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Fort Rucker, Ala., was one of nine finalists in the annual Chief of Staff of the Army's Communities of Excellence awards program. The post, home to the U.S. Army Aviation Center and School, joined such other installations as Rock Island Arsenal, Ill., and White Sands Missile Range, N.M., in the runner-up category. Fort Bragg, N.C., won the competition and was awarded \$3 million.

MG Larry J. Dodgen, former director of the Joint Theater Air Missile Defense Organization in Washington, D.C., has been named commanding general, U.S. Army Aviation and Missile Command, Redstone Arsenal, Ala., with a report date to be determined.

As this issue went to press President George W. Bush was scheduled to present the Medal of Honor to retired MAJ Ed W. Freeman at a July 16th ceremony. Freeman was to be honored for his heroic actions as an Army aviator in Vietnam on Nov. 14, 1965, while a platoon leader in the 1st Cavalry Division's Company A, 229th Assault Helicopter Battalion. The battle in which Freeman earned the medal is currently being made into a movie starring Mel Gibson; it's titled "We Were Soldiers Once and Young" and is based on the book of the same name.

Raytheon Systems Company's Electronic Systems unit has awarded DRS Technologies Inc. an \$8.7 million contract to provide Long Range Advanced Scout Surveillance Systems (LRAS3) for the Army's M-1114 High-Mobility Multipurpose Wheeled Vehicles. The LRAS3 provides real-time, long-range detection, recognition, identification and pinpointing of distant target locations, allowing scouts to conduct 24-hour reconnaissance and surveillance missions while remaining outside the acquisition and engagement range of threat weapons.

Members of the Army Reserve's 1st Battalion, 337th Regiment, 4th Training Support Brigade, recently helped train aviators of the Army National Guard's 29th Infantry Division for an upcoming six-month deployment to Bosnia. The Reservists traveled to Fort Rucker, Ala., to help train senior members of the 29th Aviation Task Force — one UH-60 Maryland Army National Guard helicopter company, two OH-58D troops from the 2nd Cavalry Regiment at Fort Polk, La., and a support package drawn from both the Virginia and Maryland Guards — on SFOR-specific skills.

Actors in the movie "Black Hawk Down," which details events that occurred during Army combat operations in Somalia in 1993, trained at three Army installations before travelling to Morocco to film the movie's battle scenes. The actors who portray helicopter pilots trained on UH-60 simulators at Fort Campbell, Ky.; 21 actors who portray rangers trained on small arms at Fort Benning, Ga.; and other actors trained at Fort Bragg, N.C.

The Experimental Aircraft Association AirVenture Museum in Oshkosh, Wis., will open a special Pearl Harbor exhibit later this fall. To help in this effort, the museum is looking for artifacts that relate to Pearl Harbor, particularly those bearing the phrase "Remember Pearl Harbor." Those wishing to lend artifacts for use in the exhibit may contact the museum's Ron Twellman at (800) 236-4800, extension 5917, or e-mail him at rtwellman@ eaa.org. For a preview of the museum's offering, visit the website at http://museum. eaa.org/. In related news, the annual EAA AirVenture airshow will be held July 24 through 30 in Oshkosh. The event will feature hundreds of experimental amateur-built aircraft and more than 100 World War II-vintage warbirds.

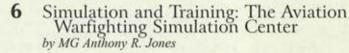
The crew of an Army UH-60 Black Hawk helicopter serving with the Kosovo Forces (KFOR) escaped injury when their aircraft made a precautionary landing after striking a power line May 7. An aircraft recovery team was sent southeast of Skopje, the site where the Black Hawk landed, to secure the area and assess the situation. Early reports indicated the power line was down near the helicopter site. An investigation into the incident continues.

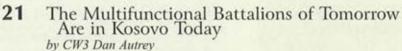
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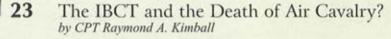
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ARMY AVIATION is the official journal of the Army Aviation Association of America (AAAA). The views expressed in this publication are those of the individual authors, not the Department of Defense or its elements. The content does not necessarily reflect the official U.S. Army position nor the position of the AAAA or the staff of Army Aviation Publications, Inc., (AAPI). Title reg® in U.S. Patent office. Registration Number 1,533,053. SUBSECTION DATA: ARMY AVIATION (ISSN 0004-248X) is published monthly, except April and September by AAPI, 49 Richmondville Avenue, Westport, CT 06880-2000. Tel: (203) 226-8184, FAX: (203) 222-9863, E-Mail: aaaa@quad-a.org. Army Aviation Magazine E-Mail: magazine@quad-a.org. Website: http://www.quad-a.org. Subscription rates for non-AAAA members: \$30, one year; \$58, two years; add \$10 per year for foreign addresses other than military APOs. Single copy price: \$3.00. ADVERTISING: Display and classified advertising rates are listed in SRDS Business Publications, Classification 90. POSTMASTER: Periodicals postage paid at Westport, CT and other offices. Send address changes to AAPI, 49 Richmondville Ave., Westport, CT 06880-2000.

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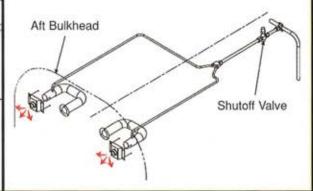
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Simulation and Training:The Aviation Warfighting Simulation Center

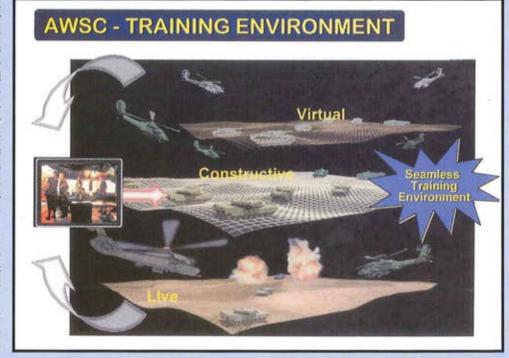
By MG Anthony R. Jones

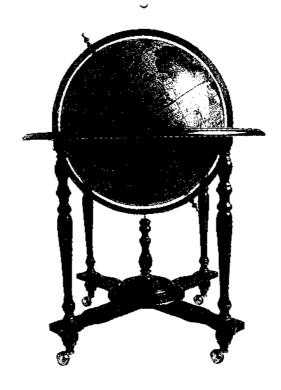
he use of simulations and simulators is a priority for the Army and the aviation branch. Our branch continues to lead the Army in the use of simulations and simulators for individual and aircrew training events. Aviation is at the forefront in the use of simulation for collective training in the live, virtual and constructive domains.

For the aviation branch to be dominant across the full operational spectrum, we must have a training aids, devices, simuand simulations (TADSS) strategy that supports leader and unit proficiency through multiple complex environments. The U.S. Army Aviation Center's new Aviation Warfighting Simulation Center (AWSC) will be a centerpiece to our strategy, and will house our baseline "system of systems" training architecture that will seamlessly integrate individual and collective training. It will provide the necessary simulation tools for training Army aviation professionals to participate as part of the joint- and combined-arms team.

Our current AWSC will move out of its World War IIera wooden structure into its new home, which is scheduled for completion in March 2002. The military construction project data was first submitted in November 1993. Since then, a

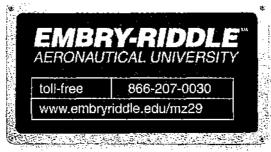






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great deal of work and support has led to this reality. The new training facility, at 65,000 square feet, provides more than three times the training space of the current AWSC and will represent a significant part of the aviation synthetic training environment.

The AWSC will enable leaders to train and warfight in a seamless environment of live, virtual and constructive simulation. Live training is represented by six fully digital Tactical Operation Centers (TOCs) for use by commanders and staffs during synthetic training exercises. The TOCs will allow units to review and execute the Military Decision Making Process (MDMP) under scenario-unique conditions, and train soldiers as Army Battle Command System (ABCS) information integrators and battle command decision makers.

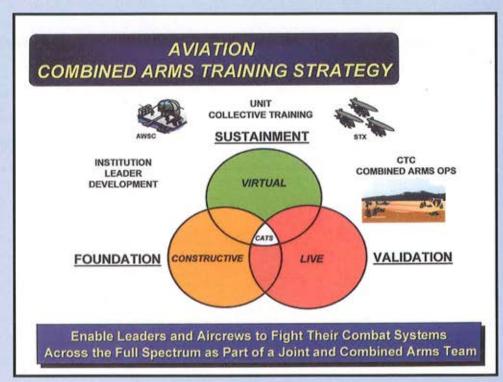
Virtual training will be conducted using the Aviation Combined Arms Tactical Trainer-Aviation Reconfigurable Manned Simulator (AVCATT-A) and new tactical collective floor-mounted simulator devices. A commander will have the capability to train up to a battalion, utilizing 24 Tactical Aviation Collective Trainers (TACTs), in a virtual collective training environment. In addition, these "man-in-the-loop" virtual simulators will enable individual and collective flight training as envisioned under the Flight School XXI (FSXXI) concept.

Constructive training will consist of Janus and Brigade/Battalion Battle Simulation (BBS), which will be upgraded to One Semi-Automated Force (OneSAF) and Warfighters Simulation (WARSIM) in fiscal year 2004. Our endstate is to create a strong situational experience background to develop aviation leaders and enable them to successfully plan and execute any mission.

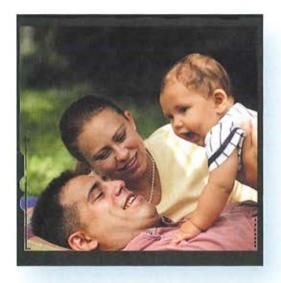
The AWSC will bring us another step towards the completion of a robust aviation synthetic training

Current /Future AWSC Capabilities Summary

and a	AWSC (Current)	AWSC (Future)		
Live	Prototype Digital Tactical Operation Center (TOC)	Fully Digital TOCs. Digital TOCs will include components of the Army Battle Command System (ABCS); All-Source Analysis System (ASAS), Maneuver Control System (MCS), Air and Missile Defense Workstation (AMDWS), Advanced Field Artillery Tactical Data System (AFATDS), Combal Service Support Control System (CSSCS), ForceXXI Battle Command, Brigade and Below (FBCB2), Tactical Airspace Integration System (TAIS), and Aviation Mission Planning System (AMPS).		
	16 - Analog TOCs	18 - Digital TOCs (-)		
	17 - Total TOCs; No External TOC Pads	24 - Total TOCs; 6 External TOC Pads		
Virtual	T-1 Line Connection to Aviation Test Bed (AVTB)	Virtual Capabilities Embedded with Long-Hauf Connectivity to Army and Joint Forces		
	8 - Fully Reconfigurable Experimental Devices (FREDs)	24 - Tactical Aviation Collective Trainers (TACTs)		
	1 - Collective Aviation Virtual Trainer (CAV-T)	Suite/6 Modules - Aviation Combined Arms Tactical Trainer - Aviation Reconfigurable Manned Simulator (AVCATT-A)		
	Army Airborne Command and Control System (A2C2S)	A2C2S		
	Aviation Training Exercises (ATXs) - Bosnia/Kosovo	Aviation Training Exercises (ATXs) - Bosnia/Kosovo with Higher Fidelity. Flight School XXI (FSXXI)		
Constructive	Janus	Janus initially, One Semi-Automated Force		
Constructive		(OneSAF) in FY04.		
	Brigade/Battation Battle Simulation (BBS)	BBS initially; Warfighters Simulation (WARSIM) in FY04.		
After-Action Review (AAR)	Limited in space and capabilities	Fully integrated throughout building to provide state-of-the-art technology for AARs. Two rooms capable of seating 100+ each, with removable center wall to allow one large viewing by 200+.		
Multipurpose Room	Multipurpose Room providing dedicated PCs for soldier support.	Multipurpose Rooms for 17+ students each, with computer access flooring and a removable wall to allow one large classroom with 34+ studen capability.		
Mission Rehearsal Room	None	Large 34' x 34' room with projection capability.		
Secure Room	None	Can accommodate Secret Internet Protocol Route Network (SIPRNET).		



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environment. Our vision calls for one more major simulation training site, the Comanche Training Facility, to join the Aviation Test Bed, Air Maneuver Battle Lab, Goodhand Simulator Building, Simulation Integration Lab and ARI Rotary Wing Aviation Research Unit. The simulation complex will provide soldiers a training environment in which to exercise and validate new aviation warfighting doctrine for the aviation battalions and brigades of the future. It will also allow the integration and tactical development of future systems such as the Comanche, Future Transport Rotorcraft (FTR) and Manned/Unmanned Aerial Vehicle (UAV) teaming.

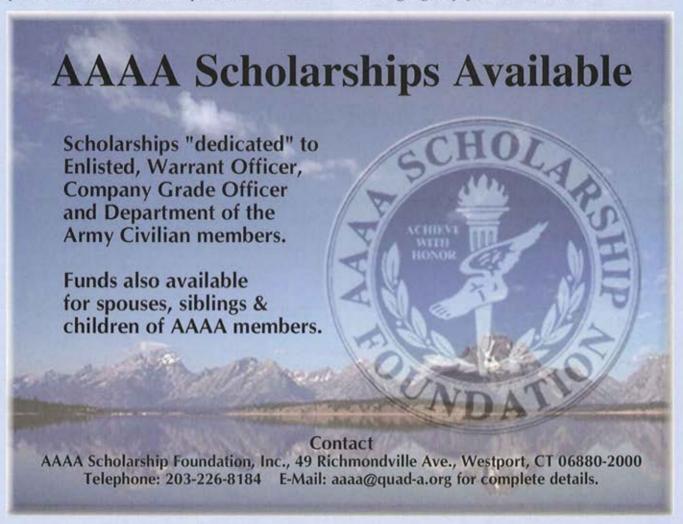
As we implement and execute our aviation digital training strategy, the AWSC will focus on institutional leader development training for our NCOs, warrant officers and officers in the BNCOC, ANCOC, WOAC, OBC, Captains Career Course, and Pre-Command Course. It aims to place soldiers in real-life scenarios to highlight their ability to make good decisions under the pressure of tense military situations, and afford them the opportunity to exercise their warfighting skills in a realistic, robust and interactive environment. In addition, the AWSC's virtual and constructive capabilities will employ the full range of weapon systems and effects against a noncooperative, capabilities-based Opposing Force (OPFOR).

The goodness of this synthetic training and exercise environment will impact not only aviation and the active component, but also the reserve component and our sister services. They can use the AWSC and the simulation complex to interact, develop and validate new doctrine across the combined and joint spectrum of operations. When digitally linked to other simulation sites, we will be able to train forces and develop tactics, techniques and procedures that will enhance combat effectiveness for future contingency operations.

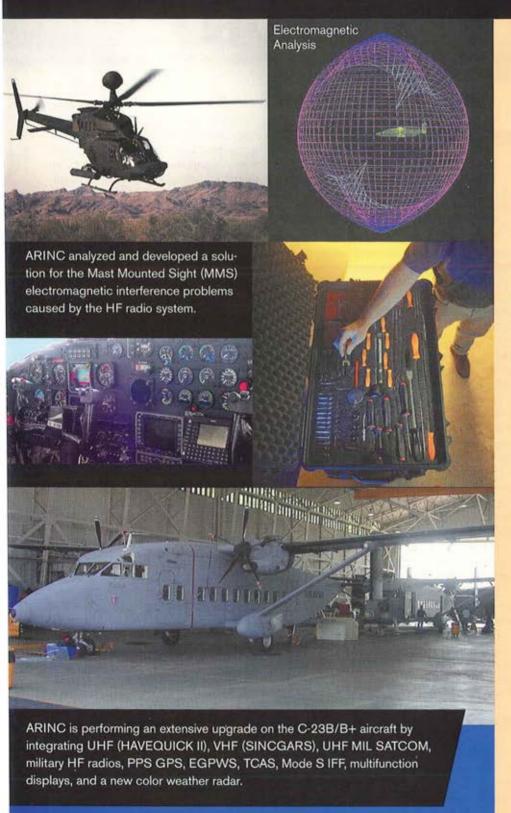
As we look into the future, the development of new simulation and simulator technology will provide the essential tools to train individual aviators and aircrews. More importantly, this technology will allow air and ground units, including staffs, to collectively train for a myriad of combat and stability and support operations under some of the most trying environmental conditions found.

Our simulations effort is a necessary investment to ensure we provide the force highly motivated aviation soldiers and leaders, equipped with modern systems and trained to world-class proficiency, capable of strategic responsiveness and the ability to dominate across the full spectrum of operations. The AWSC will enable leaders and aircrews to fight their combat systems as part of a joint and combined-arms team. This new training facility will take us to another level of training fidelity as we transform into the objective force for the 21st century.

MG Anthony R. Jones is the departing commanding general of the U.S. Army Aviation Center at Fort Rucker, Ala., and outgoing chief of the aviation branch.



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STRICOM AVIATION PROGRAM SUPPORT to PEO AVIATION and AMCOM

By LTC Roland Dixon

he U.S. Army Simulation, Training and Instrumentation Command (STRICOM) has a long history of providing top-notch training devices to our aviation soldiers. As we look to support our Objective Force, we are changing our organizational structure and attitudes, contractual vehicles and proposed teaming arrangements to better support the Program Executive Office Aviation (PEO AVN) and U.S. Army Aviation and Missile Command

(AMCOM) in training-device development.

