demands that we deploy rapidly, engage the enemy with sufficient force to win quickly and decisively and with minimum casualties, then establish conditions for a favorable peace and finally redeploy.

Desert Storm previewed many of the key roles Air Defense Artil-

lery will play in New World Order doctrine. Certainly, ballistic missile defense will be among the most vital. Dozens of nations have or will soon have short-range ballistic missiles. Many have or will have mass destruction warheads.

Second, we saw what cruise missiles did to Iraq, and we must expect future adversaries to develop that capability. Third, our shift of forces to Iraq's western flank worked because the Air Force had eliminated Iraq's aerial surveillance. A future adversary who studies the Gulf War will know that he can't give us total air superiority. He may have to use unconventional means — stealth aircraft and unmanned aerial vehicles are options — but he must know what we are doing.

The ADA Commanders' Conference, June 1-5, 1992, offers us a chance to analyze these threat trends and to define our role in the New World Order. The conference's theme is "ADA in Transition." It promises to stand as an important milestone in the branch's evolution.

Last year's conference was a celebration held in the warm glow of our Gulf War success. This year, we will meet not to toast past victories, but to focus our attention and energies on challenges that lay ahead. The New World Order presents us with a seldom paralleled opportunity — the chance to play decisive roles in the reshaping of a combat arm.

MAJ. GEN. JOHN H. LITTLE

## 1992 Commanders' Conference

(Tentative Agenda)

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### June 1, 1992

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Ice Breaker	CG	302 Sheridan	1800-UTC
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### June 2, 1992

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Opening Ceremony	CATD	Hinman Hall	0900-0915
CG Welcome/ADA Status	CG	Hinman Hall	0915-1015
CSM Update	CSM	Hinman Hall	1030-1100
The ADA Force	DAMO-FDE	Hinman Hall	1100-1200
GO/Bde Cdr Lunch	MG Little	FBOC	1200-1300
PERSCOM Update	MG Putman	Hinman Hall	1300-1430
Acquisition Update	BG Drolet	Hinman Hall	1445-1545
Bus to Museum	N/A		1545-1600
ADA Association		Replica Museum	1600-1630
Museum Tour/Displays		Replica Museum	1630-1730
CSM Reception	CSM	Festivities Tent	1730-1830

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### June 3, 1992

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ADA Run with CG	MG Little	Post Flagpole	0545-0700
SWG Update	COL Hasbrouck	Hinman Hall	0830-0930
DCD Update	COL Hasbrouck	Hinman Hall	0945-1045
SFV Brief/Demonstration	6th Brigade	Smith/Bliss Field	1045-1145
Open Lunch		FBOC	1145-1245
Field Unit Presentations	TBD	Hinman Hall	1245-1600
Keynote Address	Gen. Franks	Hinman Hall	1600-1700
ADA Banquet	Cong. Skelton	FBOC	1830-UTC

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### June 4, 1992

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Continental Breakfast		Building 2	0645-0745
Working Groups	CATD	Building 2	0800-1100
Small Group Visit	CATD	TBD	1100-1200
Unit Lunch		FBOC	1200-1300
Working Groups Outbriefs	CATD	Hinman Hall	1300-1430
Closing Ceremony/CG's Closing Comments	MG Little	Hinman Hall	1445-1530
Executive Sessions			
GOs and Bde/Bn Cdrs	CG	CG Conf Room	1530-UTC
CSMs	PCSM	PCSM Conf Room	1530-UTC

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### June 5, 1992

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Travel Day

# Hughes Wins GBS Contract



*In its forward area air defense C<sup>3</sup>I configuration, Hughes Aircraft Company's ground-based sensor will be mounted on a five-ton truck.*

Hughes Aircraft Company will produce Air Defense Artillery's ground-based sensor (GBS), the forward area air defense (FAAD) system's command, control, communications and intelligence (C<sup>3</sup>I) radar or intelligence component. The Department of Defense (DoD) announced in late February that the company's Ground Systems Group, Fullerton, Calif., has been awarded a \$26,303,444 increment as part of a \$61,695,034 firm fixed-price contract for six pre-production GBSs and associated support. Work will be performed in Fullerton and is expected to be complete by August 31, 1993.

As the "objective" FAAD C<sup>3</sup>I radar component, the GBS will link FAAD systems (Avengers, the line-

of-sight rear component; Stinger Fighting Vehicles, the line-of-sight forward (heavy) interim component; and combined arms weapon platforms with enhanced organic air defense capabilities) to provide air defense for maneuver forces operating at or near the forward edge of the battlefield.

The GBS is mounted on a vehicle with a generator, an identification, friend or foe (IFF) device and communication equipment. The new radar will replace the forward area alerting radar (removed from the inventory earlier) in the heavy division.

The decision to field the GBS despite budget cuts and the perception of a diminishing threat environment, which resulted in the termi-

nation of the Air Defense/Anti-Tank System (ADATS) — the canceled system that was to have become the line-of-sight forward (heavy) component — and other major weapons programs represents a major victory for Air Defense Artillery leaders.

During a series of crucial briefings (a sort of rescue operation) that led to the contract award, U.S. Army Air Defense Artillery School briefers convinced Department of the Army officials that the recent ADATS cancellation makes GBS fielding more, not less, essential. With the radar-equipped ADATS out of the picture and with the forward area alerting radar out of inventory, the GBS is destined to become the only heavy division air

defense radar left in the forward area. Without the GBS, our air defense units in the forward area would be fighting blind.

Hughes' winning entry, the TPQ-36A radar, was one of seven candidates entered in the GBS competition. It is an advanced three-dimensional, battlefield air defense radar that automatically detects, tracks, identifies and reports targets such as pop-up helicopters and low-flying fixed-wing aircraft.

The GBS improves the probability of fast target detection, reduces air defense weapons reaction time and uses modern phased-array antenna and solid-state component technology to reduce its electronic signature while operating in a severe electronic countermeasures environment.

The GBS radar's programmable digital data or voice output is compatible with a variety of communications equipment, including hardware, enhanced position location reporting systems and very high frequency and high frequency radios. The system features sophisticated, real-time, built-in test equipment and off-line automatic fault isolation.

Hughes should deliver six pre-production models for operational test and evaluation in August 1993. Low initial rate production will begin in 1994 followed by full-scale production in 1995. Initial GBS fielding is set for 1995. The 4th Battalion, 5th Air Defense Artillery, 1st Cavalry Division, Fort Hood, Texas, is currently scheduled to become the first unit equipped with the GBS.

The Army is currently using TPQ-36A prototypes to test emerging FAAD C<sup>3</sup>I concepts and software integration in experiments that got underway last fall at Fort Bliss' North McGregor Range. The basic TPQ-36A radar also serves as the radar element of the Norwegian Adapted Hawk system.

## Patriot PAC-3 Decision Anticipated This Summer

ADA leaders are optimistic that Patriot's performance during the Gulf War and the proliferation of tactical ballistic and cruise missile technology will help them persuade senior Army officials to fully fund Patriot Advanced Capability-3 (PAC-3).

Brig. Gen. Robert A. Drolet, the Army's program executive officer for air defense, is scheduled to brief the Army Systems Acquisition Review Council late this summer on PAC-3 refinements that would improve Patriot's accuracy, lethality and range. A "green light" would move an array of PAC-3 refinements, including a new missile, into the engineering and manufacturing development stage.

Patriot PAC-3 would enhance the system's capability to counter a growing array of threat systems, including stealth aircraft, cruise missiles, anti-radiation missiles, remotely piloted vehicles and tactical ballistic missiles with longer ranges than those Saddam Hussein launched at Israel and Saudi Arabia. It would also enhance Patriot's effectiveness against missiles armed with chemical or biological warheads.

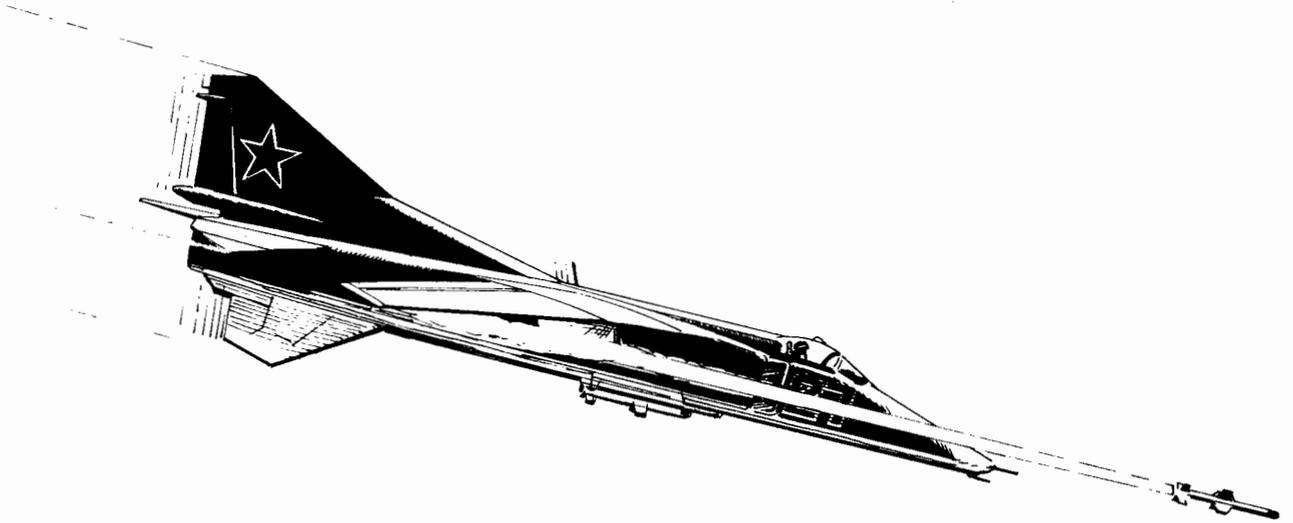
Patriot missiles are currently guided to their targets by ground-based phased-array radars. The Patriot PAC-3 missile, either a multimode seeker missile or extended range intercept missile (ERINT), would use an on-board guidance system, substantially increasing Patriot's effectiveness against small radar cross-section aircraft and missiles, its accuracy against aircraft at extended ranges and its ability to destroy

sophisticated, high-speed tactical ballistic missiles. The multimode missile improvements include a new motor and advanced warhead. The new motor would increase missile range and thrust, permitting them to intercept tactical ballistic missiles at higher altitudes. The ability to incorporate fuzing into the multimode seeker will permit the use of advanced warhead technologies, including directed or focused blast, target imaging and proximity fuzes.

## Army Extends Avenger Contract

The Army Missile Command has awarded a \$436 million contract to the Boeing Defense & Space Group Missiles & Space Division to produce 679 Avenger fire units, bringing to 1,004 the total number of Avenger units purchased by the Army since 1987.

The Avenger contract includes 600 fire units for the Army and 79 fire units for the U.S. Marine Corps. Prior to the new contract, Boeing had 325 fire units under contract with deliveries scheduled into late 1992. Production and delivery of the additional units will begin in January 1993 with completion in early 1997. Although the multiyear contract makes Avenger a 10-year program, Boeing hopes to see the program extend beyond that period, with sales to the U.S. and foreign military reaching well over 2,000 units.



# ASM Threat Still Potent

by 1st Lt. Mary Peterson

At first it was thought the collapse of the Soviet Union would spell doom for Cold War novelists, banishing dozens of authors whose spy thrillers and techno-dramas have dominated bestseller lists since the Iron Curtain fell across Europe four decades ago into literary limbo.

But don't look for Tom Clancy in the unemployment lines. The best-selling author of *The Hunt for Red October* has used his links to the military-industrial complex to pen *The Worst Possible Case*, a tale of nuclear blackmail in which a Third World dictator flexes his newly acquired nuclear muscles.

Clancy's newest novel portrays a grim, new reality. The "threat" is not disappearing; it's merely dispersing. Today, the proliferation of state-of-the-art Soviet military tech-

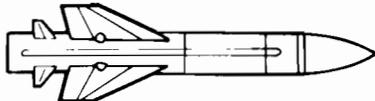
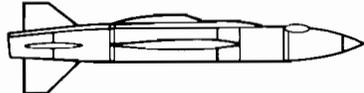
nology throughout the Third World has suddenly become front page news.

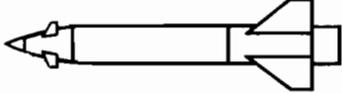
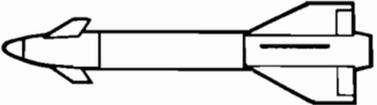
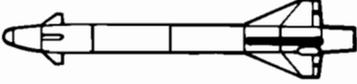
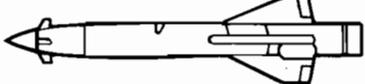
Last December, the *Washington Times* reported that Soviet nuclear scientists and engineers, whose movements prior to the collapse of the Soviet Union were confined to about a dozen secret cities, are now eagerly accepting covert job offers from Third World countries with ambitions of building their own nuclear arsenals. "So far," reported the *Times*, "at least 60 Soviet nuclear scientists [equipped with fake identity kits churned out by KGB or military intelligence forgery experts] have left these secret cities and are known to be living in at least five foreign countries."