This article highlights some of the ongoing efforts to provide STRICOM technical expertise and in-house capabilities in an attempt to leverage emerging simulation technologies. We need to work in partnership with the aviation community to provide critically needed collective-training device solutions, such as Aviation Combined Arms Tactical Trainer (AVCATT). Simultaneously, we continue to upgrade individual crew trainers such as the Apache 64A Combat Mission Simulator, the Comanche Training Device Suite, simulators for the CH-47D/F UH-60A/L/M Black Hawk, and the Kiowa Warrior Crew Station Trainer. Below are details of STRICOM, PEO AVN and AMCOM efforts to upgrade the legacy simulator fleet while building the next generation aviation simulators based on mobility, and maintaining concurrency by using evolving networking technologies.

In order to provide support to the aviation program manager (PM) for the Combined Arms Tactical Trainer (CATT) a lieutenant colonel was designated the PM Air and Command Tactical Trainers (PM ACTT) to manage the aviation business. The reorganization provides a "single" face to the field in support of PEO

AVN and AMCOM customers.

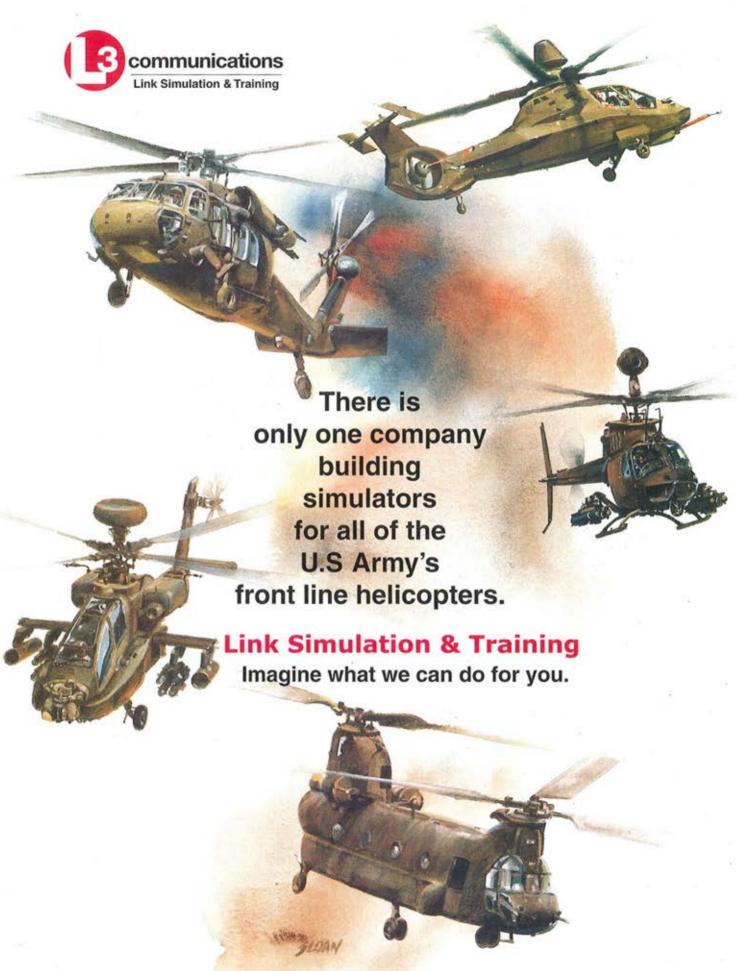
In the meantime, the fiscal year 2000 Aviation Task Force conducted a bottom-up review of aviation programs and ways to better sustain and maintain affected air-frames. With that thorough review, Headquarters, Department of the Army (HQDA) fully funded fielded platform legacy simulator upgrades throughout the fleet beginning in FY 2002.

STRICOM, PEO AVN and AMCOM organizations align along airframe lines in order to provide better support. One much-needed change was to work with our customers to devise a support solution, regardless whether an aviation PM or a STRICOM PM developed the training device. Our engineering directorate leverages emerging technologies by functioning as a technical adviser on the aviation PM teams, whenever needed.

The STRICOM OPS Directorate is our "backbone" to maintaining a solid relationship with PEO Avn/AMCOM PMs. This directorate maintains the training devices (by contract) at all sites worldwide. With these organizational structural changes and a proactive team-player attitude, STRICOM is prepared to support PEO Avn and AMCOM to the greatest extent possible.

STRICOM Omnibus Contract (STOC)

In FY 2001 STRICOM began awarding contracts based upon our internal organizational structure domains: live, virtual, constructive and test/instrumentation. Each domain has a number of prequalified contractors competing for task orders within that domain. STOC facilitates more rapid acquisition and increases the potential for simultaneous, rather than sequential, technology development. We anticipate an 18- to 36-month shortening of a delivery schedule. This will better serve our soldiers by fielding state-of-the-art technologies while they are still cutting edge.



STRICOM support by PEO AVN & AMCOM PM

STRICOM PMs and PEO Avn/AMCOM PMs worked hard together in the past couple of years to foster better cooperation and communication in order to produce the best simulation solution for our soldiers. The STRICOM support provided to each PEO Aviation/AMCOM PM is highlighted below.

PM Apache

PM Apache – along with U.S. Army, Europe – determined a critical need to upgrade the Illisheim-based AH-64A Combat Mission Simulator (CMS). This upgrade was the result of the Task Force Hawk finding and recently completed Aviation Task Force determinations concerning maintaining a mixed fleet of AH-64D and AH-64A platforms.

In order to complete this upgrade STRICOM and PM Apache determined four primary component requirements. The system requirements included the CMS computational instructor-operator visual system, as well as applying 13 engineering change proposals to maintain concurrency with the fielded AH-64A. As a result of this initial effort, TSM Comanche identified a need for six additional CMSs requiring upgrade. Once completed, the Apache CMS continues to support our aviation soldiers in maintaining the required readiness levels of AH-64A training.

With the Longbow Apache (LBA) fielding comes a corresponding number of operator and maintenancetraining devices. The operator device is called the Longbow Crew Trainer (LCT), while the maintenance devices are designated L-6 and L-7. The initial fielding of these devices is complete and receives interim support from Boeing as the original equipment manufacturer (OEM). STRICOM and PM Apache developed a transition plan to pick up the maintenance on the U.S. Army Aviation Logistics School (USAALS) maintenance devices. PM Apache and STRICOM are now working plans to have STRICOM pick-up LCT maintenance in FY 2006. With these actions, we anticipate that both PM Apache and STRICOM can leverage technologies, reduce costs, and provide a greater level of reliability and maintainability to all supported training devices.

PM Comanche

As PM Comanche enters its Engineering and Management Development (EMD) phase, the PMO invited STRICOM to join the Logistics Integrated Product Team (IPT). The Logistics IPT is PM Comanche's agency responsible for the Integrated Training Program, including the complete suite of training devices. STRICOM's support to the Logistics IPT is based on providing technical and logistics support for the affected training devices until the Comanche IOC. After IOC, STRICOM assumes the production contract for the remaining devices, thereby continuing to leverage technology and STRICOM's core competency to keep systems current when in the sustainment phase of operations.

PM Cargo

PM Cargo's aggressive acquisition approach with STRI-COM to upgrade the legacy CH-47D fleet and provide technical support to the CH-47F IPT is remarkable. PM Cargo leveraged the Congressionally mandated upgrades for Eighth U.S. Army (EUSA) in Korea by funding other concurrency modifications and the Fort Campbell, Ky., simulator upgrade. Once the Fort Campbell upgrade is accomplished, it will mark the first comprehensive upgrade of the CH-47D simulator since the late 1980s. PM Cargo elected to use STRICOM to upgrade the CH-47F training device suite. We begin training CH-47D pilots on the replicated Fort Campbell CH-47D aircraft and simulator in FY 2001, with other locations following in FYs 2002 through 2004.

PM Utility Helicopter

The PM Utility Helicopter (PM UH) office is also undergoing major upgrades to the UH-60A/L fixed-based simulator. As part of the Congressionally mandated EUSA upgrade, the UH-60 simulators in Korea and Fort Campbell will be upgraded in FY 2001. Although these upgrades only fund two of the 18 UH-60A/L simulators, the remaining upgrades occur in FYs 2002 through 2004. PM UH invited STRICOM to join its IPT to formulate the training-device strategy for the next generation utility helicopter, the UH-60M. It is envisioned that our arrangement will facilitate a comprehensive strategy to leverage emerging technology from all simulation work to field the most modern simulators.

PM Kiowa Warrior

The Kiowa Warrior is the aircraft that bridges the role and mission gap until Comanche reaches IOC. The Crew Station Mission Equipment Trainer (CSMET) and Cockpit Procedures Trainer (CPT) remain the field and institution trainers to supplement Kiowa Warrior aircraft training. With the imminent fielding of the CSMET and CPT devices, Kiowa Warrior training devices remain viable and replicate the actual aircraft. We do have to continue to engineer the Multiple Integrated Laser Engagement System-like devices in order to facilitate this aircraft's participation in live training scenarios at home stations and at our combat training centers.

Conclusion

In summary, STRICOM, PEO AVN and AMCOM have a powerful team working collectively on innovative ways to continue to upgrade legacy simulators, while working cooperatively for a collective future-platform simulator. We anticipate that aviators will see simulator upgrades on legacy systems beginning in FY 2001 and lasting into FY 2005. The period beyond FY 2006 provides exciting opportunities as new platforms hit the field and aviation simulator sustainment continues to support the fleet.

Together we want to ensure that aviation training, as well as cockpit design in our virtual simulators, hones and maintains required critical aviation skills. STRICOM, PEO AVN and AMCOM will meet these new challenges by cooperation, leveraging of technology and constant warfighter involvement.

LTC Roland Dixon is product manager for Air and Command Tactical Trainers at the U.S. Army Simulation, Training and Instrumentation Command in Orlando, Fla.

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Virtual Experimentation

By COL Kim L. Summers and CPT Richard G. Watson

Much has been written about the increasing role of virtual simulation in training our force. From a cost perspective, computer simulation seems the best means to develop the doctrine, tactics, techniques and procedures for combined-arms operations. Several live, constructive simulations have been employed to engage individuals, leaders and staffs in synthetic environments that replicate the challenges of modern battlespace. Moreover, expanding fleets of virtual simulations allow air and ground platforms to seamlessly train with these same computer-generated forces.

Continuing this trend, the Models and Simulations, Requirements Integration Directorate, DCSCD, at Headquarters, U.S. Army Training and Doctrine Command, sponsored the Advanced Concepts Research Tools (ACRT) initiative to enable "man-in-the-loop" experimentation and analysis of future concepts and technologies in battle labs

across the Army.

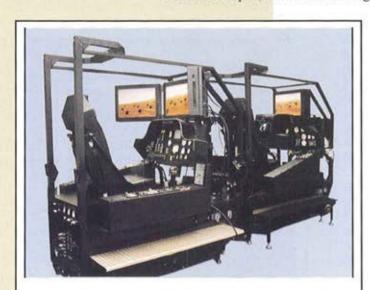
The ACRT program provides organic assets to the battle labs that can be used independently or as part of a "simulation confederation" to conduct experimentation. Inherently flexible, these devices can be relocated or linked by fiber-optic network to support experiment requirements. The cornerstone of this initiative is an architecture that permits rapid reconfiguration of both hardware and software subsystems into other vehicles/weapon systems. By design, this reconfiguration can by accomplished by the user. Therefore, the financial costs for battle lab experimentation are reduced up front.

The third dimension of combined-arms operations is supported by the ACRT. Located at the Air Maneuver Battle Lab (AMBL) at Fort Rucker, Ala., are two "full-up" helicopter research cockpits, which are reconfigurable to different aircraft types. In the tandem con-

figuration, AMBL can represent the AH-64A, AH-64D and a "fly-by-wire" variant using a side-arm controller for pitch, roll and yaw flight inputs. Additionally, in the side-by-side configuration we can represent the UH-60 A/L cockpits. A futuristic conceptual aircraft can also be represented by modifying aircraft and characteristics in the software.

In both side-by-side and tandem configurations are the following commonalties:

- High fidelity helicopter flight models. This aerodynamic model accounts for main and tailrotor efficiencies, fuselage coefficients, centers of gravity, horizontal stabilizers, engine/drivetrain properties and effects of wind and turbulence.
- Image Generation (IG) provides day, night and night-vision operation with effects of weather and obscuration. Moreover, the IG operates at 60 Hz and accurately depicts weapon fly-out, detonation and effects.
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Air Maneuver ACRT (AH-64A Variant)

 Sensor packages allow warfighters to query, acquire, track and engage targets in the same manner and functionality as in the actual aircraft.

Tactical navigation capability.

 Communication and aural cueing hardware capable of ICS, tactical radio, ASE, weapon fly-out and proximity detonations. Limited digital communication also exists.

Graphical User Interface (GUI) flexibility is the heart of the Aviation ACRT. This is where we can modify performance parameters of aircraft subsystems for specific experimentation and analysis. Built into the GUI are files adjustable data elements for communications, weapons, flight dynamics and navigation. Additionally, by following our Interface Control Document we have the capability to expand GUI operations to these and more aircraft subsystems.

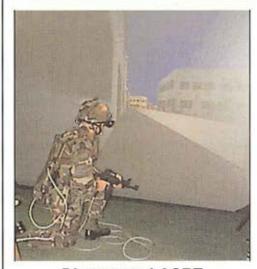
In addition to the air maneuver variant, various systems have been delivered to Forts Knox, Rucker, Benning, Leonard Wood, Bliss and Sill. The "full-up" variants, 21 to date, are resident in battle labs replicating equipment common to the battle lab's expertise. Additionally, 23 lower fidelity "desktop" versions are fielded to several battle labs providing limited capability. In addition to the aviation platforms previously discussed, full-up and desktop systems are fielded that replicate dismounted infantry, as well as ground vehicles.

The Dismounted Infantry ACRT provides the individual warfighter the ability to introduce and use dismounted warfighter weapon systems. It enables virtual individual and team maneuver into the synthetic battlefield. With aural cueing system, a three dimensional sound system, the warfighter can use the sense of hearing to identify and react to simulated events as they occur in the virtual world. Viewing range as seen through a weapon's sight matches the weapon's maximum effective range. Additionally, dismounted infantry variants accommodate dynamic environments ranging from full day, dusk and night simulations with adverse weather and man-made environmental effects.

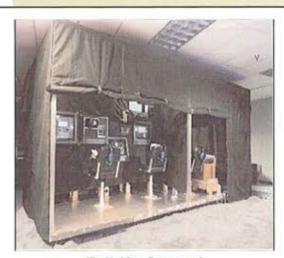
Battle labs use full-up ground simulators to represent combined-arms vehicles — tanks, fighting vehicles and scouts — in various configurations. Capitalizing on the reusable software, users are able to manipulate the GUI to configure the crew station as the M1 series of main battle tanks, M2 series of Bradley infantry fighting vehicles, tracked command post carriers, and wheeled variants of the Humvee or HEMMT. Provisions also allow for Future Scout Cavalry System and CRUSADER employment.

A paradigm shift involving virtual simulation is underway. In the training environment, a fleet of simulations has evolved to polish warfighting skills at all levels. Through the ACRT program, we now have the necessary tools to develop and refine concept and technologies early in the research, development, test and evaluation process.

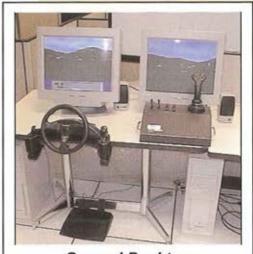
COL Kim L. Summers is the deputy director of the Air Maneuver Battle Laboratory at the U.S. Army Aviation Center, Fort Rucker, Ala. CPT Richard G. Watson is the agency's plans and operations officer.



Dismounted ACRT



Full-Up Ground



Ground Desktop

ARI: Key Player in Army Aviation Simulation and Training

By Dr. William Howse



The U.S. Army Research Institute (ARI) for the Behavioral and Social Sciences is the Army's principal laboratory for research on personnel performance and training. ARI has formally existed since 1939; however, its origins can be traced to 1917. ARI's primary focus is the human role in the Army's missions. ARI researches, analyses and develops products relating to the entire life cycle of the soldier's relationship with the Army, including recruitment, selection, assignment, training and mission-performance assessment.

At its main location in Alexandria, Va., ARI operates its Research and Advanced Concepts Office, Occupational Analysis Office, Army Personnel Survey Office and four research units. These research units are centered on Selection and Assignment, Organizational and Personnel Resources,

Advanced Training Methods and Army Trends Analysis. ARI operates research units at six other locations, plus two Scientific Coordination Offices at two additional locations.

The ARI Rotary Wing Aviation Research Unit (RWARU) is located at the U.S. Army Aviation Center in Fort Rucker, Alabama. The RWARU currently has four main program objectives:

 Determine which flying and combat skills training objectives are best supported by Training Aids, Devices, Simulators and Simulation (TADSS), from initial entry to advanced aircraft qualification, and for field unit sustainment and collective training.

Determine which TADSS characteristics best support aviator training at the least cost and integrate these characteristics into low-cost, advanced-technology simulations.

 Define where in the training process simulation can best facilitate acquisition of flying and combat skills, how simulation should best be used for training, and the instructional support features that should enhance learning in the various phases and types of flight training.

4. Measure training effectiveness of alternative mixes of TADSS with live-flight train-

ing to best exploit their training capabilities.

As part of its transformation effort, the Army recognizes that Army aviator training must evolve toward a greater reliance on simulation-based training, rather than aircraft, as the primary instructional delivery tool. In the past, the primary mode of instructional delivery has been practice in the aircraft by students under the guidance of an instructor. This traditional method evolved from a time when simulation technology was primitive and there were an abundance of aircraft hours and availability of instructors.

Force reductions and shrinking training resources, combined with the rapid advancements in simulation technology, provide both need and opportunity for the Army to exploit simulation as the preferred means of skill learning. Virtual simulation can enhance the level of flying proficiency attained, and can reduce the cost of training by decreasing flying hours and the total amount of instruction required to attain a desired level of expertise. In addition, simulation can provide opportunities to reach some training goals with greater efficiency by capitalizing on capabilities that can not be implemented in live training. By doing so, precious training resources can be reserved for live flight directed toward training goals that are best taught in the actual aircraft. The research program at the RWARU is centered on striking the balance between live and virtual training.

At its Fort Rucker facility the RWARU operates the Simulator Training Research Advanced Testbed for Aviation (STRATA). STRATA is dedicated to research and development in the design and function of flight simulators applied to rotary-wing flight training. This advanced-research facility includes flight simulators for the AH-64A Apache, OH-58D Kiowa Warrior and TH-67 Creek, in addition to other developmental flight simulation systems and tools. The STRATA facilities are networked to other simulation facilities at Fort Rucker via fiber optic links and communicate by Distributed Interactive Simulation/High Level Architecture (DIS/HLA) protocols. Through this network, STRATA devices and personnel can participate in long-haul networked simulations.

The STRATA facilities have been employed in experiments, technology demonstrations, equipment and aircraft subsystem evaluations, and training exercises. The facility has provided the vehicle for psychophysical investigations relevant to establishing simulator design requirements for training applications, evaluation of mission performance effects of use of the Air Warrior personal equipment suite, predeployment training of Bosnia-bound aviators and advanced aircraft-qualification training.

In addition, STRATA is involved in the development of advanced simulation technologies that will improve training effectiveness and reduce costs associated with training Army aviators. Some of these technologies include low-cost visual imaging and displays, low-cost high-fidelity cockpit representation, development of advanced system modeling and measurement of mission effectiveness centered crew performance. STRATA is also involved in the development of advanced instructional methodologies for initial rotary-wing training that will capitalize on the capabilities of virtual simulation and employ artificial intelligence for optimization of basic skills acquisition by students.

There are currently 15 projects within the RWARU research program. Although I cannot describe them all in this article, I will highlight a few of the programs.

◆ The Personal Computer-based Aviation Training Device (PCATD) study group is a technical advisory service provided to the U.S. Army Aviation Center. The intent of this group is to perform limited research in the application of commercial off-the-shelf (COTS) technology to flight-simulation training. Commercially available products, particularly flight simulations developed for gaming environments, may have potential for application to some Army training tasks. The PCATD has recommended three application areas: Self-directed study by flight students prior to the Initial Entry Rotary Wing (IERW) training program; instructor-employed interactive enhancement in IERW ground school; and procedures practice by IERW students.

• The Personal Computer-based Image Generation (PC-IG) project seeks to evaluate existing technologies for low-cost image-generation systems for flight-training applications through comparative testing and to develop new applications of alternative technologies. The latter area is currently being pursued through a cooperative research-and-development agreement with a developer in the commercial gaming arena. Application of hardware and software architec-

tures developed for personal computer games has potential for increased efficiency and improved performance at low cost.

◆ The Aircrew Coordination Training Enhancement (ACTE) program is a congressionally mandated and funded effort to revise and improve Army aircrew coordination training. The initial program was developed by ARI through contract support in 1992. The improvements will analyze current aircrew coordination training from a systems perspective for better program execution and management, refine team evaluation techniques and tools, and develop focused intervention techniques.

◆ Adaptive Instructional Systems (AIS) is a project implemented through the Department of Defense Small Business Innovation Research Program. This project seeks to develop an approach to the design and implementation of computer-based training systems that dynamically adapt instructional methodology to individual differences in learning style and rate. With this type of instructional approach, we can capitalize on student strengths while matching content and structure of training events to the student's conceptual structure. One of the efforts under this project will develop an artificial intelligence shell to an existing ARI system – the Intelligent Flight Trainer (IFT) – which currently uses an expert system to conduct automated training in such basic flight skills as hovering, takeoff and traffic-pattern maneuvers.

ARI provides the Army with new technologies to meet emerging challenges in personnel training and performance. Our research addresses short-term issues through rapid response analyses and long-term issues through basic behavioral science and technical assistance on critical issues affecting the Army's organization, such as manpower, training and management. Using the research and product developed at ARI, the Army has a solid foundation on which to train Army personnel to maintain readiness and accomplish Army missions.

Dr. William Howse works for the U.S. Army Research Institute at Fort Rucker, Ala.

The Rotary Wing Aviation Research Unit's products and services could not be delivered without the outstanding support from our contractors.

One example is the AH-64A simulator, one component of the STRATA facility. It was originally constructed in the early 1990s as the Simulator Complexity Testbed (SCTB) under an agreement between the United States and Canadian governments.

Approximately equal funding was contributed by each government toward development of an advanced state-of-the-art and extremely high fidelity flight simulator specially intended for research and development. CAE was selected to design and manufacture the AH-64A simulator. After completion of the original system, the prime contractor was also chosen as the engineering-support contractor on site at Fort Rucker to operate, maintain and develop the system. The contractor also has participated with RWARU in research and development of SCTB and the development of the OH-58D and other systems that make up today's Simulator Training for Aviation (STRATA).

Together we have formed an extensively cooperative environment that integrates engineering development and behavioral research to produce a facility that is uniquely capable of coordinated innovation in developing advanced instructional systems through hardware, software and human behavioral science applications. — *Dr. William Howse*

Have You Flown the AVCATT-A?

By MAJ Al Huber and Mr. John Flanagan

"Have you flown the AVCATT-A?"

It's a question we ask pilots as we go about our business as the Aviation Combined Arms Tactical Trainer-Aviation Reconfigurable Manned Simulator (AVCATT-A) team from the U.S. Army Training and Doctrine Command's Systems Manager's Office for the Combined Arms Tactical Trainer (TSM-CATT). The question is often answered in the affirmative — "Yes sir, I flew at Fort Hood about a year ago when it was hooked to the ground CCTT building" or, "I flew it over at the Aviation Test Bed at Fort Rucker during our train up for Bosnia" — even though the AVCATT-A hasn't been built yet!

In fact, the devices these aviators flew and the cockpits they trained on were just the early developmental devices that helped define the real requirements and intended uses for AVCATT-A, Army aviation's premier collective trainer.

WHAT IS THE AVCATT-A?

AVCATT-A is a mobile, trailer-mounted, virtual training simulation being developed by the Army to help train aviation platoons and companies. It includes six internetted cockpits that are reconfigurable to Apache (A and D), Kiowa Warrior, Black Hawk and Chinook. Additionally, an early objective version of the Comanche is already under contract and will be used to assist in the development of the tactics, techniques and procedures for this new addition to the aviation force.

Each of these aircraft simulators has faithfully modeled aerodynamics and primary weapon systems to ensure crews will not learn negative habits that might be transferred to their operation of the actual aircraft. Thanks to a virtual-reality helmet, the pilot sees a realistic virtual environment in living color. AVCATT-A also has a "battlemaster" position and four roleplayer stations to provide the trainer the capability to replicate the combined-arms battlefield to meet a unit's critical training needs. An 18-seat after-action review (AAR) theater provides the trainer with a powerful tool for reviewing each AVCATT-A mission, from any point or time on the battlefield.

AVCATT-A's AAR capability provides the trainer with a comprehensive playback capability of all system visuals, sensors, audio, intercom, and digital and voice communications. Initially, the AVCATT-A allows you to train on terrain from the National Training Center, Fort Hood, Germany, and Kosovo, with more terrain databases to follow.

Mission planning is done, as in a real mission, using the Aviation Mission Planning System (AMPS). The AMPS data is ported into the AVCATT-A at the battlemaster station. With AVCATT-A, aviation units will be able to train with ground maneuver units, since the AVCATT-A will be able to interoperate with the Close Combat Tactical Trainer (CCTT) used by the armor, mechanized infantry and ground cavalry units.

AVCATT-A is not being designed to be a procedure trainer. It is a collective trainer, allowing you to train and learn in a combined-arms environment. So no emergency start up or shutdown procedures are supported in the system. AVCATT-A is a training tool to help get teams ready for combat.

USES AND ROLES

AVCATT-A differs from the earlier line of collective aviation virtual trainers in that it is the result of the rigid and thor-



ough examination of unit collective tasks. The Directorate of Training, Doctrine and Simulation (DOTD&S), at Fort Rucker, Ala., oversaw the analysis of aviation unit mission requirements and the underlying training tasks needed to support mission execution.

Working from the aviation Combined Arms Training Strategy (CATS), members of DOTD&S, aided by subject matter experts from the Army National Guard, traced the CATS requirements to tasks needed to be trained, and developed the number of task iterations required annually for each type of aviation unit. Assuming that it will take one training exercise period to perform one task iteration of a mission, CATS then calculated the number of training exercise periods needed for each type of unit. Assuming that two training periods are available each day, the number of AVCATT-A unit training days was totaled.

An Apache company, for example, would be required to train on AVCATT-A for a total of 9.5 days per year, while a Black Hawk company would be required to train 23 days per. These training requirements include use of six cockpits for

10 hours per day per company.

Because there is no difference in training standards between active and reserve-component aviation units, there is no difference in the number of iterations or training periods each is required to perform under the CATS model. Of course, there is a difference in the daily training schedules and number of exercise periods available between the components.

With the advent of the aviation modernization program, and the reorganization into multi-functional battalions, the AVCATT-A provides the flexibility to support the new multi-functional battalion commander in training his battalion with a reconfigurable mix of aircraft within the AVCATT-A suite. The challenge for the S-3s and company commanders will be to determine how to best meet the training challenges of the multi-functional units and the CATS-directed requirements through the use of innovative scheduling and scenario development.

AVCATT-A gives trainers the means to enhance live training with capabilities not found in live training. AVCATT-A augments critical live training by providing trainers with a realistic training environment they can use to greatly increase the frequency and repetitions of training without the time, resource, environmental and safety constraints of additional

How will AVCATT-A be used? That is up to the unit commander. What is certain is that he or she will have a flexible training tool in AVCATT-A with which to successfully execute the aviation combined arms training strategy.

Not one live flight hour is going to be exchanged for the AVCATT-A. Although originally there was to be a flying hour offset in the active component flying hour program, current plans call for the funds to come from other sources.

FUTURE IMPROVEMENTS

live training.

Though AVCATT-A is still under development at Link Training and Simulations Division, preplanned product improvements (P3I) are already identified. These include an objective Comanche module, additional terrain databases, UH-60 module modifications to support Volcano operations and other aircraft system upgrades required to keep AVCATT-A current. As technology, information and priorities change, you will see an increase in AVCATT-A performance and features. As AVCATT-A grows and becomes a part of the aviation community's tool kit, platoons and companies will be better able to meet the challenges of an uncertain and dangerous world.

SUMMARY

The AVCATT-A system is the result of many people's efforts over the years. Their work has resulted in a challenging and realistic system that allows platoons and companies to practice and execute their wartime tasks in a realistic environment - inexpensively, safely and frequently. The challenge is for today's unit leaders to review the CATS assumptions and develop strategies to meet the unit's needs when the AVCATT-A suites arrive. Army aviation is investing in the future, so let's ensure the investment is put to good use.

So, have you flown the AVCATT-A?

The true test of whether we have been successful with this article will be evident the next time we ask the question, "Have you flown the AVCATT-A yet?" We should receive an answer such as: "Not yet, but I am looking forward to it so my unit can begin training to a higher combat standard."



MAJ Al Huber is the AVCATT-A project officer in the Office of the TRADOC System Manager-Close Combat Tactical Trainer (TSM-CATT) at the National Simulation Center at Fort Leavenworth, Kan. Retired master Army aviator John Flanagan is the Sherikon Inc. support contractor to the TSM-CATT at Fort Knox, Ky.

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The Multifunctional Battalions

of Tomorrow
Are in Kosovo
Today

By CW3 Dan Autrey

In January 1999 the soldiers of the 1st Infantry Division were alerted for Operation Joint Guardian. Sixteen UH-60A/L, eight AH-64A, eight OH-58D and four CH-47D aircraft from four battalions helped form Task Force 2-1 Aviation in support of Task Force Falcon. Soldiers and equipment from six units would make up the Task Force. A derivative Unit Identification Code (UIC) was assigned to identify the new unit. Unlike this task force, the Multifunctional Battalions (MFB) of tomorrow will fight as they train, no longer "Robbing from Peter to pay Paul".

Prior to deployment, the Task Force (TF) maintenance officer convened pre-deployment maintenance meetings with other Aviation Unit Maintenance (AVUM) commanders and maintenance officers (maintenance test pilots and aviation maintenance technicians) to identify specific as well as generic maintenance-support requirements. An informal AVUM Modified Table of Equipment (MTOE) was developed to support the four types of aircraft assigned to the TF.





The TF AVUM MTOE identified and documented requirements as well as commonalities for all aircraft. It was important to identify those requirements and obtain support without rendering the remaining maintenance elements in Germany non-mission capable. Those units would still have to perform their separate support missions in the rear. Maintenance test pilots (MTPs) from six AVUM companies were placed under the control of the TF maintenance officer. An aviation maintenance technician from component repair and armament shops became the production control (PC) officer. One NCO from each quality control (QC) office formed a QC section. Only two soldiers per MOS from different AVUM component repair and armament shops formed a platoon.

Crew chiefs were taken from the different AVUMs to form a maintenance platoon. Ten Raytheon contractors were assigned to augment the support package. Only two of the same test/tool sets would be deployed. If only one test/tool set was on hand, it still deployed. Repair parts were taken from the Prescribed Load Lists (PLL) and bench stocks of each unit to form a TF PLL. The Division Aviation Support Battalion (DASB) from the 1st Inf. Div. provided Aviation Intermediate Maintenance (AVIM) support and "Pass Back AVUM" to the Task Force. Thus, the maintenance support required for the Aviation Task Force was formed.

In June 1999 Task Force 2-1 deployed to Macedonia and later into Kosovo. After one year and more than 13,500 flight hours, the maintenance task force had completed more than 5,000 maintenance work orders and 22 aircraft phases in country. In June 2000 the 1st Armored Div. assumed the mission in Kosovo. The TF maintenance MTOE from 1st Inf. Div. was dissolved, and the soldiers and equipment returned to their respective units in Germany.

The informal creation of an MTOE for a specific

deployment is not new. Similar packages were assembled in support of Operation Restore Democracy in Haiti and Operation Joint Guard in Bosnia. These security and stability operations (SASO) continue today. These missions require diverse aviation support but in smaller packages. Our aircraftpure battalions support large-scale conflicts but not a small SASO.

The MFB concept could solve this problem. Each battalion would have attack, lift

and observation aircraft to provide the aviation support required for the SASO. The AVUM company in the MFB is essentially the same as the TF maintenance MTOE utilized in Kosovo by the 1st Inf. Div. The main difference being that the MFB is always ready for a SASO; other AVUM companies do not have to be disassembled to create the TF AVUM.

The AVUM company in the MFB is built to support the MFB. It is designed to support three types of aircraft. The aviation maintenance officer commands the company.



Production control is formalized and under the control of an aviation maintenance technician. The maintenance platoon is comprised of crew chiefs for each aircraft to perform scheduled and unscheduled maintenance. The quality control section has test pilots and staff sergeants for each type of aircraft. The tech supply has a warrant officer supply technician, several NCOs and automated logistics clerks. They manage the repair parts required for the

three types of aircraft. A derivative UIC is not required because the whole unit would deploy.

The best news is all MFBs are the same with some exceptions. Battalions can be added proportionally in direct relation to the size of the operation. The MFB truly allows the battalion to fight as it trains and no longer rob "Peter to pay Paul."

CW3 Dan Autrey is a project officer at the U.S. Army Aviation Logistics School at Fort Eustis, Va.

LINK SIMULATION AND TRAINING AWARDED \$10.3 MILLION AVCATT-A PRODUCTION CONTRACT

Link Simulation and Training division of L-3
Communications has been awarded a \$10.3 million contract to begin low-rate initial production on the U.S. Army's Aviation Combined Arms Tactical Trainer - Aviation Reconfigurable Manned Simulator (AVCATT-A) program.