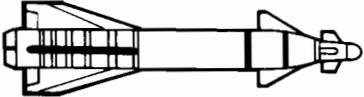
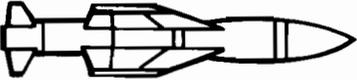
While the dissolution of the Warsaw Pact and the collapse of the

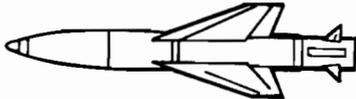
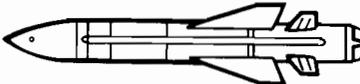
Soviet Union has greatly lessened the likelihood of a superpower confrontation, it has also accelerated the rapid proliferation of technological expertise and sophisticated weaponry throughout the Third World. Although the likely spread of nuclear arms and a surge in tactical ballistic missile proliferation are the examples most often cited, the manufacture of air-to-surface missiles (ASMs), Air Defense Artillery's nemesis, is also certain to become a growth industry.

A synopsis of ASMs most likely to be targeted against ADA units — no matter the nationality of the opposing force — and the aircraft that carry them appears on the following pages. Specifications within the synopsis are derived from unclassified sources.

<p><b>ALARM</b></p> 	<p>The United Kingdom's Air-Launched Anti-Radiation Missile (ALARM) was one of the most widely used missiles during Operation Desert Storm; reportedly, 100 were successfully fired. Saudi Arabia plans to arm its Tornados with ALARMS.</p>	<p><b>Manufacturer:</b> United Kingdom  <b>Wing Span:</b> 28 inches  <b>Length:</b> 14 feet  <b>Weight:</b> 583 pounds  <b>Aircraft:</b> Tornados</p>
<p><b>ARMAT</b></p> 	<p>The ARMAT anti-radiation missile is an inertial air-to-surface missile that can carry a 100- to 150-kiloton variable nuclear warhead.</p>	<p><b>Country:</b> France  <b>Length:</b> 13.7 feet  <b>Weight:</b> 1,210 pounds  <b>Range:</b> 72 miles  <b>Aircraft:</b> Mirage III</p>
<p><b>AS-4 Kitchen</b></p> 	<p>Versions of the AS-4 Kitchen include a strategic model with inertial guidance and a 350-kiloton nuclear warhead; an anti-shiping model with a 2,200-pound, high-explosive or nuclear warhead with active radar terminal homing; and a defense suppression version with passive radar homing.</p>	<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 9 feet, 10 inches  <b>Weight:</b> 13,255 pounds  <b>Max Speed:</b> Mach 4.6  <b>Range:</b> 185 miles at low altitude  285 miles at high altitude  <b>Aircraft:</b> Blinder, Backfire, Bear G</p>
<p><b>AS-5 Kelt</b></p> 	<p>The Kelt's liquid rocket propulsion eliminates the need for a ram air intake and permits a larger radar inside the nose fairing. It features inertial guidance with radar terminal homing that can switch from active to home-on-jammers. It carries a 2,200-pound warhead. More than 1,000 AS-5s have been exported.</p>	<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 15 feet  <b>Length:</b> 28 feet, 2 inches  <b>Weight:</b> 6,615 pounds  <b>Max Speed:</b> Mach 0.9 at low altitude  Mach 1.2 at 30,000 feet  <b>Range:</b> 110 miles at low altitude  200 miles at height  <b>Aircraft:</b> Badger</p>
<p><b>AS-6 Kingfish</b></p> 	<p>The exceptionally accurate AS-6 is carried under each wing of Badger Gs. It has a solid-propellant rocket motor with inertial mid-course guidance and active radar terminal homing. It can carry either a 350-kiloton nuclear warhead or a 2,200-pound high-explosive warhead. The anti-radiation version may have passive radar homing.</p>	<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 2 feet, 11.5 inches  <b>Length:</b> 11 feet, 6 inches  <b>Weight:</b> 650 pounds  <b>Max Speed:</b> Transonic  <b>Range:</b> 240 miles  <b>Aircraft:</b> Flogger, Fitter, Fencer, Forger</p>

<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 8 feet  <b>Length:</b> 34 feet, 6 inches  <b>Weight:</b> 11,000 pounds  <b>Max Speed:</b> Mach 3  <b>Range:</b> 135 miles at low altitude  <b>Aircraft:</b> Badger</p>	<p>The AS-7 is a first-generation tactical air-to-surface missile first produced in 1972. The AS-7 has a guidance-by-radio command link that limits the stand-off range. The AS-7 Kerry has a solid-propellant rocket motor and carries a 132-pound high-explosive warhead.</p>	<p style="text-align: right;"><b>AS-7 Kerry</b></p> 
<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 4 feet, 11 inches  <b>Weight:</b> 1,650 pounds  <b>Max Speed:</b> Mach 0.8  <b>Range:</b> 55 miles (45 miles at subsonic speeds carrying a 330- to 440-pound warhead for defense suppression)  <b>Aircraft:</b> Foxbat, Flogger, Fencer, Badger, Blinder</p>	<p>The AS-9 is a solid-propellant, anti-radar missile that looks like the AS-4 but is smaller. It is possible that the AS-9 can convert air-to-surface radar frequencies. The AS-9 is also believed to have at least three interchangeable passive radar homing heads for each of the three main ground and ship radar frequency bands.</p>	<p style="text-align: right;"><b>AS-9 Kyle</b></p> 
<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 3.23 feet  <b>Length:</b> 11.5 feet  <b>Launch Weight:</b> 660 pounds  <b>Maximum Speed:</b> Mach 0.8  <b>Range:</b> 6 miles  <b>Aircraft:</b> Flogger, Fitter C, Fencer</p>	<p>The AS-10, a solid-propellant, rocket-powered missile similar to the AS-7 Kerry, carries a 220-pound, high-explosive warhead. Its semi-active laser-guidance system probably limits the missile's range to 6 miles. Photographs show that the AS-10 has an active-laser fuze.</p>	<p style="text-align: right;"><b>AS-10 Karen</b></p> 
<p><b>Originating Country:</b> USSR  <b>Length:</b> 16.5 feet  <b>Diameter:</b> 1 foot  <b>Range:</b> 500 miles  <b>Aircraft:</b> Flogger, Fencer, Foxbat F</p>	<p>The AS-11 is an anti-radiation missile that uses imaging infrared guidance. Guided by passive radar, this missile most likely has a range of interchangeable guidance heads to cover a number of frequency bands. It has a solid-propellant rocket, probably similar to that of the AS-10, and is believed to be a replacement for the AS-4.</p>	<p style="text-align: right;"><b>AS-11 Kilter</b></p> 
<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 2 feet, 11.5 inches  <b>Length:</b> 12 feet, 7.5 inches  <b>Weight:</b> 770 pounds  <b>Max Speed:</b> Transonic  <b>Range:</b> 21 miles  <b>Aircraft:</b> Fencer, Frogfoot</p>	<p>The AS-12 is a 12.5-foot missile weighing 770 pounds at launch. It also uses a 240-pound warhead and is similar to the AS-10 Karen. The AS-12 is equipped with a passive radar seeker used against ground radar targets.</p>	<p style="text-align: right;"><b>AS-12 Kegler</b></p> 

<p><b>AS-13 Kingbolt</b></p> <p><i>Artwork unavailable</i></p>	<p>Little unclassified information about the AS-13 is available. This tactical air-to-surface missile is carried by the SU-24.</p>	<p><b>Originating Country:</b> USSR  <b>Aircraft:</b> Fencer</p>
<p><b>AS-14 Kedge</b></p> 	<p>The Kedge is a medium-range, semi-active, laser-guided missile similar to the AS-10 but equipped with a larger warhead. Iraq claims to have replaced the laser-designator pod, which they say limited the AS-14's range to eight kilometers, with a Thomson-CSF Atlas pod, giving the AS-14 a range of about seven miles.</p>	<p><b>Originating Country:</b> USSR  <b>Length:</b> 12 feet, 6 inches  <b>Weight:</b> 1,375 pounds  <b>Range:</b> 18 miles  <b>Aircraft:</b> Fencer, Flogger</p>
<p><b>AS-15 Kent</b></p> 	<p>Deployed on Bear H strategic bombers in 1984, the AS-15 cruise missile also arms the new supersonic Blackjack bomber, providing strategic attack forces with improved capabilities for low-level and standoff attacks in both theater and international operations. The Kent has a 200-kiloton warhead.</p>	<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 10 feet  <b>Length:</b> 26 feet, 6 inches  <b>Weight:</b> 3,750  <b>Aircraft:</b> Blackjack, Bear H</p>
<p><b>AS-16 Kickback</b></p> <p><i>Artwork unavailable</i></p>	<p>The AS-16 is a short-range ASM. Twelve AS-16s are often carried as an alternative weapons load to six AS-15s. The inertial-guided AS-16 can carry a 200-kiloton nuclear warhead.</p>	<p><b>Originating Country:</b> USSR  <b>Wing Span:</b> 2 feet, 11.5 inches  <b>Weight:</b> 2,650 pounds at launch  <b>Speed:</b> Mach 3  <b>Range:</b> 125 miles</p>
<p><b>AS-X-19</b></p> <p><i>Artwork unavailable</i></p>	<p>This supersonic cruise missile, with a reported range of 2,000 miles, is being developed as an alternative weapon for the Tupolev Blackjack strategic bomber.</p>	<p><b>Originating Country:</b> USSR  <b>Speed:</b> Supersonic  <b>Range:</b> 2,000 miles  <b>Aircraft:</b> Blackjack</p>

<p><b>Originating Country:</b> France  <b>Wing Span:</b> 3 feet, 11.25 inches  <b>Length:</b> 13 feet, 6.25 inches  <b>Weight:</b> 1,168 pounds  <b>Aircraft:</b> Mirage 111Es, Jaguars</p>	<p>The AS-30L can penetrate six feet of concrete before detonation. Similar to the AS-10, the AS-30L has been exported to operators of the Mirage F-1, including Iraq. The AS-30L, which carries a 528-pound high-explosive warhead, can be used against air defense sites, but the carrier aircraft would be exposed to air defense fires.</p>	<p style="text-align: right;"><b>AS-30L</b></p> 
<p><b>Originating Country:</b> France  <b>Speed:</b> Supersonic  <b>Aircraft:</b> Mirage F-1, Mirage 2000, AMX, Tornado, F-15 and F-16</p>	<p>The AS-37L Martel is an all-weather, solid-propellant rocket, anti-radiation missile. Its passive sensor hones on hostile radar emissions.</p>	<p style="text-align: right;"><b>AS-37L</b></p> 

During the Gulf War, coalition pilots firing ASMs quickly demolished Iraq's air defense command, control and intelligence centers. As a result, most of the surface-to-air missiles launched against coalition aircraft were, as one pilot put it, "flying blind." ASMs also decimated Saddam Hussein's huge tank army.

With Desert Storm as their inspiration, existing and aspiring military powers are certain to place air-to-surface missiles near the top of their shopping lists. The newly independent republics that have replaced the Soviet Union are struggling to convert to a supply- and demand-based economy, but this does not mean that they are converting all their defense plants into washing machine, refrigerator and television factories. For the moment, these defense plants continue to pour forth weapons systems, including ASMs, of increasing sophistication and effectiveness. These weapons manufacturing facilities offer the leaders of bankrupt economies a badly needed (and highly lucrative)

source of exports for sale to Third World countries with bulging treasuries. The supply and demand for these weapons, now available at bargain-basement prices, remains virtually inexhaustible and the leaders of often belligerent Third World countries realize that possessing them can make them a regional power almost overnight.

The world, in short, is making a transition to a new status quo in which multiple centers of military power will exist. The implications for Air Defense Artillery are enormous. No matter what the scenario, in future operations, ranging from high- to low-intensity conflicts, ADA units must be prepared to counter a growing array of sophisticated weaponry.

Iraqi Scud attacks on Israeli population centers during the Gulf War created a congressional mandate for tactical missile defense that has ensured continued funding for Air Defense Artillery's Theater High Altitude Air Defense system as well as other tactical missile defense programs. However, Air De-

fense Artillery faces a tougher challenge, during a period of shrinking resources, in convincing budget makers that the proliferation of less awesome weapons, such as air-to-surface missiles, also poses a substantial threat.

With the Cold War at an end, the "threat community" within the Department of Defense is shifting its attention, once almost entirely focused on the Soviet Union, to threat developments around the world. Our goal is to produce a convincingly accurate portrayal of the full spectrum of the emerging threat in a new world order, a portrayal that will help our clients, such as Air Defense Artillery, obtain the funding they require to maintain the competitive edge they demonstrated during Operation Desert Storm. ✪

**1st Lt. Mary Peterson** was formerly assigned to the Threat Office, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

## Old Hawks Learn New Tricks

During the past three years, Delta Battery, 6-52 ADA, Wurzburg, Germany, has conducted an experiment to reduce the signature of Hawk assault firing platoons. The Battery Combat Trains Concept that emerged from these experiments consolidates mission critical functions into a more efficient configuration that increases assault firing platoon mobility, flexibility and survivability.

The Battery Combat Trains Concept consolidates the casualty collection point, damaged vehicle collection point, missile and/or ammunition resupply, refueling operations, all classes of resupply and command and control at the trains. These are functions habitually performed at assault firing platoon locations, an anachronistic arrangement that unnecessarily exposes soldiers and high price tag items, such as fuel tankers, wreckers, medical gear and mobile kitchen trailers, to hostile fire and requires twice the amount of manpower. In today's shrinking force, we can no longer afford to do things the old way. Centralizing the trains at a single location reduces the assault firing platoon's signature, allows the platoon to concentrate on fighting the air battle and increases the platoon's mobility and flexibility.