The contract calls for six reconfigurable simulators, a battle master control room and an after-action review theater. All of these major system components and associated subsystems will be housed in two semi-trailers, enabling the Army to rapidly deploy the AVCATT-A training system by land, air or sea to units in need of tactical training.

AVCATT-A will provide both active Army and National Guard aviation units with a realistic, high intensity, virtual combat training environment for helicopter pilots, crews and teams. The six trainer cockpits can be reconfigured within 90 minutes to simulate Army attack, reconnaissance and utility helicopters, including the RAH-66 Comanche, AH-64A Apache, AH-64D Longbow Apache, OH-58D Kiowa Warrior, UH-60 Black Hawk and CH-47D Chinook.

Link will build under the low-rate initial production contract; Link is also producing the first suite of trainers for the AVCATT-A program under a contract awarded in late 1999. Both suites of trainers are slated for delivery in April, 2002. One AVCATT-A suite will be delivered to Fort Hood, Texas. and the other to Fort Rucker, Ala.

Due to the training suites' transportable capability, Army aviators will for the first time be able to have a home-base trainer on the front line that will help prepare them for challenging worldwide military operations.

Aviators using the AVCATT-A system will be able to fight and train under a wide range of simulated conditions. These conditions — including battlefield smoke; weapons effects; blowing snow; dust or sand; and variances in wind, visibility and cloud ceiling — can be replicated under day, dusk or night environments.

A realistic, virtual training environment will be supported by intelligent semi-automated forces. These forces, both friendly and opposing, will support a highly competitive fighting environment to maximize training effectiveness. The system will provide three geo-specific terrain data bases that simulate central Germany, Fort Hood and the National Training Center at Fort Irwin, Calif.

AVCATT-A pilot trainers will be designed to integrate directly into the Army's command, control, communication, computers and intelligence systems. Battalion or brigade staff personnel, working at stations within their administrative and tactical operations center, will control battlefield-support elements and combat forces participating in simulated engagements.

The IBCT and the Death of Air Cavalry?

By CPT Raymond A. Kimball

s the Army begins the fielding and training of the Interim Brigade Combat Teams (IBCTs), we can only guess at some of the second-and third-order consequences of the radical restructuring of our maneuver forces. As the Army integrates the best of emerging technologies and gives commanders at the lowest levels improved situational awareness, we may very well see the passing of one of Army aviation's most beloved institutions: the air cavalry troop.

No doubt at this very moment, dozens of OH-6, OH-58, AH-1 and OH-58D aviators have read the above paragraph and screamed "Off with his head!" The purpose of this article is not to suggest that our air cavalry troops are obsolete and should be replaced, but rather to warn that the trends are heading in that direction, and to suggest an appropriate response.

The operational requirements document for the IBCT calls for a Reconnaissance, Furthermore, UAVs and ground sensors found in the surveillance troop also provide early warning that allows the brigade time to anticipate enemy actions by understanding the situation, maneuvering combat power, and making contact with fires or ground forces when and where the IBCT commander chooses. Sound familiar to anyone?

Let's say, for the moment, that this trend continues and a decision is made to replace

> the air cavalry troops (ACTs) in divisional cavalry squadrons (or their Objective Force successors) with UAV platoons. This is not as

farfetched as it may sound. Joint doctrine for UAVs states that the main mission of UAVs is "to support their respective service component commands as a tactical RSTA system providing the commander a capability to gather ... data on opposing force position, composition and states of readiness." What would some of the advantages and disadvantages be of such an action?

"Probably the single biggest advantage of replacing ACTs with UAVs lies in the field of logistics."

Surveillance and Target Acquisition (RSTA) squadron to be an integral part of the IBCT's maneuver elements. The first of these squadrons, 1st Squadron, 14th Cavalry, has already stood up at Fort Lewis, Wash., and is preparing to receive its equipment. In addition to three recee troops, the squadron's force structure calls for a surveillance company containing improved GSR and DF systems, as well as an unmanned aerial vehicle (UAV) platoon.

The UAV platoon is intended to be the air complement of the squadron and extend the range of the squadron commander's eyes in covering critical NAIs.

ADVANTAGES

Probably the single biggest advantage of replacing ACTs with UAVs lies in the field of logistics. In doing so, you replace three troops (two ACTs and the AVUM) totaling more than 100 personnel, dozens of vehicles, and 16 aircraft with two platoons totaling 34 personnel, eight aircraft and 8-10 vehicles. Not only does this greatly reduce the food, fuel and ammunition requirements of the squadron, it eliminates the need for a "parallel" maintenance structure within the squadron. Let's face it, under the new IBCT, aviation units will have a far larger logistical tail than any other element of the force. UAVs would eliminate a significant part of that burden.

The second advantage concerns the matched capabilities and decreased limitations of UAVs vs. conventional ACTs. The table below, extracted from FM 17-95, Cavalry Operations, lists the doctrinal capabilities and limitations of air cavalry: proof right now the UAVs (and their operators) have the communications interoperability and robustness to conduct the kind of detailed, coordinated reconnaissance in conjunction with ground scouts that is required in the division fight. As the IBCT stands up, careful attention will have to be paid to just how these assets are integrated.

The other great disadvantage of UAVs is the lack of a good-old fashioned Mark-I eyeball, and the human attached to it. Sensors can be tricked and emissions can be masked, but detailed scrutiny of an area by a determined, well-trained aeroscout can often uncover what our adversaries wish to keep hidden. The corollary to this is that when communications have broken down and the enemy has exercised his veto power over your carefully crafted plan, having a skilled leader forward with the mobility to

CAPABILITY

Terrain independent movement Speed Add agility to operations Add depth to operations Increase tempo of operations Digital link/Enhanced optics Elevated observation platform Video reconnaissance

LIMITATION

Degraded limited visibility operations Lack detail in reconnaissance Limited station times Crew endurance Aircraft maintenance requirements

UAVs retain all of the listed capabilities, and eliminate some key limitations, of air cavalry. Foremost among the lessened limitations is the increased station time UAVs bring to the fight. The current tactical UAV used by the Army, Hunter, has an on-station endurance of 11.6 hours, far in excess of anything Army aviation has to offer. Hunter does this while retaining the operational radius (144 nm, expandable to 300 nm with a relay station) and observation capabilities of our current platforms.

The final advantage has nothing to do with the cavalry squadron, but rather the proposed multi-functional
battalion. The hard reality of today's budget climate suggests that we may not get funded for all the Comanches
we'd like to have. At that time, we face a hard decision.
Do we field Comanches in the multi-functional battalion
and substitute UAVs in the cavalry squadron? Or do we
stick to our guns, plant our Stetsons firmly on our heads,
and field Comanche in the cavalry squadrons, with a
smaller amount going to the MFBs? If we choose the
latter, we may find ourselves in exactly the situation the
MFB was intended to avoid, as we pull one or both
ACTs from a cavalry squadron to fill an MFB as it
deploys into harm's way.

DISADVANTAGES

The greatest disadvantage of replacing ACTs with UAVs is that there's no proof that such a substitution is possible. The Army and Air Force used UAVs with great success recently during Operation Allied Force in the Balkans. However, UAVs were used to coordinate interdiction and deep-strike missions, rather than to develop intelligence for moving ground forces. There simply is no

influence the fight may make the difference between victory and defeat. A UAV with its controller displaced far to the rear cannot fulfill this requirement.

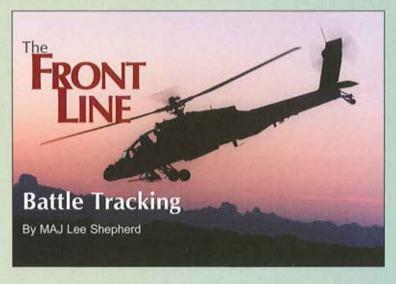
SO WHAT?

Sometime within the next eight years, someone far senior to me in both rank and experience, armed with the results of the IBCT fielding and train-up, will make a decision on how to integrate UAVs into the force. If that decision is to eliminate our ACTs, there will no doubt be many among us who will angrily protest that decision. I submit to you, my fellow aviators, that before we dig in our heels and prepare for our own Little Big Horn, that we carefully judge this decision by its merits, rather than a sentimental attachment to past glories. Before World War II, the chief of cavalry made a decision to replace horses with wheels and tracks, and the results changed warfare forever. We must be prepared to accept a similar decision, or suffer the condemnation of history.

No doubt this article will infuriate many in our branch, and with good reason. I invite those of you with strong feelings on the subject to write to this magazine and other professional journals and express yourselves. We as aviators have been mostly silent on the Transformation issue, and we owe it to ourselves and our Army to join the debate that will shape our futures and our nation's destiny.

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CPT Raymond A. Kimball is currently a student at the Aviation Maintenance Manager's Course. His next assignment will be as commander of F Troop, 3rd Squadron, 7th Cavalry, at Fort Stewart, Ga.



ommand and control of an Army aviation unit, as with all other maneuver forces, rests solely with the commander. However, given the width and breadth of the aviation battlefield, it is difficult for the aviation commander to position himself so as to be able to command and control all aspects of the unit. The tactical operations center (TOC) must be the center of all information

in the aviation force, must give the commander a quick update on all aspects of the current or future missions, and must be able to make sound tactical decisions in the commander's absence.

It is imperative that the six special considerations listed in FM 1-100 under "Command and Control" be tracked or planned in the TOC to give the commander the most up-to-date and accurate information. The special considerations are: timely intelligence, reliable communications, effective liaison, accurate weather forecasting, flexible mobile command posts and efficient airspace coordination.

Battle tracking is obviously not a new concept, but a majority of the units rotating through the National Training Center (NTC) fail to track most, if not all, of these special considerations. This is unacceptable for our branch, since our flexibility and agility mandates we accurately battle track across much greater battlespace than other, similar-size organizations. This article will discuss how the failure to plan for or execute the areas leads to a less successful or even failed mission at the NTC.

Effective Liaison

The "Mojavian Corps" reported to the brigade combat team (BCT) TOC that it had contact with an aircraft at 1200 hours. At 1300 hours the BCT received intelligence that a voice intercept confirmed the "Peoples Parumphistan Guerillas" (PPG) had shot down a Mojavian aircraft, and directed the BCT to prepare to execute a combat search and rescue (CSAR) mission within two hours. At 1330 hours a second voice intercept reported that the PPG had found the aircraft but not the pilots. At 1500 hours the corps directed the BCT to execute a CSAR mission to immediately extract the aircrew. At 1525 hours the BCT finally passed the mission to the aviation unit.

The aviation unit immediately started to go through the correct mission analysis and for the next three hours tried to put together a plan for the CSAR. The company commander and lead pilot in command (PIC) came to the TOC to get an update, routing and to plan suppression of enemy air defenses (SEAD) with the BCT. However, it became apparent as they held on the Multiple Subscriber Equipment (MSE) line that the BCT TOC was conducting a mission brief. The liaison officer (LNO) was finally found at the BCT, but the Mojavian aircrew had been captured, and the mission was cancelled.

The LNO had been single-man coverage on a 24-hour cycle for more than four days and he was down when the CSAR mission came in. Therefore, it was not forwarded to the aviation unit for more than six hours. A BCT LNO team must be robust enough to support 24-hour operations to allow for continuous battle tracking and mission coordination. The LNO team must be able to sustain 24-hour operations, have dedicated communications to the aviation unit, and a vehicle or process for passing hard-copy information. And, of course, the requirement for effective liaison does not extend just to the higher headquarters, as the following example shows.

The unit TOC briefed the PIC on the Volcano minefield location and orientation, the route to the engineer mine upload point and the route to the Volcano minefield. The BCT engineer officer provided this information to the LNO. It looked like the unit was ready to execute, but because the aviation unit had not ever actually talked to the engineers on the ground and did not understand the obstacle plan or obstacle intent, the crew

started its duty day too early.

The aircrew and aviation unit TOC believed the mission to be time-driven with an 1800-hour emplacement, when, in actuality, it was event-driven with a no-earlier-than-1800 mission time. The battalion S3 eventually determined that the mission was event-driven, and even identified the trigger. But when the opposing force (OPFOR) hit the trigger the aircrew was well past its 12th hour of duty day and the unit did not have a second crew that could assume the mission. The OPFOR passed unimpeded through the flank and straight into the ground unit that believed from the obstacle overlay that a minefield protected its flank.

Effective liaison with the engineer battalion as soon as the TOC received the mission would have allowed the mission to be a success. Effective liaison may require flexing an aviator, assistant S3 or other staff officer to the engineer battalion (or other supported unit) for a mission to provide timely, accurate and complete information. If the aircrew simply delayed starting its duty day by three hours, the mission could have been successfully executed.

Timely Intelligence

The assistant S3 planner did a great job with route and SEAD planning on the primary route to the COLT/Scout team insertion landing zone (LZ). However, the alternate LZ and alternate route planning had been cursory at best. Additionally, the route and SEAD were all planned from an enemy situation template (SITEMP) that was more than 24 hours old.

The S2 had been looking at overlays and reading the intelligence summary (INTSUM) from the BCT for most of the day in his corner of the TOC, but was not providing any intelligence update to either the S3 or the commander, and was not present during any of the route planning in the Plans tent.

The proposed pick up zone (PZ) time was 2100 hours. At 1900 hours the aircrews reported to the TOC for the aircrew brief and the route was posted on the map. Finally, the S2 walked up and hung his current enemy situation over the maneuver graphics. The primary route went directly over the main defensive belt, and the LZ was 1 km from a motorized rifle company (MRC). The alternate route looked better, but the assistant S3 had not created the route card or planned the SEAD. Additionally, the alternate LZ was only 3 km from the primary and still could be affected by the direct fires from the MRC.

The unit delayed the mission for more than three hours while it developed a suitable LZ, adjusted the route and planned the SEAD for the new route. Although the unit eventually executed the mission, it was completed at a much higher risk as the illumination had gone from 47 percent to 0, and the aircrews were now well into the last third of their duty day.

The common trend at the NTC is for minimal S2 input during mission analysis and route planning. Another trend is for the S2 to focus only on routes for the lift units with little intelligence provided on the PZ or LZ (ADA, or mortars in the area or artillery in range), or for the S2 to focus entirely on the objective in cavalry and attack units, as the following example provides.

The battle had been going for 20 minutes and already the company had lost two scouts and one Apache to the same air defense artillery (ADA) position. The company was only

half way to its objective and would not get any farther. By the end of the day the battalion as a whole had lost half of its aircraft. The majority of the aircraft losses were not in the objective area, but en route.

The S2's briefing for the mission had focused entirely on the objective areas and spent no time on enemy ADA en route. In one area seven aircraft were shot down in the same location on the same route. Because the S2 did not brief the threat en route, the unit planned no SEAD or supporting fires and the route was a cursory direct line up valley floors. If the unit had a better rear-area threat brief, it could have planned to launch the aircraft earlier and complete bounding movements to their positions, while destroying the ADA en route to the FLOT.

Accurate Weather Forecast

The unit completed the OPORD to standard and followed it up with an outstanding rehearsal. Everything had been completed well within the 1/3-2/3 rule, and so the companies went back to brief at their level and wait for dark and the mission time. The mission would be toward the end of the duty day, but with the detailed rehearsals conducted; the risks would be mitigated.

As the sun went down the winds began to pick up, as they had each day of the rotation. When the winds hit 45 knots a weather warning was posted, with an expected end time of 2400 hours. The problem was that it was also the end of the crews' duty day.

The ability to predict weather warnings at the NTC is not easy, but the pattern had held constant throughout the rotation, with high winds that increased around sunset and then lessened late into the night. The unit could have adjusted the mission time and duty-day start had they completed a better weather analysis during the mission planning instead of reacting to the weather at the NTC. But units often do not even do rudimentary analysis of the weather patterns at the NTC, as the following example shows.

The PIC tried three consecutive times to land at the forward area refuel point (FARP). Each time he slowed to approach, the dust would overtake his aircraft and force a go-around. On his last attempt he finally repositioned to the parking area and asked for cold gas. One hour later the casualty evacuation (CASEVAC) aircraft took off for the multiple ambulance exchange points (AXPs), but a majority of the casualties were now dead of wounds (DOW), and so the mission had no positive impact for the supported unit.

This was the unit's third jump and thus the third FARP the unit had set up. Yet, each time the unit had set it up to land with a tail wind. The wind had finally increased sufficiently to cause the FARP to be untenable. A unit must look at winds during planning for landing directions, tactical assembly area (TAA) setup, and battle positions (BPs) or observation points (OPs).

Reliable Communication

The mission changes had been passed from the BCT to the unit's TOC. The changes were not large enough to cause a rebrief of the mission, only slight changes to the LZ grids and which chocks went to which LZs for inserting the ground troops.

The problem was that the S3 and commander with all the aircraft had already moved forward to the PZ, and communications (commo) could not be established with them. The distance from the TAA to the PZ was only 15 km, but a large hill was preventing line-of-sight commo. Commo could not even be established with PZ Control to relay the information.

The plan had always been for the TOC to pass information to the command-and-control (C2) aircraft once it was in flight. Yet no consideration had been given to the TOC having to pass information to the aircraft in the PZ, or how the TOC would talk to the mission aircraft in flight if the C2 bird had to pull off station for fuel or had to do a forced landing either for maintenance or enemy action.