The motor section at the trains allowed us to perform maintenance at all levels, with contact teams handling faults at the lowest possible level. We discovered vehicle evacuation and repairs did not adversely affect the platoon's ability to fight the air battle.



*Hawk firing platoons throughout Air Defense Artillery may benefit by adopting the Battery Combat Trains Concept.*

Mess and supply personnel picked up items at higher echelons and "pushed" all requests from the centralized trains to the firing platoon, an arrangement that prevented assault firing pla-

toons from having to send crew members to pick up mess or resupply items. Once again, this arrangement had no adverse impact on the assault firing platoon's ability to accomplish its mission.

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## ADA Soldiers Lend a Helping Hand

The director of the Pikes Peak Area Special Olympics, Clyde Thomas, didn't know where to turn for help. So he turned to the Army.

Thomas needed help cleaning up an old building loaned to the Special Olympics for a Haunted House fundraiser. High school students had volunteered to set up and run the haunted house, but were unable to clean up afterward. That's where Fort Carson came into the picture.

Soldiers of Alpha Battery's Stinger Platoon, 1-3 ADA, when asked for their help, attacked the clean-up job with enthusiasm, finishing in one day a task Special Olympics personnel estimated would take at least two days to complete.

"This was a nice change of pace for our soldiers," said SFC Craig Laugerude, platoon sergeant. "And it was for a good cause." □

BY GINGER PENCE

We also pushed refueling operations forward from the centralized trains to the assault firing platoon locations, reducing the battery's vulnerability and allowing the commander to better manage his unit's fuel consumption. Never having both tankers empty at the same time allowed us to resupply fuel at anytime and anyplace.

Consolidating medical operations within the combat trains al-

lowed the medics to set up a centralized triage. Casualties were stabilized by combat lifesavers within the platoon and transported to the casualty collection point. Working together at the centralized triage, the two medics were able to provide better medical care than if they been working apart at separate locations. The centralized trains, rather than firing platoon assets, evacuated casualties to higher echelon.

We consolidated missile resupply operations at the trains by using three missile tracks with pallet trailers and their drivers to push Class V supplies forward to the firing platoons. As missiles were expended, the trains requested and picked up new missiles from the battalion missile resupply points and moved them forward to the assault firing platoon, with only a minimum impact on the platoon's operations.

We discussed, but never implemented, a plan to relocate the systems maintenance section to the trains. This would have allowed us to consolidate the few systems maintenance assets (personnel and parts) left in the battery. □

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BY 1ST LT. CHRISTOPHER COLOMBO,  
1ST SGT. FRANCIS CULHANE,  
and JAY C. B. LEE

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## Threat Proliferation

CIA Director Robert Gates recently released the following synopsis of threat proliferation as evidence that the world is still a pretty dangerous place.

**Algeria:** Has nearly completed the construction of a nuclear reactor with the potential to produce nuclear weapons.

**Commonwealth of Independent States:** Is suffering economic hemorrhaging that may transfuse Third World countries with nuclear materials, nuclear scientists and technicians and assorted high-tech weaponry.

**Egypt:** Is about to go on line with the first missile production facility in the Land of the Pharaohs.

**India/Pakistan:** Seeking a ballistic missile capability to complement their nuclear weapon components.

**Iran:** Casting about for nuclear and ballistic missile technology in an apparent bid to counter Iraq.

**Iraq:** Could produce nuclear weapons in a "few years," chemical arms "immediately" and biological weapons within "a matter of weeks." May be hiding Scuds that survived the Gulf War.

**Israel:** Maintains ballistic missile force and is developing the Arrow, an anti-missile system.

**Libya:** Is building a second chemical arms factory to increase tons of chemical munitions it already has stockpiled and is in the market for a missile delivery system.

**North Korea:** Is seeking a reapproachment with South Korea over nuclear arms but continues to export tactical ballistic missiles to the Middle East.

**Saudi Arabia:** Is expanding its support facilities for medium-range missiles.

**Syria:** Has acquired Scuds from North Korea, hopes to purchase a nuclear reactor from China and seeks assistance from China and Western manufacturers in building chemical and biological missile warheads.

**Western Nations:** Take the lead with commercial enterprises that continue to sell sensitive technology to Third World countries. □

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## Team Spirit '92 Canceled

The South Korean Defense Ministry, citing North Korea's promise to permit inspection of its nuclear facilities and its commitment to reduce tensions on the Korean Peninsula, has canceled Team Spirit '92. ADA units regularly participate in the annual Team Spirit exercise, which prepares U.S. and South Korean forces to respond to a reenactment of North Korea's 1950 invasion of South Korea.

"This doesn't end our ability to have exercises with the Republic of Korea," said Defense Department spokesman Pete Williams. "We'll continue to consult with the Republic of Korea on future Team Spirit exercises." □

## Budget Spares Avengers

President George Bush's defense budget for FY93 eliminates ADATS, the forward area air defense (FAAD) system's line-of-sight forward (heavy) component, but continues multiyear funding for Avenger, the FAAD line-of-sight rear component. A Pentagon press release issued following Bush's State of the Union address listed the acquisition status for key weapon systems (see chart).

The Avenger system has been fielded to the 1st Battalion, 5th Air Defense Artillery, Fort Stewart, Ga. Avenger made its combat debut during the Gulf War with the 4th Battalion, 5th Air Defense Artillery, Fort Hood, Texas, and with the 3rd Armored Cavalry Regiment's Avenger Platoon based at Fort Bliss, Texas. The system has also been fielded to the 5th Battalion, 5th Air Defense Artillery, Camp Stanton, Republic of Korea.

## Weapons Systems Acquisition Status

	FY91	FY92	FY93
M-1 Abrams Tank	240	18	0
Bradley	600	0	0
UH-60 Black Hawk	72	60	60
CH-47 MODS	48	50	0
MLRS Launchers	66	44	44
ATACMs	373	300	340
Patriot Missiles	1,183	97	0
Stinger Missiles	6922	0	0
TOW 2	14,784	10,000	9,440
M-119 Howitzer	42	86	87
Avenger	88	144	144
Hellfire Missiles	5,511	117	2,543
120mm Mortar	196	433	242

Research and development continues on tactical command and control system hardware and software to provide communications and interoperability among five of the eight battlefield operating systems from the corps level

to the soldier's foxhole. These include the maneuver control, advanced field artillery tactical data, all source analysis, combat service support control and FAAD command, control, communications and intelligence systems. □



*The Avenger was the only forward area air defense system deployed to Southwest Asia for Operation Desert Storm.*

## The New Commonwealth

The Union of Soviet Socialist Republics no longer exists, replaced in this era of democracy by the "Commonwealth of Independent States." According to U.S. State Department officials the new commonwealth, which has no leader, will be led temporarily by the Council of Heads of Government and the Council of Heads of State. The first council will manage everyday affairs among the republics; the second (and more powerful) will deal with more important matters.

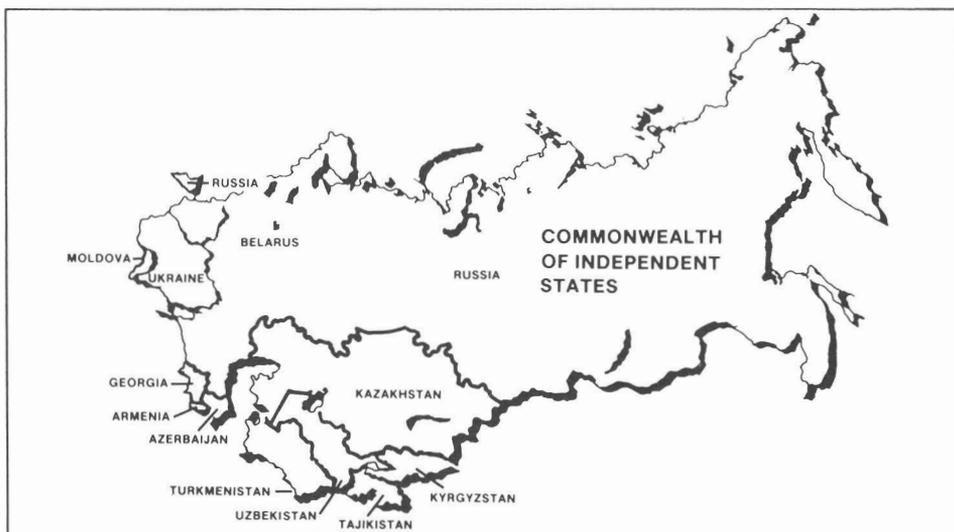
While the republics have agreed to centralized control of nuclear weapons, the status of the rest of the armed forces is any-

thing but stable. Some of the republics may raise their own armies, and some may even have their own navies.

The following paragraphs summarize the republics that now constitute the Commonwealth of Independent States.

**The Russian Federation** is the largest republic in both population and land mass, with 147 million Russians occupying about 6.6 million square miles. The republic stretches from the borders with the Baltic republics through Siberia to the Pacific. Experts expect the Russian Federation to play the leading role in the Commonwealth. Russia possesses the most nuclear weapons. Moscow is its capital.

**Ukraine** is the most densely populated member, with 51.7 million Ukrainians in 233,100 square



miles. Kiev is the capital. Ukraine possesses nuclear weapons but allegedly wants to dispose of its nuclear warheads. Early reports indicated Ukraine would field a national guard of 480,000 troops.

**Uzbekistan** contains 19.9 million people on 172,700 square miles. Moslems make up the majority of this central Asian republic. The Soviets reclaimed much of the desert land in Uzbekistan by tapping the Aral Sea, one of the world's largest lakes. This has caused an environmental disaster, as the lake has shrunk and fresh water is growing scarce. The capital is Tashkent.

**Kazakhstan** is made up of 16.5 million people on about 1.05 million square miles of territory. The republic is a bridge running from Europe to the Chinese border. Kazakhstan currently possesses nuclear weapons. Roughly half of the population is Russian and Ukrainian, the rest is Moslem Kazakh. The capital is Alma Ata.

**Belarus** is the new name for the Byelorussian Republic, which has also been called White Russia and Belorussia in the West. There are 10.2 million people on 80,200 square miles of territory. Belarus wants to turn its nuclear weapons over to the Russian Republic. Extensively industrialized, the republic has never been an indepen-



*Stinger gunner Spec. Donald Haynes of 2-3 ADA, Fort Riley, Kan., and his team chief, Spec. Samuel D. Corcimiglia, finished first in a competition to determine the best U.S. Army III Corps Stinger team. Held at Fort Hood, Texas, the competition drew 18 Stinger teams from Fort Riley; Fort Hood; Fort Bliss, Texas; Fort Polk, La.; and Fort Carson, Colo.*

dent country before. The capital is Minsk.

**Armenia**, a mostly Christian country, has 3.3 million people in a rugged country of 11,306 square miles. The capital is Yerevan.

**Azerbaijan** is an oil-rich state of seven million people in 33,400 square miles of territory. Azerbaijan and neighboring Armenia have been divided by Armenia's demand of the return of the Nagorno-Karabkh autonomous area administered by Azerbaijan. The capital is Baku.

**Tajikistan** is another mostly Moslem-populated state and borders China and Afghanistan. Tajikistan has 5.1 million people in 54,019 square miles. Most of the people speak an Iranian dialect. The capital is Dushanbe.

**The Moldova Republic**, previously called Moldavia, was taken from Romania during World War II. The population of 4.3 million speaks Romanian. The republic contains 13,012 square miles and is mostly agricultural. Kishinev is the capital.

**Kyrgyzstan**, previously Kirghizia, has 4.3 million people on 76,642 square miles. Primarily agricultural, it borders on China. The capital is Frunze.

**Turkemenistan** has 3.5 million people in 188,417 square miles. Eighty percent of the republic is desert. The rest of the central Asian republic is agricultural or associated with chemical industry. The capital is Ashkhabad. □

AFIS

### ERINT Testing Underway

The U.S. Army Strategic Defense Command has completed an environmental assessment that concludes no significant impact will result from the Extended Range Intercept Technology (ERINT) Program. The program includes developing and flight test-

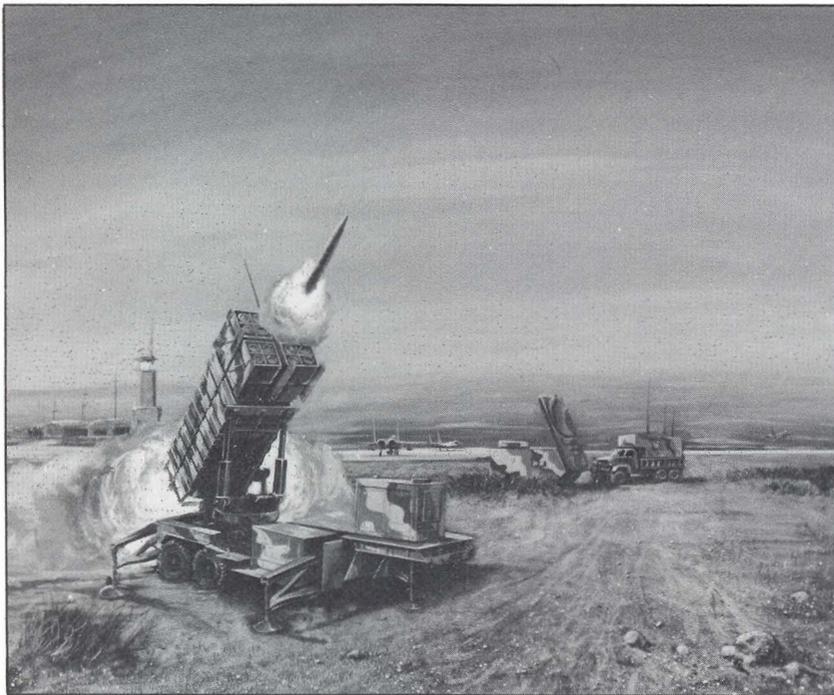
ing the ERINT missile and the ERINT Target System. The ERINT Target System includes a tactical ballistic missile target and a maneuvering ballistic missile target that carry payloads of nonhazardous chemical simulants to demonstrate ERINT's effectiveness against chemical warheads.

Existing air-breathing targets will also be used in ERINT testing. The ERINT flight tests are expected to continue through 1993.

The Army was scheduled to begin testing LTV Corp.'s ERINT missile in March at White Sands Missile Range, N.M. The single stage, agile, hypersonic, terminal homing missile is designed to intercept tactical ballistic missiles. Since 16 ERINT missiles can fit into a Patriot launcher that currently holds four Patriot missiles, ERINT missiles employed with a Patriot battery could reduce the threat of saturation by tactical ballistic missiles.

The ERINT flight test program currently underway in the New Mexico desert will demonstrate the missile's performance against tactical ballistic, air-breathing and maneuvering tactical missile targets.

During the flight tests, a Patriot radar will track targets and transmit track file data to the ERINT fire control computer, which will then calculate missile launch data and target predicted intercept points. □



# Can THEY Do the Same to US?

*How to keep Gulf War images from becoming our personal nightmare*

*by Lt. Col. William F. Bell*

As a fellow air defender and Gulf War alumnus, two images of Operation Desert Storm have stayed with me longer than any others. The first is the view provided by precision-guided munition cameras as our smart bombs, cruise missiles and air-to-ground missiles smashed with uncanny accuracy through the roofs, air ducts, doors and windows of Iraqi targets. The second is the smoking carnage of an Iraqi convoy trapped in the "Valley of Death." Some say the grisly photos of twisted and charred Iraqi vehicles and corpses caught fleeing along the road leading north of Kuwait City convinced the Bush administration to call an early halt to the fighting.

The same images, I hope, are spinning around in the minds of all air defenders. Lest we forget in the euphoria of victory, there were air defense units protecting those Iraqi targets that our warplanes and attack helicopters destroyed so utterly and with such virtual impunity. We must ask ourselves, "How can we prevent the same from happening to us?" And we cannot afford to imagine that we are the only ones

sifting through the evidence left in the desert sand. The same images doubtless occupy the thoughts of commanders and staff officers the world over as they ponder the events of Desert Storm. Our potential adversaries are asking themselves, "How can we prevent them from doing the same to us?" and, conversely, "How can we do the same to them?"

Operation Desert Storm has provided us with an incredibly vast library of lessons learned. It seems that, after decades of incubation, a consortium of sophisticated tactics and strategies and advanced weaponry reached maturity in the Gulf War. The ready availability of over-the-counter or black market weapon systems and increased Third World industrial capacity combines with top-drawer technological expertise emanating from the wreckage of the Warsaw Pact, like energy escaping a collapsing star, to make it highly possible, indeed, almost a certainty, that the weapons and tactics that we employed during Desert Storm will one day be turned against us.

During the Gulf War, remotely piloted vehicles (RPVs) matured as real-time targeting platforms and, today, pose a serious threat. They are relatively cheap and difficult to acquire either visually or on radar. The U.S. Navy and Marine Corps use them to provide targeting information for their ships and aircraft. We were frequently overflowed by Marine RPVs in and around Khafji. We would always hear their distinct whine before we could see them, and maddeningly, sometimes we never saw them. Their use of our airspace was never coordinated in advance, so we never knew when to expect them. Numerous discussions with Marine air defenders revealed they also were never informed when the RPVs were to fly. (Yes, Iraq had RPVs. High level intervention prevented us from "sorting it out on the ground.")

Precision-guided munitions and cruise missiles reached their ascendancy during Operation Desert Storm. They are relatively cheaper than "dumb" bombs, especially when aircraft risk is considered, as well as vastly more effective. Fur-

thermore, both ground- and air-delivered cluster munitions are devastatingly effective against vehicles and artillery emplacements. Air-delivered Rockeye bomblets destroyed or disabled a large number of Iraqi tanks and armored personnel carriers during the battle of Khafji. Ground- and air-launched precision-guided missiles killed most of the rest. Delivery and targeting systems have likewise matured with the application of stealth and forward-looking infrared technologies. Warfare has truly become a 24-hour affair with severe penalties for those not technologically prepared.

The effectiveness of our attack helicopters and warplanes during Operation Desert Storm demonstrated that air superiority is more critical than ever to freedom of maneuver. Just one Iraqi aircraft could have done incredible damage to the bumper-to-bumper traffic on Tapline Road. Even the threat of air attack on Tapline Road would have severely hindered our logistics build-up. A couple of Hinds could have turned the "classic" Marine breaching operation into disaster.

As our pilots demonstrated during the first hours of the Desert

Storm air campaign, early destruction of the enemy air defense network is critical to achieving air superiority. Primarily, this means eliminating the air defense command and control on as many levels as possible and taking out key high-to medium-altitude air defense (HIMAD) units. A fragmented air defense network is then vulnerable to piecemeal destruction. Electronic warfare, combined with stealth technology, high-tech targeting and precision-guided missiles, is a difficult synergism to counter. But counter it we must.

There are several near-term actions that the air defense community needs to take to stay ahead of any future adversaries. These fall into the general categories of procedures, tactics, personnel and equipment, and training.

We must establish procedures for the use of friendly airspace by RPVs. These platforms are too potentially damaging to friendly forces to be allowed to roam free. The standard weapon control status for cruise missiles and unknown RPVs coming from the direction of the forward line of own troops can only be WEAPONS FREE. The fact that no pilots are at risk and the poten-

tial destructiveness of these weapons dictate no other choice. Greater use of WEAPONS FREE zones will minimize engagement time. These zones will have to be larger than in the past to counter standoff munitions. If one accepts the argument that air defense units operate more effectively in less restrictive environments, then establishing and/or expanding WEAPONS FREE zones would appear to markedly aid the Air Force in the fight for air superiority as it should free defensive counterair assets for offensive counterair missions.

Any procedures that we establish must take our future allies into account. The Eastern Province Area Command and its subordinate brigades did not receive any airspace control information during the war, yet we were constantly overflown by coalition air forces. To prevent fratricide, Desert Storm commanders placed the 2nd Motorized (King Abdul Aziz) Brigade (Saudi Arabian National Guard) Stingers on permanent WEAPONS HOLD.

We must place tactical emphasis on killing air platforms early. In the corps area, this involves assigning more forward area air defense weapons to the screening forces and pushing HIMAD units well forward by priority use of corps aviation assets. I Corps' 35th ADA Brigade used this tactic very effectively during 1990 training exercises by moving Hawk platoons by helicopter close to the forward line of own troops. We must give the destruction of "Wild Weasel" type aircraft and ground-based electronic warfare emitters the highest priority. Air defense sites have to be fortified and moved often, especially during the early phases when the battle for air superiority is being waged. This is not a contradiction. If engineer support is available, great, but if not, start digging. Sandbags and shovels have equal importance with camouflage nets.



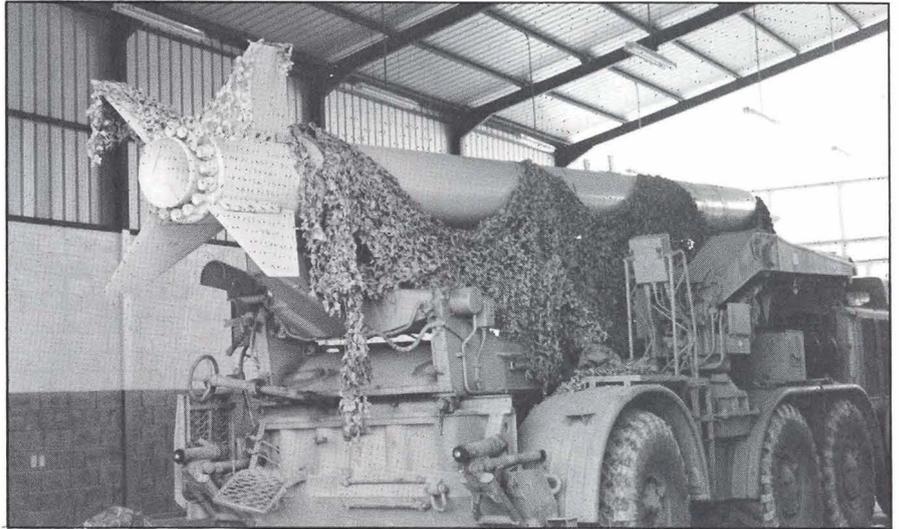
*The wreckage of Iraqi vehicles trapped in the "Valley of Death" illustrates the failure of Iraqi air defense to counter attack helicopters and fixed-wing attack aircraft.*

You must assume that enemy special operations forces are to your rear. In general, they are more valuable as intelligence gatherers and targeters than in direct operations (although, of course, direct operation cannot be discounted). Conduct counter-reconnaissance if you are in one location for very long. And assume headquarters will probably not move as often as you would like since real estate is usually at a premium. (Even the desert got crowded at times.)

When positioning weapons, take the destructiveness and range of enemy weapons into account. Don't place either air defense weapons or command and control on the defended asset. Force the enemy to choose between attacking the target or you, but don't let a single cluster bomb take you both out. Position air defense units so they can engage aircraft prior to ordnance release, even if considerable risk is assumed. An engagement envelope that covers the defended asset is useless if you can't hit the enemy prior to ordnance release.

We must review personnel and equipment arrangements within air defense elements. The assignment of Air Force personnel (with communications equipment) to an ADA brigade headquarters would be an excellent method to further inter-service coordination, and who better to advise brigade staff on probable flight paths and ground attack profiles than Air Force personnel? Assigning Stinger teams to provide HIMAD self-protection is no longer adequate. We need a 24-hour capability. The replacement of Stinger with Avenger is the logical solution.

Training is the most important component because it ties everything else together. Visual aircraft recognition needs to be expanded to include cruise missiles and RPVs. Rehearse command and control degradations. Don't pass up opportunities to construct field fortifica-



*This surviving Iraqi Scud is a grim reminder that tactical ballistic missiles are proliferating throughout the Third World.*

tions. Strive to include counter-reconnaissance operations, such as mounted and dismounted patrolling, in every field training exercise. This should also be emphasized as an Army training and evaluation program (ARTEP) task.

Most air defense ARTEPs take place in a sterile air threat environment. Usually, a few helicopters or aircraft are obtained to overfly the limited maneuver area during daylight. In the best case, a couple of helicopters are equipped with combat simulation gear, and sometimes the aircraft can fly low-level approaches without generating howls of protest about noise from the civilian populace. These conditions hardly stress our air defense units. We need an environment with a high density of aircraft flying realistic profiles and using sophisticated tactics and technology. One obvious solution is our participation in the various Air Force "Flag" exercises. If we are going to fight jointly, we must train jointly. We should be able to provide the Air Force a better opponent than the static remote emitters and mockups scattered across the range. Air defense units can maneuver, anticipate and react to the Blue Air Force's tactics.

The argument that we would not be faithfully replicating Red air defense is meaningless. The world has already seen that Red air defense doctrine is worthless. Furthermore, our ADA weapons are becoming more widely used. Last, why should the Air Force train against the second string when the first team is available and willing?

These recommendations are not all inclusive, nor do they include new equipment development or significant force modernization requirements. The absolute imperative is a constructive, ongoing dialogue between air defenders and our Air Force brethren to ensure that our opponents, and not us, are the permanent residents of any future "Valley of Death." ❁

**Lt. Col. William F. Bell** is currently assigned as the Senior Air Defense Advisor and Chief, Light Armored Vehicle Fielding Section, with the Office of the Program Manager-Saudi Arabian National Guard in Riyadh, Saudi Arabia. During Desert Shield and Desert Storm he served with the 2nd Motorized (King Abdul Aziz) Brigade and participated with the brigade in the battle of Khafji.

WWII 50th Anniversary  
Commemoration

# Battle of Bataan

*The fall  
of an  
American army*

Short on food and supplies, low on ammunition and plagued by tropical diseases, the “Battling Bastards of Bataan” were destined to become the only U.S. army ever surrendered in the field. Antiaircraft artillery units engaged in the battle shot down more than 150 enemy planes before marching off to prisoner of war camps.





The Japanese air attack on Clark Field near Manila during the opening hours of World War II destroyed the B-17 Flying Fortresses of the United States' Far Eastern Air Force on the ground, demolishing Lt. Gen. Douglas MacArthur's hopes of waging an active defense of the Philippines. Following Japanese amphibious landings at Lingayen Gulf and Lamon Bay, MacArthur declared Manila an open city, removed his U.S. Army-Far East Headquarters to Corregidor, an island bastion in Manila Bay, and ordered his forces on Luzon to conduct a fighting withdrawal onto the Bataan Peninsula.