When the ground soldiers loaded on the chocks, all ground commanders believed the changes had been passed. The C2 aircraft departed five minutes before mission-execution time and went forward to its perch site. Still no communications could be established. The ground troops were inserted up to 3 km away from the intended LZs. Many of the support vehicles were inserted into incorrect LZs and were unable to provide any support to the ground troop attacking the objective. The signal officer (SIGO) had the tools to do a terrain analysis before the mission and establish reliable communications, but failed to complete this during the planning phase.

The SIGO must aggressively evaluate distance and obstacles for commo before the mission, and conduct commo checks whenever possible to ensure commo will be maintained throughout a mission either from the TOC to the mission aircraft or the TOC to the C2 aircraft. Another trend is for a TOC to have only a single means of communication. Redundancy of communications using all available means is rarely executed. The aviation unit must have at least FM and one other form of communication established at all times.

Efficient Airspace Coordination

The aircraft waited to take off for more than four hours. During force-on-force operations the TOC was not aggressive in keeping graphics updated or unit positions marked on the map, and that now became a problem. The BCT was pushing to get supplies to the ground units, but the aviation TOC did not have the current artillery positions or unit boundaries.

For the previous eight days of the rotation the maneuver graphics posted in the TOC had usually not been anything beyond flight routes and an occasional restricted operation zone (ROZ). Concept of the operation and ground maneuver was never posted and only briefly discussed during mission briefs. The unit commander got on the MSE to the LNO to get the data, but it finally became apparent to the commander how little his TOC had actually tracked the ground fight.

Efficient use of airspace requires the unit to have detailed knowledge of the ground tactical plan, both for planning and execution. Units coming through NTC will often plan without the maneuver graphics on the map, and during force on force will not even have them posted while executing the battle. Without the graphics, units plan routes using terrain only and will go directly through the center of a battalion's sector or directly over artillery positions, effectively shutting down any artillery support to the ground maneuver units or themselves while the aircraft are airborne.

The mission was to screen forward in support of a ground unit. The company gave a thorough and detailed

mission brief on the objective area and actions on contact. The commander's intent was to remain masked, as much as possible, and to use indirect fires to avoid giving away the observation posts they had planned. The aircraft moved forward before first light to get in place undetected, and waited for the enemy to advance.

The initial contact went well, and indirect fires were used with good results. As the aircraft began rotating to the FARP, however, they went directly over the artillery positions that were supporting the mission. The artillery immediately checked fire, and the aircraft were forced to use direct-fire weapons on the advancing OPFOR, giving away their positions. The OPFOR was then able to target and destroy the screening aircraft.

Simply planning the routes using battalion boundaries and knowing the artillery positions would have avoided shutting down the artillery and continued their support. Aviation units must use the ground maneuver graphics for route planning to ensure deconfliction of airspace.

Flexible Mobile Command Post

The commander was out front with his unit, directing companies into battle positions and calling aircraft forward into the battle. The TOC in the rear was following the overall battle and had good situational awareness, but the two were not tied together. The commander brought aircraft forward over enemy ADA systems, and the aircraft were shot down en route. The commander also put aircraft into locations from which they could not truly affect the battle, while simultaneously displacing aircraft from a battle position from which they would have made contact with the enemy in a matter of minutes.

The commander was making decisions without the aid of all the information available to him in his TOC, and his aircrews were paying the price. The flexible mobile command post allows the commander to move forward and command his unit at the decisive point, but all of the above information must be available to the commander to make sound tactical decisions during the battle. Planning the layout, capability and commo requirements before the mission is the key.

Summary

These examples are not unit-specific. They represent the common trends and failings at the NTC. This list is not all encompassing; it is a minimum that must be covered for a unit to be successful. Units must plan for each consideration before mission execution, and must have as a minimum a mechanism to update intelligence, weather and airspace usage throughout the battle.

It is imperative that the TOC develop a checklist to use during planning to ensure all areas of required information are submitted in a timely and accurate manner. Finally, this information must get to the commander. The command post that the commander fights from (TOC, TAC or Air TAC) must be able to accurately track all of the above information. Then and only then can the commander make the decisions needed to win at the NTC and in future operations.

MAJ Lee Shepherd is a senior aviation logistics trainer at the National Training Center, Fort Irwin, Calif.

Six-shooters Case Colors

by Lisa Eichhorn



n the morning of June 6, 2001, the soldiers of the 6th Squadron, 6th Cavalry, gathered in their hanger on Storck Barracks in Illesheim, Germany. It was to be a day filled with great anticipation for the historic unit's members, as they officially cased their colors in anticipation of their move to Fort Hood, Texas.

The timing of the casing was no coincidence. For it was exactly 11 years to the day after the unit "stood up" with the then state-of-the-art AH-64A helicopter. Now the unit will head to Fort Hood to be trained in the newest Apache, the AH-64D Longbow.

On a day filled with tradition, the same commander that lead the unit to Illesheim all those years ago came back to take part in the ceremony. BG Virgil L. Packet II, now the deputy commanding general of the U.S. Army Aviation Center at Fort Rucker, Ala., formed the "Six Shooters," moved them to Germany and then sent parts of the unit to participate in the Gulf War.

"What a wonderful challenge for you," Packet told the soldiers. "Your move is a sign of progress — for you, for V Corps and for the United States Army. You are setting another milestone and you should be very proud. Your legacy is rich in history from the battleground at Gettysburg to being a ghost unit for Patton's Army," he said.

"You will bring new technology to the theater, being the first Longbow unit in U.S. Army, Europe. You are focused on the new millennium and will be the best equipped, with the best soldiers, NCOs and officers. I know you're going to meet this challenge with the same vigor you've always met them with. I am very proud of you," Packet said.

LTC Tim Edens has commanded the unit for the past 16 months and will see it through its training at Fort Hood. He said readying the unit for the move has been difficult, but the soldier's spirit of accomplishing the mission saw them through.

"It is fun to work hard to make a unit great and to be able to tell higher headquarters that they are ready for any mission," Edens said. "But it is not fun to work hard to perfect equipment and aircraft, knowing that you are going to give it to someone else. But these soldiers did it with pride and professionalism. They did it because it was theirs and they wanted it to be perfect for their fellow warriors. We have sent off the aircraft and other equipment with a message of 'Here you go, you deserve it," signed the 'Six Shooters,'" he said.

The 6th Sqdn. will stand-up in October at Fort Hood after pilot training at Fort Rucker, and the unit is scheduled to return to Illesheim between July and September, 2002.

Lisa Eichhorn is a reporter for the 987th Area Support Group's newspaper, the Crusader, in Würzburg, Germany.



Job-Fair Blueprint

Here are step-by-step instructions to ensure success when meeting recruiters.

I'm sure many of you would never consider going to a job fair to be work. You would simply arrive, wander around, and possibly talk to some recruiters. This would be fine if you were only checking out the job market, but it is the wrong approach if you are seriously considering changing jobs, or worse, unemployed.

A job fair may be one of the first steps in answering your question of "what do I want do after the military?" You might begin by reading books and journals on particular career fields, searching the Internet, and talk-

ing with friends and associates.

Although that is a good start, a job fair provides you with an opportunity to meet face-to-face with recruiters and see what jobs are available. (Corporate recruiters use this as an opportunity to put a face with a resume in order to decide whom to call back.) You also can schedule further informational interviews, uncover other opportunities, and learn about salaries and growth potential.

It would be great if everyone knew exactly what job he or she wanted before going to a job fair, but this rarely is the case. The best idea is to narrow your interest to one career field. After exploring this particular

field, refine your goals or move on to another field.

With that in mind, remember to treat every job fair as a formal interview. Would you take your children or spouse to an interview? Would you wear casual clothes? Would you smoke or chew gum?

If you answered "yes" to any of these questions, then pay attention. A

job fair can be like a three-phase campaign:

Research: Is the job fair for a particular industry? Who do you know in that line of work? Don't limit your interest to a particular fair - every organization has a variety of needs. Which employers will be represented? Do they have Web sites?

Once you finish your research, prepare a portfolio with paper, pens and pencils, a variety of resumes, references, and other relevant infor-mation to hand out. Make sure your attire is appropriate for the industry you are pursuing. Rehearse a one-minute introduction describing your skills, education, and experience. You will need to hit the ground running because once you arrive, you will not have enough time to visit all recruiting booths. Plus, recruiters will be rushed because they are trying to meet as many candidates as possible.

Participation: Arrive at the job fair early, register at the entrance, and gather information about participating employers. Decide which compa-

ny to visit first, then rank the rest.

Don't be shy when meeting recruiters. Be polite but aggressive in your introduction; maintain good eye contact and a firm handshake, and then give your one-minute introduction. Explain how your experience fits an employer's needs. If there is no fit, thank the recruiter, ask for his or her business card, leave your resume and move to the next company. You might want to take notes for a thank-you letter or other follow-up action.

After you have met all the recruiters from your list, try to meet with any recruiter available. Don't take home extra resumes - leave them every-

After-action review: Once you get back to your office or home, ask yourself, what went right? What went wrong? Write thank-you notes and include any revised resumes. Schedule any meetings, and, as always: Follow up, follow up, follow up.

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arrivals/departures

COLONELS

Hildreth, Bradford C., 389 Meadow Hill Road, Fort Worth, TX 76108.EM: khildr7176@aol.com

Petty, Frank S., DCM Southern Europe, CMR 410, Box 502, APO AE 09096.

LT. COLONELS

Blackmon, Irvin R., 2976 Lakewood Road, Four Oaks, NC 27524.EM: ray.blackmon@nc.ngb.army.mil Books, William L., 1905 Lakeview Drive, Fulton, MO 65251.EM: booksw@sofsa.org Leach, Richard F., P.O. Box 235, Durant, FL 33530.

Smith, Jay Q., HHC 1AD, CMR 467, Box 5678, APO AE 09096.

MAJORS.

Climer, Charles T., P.O. Box 202, Claryville, NY 12725.EM: tomclimer@prodigy.net Giles, Carl L., 15807 20th Ave Ct East, Tacoma, WA 98445.EM: cgiles@centcom.dsaa.osd.mil King, Steven A., 112 Beverly Drive, Enterprise, AL 36330.EM: kings@charleston.af.mil. Larson, R. Wallace, HHC, 19th Support Center, CMR 467, Box 4774, APO AE 09096.EM: larsonr@hotmail.com Sellers, Daniel E., 2005 Renea Circle, Harker Heights, TX 76548. Smiley, Richard T., P.O. Box 42, North Field, VT 05663.

CAPTAINS

Bell, Mary J., 126 Paloma Heights, No. 307, Colorado Springs, CO 80921. EM: mary.bell@ usafa af mil

lavecchia, Marvin E., 3518 Mandeville Loop. North Pole, AK 99705.

Koonce, Samuel W., Taunus Chapter VP Memb., CMR 467 Box 3138, APO AE 09096.EM: skoonce65@yahoo.com Viles, Timothy C., CMR 408 Box 1628, APO AE 09182.EM: vilesto@aol.com

1ST LIEUTENANTS

Hussey, Thomas L., 911B Berkshire Terrace, Hinesville, GA 31313.

Kennepp, Tracy L., 3010 Davis Road, Apt. B66, Fairbanks, AK 99709.EM: tkennepp@ hotmail.com

2ND LIEUTENANTS

Goyings, Ryan R., 12765 Road 176, Paulding, OH 45879.EM: ryan.goyings@excite.com

CW5S/MW4S

Mauss, Daniel H., 104 Greenridge Way, Newnan, GA 30265.

Acosta, Anthony L., 308 Sycamore Creek Drive, Holly Springs, NC 27540. EM: avtr1980 @hotmail.com

Adee, Steven L., P.O. Box 42031, Arlington, VA 22204.EM: steven.adee@ngb.army.mil Stoops, Dean E., 145 Doe Run, Frankfort, KY 40601.EM: dukestoops@aol.com

Cunningham, John O., 620 Merganser Trail, Clinton, MS 39056.EM; jcunning14@aol.com Ramos, Kenneth, 549 Warwick Lane, Pickerington, OH 43147.

Whitehead, Eric J., CMR 454, Box 2374, APO RETIRED/OTHER AE 09250.EM: ewhite4696@aol.com

SERGEANTS

McGlocklin, James A. CSM, Route 3, Box 254, Kempner, TX 76539.EM: mcglocklinj@compuserve.com

Ohea, Graham M. PFC, 116 H Street, NW, Auburn, WA 98001.

DACS

Fullen, Les Mr., 3140 South Horizon Place, Oviedo, FL 32765.EM: les_fullen@stricom.army.mil O'Neill, Jr., Raymond F. Mr., Caparra Chalets, Apt 1B1, Buzon 17, 49 Calle 8, Guaynabo, PR 00966.EM: oneilr@usarso.army.mil Schexnayder, Michael C. Mr., 7904 Corvette, Huntsville, AL 35802.

CIVILIAN

Cornell, Thomas E., 3427 Cypress Wood Drive, Spring, TX 77388.EM: cornellte@mail.vmi.edu

Miozza, Kenneth A., 911 Buoy, Houston, TX 77062.EM: kamiozza@shellus.com Parson, John C., 127 Rebel Drive, Somerset, KY 42501

Prieto, Michael, Air Methods Corp., Int'l, 7301 South Peoria, Englewood, CO 80112.

Chartler, Martin F. SFC, 1060 Grandeview Blvd., Apt. 625, Huntsville, AL 35824.EM: mfcdtc@bellsouth.net

Forster, William H. LTG, Northrop Grumman Corp., PO Box 746, MS 236, Baltimore, MD 21203.EM:

william_h_forster@mail.northgrum.com Janssen, Arlo D. LTC, 10209 Cedar Pond Drive, Vienna, VA 22182.EM:

adjanssen@aol.com MacDonnell, Rod CPT, 408 Helicopter Sgdn, PO Box 10500 Stn Forces, Edmonton AB T5,14,15

Miller, Billy J. COL, 1735 Willamsburg Way, Melbourne, FL 32934.

Siebert, Hans 1SG, 942 Woodcreek Drive, Newport News, VA 23608.EM: hjsiebert@aol.com

Wiggins, Bert E. CW4, 1331 Schley Avenue, San Antonio, TX 78210.EM: wigginsb@swbell.net

Editor's Note: Army Aviation is seeking good-news announcements of aviation-related professionals who are on the move. If you or your organization have an upcoming change of leadership (at the battalion or squadron level, or higher for MTOE and TDA units), please forward the information to Barbara Ross, care of the AAAA National Office.

The chief of staff of the Army announces the assignment/promotion of the following officers:

Secretary of Defense Donald H. Rumsfeld announced that President George W. Bush has nominated the following officers for the positions indicated:

LTG Johnny M. Riggs for reappointment to the grade of lieutenant general and assignment as director, Objective Force Task Force, Arlington, Va.

the grade of lieutenant general.

MG Roger C. Schultz, director of the Army National Guard, for appointment to the grade of lieutenant general.

President George W. Bush has nominated the following general officers to the ranks and positions indicated:

LTG Larry R. Jordan for reappointment to the grade of lieutenant general and assignment as the director of the Army staff, Washington, D.C. Since August 1999 he has been the deputy commanding general, U.S. Army, Europe, and Seventh Army,

LTG Leon J. LaPorte for reappointment to the grade of lieutenant general and assignment as the deputy commanding general/chief of staff, U.S. Army Forces Command, Fort McPherson, Ga. Since August 1998 he has been commanding general, III Corps and Fort Hood, Texas.

LTG James C. Riley for reappointment to the grade of lieutenant general and assignment as the commanding general, U.S. Army Combined Arms Center, Fort Leavenworth, Kan. Since November 1999 he has been the commanding general, V Corps, USAREUR/Seventh Army.

MG Benjamin S. Griffin for appointment to the grade of lieutenant general and assignment as the deputy chief of staff for programs, Washington, D.C. Since June 1999 he has been the commanding general, 4th Infantry Division, Fort Hood.

MG William S. Wallace, for appointment to the grade of lieutenant general and assignment as the commanding general, V Corps, USAREUR/Seventh Army. Since July 1999 he has been the commander, Joint Warfighting Center/Director, Joint Training, U.S. Joint Forces Command, Suffolk, Va.

MG R. Steven Whitcomb from assistant chief of staff, C-3/J-3, United Nations Command/Combined Forces Command/U.S. Forces Korea/deputy commanding general, Eighth U.S. Army, Korea, to commanding general, U.S. Army Armor Center and Fort Knox, Ky., with a report date to be determined.

BG Buford C. Blount III from program manager, Saudi Arabian National Guard Modernization Program, Saudi Arabia, to commanding general, 3rd Infantry Division, Fort Stewart, Ga., with a report date to be determined.

BG Franklin L. Hagenbeck from deputy director J-33, The Joint Staff, Washington, D.C., to commanding general, 10th Mountain Div. and Fort Drum, N.Y., with a report date to be determined.