MacArthur could not have chosen a better place than Bataan for a final stand. Formed by the southern heights of the Zambales Mountains, the peninsula, covered by thick jungle, juts out from the mainland of Luzon between Subic Bay and Manila Bay like a huge thumb pointing at the shore of Cavite Province only 12 miles away. Between Bataan and the Cavite shore lie Corregidor and several smaller islands, guarding the entrance to Manila Bay. Only 25 miles long and 20 miles wide across its base, Bataan was ideally suited for defensive warfare. It is jungled and mountainous,

cut by numerous streams and deep ravines and has only two roads adequate for motor vehicles. Dominating the peninsula are two extinct volcanoes: the 4,222-foot high Mount Natib in the north and, to the south, Mount Bataan, the highest peak in the Mariveles Mountains, which towers to a height of 4,722 feet. Along the east coast, on the Manila Bay side, the peninsula is flat and swampy near its base but becomes hilly and rugged to the south. The coastal plain on the west is extremely narrow. Here, the mountains extend almost to the sea; high cliffs guard the shore and rugged promontories jut into the water. A myriad of streams radiate from the two volcanic masses and wind their way through steep ravines and gullies to the sea.

By the first week of January 1942, the American and Filipino troops withdrawing from both ends of Luzon had joined at San Fernando and begun the last lap of their journey to Bataan. In 10 days they had retired from Lingayen Gulf and Lamon Bay onto the two roads leading into Bataan. Their mission was to hold out until reinforcements arrived from the United States. The problem with the strategy was that the United States had no reinforce-

ments to send. A popular ballad captured the besieged soldiers' sense of despair and abandonment:

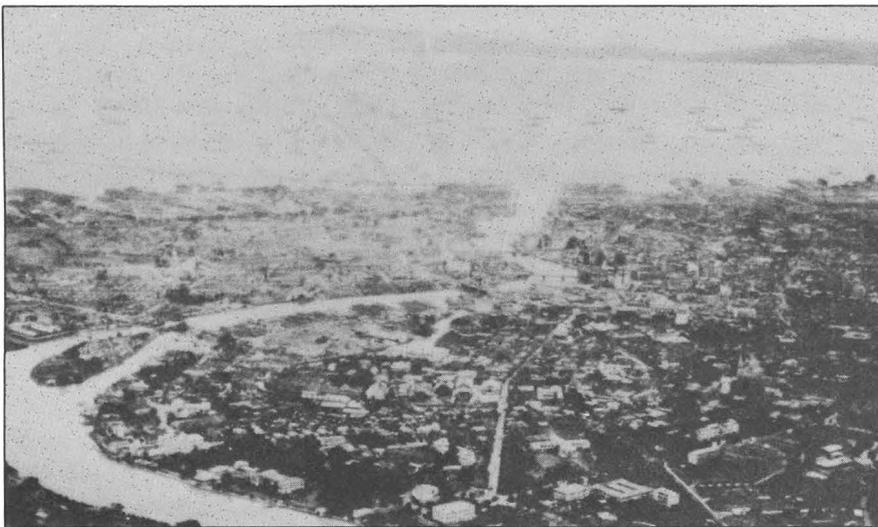
*We're the battling bastards  
of Bataan;  
No mama, no papa, no  
Uncle Sam  
No aunts, no uncles, no  
cousins, no nieces;  
No pills, no planes, no  
artillery pieces  
. . . And nobody gives a  
damn.*

Subsisting on starvation rations, short of supplies, low on ammunition and plagued by malaria, dysentery and other tropical diseases, the "Battling Bastards of Bataan" were destined to become the only U.S. army ever to surrender in the field. This is the story of anti-aircraft units that shared their fate.

### **200th Coast Artillery (Anti-aircraft Artillery [AA])**

The 200th Coast Artillery (AA), Col. Charles G. Sage commanding, had arrived in the Philippines in two echelons during September 1941 and had assembled at Fort Stotsenburg, adjacent to Clark Field, on Sept. 26. The approximate strength of the regiment on that date was 1,900 officers and enlisted men (loss of all records prevents use of accurate figures).

The regiment awoke on the morning of Dec. 8, 1941, to news that the Japanese had bombed Pearl Harbor. Although they expected hostilities to begin at any moment, they were unaware that Japanese warplanes were already winging toward them from airfields in Formosa. Early that morning, 96 enlisted men (truck drivers) and 96 trucks were dispatched from the 200th Coast Artillery (AA) and attached to the Provisional Group Self-Propelled Artillery. The regiment saw its first action a few hours later when Japanese fighters and



*The Bataan peninsula, partly shrouded in fog, is visible 25 miles across Manila Bay.*

bombers appeared over Clark Field (see "Clark Field: Air Defense De-bacle in the Philippines," *ADA* magazine, January-February 1992).

That afternoon, with smoke still rising from the ruins of Clark Field, approximately 30 officers and 500 enlisted men, with 40 vehicles, were detached to put into operation anti-aircraft artillery equipment at Manila. Lt. Col. Harry M. Peck, executive officer of the 200th Coast Artillery (AA), was placed in command of the group, which was first known as the Provisional 200th Coast Artillery (AA) of Manila and later was designated the 515th Coast Artillery (AA). Other detachments were pulled from the 200th Coast Artillery (AA), totaling approximately 25, leaving the remaining strength of the regiment at approximately 1,200 on Dec. 9. Early in January 1942, additional transfers to the 515th Coast Artillery (AA) and other organizations further reduced this figure by about 150. These reductions were replaced in part by the addition of about 160 Air Corps officers and enlisted men who were picked up at Clark Field after the raid on the field caused a widespread breaking up of Air Corps organizations. On Dec. 25 A Battery, 92nd Coast Artillery (AA), commanded by Capt. John McGulick, was joined to the 200th by the regimental commander and used with that regiment for several days, until contact could be established with the commanding officer of the 92nd, then on Corregidor.

The 200th Coast Artillery (AA), assigned to the Philippine Coast Artillery Command on or about Dec. 3, 1941, was involved in action against Japanese aviation almost daily from Dec. 8, 1941, to April 8, 1942. On the evening of Dec. 24, the regiment moved from Clark Field to the Hermosa-Layac Junction-Dinalupihan area to provide anti-aircraft defense for the

bridges crossing the river. On the night of Dec. 27, two batteries were sent to Calumpit to relieve batteries of the 515th Coast Artillery (AA) and continue the anti-aircraft defense of those bridges leading into Bataan. These batteries were withdrawn to Hermosa after daylight on Jan. 1, 1942, following the destruction of the bridge at Calumpit by engineer forces at 0615 that morning. That evening the regiment withdrew into Bataan and bivouacked until Jan. 8, when it established an anti-aircraft artillery defense for the Bataan airfield. On March 21 the 200th Coast Artillery (AA) was relieved of its assignment to the Philippine Coast Artillery Command and assigned to Groupment "A" (AA). The same day Sage was reassigned as commanding officer of Groupment "A" (AA). Lt. Col. Memory H. Cain assumed temporary command of the 200th Coast Artillery (AA), pending transfer from the 515th Coast Artillery (AA) of Lt. Col. John C. Luikart. On April 7 the 200th Coast Artillery (AA) was relieved from assignment to Groupment "A" (AA) and assigned to the Philippine Coast Artillery Brigade (AA).

The incidence of malaria in the regiment was well below average for troops on Bataan, but this malady, combined with the loss of strength due to the reduced rations, produced a considerable loss of combat efficiency. This loss was estimated between 65 and 70 percent during the last few days before surrender.

Throughout the campaign, the 200th Coast Artillery (AA) and other anti-aircraft elements experienced considerable difficulty with ammunition. All three-inch gun ammunition was equipped with powder-train fuzes. Since the newest rounds were manufactured in 1932, it was only natural that most of the fuzes were badly corroded. Replacement fuzes received were also, in most cases, corroded to

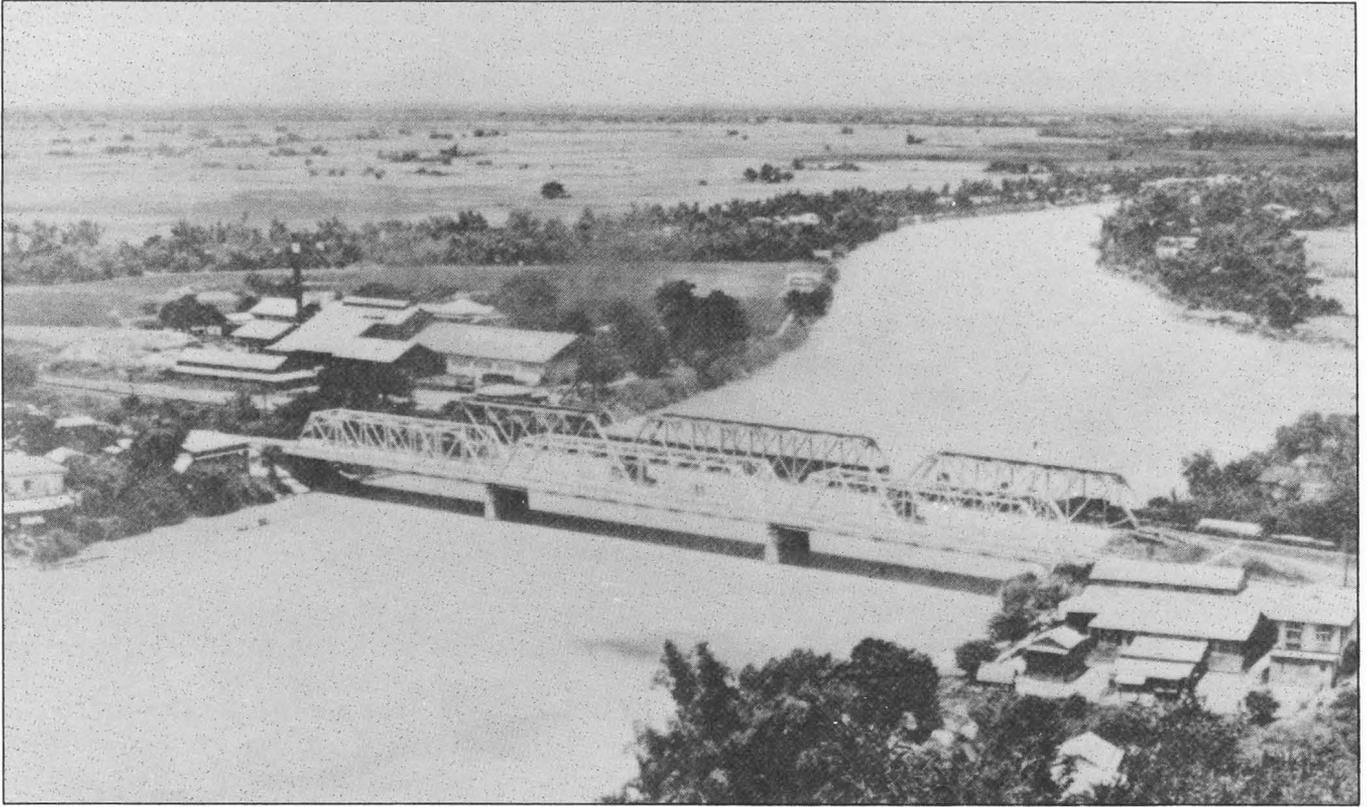
such an extent that their usefulness was doubtful. The incidence of duds was abnormally high. Sage witnessed one firing of 17 rounds in which only two detonated. The scarcity of ammunition and the knowledge that no more would be received drastically limited the number of rounds fired per gun per target. Continued observance of effectiveness of fire finally brought a limitation of three rounds per gun per target. The 515th Coast Artillery (AA) adopted the same rule after conference between the regimental commanders.

In the late afternoon of April 8, the brigade commander ordered the regiment to destroy all its anti-aircraft artillery equipment except that which could be used to support an infantry defensive position. The same orders required the 200th to occupy, as infantry, a defensive position just south of Cabcaben air field, to the left of the regiment on the main road. The 515th Coast Artillery (AA), assigned a similar mission, was positioned to the west of the 200th. On April 9, the 200th Coast Artillery (AA) was unable to stop Japanese tanks that crashed through the regiment's lines, but they successfully engaged and halted Japanese infantry following behind the tanks. In the early afternoon of April 9 the 200th Coast Artillery (AA) was surrendered to the Japanese as a part of the Philippine Provisional Coast Artillery Brigade (AA), Luzon Force.

It is not possible to give accurate dates nor the number of engagements with Japanese aircraft, but the 200th Coast Artillery (AA) shot down 51 enemy aircraft between Dec. 8, 1941, and April 8, 1942.

### **515th Coast Artillery (AA)**

Detached from the 200th Coast Artillery (AA), the 30 officers and enlisted men of the Provisional 200th Coast Artillery (AA) arrived in Manila during the late afternoon



*Antiaircraft artillery units defended the bridges at Calumpit until U.S. Army and Filipino forces were safely across.*

of Dec. 8, 1941. On Dec. 19, this organization was officially designated the 515th Coast Artillery (AA), with Col. Peck (promoted that date) as commanding officer. At Manila, approximately 750 officers and men of the Philippine army were assigned to the regiment for training. Additional transfers in early January from the 200th Coast Artillery (AA) brought the American enlisted strength of the regiment to approximately 550. All but 186 of the Philippine army personnel were detached from the regiment by March 15, 1942.

The newly formed regiment, assigned to the Philippine Coast Artillery Command, had drawn equipment and had one battery in position by 1000, Dec. 9. All batteries were in position and ready to fire by 1600 Dec. 9, and were then in action daily against Japanese aviation at Manila until Dec. 25, 1941. On Dec. 19, the 515th Coast Artil-

lery (AA) was ordered to establish antiaircraft artillery defense for the Calumpit bridges. This defense was established by four batteries on Dec. 20.

The night of Dec. 25, the regiment (less four batteries) moved to the vicinity of Orani. The night of Dec. 27, the four batteries in defense at Calumpit bridges (having been relieved by elements of the 200th Coast Artillery (AA)) moved to join the 515th Coast Artillery (AA) to establish antiaircraft artillery defense of the air fields near Orani and Pilar. On Jan. 13, 1942, the regiment joined the 200th Coast Artillery (AA) in defense of Bataan Airfield. On Jan. 26, the regiment established antiaircraft defense for Cabcaban Airfield. On March 21 the regiment was relieved from assignment to the Philippine Coast Artillery Command and, along with the 200th Coast Artillery (AA), was assigned to Groupment "A" (AA).

Beginning about Jan. 6, 1942, when the organization was placed on half rations, a rapid falling off of physical strength was noticeable in all personnel of the regiment. Malaria cases increased about Jan. 15 and, from that time until the surrender, it is estimated that the combat efficiency of the regiment declined steadily to approximately 25 percent on April 8. The extreme example noted was in Bravo Battery, where for four consecutive days only 19 officers and men were able to do duty of any kind. The strength of that battery was 100 officers and men at the time.

On April 7 the regiment was relieved of assignment to Groupment "A" (AA) and assigned to the Philippine Provisional Coast Artillery Brigade (AA). On the evening of April 8, 1942, the brigade commander ordered the 515th to destroy all its antiaircraft material and equipment except that which could

be used to support an infantry defensive position; at the same time, he ordered the 515th Coast Artillery (AA) to occupy, as infantry, a defensive position on the high ground just south of Cabcaben airfield, with its right flank on the main road at Cabcaben.

About noon on April 9, 1942, the 515th Coast Artillery (AA) surrendered to the Japanese 14th Army as part of the Philippine Provisional Coast Artillery Brigade (AA). The regiment shot down 35 enemy planes from Dec. 9, 1941, to April 8, 1942.

### **Groupment "A" (AA)**

Formed March 21, 1942, Groupment "A" (AA) was comprised of the 200th Coast Artillery (AA), the 515th Coast Artillery (AA) and Battery A, 2nd Coast Artillery (AA). Sage was relieved of command of the 200th Coast Artillery (AA) and assigned to command the groupment on the same day. The groupment was charged only with the training of personnel and materiel supply and maintenance for Battery "A", 2nd Coast Artillery (AA). The Groupment "A" staff consisted of Maj. James H. Hazlewood of the 515th Coast Artillery (AA), serving as the executive officer, and Maj. William B. Beardon of the 200th Coast Artillery (AA), serving as S-3 and S-4. Capt. Alfonso B. Melendez of the 515th Coast Artillery (AA) served as S-1 and motor transportation officer while Capt. Thomas R. Taggard of the 200th Coast Artillery served as S-2 and munitions and communications officer.

At the time of its inception, elements included in Groupment "A" were disposed as follows:

- 200th Coast Artillery (AA) (less one battery), defense of Bataan airfield.

- 515th Coast Artillery (AA) (less one battery), defense of Cabcaben airfield.

- Battery "A", 2nd Coast Artillery (AA), beach defense.

- Battery "G", 200th Coast Artillery (AA), in defense near Headquarters, I Corps (had been so employed since about Feb. 9).

- Battery "B", 515th Coast Artillery (AA), in defense near Headquarters, I Corps (had been so employed since about March 2).

Early in April Battery "F", 515th Coast Artillery (AA), was employed in antiaircraft artillery defensive operations in the field artillery area of II Corps. Battery "F", 200th Coast Artillery (AA), was employed in late March and the first days of April on a roving mission on the main east road to combat strafing planes. Battery "B", 515th Coast Artillery (AA), was being withdrawn from its I Corps position to the vicinity of Sisiman Bay at the time Groupment "A" was inactivated. About March 25, the Japanese flew their first night missions. These formations were illuminated by groupment searchlights, permitting lights on Corregidor to remain out of action. This procedure was repeated during several subsequent night missions, apparently with success, since bombs dropped on these night attacks did not hit Corregidor.

A survey of elements of the groupment conducted about April 4 disclosed that the combat efficiency of these organizations had been seriously lowered by sickness and by general loss of strength due to the reduced rations. An estimate made by the regimental surgeons of the 200th Coast Artillery (AA) and the 515th Coast Artillery (AA) on that date stated that the efficiency in these regiments had been reduced by approximately 60 to 65 percent. Not only were the officers and men placed on drastically reduced rations, they were also required to carry duty loads far above normal requirements because the regiments, while performing combat

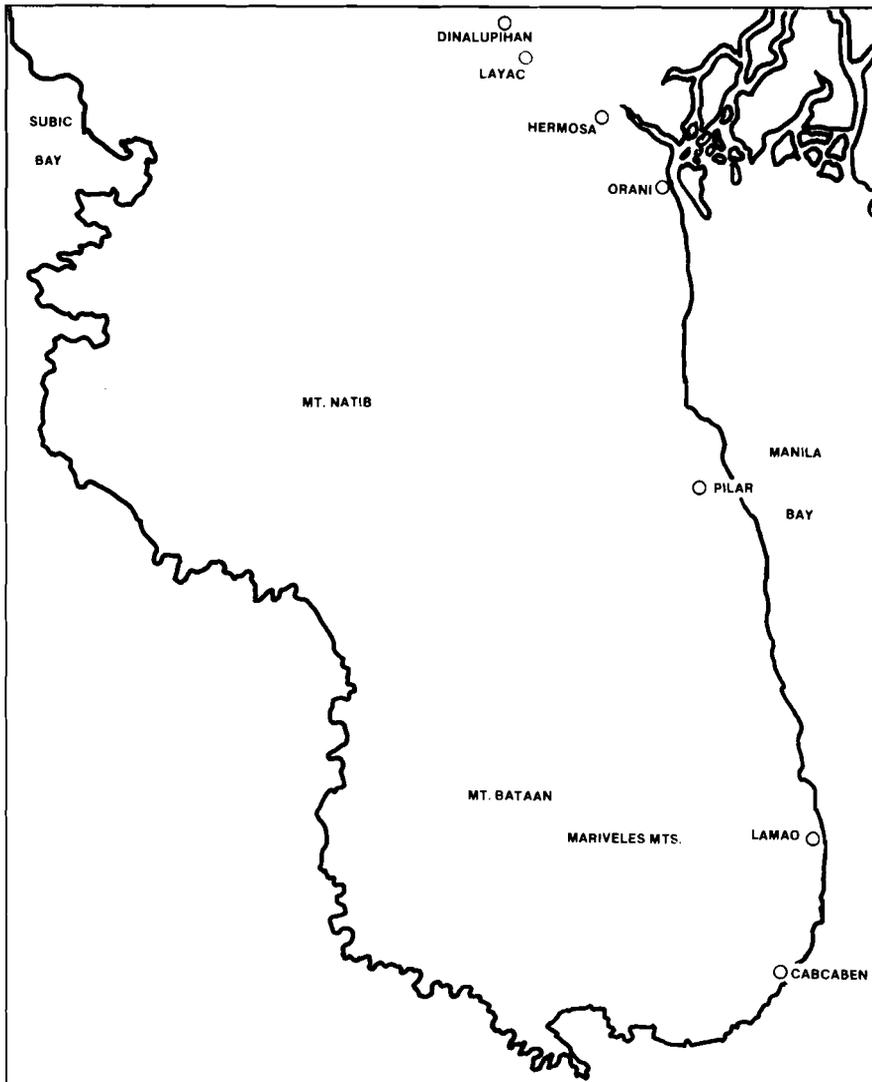
duties expected of organizations fully complemented, actually were manned at less than half strength.

Groupment "A" (AA) was inactivated April 7, 1942, by order of the commanding general, Luzon Force, when most of its elements were incorporated into the Philippine Provisional Coast Artillery Brigade (AA). Verified reports of enemy planes destroyed by elements of the Groupment, from Dec. 8, 1941, to April 6, 1942, inclusive, were 31 by the 515th and 43 by the 200th, totaling 74 for Groupment "A."

### **Philippine Coast Artillery Brigade**

General Order 7, dated April 7, 1942, created the Philippine Coast Artillery Brigade (AA) and stipulated that the brigade should be comprised of Brigade Headquarters and Headquarters and Headquarters Battery (to be formed by transfer of necessary officers and enlisted personnel from the 515th Coast Artillery (AA) and the 200th Coast Artillery (AA)). Sage was relieved of command of the inactivated Groupment "A" (AA) and assigned to command the Philippine Coast Artillery Brigade by order of the commanding general, Luzon Force. The Groupment "A" staff became the brigade staff.

Brigade activities continued all those formerly under control of Groupment "A" (AA), with the exception of Battery "A", 2nd Coast Artillery (AA) which was not included in the brigade. Intense enemy air activity, both bombing and strafing all American areas and installations on Bataan, continued throughout April 7 and 8 and until about noon April 9. All batteries in the brigade were in action during the daylight hours of April 7 and 8. A report from the S-3, 200th Coast Artillery (AA) at 1745 hours, April 8, indicated that Japanese ground forces had almost penetrated to Lamao. This information was tele-



phoned to the commanding general, Luzon Force, who directed that another reconnaissance be made since, at that time, he had no information to support the first report. This mission was performed by Capt. Anthony R. George, S-3, 200th Coast Artillery (AA). At 1855 hours, he reported by telephone to the brigade commander that, just a few minutes earlier, he had been under Japanese fire in the Lamao area. This information was phoned to the commanding general, Luzon Force, who immediately ordered the brigade to destroy all anti-aircraft artillery equipment except that which could be used to support an infantry defensive position and to occupy, as infantry, a defensive position just south of Cab-caben airfield. These orders were given at 1920 hours to the commanding officers of the 515th and 200th Coast Artillery (AA) Regiments: the 515th to be on the left, with its right flank on the main road, and the 200th to be on the right, with its left flank on the main road. The regiments occupied the position, after destroying their anti-aircraft equipment, at 0300 hours April 9. Pursuant to the orders of the commanding general, Luzon Force, the brigade surrendered to the Japanese at approximately 1200 hours on April 9. Brigade elements had destroyed 86 enemy planes (35 by the 515th Coast Artillery (AA) and 51 by the 200th Coast Artillery (AA)) between Dec. 8, 1941, and April 8, 1942.

The U.S. and Filipino soldiers on Luzon had failed to stop the Japanese juggernaut, but in five months of fighting they had, for the first time, thrown an attacking Japanese force off schedule. And the battle for the Philippines wasn't over. As the "Battling Bastards of Bataan" began the infamous "Death March" to Japanese prisoner of war camps, the guns of Corregidor still blazed defiantly in Manila Bay. ✱

Giving ground grudgingly, U.S. and Filipino forces on Luzon were driven backward from defensive line to defensive line by superior Japanese firepower and manpower until they reached the "last ditch" at the tip of the Bataan peninsula. Out of food and medical supplies, short of ammunition, weakened by malaria and dysentery, with no hope of reinforcements, they surrendered only when it became apparent that they could no longer prevent Japanese units from overrunning their field hospitals.

Thousands of soldiers who survived the Battle of Bataan were to perish during the infamous "Death March" to prisoner of war camps, but the "Battling Bastards of Bataan" had upset the Japanese timetable for the conquest of Southeast Asia and bought precious time for the United States. In defeat, they set high standards of self-sacrifice and dedication that inspired the soldiers, sailors, airmen and marines who were to avenge them.

## Career Maps

The Army of today and the future will not only be smaller, it will be the most educated ever. The NCO corps is already the best trained in this nation's history, largely due to the Army's highly successful NCO Education System (NCOES) and continuing advances in training doctrine.

But this is not enough. With the downsizing of the Army, education standards for promotion and selection for schools will definitely be higher. It is imperative that you understand what avenues you can and must take to improve your military and civilian knowledge. Only soldiers who continue to develop these knowledges will be selected.

The Army has made a commitment to develop its future NCO leaders through a process known as leader development.

The career map for NCO leader self-development, by design, will guide you through specific self-development activities recommended by your career management field (CMF) proponent school. Self-development is your responsibility. The career map shows the three levels of the leader development process: operational leader development, institutional leader development and leader self-development.

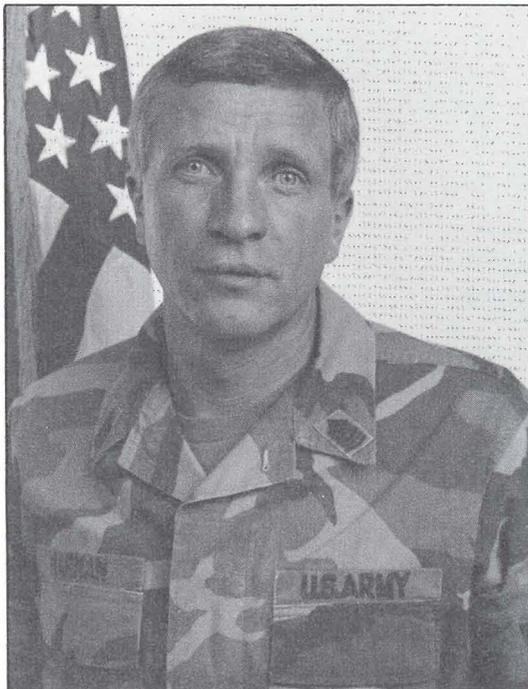
While career maps focus on leader self-development, the other two levels show you how they are interrelated.