MG Steven W. Boutelle from program executive officer, Command, Control and Communication Systems, Fort Monmouth, N.J., to director of programs and architecture, Office of the Director for Information Systems for Command, Control, Communications and Computers, Washington, D.C., with a report date to be deter-

MG William H. Russ from commanding general, U.S. Army Signal Command, Fort Huachuca, Ariz., to commanding general, U.S. Army Communications-Electronics Command and Fort Monmouth, N.J., with a report date to be determined.

BG Eldon A. Bargewell from assistant chief of staff for military operations, SFOR (Sarajevo), Joint Headquarters Centre, Allied Command, Europe, to director, Center for Operations, Plans and Policy, U.S. Special Operations Command, MacDill Air Force Base, Fla., with a report date to be determined.

BG James C. Hylton from director of programs and architecture, Office of the Director of Information Systems for C4, Washington, D.C., to commanding general, U.S. Army Signal Command, with a report date to be determined.

BG Michael R. Mazzucchi from deputy for systems acquisition, U.S. Army Communications-Electronics Command, to program executive officer, C3 Systems, Fort Monmouth, with a report date to be determined.



BG Stanley A. McChrystal from assistant division commander for operations, 82nd Airborne Div., Fort Bragg, N.C., to chief of staff, XVIII Abn. Corps and Fort Bragg, report date to be determined.

MG Thomas J. Plewes, chief of Army Reserve, Washington, D.C., for appointment to BG David H. Petraeus from chief of staff, XVIII Airborne Corps and Fort Bragg, to assistant chief of staff for military operations SFOR (Sarajevo), with a report date to

> BG Gregory J. Premo from deputy director of operations, Defense Information Systems Agency, Arlington, Va., to deputy chief of staff for Information Management, U.S. Army Training and Doctrine Command, Fort Monroe, Va., with a report date to be determined.

> COL Jeffrey A. Sorenson from assistant deputy for systems management and horizontal technology integration, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, Washington, D.C., to program executive officer, Army Tactical Missiles, Redstone Arsenal, Ala., with a report date to be determined.

> MG Charles C. Campbell from chief of staff, U.S. Army, Europe, and Seventh Army, Germany, to commanding general, 7th Inf. Div. and Fort Carson, Colo., with a report date to be determined.

MG George W. Casey Jr. from commanding general, 1st Armored Div., USAREUR/Seventh Army, to commander, Joint Warfighting Center/director, joint training, U.S. Joint Forces Command, Suffolk, Va., with a report date to be determined.

MG Michael D. Maples from director of operations, readiness and mobilization, Office of the Deputy Chief of Staff for Operations and Plans, Washington, D.C., to commanding general, U.S. Army Field Artillery Center and Fort Sill, Okla., with a report date to be determined.

MG Thomas F. Metz from vice director for force structure, resources and assessment, The Joint Staff, Washington, D.C., to commanding general, 24th Inf. Div. and Fort Riley, Kan., with a report date to be determined.

MG Ricardo S. Sanchez from deputy chief of staff for operations, USAREUR/ Seventh Army, to commanding general, 1st Armd. Div., USAREUR/Seventh Army, report date to be determined.

MG Robert J. St. Onge Jr. from commanding general, 24th Inf. Div. and Fort Riley, to deputy assistant secretary of defense for readiness, training and mobilization, Office of the Assistant Secretary of Defense for Reserve Affairs, Washington, D.C., with a report date to be determined.

President George W. Bush has nominated the following officers for promotion to the rank of major general:

BG Keith B. Alexander, currently the commanding general of the U.S. Army Intelligence and Security Command at Fort Belvoir, Va.

BG Eldon A. Bargewell, currently the assistant chief of staff for military operations, SFOR (Sarajevo), Joint Headquarters Centre, Allied Command Europe, Sarajevo, Bosnia-Herzegovina.

BG David W. Barno, currently the deputy director for operations, J-3, U.S. Pacific Command, Camp H. M. Smith, Hawaii

BG John R. Batiste, currently the senior military assistant to the deputy secretary of defense, Office of the Secretary of Defense, Washington, D.C.

BG Peter W. Chiarelli, currently the assistant division commander (support), 1st Cavalry Division, Fort Hood, Texas.

BG Claude V. Christianson, currently the assistant chief of staff, C-4/J-4/G-4, U.N. Command/Combined Forces Command/U.S. Forces Korea, and deputy commanding general (support), Eighth U.S. Army, Korea.

BG Robert T. Dail, currently the commanding general, 3rd Corps Support Command, U.S. Army, Europe, and Seventh U.S. Army, Germany.

- BG Karl W. Eikenberry, currently the deputy director, Strategy, Plans and Policy Directorate, Office of the Deputy Chief of Staff for Operations and Plans, U.S. Army, Washington, D.C.
- BG Robert H. Griffin, currently the commanding general, U.S. Army Engineer Division, Great Lakes and Ohio River, Cincinnati, Ohio.
- BG John W. Holly, currently the program executive officer, Army Tactical Missiles, Redstone Arsenal, Ala.
- BG David H. Huntoon Jr., currently the deputy commandant, U.S. Army Command and General Staff College, Fort Leavenworth, Kan.
- BG James C. Hylton, currently the director of programs and architecture, Office of the Director for Information Systems for Command, Control, Communications and Computers, U.S. Army, Washington, D.C.
- BG Gene M. LaCoste, currently the commander of the U.S. Army Safety Center at Fort Rucker, Ala.
- BG Dee A. McWilliams, currently the deputy chief of staff, Personnel and Installation Management, USAREUR/Seventh Army, Germany.
- BG Raymond T. Odierno, currently the director, Requirements and Force Management, Office of the Deputy Chief of Staff for Operations and Plans, U.S. Army, Washington, D.C.
- BG Virgil L. Packett II, currently the deputy commanding general/assistant commandant, U.S. Army Aviation Center and School, Fort Rucker, Ala.
- BG Joseph F. Peterson, currently the assistant division commander (maneuver), 3d Infantry Div., Fort Stewart, Ga.
- BG David H. Petraeus, currently the chief of staff of the XVIII Airborne Corps and Fort Bragg, Fort Bragg, N.C.
- BG Marilyn A. Quagliotti, currently the commanding general/deputy chief of staff, Information Management, 5th Signal Command/USAREUR & Seventh Army,
- BG Michael D. Rochelle, currently the commanding general, U.S. Army Soldier Support Institute, Fort Jackson, S.C.
- BG Donald J. Ryder, currently the commanding general, U.S. Army Criminal Investigation Command, Fort Belvoir, Va.
- BG Henry W. Stratman, currently the deputy chief of staff for doctrine, U.S. Army Training and Doctrine Command, Fort Monroe, Va.
- BG Joe G. Taylor Jr., currently the chief, Legislative Liaison, Office of the Secretary of the Army, Washington, D.C.
- BG N. Ross Thompson III, currenlly the deputy director, Program Analysis and Evaluation, Office of the Deputy Chief of Staff for Programs, U.S. Army, Washington, D.C.
- BG James D. Thurman, currently the commanding general, National Training Center and Fort Irwin, Calif.
- BG Thomas R. Turner II, currently the assistant division commander (maneuver), 1st Div., Fort Stewart, with a report date to be determined. Inf. Div., USAREUR/Seventh Army, Germany.
- BG John M. Urias, currently the deputy commanding general (acquisition), U.S. Army Space and Missile Defense Command, Huntsville, Ala.
- BG Michael A. Vane, currently the commanding general, 32d Army Air Missite Defense Command, Fort Bliss, Texas.
- BG William G. Webster Jr., currently the director of training, Office of the Deputy Chief of Staff for Operations and Plans, U.S. Army, Washington, D.C.
- Army Chief of Staff GEN Eric K. Shinseki has announced the assignment of the following general officers:
- MG Raymond D. Barrett Jr. from commanding general, U.S. Army Training Center and Fort Jackson, S.C., to deputy chief of staff for training, TRADOC, Fort Monroe, Va., with a report date to be determined.
- BG David W. Barno from deputy director for operations, J-3, U.S. Pacific Command, Camp H. M. Smith, Hawaii, to commanding general, U.S. Army Training Center and Fort Jackson, S.C., with a report date to be determined.

- BG Paul D. Eaton, currently the deputy commanding general for transformation, U.S. Army Training and Doctrine Command, Fort Lewis, Wash.

 Training and Doctrine Command, Fort Lewis, Wash., to commanding general, U.S. Army Infantry Center, and commandant, U.S. Army Infantry School, Fort Benning, Ga., with a report date to be determined.
 - BG Raymond T. Odierno from director, requirements and force management, Office of the Deputy Chief of Staff for Operations and Plans, Washington, D.C., to commanding general, 4th Infantry Division, Fort Hood, Texas, with a report date to be determined.
 - BG Joseph F. Peterson from assistant division commander for maneuver, 3rd Inf. Div., Fort Stewart, Ga., to commanding general, 1st Cavalry Div., Fort Hood, with a report date to be determined.
 - BG N. Ross Thompson III from deputy director, programs analysis and evaluation, Office of the Deputy Chief of Staff for Programs, Washington, D.C., to commanding general, U.S. Army Tank-Automotive and Armaments Command, Warren, Mich., with a report date to be determined.
 - BG John M. Brown III from deputy chief of staff for training, TRADOC, Fort Monroe, to deputy commanding general for transformation, TRADOC, Fort Lewis, with a report date to be determined.
 - BG Peter W. Chiarelli from assistant division commander for support, 1st Cav. Div., Fort Hood, to director of operations, readiness and mobilization, ODCSOPS, Washington, D.C., with a report date to be determined.
 - BG Michael A. Vane from commanding general, 32nd Army Air Missile Defense Command, Fort Bliss, to deputy chief of staff for doctrine, TRADOC, Fort Monroe, with a report date to be determined.
 - The chief of staff of the Army announces the assignment of the following officers, who are awaiting Senate confirmation of nomination for promotion to brigadier general/general officer positions:
 - COL Leo A. Brooks from commander, 1st Brigade, 504th Infantry Regiment, 82nd Airborne Division, Fort Bragg, to assistant division commander, 1st Armored Div., USAREUR/Seventh Army, with a report date to be determined.
 - COL Sean J. Byrne from executive officer to the deputy chief of staff for personnel, Washington, D.C., to director, Enlisted Personnel Management Directorate, U.S. Total Army Personnel Command, Alexandria, Va., with a report date to be determined.
 - COL Charles A. Cartwright from project manager, Crusader, Program Executive Office, Ground Combat and Support Systems, Picatinny Arsenal, N.J., to assistant deputy for systems management and horizontal technology integration. Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology), Washington, D.C., with a report date to be determined.
 - COL Philip D. Coker from deputy director, Army Quadrennial Defense Review Office, Office of the Deputy Chief of Staff for Programs, Washington, D.C., to assistant division commander, 2nd Inf. Div., Eighth U.S. Army, Korea, with a report date to be determined.
 - COL Thomas R. Csrnko from deputy commander/assistant commandant, John F. Kennedy Special Warfare Center and School, Fort Bragg, to chief, Office of Military Cooperation, Kuwait, with a report date contingent upon Senate confirmation.
 - COL Daniel A. Hahn from executive officer to the commanding general, U.S. Army Forces Command, Fort McPherson, Ga., to assistant division commander, 3rd Inf.
 - COI. Mark P. Hertling from commander, Operations Group, National Training Center, Fort Invin, Calif., to vice J-7, The Joint Staff, Washington, D.C., with a report date to he determined.
 - COL James T. Hirai from chief of staff, U.S. Army, Pacific, Fort Shafter, Hawaii, to assistant division commander, 4th Inf. Div., Fort Hood, Texas, with a report date to be determined.
 - COL Paul S. Izzo from project manager, Bradley Fighting Vehicle System, Ground Combat and Support Systems, Warren, Mich., to deputy for systems acquisition, U.S. Army Communications-Electronics Command and Fort Monmouth, with a report date to be determined.
 - COL James L. Kennon from chief of staff, U.S. Army Combined Arms Support Command, Fort Lee, Va., to deputy for acquisition and readiness, U.S. Army Soldier and Biological Chemical Command, Natick, Mass., with a report date to be determined.
 - COL Robert P. Lennox from director, Army Staff Transition Coordination Team, Office of the Chief of Staff, Army, Washington, D.C., to deputy commanding general, U.S. Army Air Defense Artillery Center and Fort Bliss, Texas, with a report date to be determined.

COL Benjamin R. Mixon from chief, Training and Exercises Division, U.S. Joint Forces Command, Joint Warfighting Center, Norfolk, Va., to assistant division commander, 82nd Airborne Div., Fort Bragg, with a report date to be determined.

COL Larry C. Newman from executive officer to the deputy chief of staff for logistics, Washington, D.C., to commanding general, U.S. Army Armament Research, Development and Engineering Center, Picatinny Arsenal, with a report date to be determined.

COL Carroll F. Pollett from deputy director for command, control, communications and computers assessment division, J-6, The Joint Staff, Washington, D.C., to deputy director of operations, Defense Information Systems Agency, Arlington, Va., with a report date to be determined.

COL Robert J. Reese from executive officer to the commander in chief, United Nations Command/Combined Forces Command and commanding general, U.S. Forces, Korea, to deputy commanding general, 7th Inf. Div. and Fort Carson, with a report date to be determined.

COL Stephen V. Reeves from project manager, Nuclear Biological and Chemical Defense Systems, U.S. Army Soldier and Biological Chemical Command, Aberdeen Proving Ground, Md., to joint program manager, Biological Defense, Falls Church, Va., with a report date upon announcement.

COL Kevin T. Ryan from student, Defense Intelligence Agency, Joint Military Attaché School, Bolling Air Force Base, Washington, D.C., to U.S. Defense Attaché - Russia,

Defense Intelligence Agency, Moscow, Russia, with a report date contingent upon Senate confirmation.

COL Volney J. Warner from special assistant to the chairman, Joint Chiefs of Staff, Washington, D.C., to assistant division commander, 82nd Abn. Div., Fort Bragg, report date to be determined.

COL John C. Woods from chief of staff, 1st Inf, Div., USAREUR, to assistant division commander, 25th Inf. Div., Schofield Barracks, with a report date to be determined.

COL Richard J. Rowe Jr. from chief of staff, 2nd Inf. Div., Eighth United States Army, Korea, to assistant deputy chief of staff for combat developments, TRADOC, Fort Monroe, with a report date to be determined.

LTC Bob Felderman graduates from the National War College this month, becoming one of only 59 National Guard officers to graduate from the institution since its inception in 1947 and the first Army National Guard aviator to do so. During the 10-month course Felderman completed a master's in national security strategy from the National Defense University, and a certification in legislative affairs from Georgetown University. He will return to lowa for assignment to the chief of staff's working group on future planning and legislative affairs. As a civilian, he returns to his real estate and appraisal brokerage in Dubuque, lowa. His future address will be c/o Continental Realty and Felderman Appraisals, 1179 lowa Street, Dubuque, IA 52001.

Briefings continued from page 3

BAE Systems has completed a series of key live-fire tests of the Advanced Threat Infrared Countermeasures/Common Missile Warning System (ATIRCM/CMWS) intended for Army AH-64, UH-60, CH-47 and EH-60 aircraft. The tests — conducted at White Sands Missile Range, N.M., during late April — involved firing live missiles at an infrared source located near the ATIRCM jammer and CMWS sensors. Ten flights were conducted, with missiles launched from different angles and ranges. Scenarios involved both single- and double-missile launches. The successful test flights complete another major phase of the government's developmental and operational test program, a critical requirement for the Low-Rate Initial Production decision scheduled to be made early next year.

The U.S. Army Aviation and Missile Command (AMCOM) has awarded a \$2 million preproduction contract to Kollsman Inc. for a Switchable Eyesafe Laser Designator/Rangefinder (SELRD) for the OH-58D Kiowa Warrior. The device — which was tested at Yuma Proving Ground, Ariz., last year — will replace the existing laser in the Kiowa Warrior.

Sabreliner Corp. has won a five-year AMCOM contract for the repair of fuel controls used on the T-703 engine that powers Army OH-58D Klowa Warrlor helicopters. The contract has a potential value of some \$1.6 million, and the work will be performed at Sabreliner's Premier Turbines engine accessory plant in Independence, Kan.

California Microwave Systems, a unit of Northrop Grumman's Electronic Sensors and Systems Sector, has been awarded a \$10 million increment as part of an estimated \$27.4 million Army contract to begin work on a sixth RC-7B Airborne Reconnaissance Low-Multifunction aircraft. The contract includes aircraft purchase and modification; prime mission equipment; nonrecurring engineering; and integration and testing. Work will be performed at two CMS facilities in Maryland, and is expected to be completed in two years.

The Boeing Co, has announced the sale of its ordnance operations to General Dynamics. The sale, which is subject to review by federal regulators, involves 55 Boeing employees at the company's Mesa, Ariz., facility. The ordnance division produces a range of medium-caliber automatic cannons for use in aircraft, ships and ground vehicles. In other Boeing news, the company has selected Chicago, Ill., as the site of its new world headquarters. The company plans to begin operations in its new facility by Sept. 4.

TEAC America has introduced the first in a new line of solid state aircraft mission data recorders. The MDR-80 is a single line-replaceable unit used to record video, audio and digital information by interfacing with the aircraft's components and data busses, and has a mean time between failure of 10,000 hours. The unit replaces TEAC's earlier V-80AB-F Airborne Video Tape Recorder, which is used in military aircraft worldwide.

The 82nd Airborne Division at Fort Bragg, N.C., is now receiving advanced AN/PRC-150(C) and AN/VRC-102B(V)2 radios manufactured by Harris Corp. The systems provide beyond-line-of-sight communications without the need for satellites, and allow for the rapid, on-the-move transmission of data and imagery.

Logicon Inc. has received awards for two domains of the U.S. Army Simulation, Training and Instrumentation Command (STRICOM) Omnibus Contract (STOC). Logicon's awards were in the constructive-simulation and test-instrumentation domains, two of STRICOM's four business areas. STOC is an eight-year, indefinite delivery/indefinite quantity contract with a total program value of \$4 billion to all contractors. The constructive-simulation domain covers systems that run war games and automated simulations using large-scale, complex computer-driven models. The test-instrumentation domain covers systems used to develop and operationally test materiel and weapon systems used in training and simulation exercises.

AAAA NEWS

New Chapter Officers

Aviation Center Chapter: MAJ Stanley O. Smith, Treas.

Connecticut Chapter: LTC Paul B. Hoar, Ret., V.P. Scholarships.

Edwin A. Link Chapter: LTC DAvid A. Lum, Ret., President; Mr. John A. Clark, Sr. VP.; Mrs. Andrea F. Hatzinger, Sec.; Mr. Dennis R. Lawler, Treas.; Mr. Kevin C. Schlosser, V.P. Member Enrollment.

Indiantown Gap Chapter:
COL Cecil B. Hengeveld, Ret., Pres.;
COL Christopher D. Latchford, Sr.
VP; SGT Nancy Wallish, Sec.; MSG
Timothy R. Bentz, Treas.; CW4
Charles W. McAllister, VP
Membership Enrollment; CW5 John
M. Travers, Ret., VP Programs; CW5
Donald E. Beatty, VP Publicity; CSM
Charles N. Reisinger, VP Enlisted
Affairs; MAJ Sheryl A. Rozman, VP
Scholarships; CSM Francis Zandome,
VP Enlisted Affairs.

Magnolia Chapter:
LTC James G. Young, President; CW5
Frank Patton, Sr. VP; MAJ Mindy
Barbe; LTC Bryan Hawkins, Treas.;
MAJ William W. Merrell, V.P.
Membership Overall; MAJ Dane
Powell, V.P. Membership 1-185;
CW4 Billy Williamson, V.P.
Membership Co G 185; COL
"Toobee" Johnson, V.P. Membership
AVCRAD/Corporate; CW3 Joel
Jasper, V.P. Scholarship/Awards.

Showme Chapter: COL Michael D. Ledbetter, President;

LTC John W. Salchow, Sr. VP; CW3 Kevin H. Nowack, Secretary; CW5 James E. Smith, Treas.; CW4 Don M. Muschler, V.P. Membership Enrollment; MAJ Kevin P. Robinson, V.P. Activity; MAJ Mark W. McLemore, Assistant Sec.; CPT Charles D. Hausman, V.P. Membership Assistant.

Talon Chapter CW3 Gerard S. Partridge III, V.P. Programs.

Virginia Military Institute Chapter: COL Norman M. Bissell, Ret., Pres.; CDT Rachael L. O'Connell, Sr. VP, CDT Monica Y. Choi, Secretary; CDT Erinn C. Singman, Teasurer

> Winged Warriors Chapter: MAJ James J. Walton, Sr. VP

AAAA NCO of the Quarter

A Chapter Program to Recognize Outstanding Non-commissioned Officers on a Quarterly Basis

SGT Jennette D. Randall 4th Qtr. 2001 (Tennessee Valley Chapter)

AAAA Soldier of the Month

A Chapter Program to Recognize Outstanding Aviation Soldiers on a Monthly Basis

SPC Tracie L. Steed June 2001 (Tennessee Valley Chapter)

SPC Annamaria Zawalish June 2001 (Indiantown Gap Chapter) SPC Theodore B. Madjoucoff August 2001 (Narragansett Bay Chapter)

New AAAA Life Members

MAJ Robert W. Burroughs Mr. Dwight L. Deatherage MAJ Michael L. Frey MAJ Kevin M. Sullivan

Aces

The following members have been recognized as Aces for their signing up five new members each. CW5 Kenneth A. Donahue, Ret. MAJ William W. Merrell LTC Michael R. Scott SGT Nancy Wallish

In Memoriam

CW3 Francis J. Ruth

New AAAA Order of St. Michael Recipients

CW5 Joseph C. Roberts (Silver)
COL Terry M. Peck (Silver)
COL Mark P. Hertling (Bronze)
CW4 Daniel Laguna (Bronze)
MAJ Russell E. Stinger (Bronze)
LTC Michael N. Thome (Bronze)
BG Robert W. Mixon, Jr. (Bronze)
COL(P) Kenneth W. Huntzeker (Bronze)
COL Ted O. Kostich (Bronze)
CPT Brian T. Hughes (Bronze)
CPT Steve Van Riper (Bronze)
CPT Robert E. Petiti (Bronze)
CSM Kenneth Tweedy (Bronze)
CW4 Mark Murdock (Bronze)
LTC John F. Dowd (Bronze)
LTC John F. Dowd (Bronze)
MAJ Ken Slye, Ret. (Bronze)
MAJ George E. Belin (Bronze)
CPT Michael P. Hanson (Bronze)
CPT Michael P. Hanson (Bronze)
CW4 Jeffrey S. Stafford (Bronze)

CW4 Matthew A. Zeman (Bronze) COL Charles B. Allen (Bronze) Robert W. Meade (Bronze) LTC Roger D. Yonts (Bronze) CPT Kelly C. Brown (Bronze) CPT Alan L. Robison (Bronze) CPT Lawrence Aguillard III (Bronze) 1SG Douglas M. Petch (Bronze) COL James B. Looney (Bronze) LTC Michael P. Courts (Bronze) CW3 Gerald L. Wolf (Bronze) MAJ Marcus D. Majure (Bronze) CPT Jason C. Smith (Bronze) CPT John F. Litvin (Bronze) CPT Son P. Vo (Bronze) MAJ Daniel C. Selph (Bronze) SFC Norman S. Dixon (Bronze) CPT Soctt T. Fleeher (Bronze) MAJ Jorge Klajnbart (Bronze) MAJ Kenneth A. Hawley (Bronze) Paul W. Reeves (Bronze) MSG Timothy D. Brown ISG Clark J. Gay (Bronze) CPT James J. Mazel (Bronze) CPT Joshua S. Kennedy (Bronze) CW4 Mark Timmermeyer (Bronze) COL Jack O. Shafer, Jr. (Bronze) CW5 Barry E. Penny (Bronze) MSG Preston L. Byers (Bronze) MAJ Thomas P. Axtman (Bronze) LTC Michael C. Mullins (Bronze) COL John A. Powell (Bronze) LTC Glenwood Norris, Jr. (Bronze) CW3 Nicholas J. Perfetto (Bronze) MAJ James A. Viola (Bronze) MAJ Bruce J. Tuftie (Bronze) CPT Kristine A. Stewart (Bronze) COL Kristine A. Stewart (Bronze) COL James L. Huggins, Jr. (Bronze) COL James A. Cerrone (Bronze) MAJ Francis S. Pacello (Bronze) 1SG Alexander De La Peza (Bronze) MAJ Frances V. J. Reese CW3 Gerald D. Bales (Bronze) CW4 Kenneth Higginbotham (Bronze) CW2(P) Teerrance W. Geer (Bronze)

High Desert Chapter

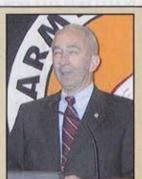


On May 31 the Order of St. Michael was awarded to COL Hertling (left), commander of the Operations Group at the National Training Center, Fort Irwin, Calif., by LTC Sales, NTC's senior aviation trainer and president of AAAA's High Desert Chapter.



West Point

The top ranked U.S. Military Academy Cadet who branched aviation this year was Cadet, now 2LT, Joseph S. Minor, (above left). He was honored at a luncheon sponsored by the AAAA and the Black Knights Chapter on May 30, 2001, at West Point, N.Y. Master of ceremonies for the event was Chapter President LTC James E. Whaley (right). MG Carl H. McNair, Jr., (above right), AAAA past president was the speaker and presented Minor with his award. Minor is currently attending the Initial Entry Rotary Wing course at Fort Rucker, Ala.



SFC James M. Aldridge (Bronze)



ARMY AVIATION 33 JULY 31, 2001

AAAA NEWS

Central Florida Chapter



LTC Jan Drabczuk (Ret.), president of AAAA's Central Florida chapter, presents the AAAA Certificate of Achievement to COL Craig Hanford, program manager (training devices) for the U.S. Army Simulation, Training and Instrumentation Command, at Hanford's recent retirement luncheon.

Washington-Potomac Chapter



The Washington-Potomac Chapter held its annual Order of St. Michael Aviation Spring Formal at the Fort Belvoir, Va., Community Club on April 27, 2001. Members from the Fort Belvoir-based Operational Support Airlift Agency pose for a group photo at the Washington-Potomac Chapter's Annual Order of St. Michael Aviation Spring Formal.

Aviation Center Chapter



LTC Clay Carter, the U.S. Army
Training and Doctrine Command's deputy system manager
for the AH-64D Apache
Longbow, is seen here during
his April 21 induction into the
Honorable Order of St. Michael,
Bronze Award, at a ceremony at
Fort Rucker, Ala. Presenting the
award is COL Michael Cash
Striplin, TRADOC's Longbow
system manager. Carter is credited with coordinating requirements for numerous operational
enhancements on the AH-64D.



On May 23 Mr. Elton T. Gordon presented the Order of St. Michael, Silver Award, to COL Michael Cash Striplin, the U.S. Army Training and Doctrine Command AH-64D Apache Longbow system manager, for his significant and lasting contributions to Army aviation. Striplin retired from active duty after 27 years of service to the Army and Army aviation.

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ARMY AVIATION ASSOCIATION OF AMERICA (AAAA)

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Please check one: ☐ Change of Address: ☐ New Membership Application

I wish to join the Army Aviation Association of America (AAAA). My past or current duties affiliate me with U.S. Army Aviation and I wish to further the aims and purposes of the AAAA. I understand that my membership includes a subscription to AAAA's official magazine "Army Aviation", and that my membership will start on the subsequent first of the month. Contributions or gifts to AAAA are not deductible as charitable contributions for federal income tax purposes. Dues payments may be deductible by members as ordinary and necessary business expenses.

Rank/GS Grade	First Name	MI	Last Name	Sex
Mailing Address				
Mailing Address				
City			State	Zip + 4 Code
Active Duty or Civilian Job Ti	itle and Unit or Firm name	E-Mail	()	
Area Code Office Phone	Area Code	Residence Phone	Area Code	FAX
Consent: □I do □I do not o	consent to the publication or re	lease of the above info	ormation to third	parties.
Signature				Date
Citizenship	Nickname	Spouse's	s Name	
Date of Birth (Mo/Yr)		Social Security No.		

AAAA ANNUAL DUES

Applications other than those listed below: () 1 yr, \$26; () 2 yrs, \$47; () 3 yrs, \$70

() Army Nat'l Guard

) Army Reserve

) Army Retired	() Foreign Defense Industry
) Other US Military Service	() Other
Are you a former AAAA me	
f yes, what year did you joir	n?
hapter Affiliation Preferred	
A STATE OF THE STA	

() Publishing/Other Asso. () Foreign Military Service



Sen, John Warner (R-VA) and Rep. Tom Davis (R-VA) have introduced legislation in the Senate and House (S. 1022 and H.R. 2125, respectively) that would amend the Internal Revenue Code to allow federal civilian retirees and active-duty and retired military members to pay health insurance premiums on a pretax basis. This initiative could have the effect of reducing the cost of such premiums by 35 percent or more, depending on state income tax laws.

Similar legislation was enacted last year to let currently serving federal civilian employees pay pre-miums for their Federal Employees Health Benefits Program (FEHBP) coverage with pretax dollars.

Under the provisions of these bills:

 TRICARE Prime enrollment fees paid by retired uniformed services beneficiaries and FEHBP premiums paid by federal civilian or military retirees would be treated in the same manner as the "cafeteria plan" option already available to many private-sector employees. This means premiums would be deducted by the government from a person's gross retired pay and such enrollment fees/premiums would not be reported as taxable income.

 TRICARE Standard supplemental premiums paid by active and retired service members would be treated somewhat differently, since these are not government policies. In these cases, members would be allowed to deduct such premiums on their federal income tax forms. The deduction would be allowable whether or not the taxpayer itemized deductions.

The Military Coalition (TMC) and The Retired officers Association (TROA) strongly support this legislation. Active and retired service members and retired federal employees deserve the same health insurance premium conversion option already available to current civil service and private-sector employees. If the legislation can be enacted, we hope to expand coverage to include dental and other insurance

TRICARE For Life Questions of the Month

Question: Can the TRICARE Senior Pharmacy (TSRx) mail-order or retail program substitute a generic drug for the specific one my doctor prescribes?

Answer: Prescription medications are available in both brand name and generic forms. As a rule, generic medications will be substituted for brand names, but only if your doctor writes your prescrip-tion allowing substitution. Only medications rated by the Food and Drug Administration (FDA) as "generic equivalents" are substituted. This means the medication contains the same chemical compounds as the brand name drug. If a generic equivalent drug is not available, you will receive the brand name drug

If a prescription has been written to allow a generic substitution but you insist on a brand name product, you will be responsible for the entire cost of the prescription, with no reimbursement from TRICARÉ

For additional information, call the Department of Defense pharmacy call center at (877) DOD-MEDS ((677) 363-6337] Monday through Friday from 7-45 a.m. to 11 p.m., Saturdays from 9 a.m. to 8 p.m., or Sundays 10 a.m. to 5:30 p.m. (Eastern Time).

Question: How will provider claims be paid under TFL that are payable under Medicare and TRICARE?

Answer: Most providers now bill Medicare directly for payment. Under TFL, Medicare will process the primary claim and send the Medicare payment directly to the provider. The secondary claim will be automatically processed by TRICARE using the paid Medicare claim as documentation, TRICARE

will send the patient's Medicare copay directly to the provider.
You will get a copy of the Explanation of Benefits (EOB) from both Medicare and TRICARE showing that both programs have paid the bill and that you owe nothing.

Rules Published for VA Diabetes-Agent Orange Benefits

Vietnam veterans with Type 2 diabetes are closer to receiving disability compensation from the Department of Veterans Affairs (VA) with the formal publication of the rules that will allow VA to provide benefits to those veterans.

On May 8 the VA published final rules for benefits for Vietnam veterans with Type 2 diabetes Under federal law, those rules don't take effect for 60 days. However, VA regional offices are already accepting claims from eligible Vietnam veterans.

Veterans affected by the new rules will receive a priority for VA health care and, depending upon the severity of their illnesses, disability compensation that ranges from \$101 to \$2,107 monthly.

This announcement follows a report in November by the National Academy of Sciences' presti-gious Institute of Medicine that found "limited/suggestive" evidence of a link between adult-onset, or

Type 2, diabetes, and Agent Orange and other herbicides used in Vietnam.

VA estimates that about 9 percent of the surviving 2.3 million Vietnam veterans have Type 2 diabetes. The illness is characterized by high blood sugar levels caused by the body's inability to process the hormone insulin. Approximately 16 percent of veterans currently receiving care in VA medical facilities have been diagnosed with diabetes.

The cost of the new benefit during the next five years is projected to be \$3.3 billion, with about

220,000 veterans receiving benefits.

The number of diseases recognized by VA as associated with Agent Orange has steadily increased since the early 1990s. The following conditions are now considered service-connected for veterans who served in Vietnam; chloracne (a skin disorder); porphyria cutanea tarda (a liver disorder); and certain cancers, including non-Hodgkin's lymphoma, soft-tissue sarcoma, Hodgkin's disease, multiple myeloma, prostate cancer and respiratory cancers (including cancers of the lung, larynx, trachea and bronchus)

Hutchison Seeks SBP Coverage for Active Duty Deaths

Sen. Kay Bailey Hutchison (R-TX) has introduced S. 1037, a bill to restore equity for survivors of members killed on active duty by treating the member, for Survivor Benefit Plan (SBP) purposes, as if the member had been retired for disability.

TMC and TROA for years have championed the cause of extending SBP coverage to all military members who die while on active duty. Currently, only retirees and active duty members with 20 or more years of service qualify for SBP coverage.

This creates significant and inequitable disparities in survivor benefits for the survivors of active duty members who are killed instantly versus those who survive long enough to be disability retired. This is particularly visible in mass-casualty situations, when commanders are hard-pressed to explain why the survivors of members who die instantly receive benefits that can be hundreds of dollars less than those of members with similar grade and years of service who can be retired for disability

TMC and TROA strongly endorse this legislation, which would cost only \$800,000 for the first year a small amount for an issue of huge merit.