The self-development activities in the career map consist of college level courses, Army correspondence courses, individual reading from a professional reading list and computer-based instruction. These activities will help you develop the skills, knowledge and attitudes (SKAs) required to be an effective leader. Each rank and duty position have

Career map activities are designed to show you, the leader, competencies at various points of your Army career. On the career map, these competencies are shown under "Recommended NCOES Related Courses" and by skill level 1, 2 or 3 under "Recommended CMF-Related Courses and Activities." Along with "Recommended CMF-Related Certification or Degree Goal," these three parts of the map make up the "Leader Self-Development" section recommended by your CMF.

Career map activities are meant to be taken over a period of time so that they do not interfere with your duty assignments. However, it is up to you to start the process. Your Army Education Center can help you enroll in any of the self-development activities that are listed on your career map.

I encourage each of you to begin your career map as early as possible. For those of you who have not yet started your career map and have already attended the NCOES course commensurate with your rank, catch up! You will need those SKAs for your next level of training. Your contemporaries may be well ahead of you in advancement potential.



*CSM Robert W. Harman encourages ADA soldiers to begin their career maps as early as possible.*

increased levels of responsibility known as leader competencies. They include supervision, teaching and counseling; communication; soldier-team development; technical and tactical proficiency; decision making; planning; use of available systems; and professional ethics.

BY CSM ROBERT W. HARMAN

# Vive l'Artillerie!



The Ecole d'Artillerie (above and right) was established during the French Revolution in 1792.

## *French air defenders celebrate bicentennial*

The U.S. Army once launched an initiative to excise anglicized French words such as *en route* from its field manuals. The initiative, fortunately, died when someone pointed out that words such as squad, platoon, company, battalion, brigade, regiment, division and army, not to mention artillery, infantry and armor or, for that matter, private, sergeant, lieutenant, colonel, general and liaison, are but a few examples of anglicized French words used alongside words such as maneuver, bayonet and bivouac in U.S. Army training and doctrinal literature.

For centuries, the French tutored other nations, sometimes at the point of a bayonet, in the art of warfare. Although the French may not have invented war, they certainly gave it a vocabulary. Today, as a result, it is impossible for an English-speaking army to discuss military tactics and strategy without sounding a bit Napoleonic.

During the decade of the 1990s, the U.S. Army Air Defense Artillery School, Fort Bliss, Texas, and its 200-year-old French counterpart, *Ecole d'Artillerie*, will share the challenges of preserving time-honored traditions and keeping top soldiers in the military while coping with budget cuts that threaten to rob the air defense force of its highly developed combat edge.

Presently located at Draguignan, France, the *Ecole d'Artillerie* is a true university and home of the French Artillery that trains both

Field Artillery (FA) and Air Defense Artillery (ADA) soldiers. At the same time, the school is studying how the Artillery should be configured for the 21st Century.

The *Ecole d'Artillerie* uses the most modern techniques (such as lasers and computers), but "the equipment is only as good as the soldiers who use it," says the school's public affairs officer. That is why the primary mission of the French Artillery School is to train artillerymen (in both theory and practice). Of primary importance is the training of lieutenants to ensure that they are competent in their particular specialty. Reserve officers and active duty noncommissioned officers (NCOs) also receive their training here, totaling about 1,000 students annually for basic training.

The second mission of the school is to look into the future, to actually

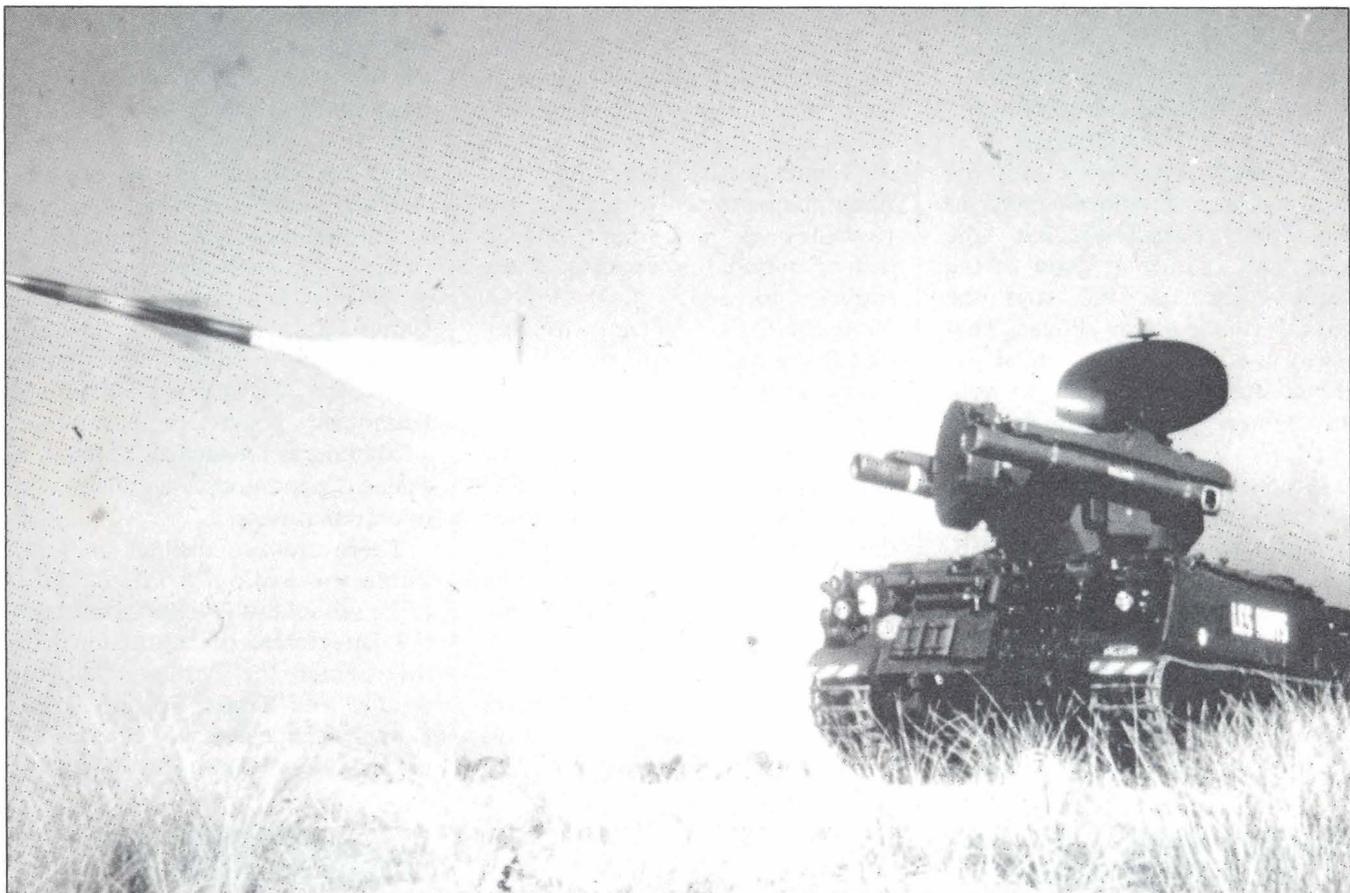
study the evolution of the Artillery by incorporating new technology. To accomplish this exceptional task, a team of 11 officers, five NCOs and several draftees work at the Center for Artillery Studies and Experimentation. Throughout the year they test new equipment and new operational procedures. These studies, focused on the years 2000-2010, are directed by the Studies Bureau at French Army Headquarters.

The Artillery Studies Bureau was created in 1962, nearly 25 years before those of other branches. The *Ecole d'Artillerie* was established during the French Revolution in 1792 at Chalons-Sur-Marne and moved to Draguignan in 1976. Beneath its thoroughly modern look lies a tradition that fathered the most famous French artilleryman, Napoleon, who began his career as an Artillery lieutenant.

Today the school, which occupies approximately 130 acres, houses the headquarters, classrooms, student housing, an audiovisual section, a sports complex, a printing plant, an Artillery museum and two Artillery battalions. The design and location of these spacious and functional buildings significantly preserve the natural beauty of the area. Camp Canjuers, about 20 kilometers away, is the largest firing range in Europe. Most French Artillery battalions come to Canjuers' 75,000 acres for tactical training in realistic conditions, live fires and operational tests.

There are two distinct divisions within the *Ecole d'Artillerie*. First is the school itself, which consists of the Directorate of Instruction and the Center for Artillery Tactical Studies and Trails. Second is the Corps, which consists of administrative services. The 60th Artillery





Ecole d'Artillerie students train on the Roland (top) and Mistral air defense weapon systems.

Regiment, stationed at Canjuers, and the 19th Artillery Regiment, housed within the school's Quartier Bonaparte, serve as the school's support regiments.

The *Ecole d'Artillerie* is commanded by a major general who also serves as the commanding general of all forces in the Draguignan/Canjuers area, totaling more than 5,000 soldiers. A cadre of 165 officers and 163 NCOs provide instruction. The school also benefits from the support of two field artillery battalions and one ADA battalion stationed at Canjuers and Draguignan. If mobilized, the school will become the 13th Artillery Battalion, with the instructors forming the battalion's cadre.

The school's modernized equipment is in keeping with the difficulty and complexity of its missions. Each weapon system has its own

simulators, often ingeniously designed. Computers and computer-assisted instruction are found throughout the complex.

The French Artillery of tomorrow expects to play an even more decisive role on the battlefields of the 21st Century. The French artillery proved during "Operation Daguet" (the French equivalent to Desert Storm) that it could brilliantly perform its mission. Its successful Gulf War campaign certainly brightened the *Ecole d'Artillerie's* bicentennial celebration.

French soldiers have fought alongside American soldiers in every major war, including the American Revolution. The U.S. Army Air Defense Artillery School and ADA soldiers worldwide salute the students, staff and faculty of the *Ecole d'Artillerie* as they enter their third century. ✨

## ***The Illustrated History of West Point***

Theodore J. Crackel

(309 pages, Harry N. Abrams, Inc., New York, 1991.  
\$65.00. Hardback)

The United States Military Academy at West Point holds a unique and vibrant position in American history — both physically and within the national psyche. This is the first fully illustrated chronicle to explore in depth the various aspects of the Academy's formation and development.

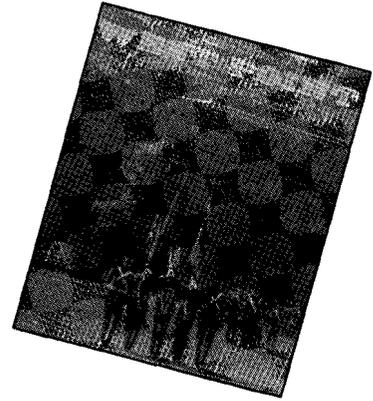
From the earliest period of European settlements along the upper reaches of the Hudson river before the Revolutionary War, to the founding of the United States of America, and throughout the various military encounters that bedeviled the new republic, West Point was significant both for the great natural beauty of its setting and the strategic importance of its location. *The Illustrated History of West Point* traces the early military post in the area and details the various plans for the establishment of the United States Military Academy, which became a reality in 1802. It then follows the growth and evolution of the Academy through the 19th and 20th Centuries.

From these pages emerges a setting of striking natural power and granite-faced buildings, brought to life in both words and

images by a colorful cast of characters and the records of their experiences. Included are a "warrior" poem written by George S. Patton Jr. in 1922, and Douglas C. MacArthur's famous 1962 "Farewell Speech" delivered at West Point, as well as selected items from the rich collection of the West Point Museum.

Throughout the years, the Academy continued to expand as an institution, struggling to control

the content and direction of its curriculum and to master emerging technological advancements that challenge both people and machines. The majestic power of West Point has remained a constant and imposing backdrop against which has been played the dramatic engagement of individual members of the Long Gray Line sworn to "serve the nation" and to answer the stirring call of "Duty - Honor - Country." □



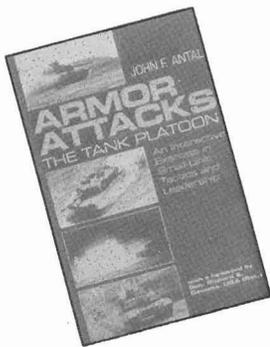
## ***Crisis***

Alexander M. Grace

(268 pages, Lyford Books, Presidio Press,  
Novato, CA, 1991. \$19.95. Hardback)



Fidel Castro's surprise military strike alarms the world and holds the Superpowers hostage. For the first time since World War II, the United States and the Soviet Union must fight together to defeat a vicious dictator. A rescue plan without massive bloodshed or tremendous escalation of the conflict will be difficult. And time is of the essence. Many wheels are set in motion: attack, assassination, escape. Everything must dovetail precisely. A novel of intrigue and heart stopping action set on the Caribbean isle of Cuba. □



## **Armor Attacks: The Tank Platoon**

John F. Antal

(333 pages, Presidio Press, Novato, CA, 1991.  
\$14.95. Paperback)

You are the hero of this unique interactive fiction! More specifically, you are the leader of a U.S. Army M-1 Abrams tank platoon. Throughout the work, you make life-or-death decisions — the story develops according to the choices you make. As you progress, you will learn important tactical and operational lessons. Whether you are (or expect to be) a tank platoon leader, or if you are an armchair military enthusiast, you will find this book highly entertaining and instructive.

In *Armor Attack*, you will conduct two operations: an assault and a counter-reconnaissance mission. In each you must use your knowledge and judgment to achieve the objective. If you choose wrong, defeat and even death will be your lot. If you succeed, you will savor the taste of victory and live to fight another day. The scenarios are highly realistic, and maps and appendices with detailed specifications of the hardware involved help you make informed decisions.

## **At Dawn We Slept The Untold Story of Pearl Harbor**

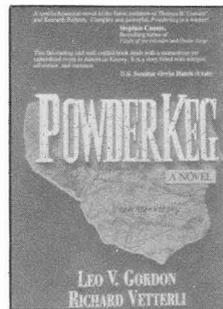
Gordon W. Prange

(889 pages, Penguin Books, New York, 1991.  
\$16.95. Paperback)



This 50th Anniversary Edition, the classic bestseller updated with a new afterword by Donald Goldstein and Katherine Dillon, remains, perhaps, the greatest account of Pearl Harbor ever written. *At Dawn We Slept* is the complete report of the Japanese attack from its conception to its lightning-like execution. It reveals the true reason for the American debacle: the insurmountable disbelief in the Japanese threat that kept America from heeding advance warnings and caused leaders to ignore evidence submitted by our own intelligence sources. The Japanese put very little of their plan on paper, so the only way to secure their side of the story was to interview as many as possible of the surviving planners and participants. Prange's field of inquiry ranged from the imperial household to airmen participating in the attack. □

Short of going through a course at the National Training Center, Fort Irwin, Calif., working through this book is probably the best way you can sharpen your warfighting capabilities. And you don't have to spend weeks in the field to do it! □



## **Powderkeg**

Leo V. Gordon

(361 pages, Lyford Books,  
Novato, CA, 1991. \$19.95.  
Hardback)

This tale of high adventure, romance and political intrigue takes us from the frozen, windswept reaches of the Utah Territory in winter to the halls of Congress and the office of President James Buchanan, a man determined to leave office with the union intact.

Others in Washington are equally determined that this should not be: men who dream of a separate nation, one that will stretch from the Carolinas to California — the Confederate States of America. Foremost among them are three southern members of Buchanan's own cabinet.

It is a powder keg that could blow the Union apart! □

# On Strategy II:

## A Critical Analysis of the Gulf War

Col. Harry G. Summers Jr. (Ret.)

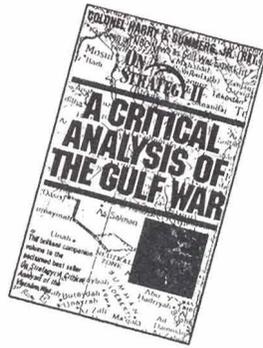
(302 pages, Dell Publishing, New York, NY, 1992. \$4.99. Paperback)

Gulf War veterans who purchase a copy of Harry G. Summers' *On Strategy II: A Critical Analysis of the Gulf War* expecting a narrative replay of their heroics during Operation Desert Storm are going to be terribly disappointed. The complete transcript of Gen. H. Norman Schwarzkopf's famous "Hail Mary" briefing appears as an appendix along with battle charts, but otherwise Summers' slender volume pays scant attention to the Gulf War's tactical operations. Air Defense Artillerymen will discover that the word "Patriot" appears exactly once.

So why read *On Strategy II* when bookshelves are already crammed with Gulf War postmortems? Lots of reasons.

- Start, pure and simple, with professional survival. Like its influential predecessor, *On Strategy I* is rapidly winning disciples and is destined to become the military catechism of the New World Order. Everyone, at least everyone who counts or wants to count, is going to read it. How else are you going to know what people are talking about?

- *On Strategy II* is devoid of graphic combat descriptions that characterize most of the "instant journalism" potboilers flooding

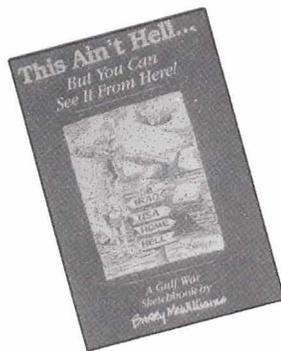


the marketplace, but it's among the most readable of Gulf War books, a page turner most military professionals will devour in one sitting.

- Twenty-five years following the fall of Saigon, Summers' *On*

*Strategy I: A Critical Analysis of the Vietnam War*, is still the only book about Vietnam that, from a military point of view, "really counts" and, 25 years from today, *On Strategy II* will still be the only book about the Gulf War that really counts.

Summers praises President George Bush, Secretary of Defense Dick Cheney, Gen. Colin Powell and Schwarzkopf for their Gulf War leadership, but for Summers what really counts is prelude and aftermath, combat results being merely the logical culmination of preparation, doctrine and strategy. According to Summers, the true architects of Desert Storm were the military professionals



## This Ain't Hell: But You Can See It From Here (A Gulf War Sketchbook)

Barry McWilliams

(250 pages, Presidio Press, Novato, CA, 1992. \$9.95. Paperback)

"While war is not a laughing matter, Barry's insightful cartoons can make it more tolerable to the average small town American," wrote Michele Bartmess, editor of the Murray, Utah, paper for McWilliams when he applied for a visa to cover the War in the Gulf from his unique perspective.

While expecting to draw 100 cartoons about an anticipated 100-day war, imagine his chagrin when he arrived in country to find out the war lasted a scant 100 hours and was already over. Not to be defeated, McWilliams started collecting a broad cross-section of war-related cartoon ideas and anecdotes.

Collected from the proverbial "man in the sand," *This Ain't Hell* portrays funny and unusual things that happened to soldiers and civilians as they fought against the Iraqis and the stress of battle. McWilliams remains impartial throughout, including the antics of as many military branches as possible, some antics of coalition forces, and unforgettable characterizations of Saddam Hussein and his Iraqi force. □

who, applying the harsh lesson of Vietnam, took the military from the nadir it reached in the early 1970s to the apex it achieved during Operation Desert Storm.

The leaders who fought for modernization, rebuilt the training base and devised AirLand Battle Doctrine, says Summers, allowed the United States to switch quickly from the strategic defensive (*deterrence*) to the strategic offensive (*assurance*) following the Warsaw Pact collapse.

"Whether we like it or not — and most Americans do not like it in the least — we live in a unipolar world where the United States reigns supreme. For better or worse, the New World Order will be a world of America's making," writes Summers.

Gen. Gordon Sullivan, chief of staff of the Army, has made 1992 a "year of debate" over AirLand Battle doctrine. Summers' vision of how the military should complete the transition from deterrence to assurance (which began in the Persian Gulf) is certain to become an important voice in that debate.

"In its recovery from Vietnam, the American military proved it could learn from defeat and pull itself up by its bootstraps," concludes Summers. "But given its past history, it is not at all certain that the country at large will learn from its victories in the Cold War and the Persian Gulf or whether it will follow the path to precipitous disarmament that has led to renewed aggression so many times in the past. Until that critical issue is resolved, the shape and character of the New World Order remains to be seen." □

BY WILLIAM B. CASE



## Guadalcanal:

### The Definitive Account of the Landmark Battle

Richard B. Frank

(800 pages, Penguin Books, New York, 1990.  
\$16.00. Paperback)

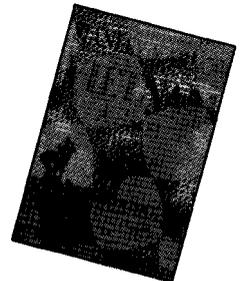
In *Guadalcanal*, Richard Frank recounts this famous battle as never before. For six months the Americans and Japanese clashed in brutal warfare that escalated to unimagined levels of sustained violence. *Guadalcanal* examines the feelings of individual American and Japanese soldiers, the strategies and conflicts of their commanders, the strengths and weaknesses of various fighting units, and the struggle to gain the advantage.

Liberally illustrated with more than 50 photographs and 30 maps, *Guadalcanal* is an extraordinary accomplishment. □

## Vietnam: A History

Stanley Karnow

(768 pages, Penguin Books, New York, 1991.  
\$15.95. Paperback)



This enthralling narrative analyzes, clarifies and de-mystifies the United States' involvement in Vietnam, the first war America ever lost. Panoramic in scope, profound in understanding and compassionate in its human portrayals, *Vietnam: A History* delves into the historical roots of the war and provides new insights and revelations drawn from secret documents and exclusive interviews with hundreds of participants — French, American, Chinese and Vietnamese: key decision makers, diplomats, nurses, workers and soldiers. Placing the conflict in its historical context, Karnow shows how Vietnamese nationalism developed during two millennia — in resistance first against China and later France.

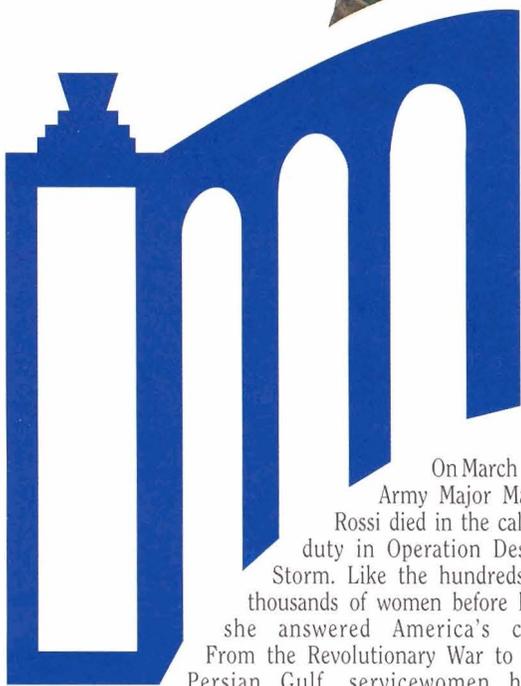
The United States faced a warrior nation whose struggle confronted America with one of its most traumatic episodes. But the Communists squandered their victory by imposing unrealistic and repressive policies. As Karnow makes clear, it was a war nobody won. □

# Today she's in our hearts



Major Marie Rossi

...let's  
make  
certain  
she's there  
tomorrow.



On March 1st, Army Major Marie Rossi died in the call of duty in Operation Desert Storm. Like the hundreds of thousands of women before her, she answered America's call. From the Revolutionary War to the Persian Gulf, servicewomen have served, healed and died. They have also gone unrecognized—until now. The Women In Military Service for America Memorial, to be built at the main gateway to Arlington National Cemetery in Washington DC, will publicly enshrine the achievements of servicewomen,



past, present and future. This important national memorial will be a place of honor; where stories of service and sacrifice are recognized, and serve as an inspiration for all. For information about how you can help build the Women in Military Service for America Memorial, please call us at 1-800-I-SALUTE. The American Servicewoman has always recognized her duty—now it's time we recognized her. She's earned it.

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For more information or to register a friend or relative in the Memorial, please call us at

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Active duty women should register *now* to become Charter Members. Your rank and other service information can be updated at any time. All reserve and Guard women service members as well as living and deceased veterans are also eligible to register. Let's work together to include all servicewomen in this historic Memorial.

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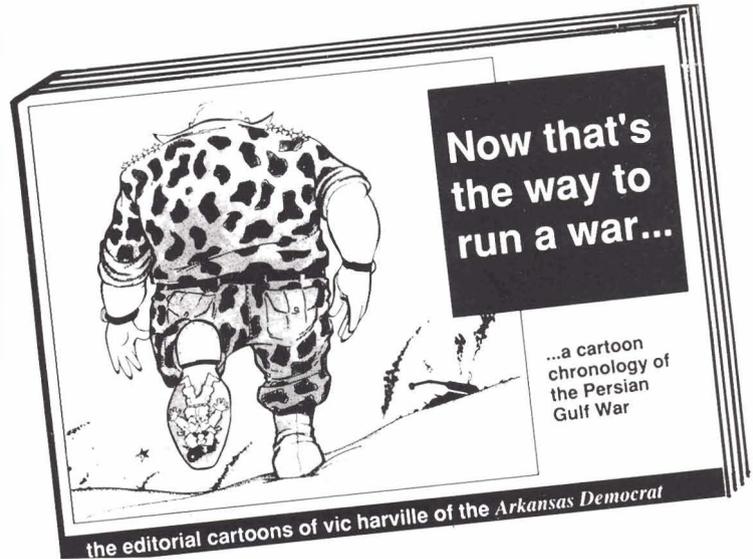
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PROJECT FLORIDA	Switzerland
COMBAT GRANDE	Spain
MADGE	Malaysia
BADGE	Japan
10-1	Taiwan
IADS	Iceland
NOAH	Norway

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PEACE SHIELD	Saudi Arabia
NASAMS	Norway

Team Hughes has the right systems experience for the Theater High Altitude Area Defense system (THAAD). As the world leader in air defense command and control, Hughes has provided 23 nations with proven systems over the last three decades.

The latest, Peace Shield

for Saudi Arabia, will be the most complex system ever built in terms of integrating sophisticated, powerful operating software.

It's also significant that Hughes and partner TRW were two of only three companies to receive the Software Engineering Institute's highest ratings.

Team Hughes' expertise, combined with battlefield-proven Army systems such as MLRS, ATACMS, TOW, Firefinder, PLRS, Vulcan, UTACCS and programs we can't yet discuss, point to one inescapable conclusion: The right team for THAAD is the team that wrote the book on systems. Team Hughes.

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THAAD