Cardin Bill Would Waive Part B Penalty

Rep. Ben Cardin (D-MD) has introduced a new bill that would ease financial penalties on Medicare-eligible retirees who have not previously enrolled in Medicare Part B. In order to qualify for TFL, Medicare-eligible uniformed services retirees must be enrolled in Medicare Part B (Part B covers doctor bills, whereas Part A covers hospitalization).



COL Sylvester C. Berdux Jr. (Ret.) AAAA Representative to The Military Coalition (TMC)

Beneficiaries who do not enroll in Part B when they first become eligible are assessed a 10 per-cent premium penalty for each year they delay. For a 75-year old, the 10-year delay means a 100 per-cent penalty - a \$100 per month Part B premium for life rather than the normal \$50.

Cardin's HR 2073, the TRICARE Retirees Opportunity Act (we like that acronym - TROA), would: Waive the late-enrollment penalty for military retirees who enroll in Part B between Jan. 1, 2001,

and Dec. 31, 2002.

 Create a special, continuous Part B enrollment period for military Medicare-eligibles through Dec. 31, 2002. This is necessary because the annual open enrollment period for late enrollees normally runs only from Jan. 1 to March 31.

If enacted, this legislation would reduce the penalty for an estimated 84,000 Medicare-eligible beneficiaries who delayed election of coverage. About 13,000 of these individuals reside overseas, where Medicare doesn't pay for services. Many others were counseled years ago by military health advisors not to enroll in Part B, since they lived near a military hospital and could get care without Part

 Still others have been obtaining care through the VA, which doesn't require Part B.
 But the advent of the TRICARE system has dried up much of the previous space-available care for older retirees, and Part B enrollment is now a mandatory requirement to use the TFL coverage

that will begin Oct. 1.

TMC and TROA strongly support HR 2073, and recommend contacting legislators to urge cosponsorship and enactment. You can do this via TROA's Web site at http://capwiz.com/troa/home/. Just enter your ZIP code, click "GO," and click on the "Please cosponsor HR 2073" link above the legislators' photos

Social Security Administration Launches "For Women" Website

The Social Security Administration (SSA) has unveiled a new website, Social Security Online "For Women." Officials say the site provides basic Social Security program information on retirement, survivors, disability and Supplemental Security Income benefits pertinent to women. The Social Security program freats all workers - men and women - exactly the same. But because of different life experi-ences, the real-world results are different. As a group, women live longer than men, earn less and rely on Social Security for most of their retirement income. They need to know what the program means to them in their particular circumstances. "For Women," at www.ssa.gov/women, provides links to basic information throughout SSA's official website that can be relevant to women at different stages in their life.

"For Women" also provides links to other federal agency websites containing information of interest to women, such as the Department of Labor's "Women's Bureau," the Department of Health and Human Service's "Women's Health" and the White House's "Federal Programs and Resources for

Women and Families.

In April, the SSA expanded its online Benefit Application to include the ability to apply for Social Security spouse's benefits. Since November 2000, interested persons could apply for Social Security retirement benefits online at www.ssa.gov, the SSA's official website. By completing one application, an individual can now apply for his or her retirement benefit, a spouse's benefit or, if eligible for both, their own retirement benefit and their benefit as the spouse of a retired worker.

While both men and women can apply for Social Security spouse's benefits online, the fact remains that more women than men qualify for a Social Security benefit as the spouse of a retired worker. Approximately 700,000 people apply for spouse's benefits annually, more than 90 percent of them women.

Cosponsorship Update for Key Bills

A number of senators and representatives have signed up so far to cosponsor selected TMC and TROA-supported bills. With Defense Authorization Bill action likely coming in July, your help is needed to urge your legislators to add their names to the cosponsorship lists for these bills.

You can use TROA's website to send them TROA-prepared letters or messages, tailored to their current cosponsorship status. Visit http://capwiz.com/troa/home/, then enter your ZIP code, click "GO" and click on the "Bills" link below the applicable legislator's photo. This will show you a display of the legislator's cosponsorship status on various TROA-supported bills. Click on the blue envelope to the

right of the applicable bill to see options to send an email message or print a "snail mail" letter.

We strongly encourage printing the letters, adding a hand-written "PS" to personalize your support and mailing a hard-copy letter. These have greater impact than email inputs, and we hope you'll agree that these issues are worth the price of the stamp. But all inputs, electronic and otherwise, are eded. If your legislator is already a cosponsor, the letter will be a "thank you" letter. Remember that legislators need positive feedback when they support our issues.

Court of Appeals Orders Health Care Issue Rehearing

The United States Court of Appeals for the Federal Circuit has vacated, or set aside, an earlier ruling that upheld USAF COL Bud Day's (Ret.) Class Act group lawsuit and ordered a rehearing by the full Court of Appeals.

The earlier decision by a three-judge panel of the same court found that military retirees who itered service before June 7, 1956, had indeed been promised free lifetime health care in return for a career of military service and were due compensation of up to \$10,000 each for the government's failure to live up to that promise.

The new ruling states: "The court has determined to rehear this case to resolve the question of

whether the promises of free lifetime medical care made to and accepted by [the Class Act group] should be afforded binding effect."

The ruling directs the parties to file new briefs, to "include, but not be limited to" an analysis of three main questions:

(1) Whether the promises of free lifetime health care are enforceable under the law;

(2) To what extent Congress has ratified or fulfilled such promises through the military health-care system; and

(3) What relevance Congress' recent enactment of TRICARE for Life has to this court case The litigants must file new briefs within 60 days. The timetable for the rehearing has yet to be deter-

TMC and TROA are disappointed that the earlier ruling was not upheld, but take encouragement that the case will be given a rehearing before the full Court of Appeals

FUNCTIONAL AWARD NOMINATIONS

See our website www.quad-a.org or contact the AAAA National Office at (203) 226-8184 for nomination forms for these awards. Membership in AAAA is not a requirement for consideration.

Suspense August 1
(Awards Period Encompassing
August 1 Through July 31):

Aircraft Survivability Equipment (ASE) Award Avionics Award

> Suspense October 15 (Awards Period Encompassing September 1 Through August 31):

Army Aviation Air/Sea Rescue Award
Army Aviation Fixed Wing Unit Award
Army Aviation Medicine Award
Army Aviation Trainer of the Year Award
Army Aviation Air Traffic Control Manager
of the Year Award
Army Aviation Air Traffic Controller
of the Year Award
Army Aviation Air Traffic Control Facility
of the Year Award
Army Aviation Air Traffic Control Company
of the Year Award
Army Aviation Air Traffic Control Maintenance

Technician of the Year Award

Suspense November 7 (Awards Period Encompassing November 1 Through October 31):

Army Aviation Logistics Support
Unit of the Year Award
Army Aviation Material Readiness Award for
Contributions by an Individual Member of Industry
Army Aviation Material Readiness Award
for Contributions by an Industry Team,
Group, or Special Unit
Army Aviation Material Readiness Award for
Contributions by a Small Business Organization
Army Aviation Material Readiness Award for

Army Aviation Association of America

Contributions by a Major Contractor

49 Richmondville Avenue Westport, CT 06880-2000 Phone: (203) 226-8184 Fax: (203) 222-9863 Email: aaaa@quad-a.org



High Desert Chapter

AAAA's High Desert Chapter at the National Training Center, Fort Irwin, Calif., awarded seven Orders of St. Michael during the annual Eagle Team Aviation Trainer's Coronado Island respite. LTC Vance Sales presented the OSMs to (left to right) MAJ Gass, MAJ Thompson, MAJ Ault, MAJ Niederhauser, MAJ Cutting, MAJ Klajnbart and MAJ Hawley. The Eagle Team trainers take an annual trip to the Coronado Island Naval Base lodge to take a break from the NTC sand and desert.

Magnolia Chapter

The officers of AAAA's newly activated Magnolia Chapter are (from left to right): CW4 Billy Williamson (vice president for Company G, 185th Avn., membership); LTC Bryan Hawkins (treasurer); MAJ Mindy Barbe (secretary); MAJ Dane Powell (vice president for 1st Bn., 185th Avn., membership); LTC James Young (chapter president); MAJ William Merrell (vice president for overall membership); CW5 Frank Patton (senior vice president): and CW3 Joel Jasper (vice president for scholarships/awards).



NEW MEMBERS

AIR ASSAULT CHAPTER FORT CAMPBELL, KY CW4 Edward E. Johnson

ARIZONA CHAPTER MESA, AZ Mr. James W. Maltbie SGT Greg M. Mellema

AVIATION CENTER CHAPTER FORT RUCKER, AL CDT Daphanie R. Davis 1LT J. Daniel Davis 2LT Bettye A. Dufour WO1 Robert A. Forney WO1 Jesse J. Green, Jr. WO1 Kevin L. Hays 2LT Jeremy D. Horstman WO1 Aaron B. Hubertz WO1 Juris Jauntirans WO1 Paul D. Jennings WO1 Thomas M. Kinley WO1 Keith A. Lacy WO1 Ben P. LaFerriere Mr. Phil Makowski WO1 Kelton T. Maynard 2LT Jason R. McEvers WO1 Ryan A. Nowaczck SFC John H. Page Jr. WO1 Glenn J. Richardson 2LT Teddy Roman 2LT Matthew P. Sanera WO1 Brandon F. Shelton CPT April D. Skon 1LT Christopher R. Spencer WO1 Adam C. Stein WO1 James A. Swallows WO1 Larry L. Thoms, Jr. WO1 Marcus A. Vanney WO1 Brian M. Weathers 2LT William L. Wiesman

BIG RED ONE CHAPTER ANSBACH, GERMANY CW3 Jerry L. Wolf II

BLACK KNIGHTS CHAPTER WEST POINT, NY CDT Jacob D. Huber

CENTRAL FLORIDA CHAPTER ORLANDO, FL CPT Louis M. Andris Jr. Ms. Joyce N. Heine

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CONNECTICUT CHAPTER STRATFORD, CT Mr. Andrzej Garbacz Mr. Roger Glaas Mr. Cheng C. Thor

CORPUS CHRISTI CHAPTER CORPUS CHRISTI, TX Mr. Daniel L. Howell

GREATER CHICAGO AREA CHAPTER CHICAGO, IL LTC Kevin C. Ryan

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Mr. Yong Guk Im Mr. Moon Sung Joo Mr. Dae Young Jung Mr. Gi Won Jung Mr Sang Ha Jung Mr. Son Tak Jung Mr. Sung Ja Jung Mr. Ji Yup Kang Mr. Sung Sup Kang Mr. Yang Suk Kang Mr. Bang Ho Kim

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Mr. Hyang Hai Lee Mr. Jang Won Lee Mr. Kang Lee Mr. Kyu Won Lee Mr. Oak Ja Lee Mr. Sae Chang Lee Mr. Soon Hee Lee Mr. Sueng Jun Lee Mr. Sun Gi Lee Mr. Sung Eun Lee Mr. Tae Hee Lee Mr. Yong Gil Lee Mr. Yong Hak Lee Mr. Yong Ja Lee Mr. Yong Kun Lee Mr. Yong Woo Lee Mr. Young Min Lee Mr. Yong Kyu Lim CW2 Glenn R. Meadows CW5 George Means MAJ Steve Milliron Mr. Mung Hak Moon Mr. Un Suk Moon

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SILVER EAGLES

The Silver Eagles program recognizes those who are marking their 30th and 40th years of membership in AAAA this year.

40 Year Members Adessa, Anthony J., COL, Ret. Allen, Teddy G., LTG, Ret. Andreson, Ronald K., Mr. Bezreh, Anthony A., COL, Ret. Bishop, Herman H., COL, Ret. Bonds, Thyra V., Mrs., Ret. Bowdoin, Arthur C., LTC, Ret. Bradner, William L., COL, Ret. Buchanan, Crawford, COL, Ret. Bunyard, Jerry Max, LTG, Ret. Burke, James L., COL, Ret. Burwell, James M., Mr., Ret. Carter, Norman D., LTC, Ret. Crawford, Clydie J., COL, Ret. Crofoot, George W., LTC, Ret. Davis, Barrie S., COL, Ret. Faidley, Paul S., Mr. Gardner, William H., COL, Ret. Goff, Richard D., LTC, Ret. Griffith, Warren E.II, LTC, Ret.

Gust, Daniel G., COL, Ret. Harmon, Charles P., COL, Ret. Hatton, Richard R., LTC, Ret. Hesse, Walter L., CSM, Ret. Johnston, Norbert B., COL, Ret. Karjala, Lawrence, COL, Ret. Kenyon, Richard D., MG, Ret. Kiger, John W., MAJ, Ret. Landry, Edward L., COL, Ret. Langlois, Arthur R., LTC, Ret. Lovely, Richard H., Mr., Ret. Maroney, George E., LTC, Ret. McCullough, James, CW4, Ret. Norton, John, LTG, Ret Pitts, Russell N., COL, Ret. Pulliam, Nathan M., COL, Ret. Rainey, John A, LTC, Ret. Ramey, Harold M., COL Rankin, Thomas C., LTC, Ret. Robinson, James E., COL, Ret. Roper, Harry, BG, Ret. Sandridge, James Jr, COL, Ret. Scott, Engle W., COL, Ret. Smith, Billy V., LTC, Ret.

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AAAA NEWS

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Help us find our Lost Members. We'll give you an additional month on your AAAA membership free for each member you help us locate. Simply write, call or E-mail us with the Lost Member's current address. AAAA, 49 Richmondville Avenue, Westport, CT 06880-2000. Tele: (203) 226-8184; FAX:(203) 222-9863; E-Mail: aaaa@quad-a.org.

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Snyder, Jeff, Mr. Stady, June, Ms. Steffen, John J., CW4, Ret. Stein, John H., CAPT Stone, Christopher, CPT Walker, Christopher, CW3 Walker, Clint B. Walker, L.D., MAJ Walton, Kenneth L., WO1 Waters, William G., LTC Welch, Jason R., 2LT Welch, Robert P., MAJ Welch, Ryan K., 1LT Wells, Tom, Mr. Wheeler, Susan R., CW5 Wheeler, Theresa M., SPC White, Andre R., SSG Whitver, Jeremy W., WO1 Wilkins, Anthony J., Mr. Willey, Monty E., MAJ Williams, Jared T., SPC Williams, William, WO1 Willingham, John M., CW4, Ret Wood, Brian B., SGT Wood, Felicia A., SPC Woodberry, John I., MAJ Wortman, Roger J., SPC Wright, Jason P., 1LT

*CFC*CFC*CFC*CFC*CFC*CFC*

The AAAA Scholarship Foundation, Inc. (AAAASFI) is now part of the Combined Federal Campaign (CFC), a workplace charitable fund drive conducted by the U.S. Government for all federal employees. It is the single largest workplace fund drive in the country, raising approximately \$195M in pledges annually.

In 2001, the AAAASFI received a total of 145 applications and awarded 107 grants and loans totalling \$244,000. These awards are made on the basis of academic merit <u>only</u> and the applications are scrubbed to remove all references to the names and ranks of their AAAA member relative.

Don't forget, all overhead costs are borne by the AAAA so that 100% of your contribution (net CFC charges) go directly to AAAA Scholarship Foundation, Inc. awards. Help us reward more of these outstanding students with larger awards.



Tax-deductible donations may also be made directly to the

AAAA Scholarship Foundation, Inc. 49 Richmondville Avenue, Westport, CT 06880-2000 E-Mail: aaaa@quad-a.org Telephone: (203) 226-8184 FAX: (203) 222-9863



Combined Federal Campaign

*CFC*CFC*CFC*CFC*CFC*CFC*CFC*

- ♣Aug. 3-4. ORARNG Aviation Social & Reunion, sponsored by the AAAA Oregon Trail Chapter. Golf Tournament on Friday, Aug. 3, main social/BBQ on Saturday, Aug. 4, noon at AASF-1, Salem, OR. Details (503) 945-3993 or visit website www.members.home.net/aaaaoregontrail.
- POct. 15. AAAA Scholarship Foundation Executive Committee Meeting, Marriott Wardman Park Hotel, Washington, D.C.
- Cot. 15-17. 2001 AUSA Annual Meeting, Marriott Wardman Park Hotel, Washington, D.C.
- May 11-15, 2002, AAAA Annual Convention, Nashville, TN.



Army Aviation Hall of Fame

The Army Aviation Hall of Fame sponsored by the Army Aviation Association of America, Inc., recognizes those individuals who have made an outstanding contribution to Army aviation. The actual Hall of Fame is located in the Army Aviation Museum, Fort Rucker, Ala., where the portraits of the inductees and the citations recording their achievements are retained for posterity. Each month Army Aviation Magazine will highlight a member of the Hall of Fame. The next triennial induction will occur in the spring of 2004.

Contact the AAAA National Office for details at (203) 226-8184

Mr. Joseph P. Cribbins Army Aviation Hall of Fame 1980 Induction

There is no individual who has had as much influence and long term impact on Army aviation logistics as Joseph P. Cribbins.

For more than two decades he served on the Army staff as the focal point on all matters pertaining to aviation logistics policy, plans and procedures with the other services, the Department of Defense, Congress and the civilian aviation industry. Cribbins was instrumental in establishing the Department of the Army's Aviation Logistics Office, and in the introduction of a staff that was oriented towards weapons systems — one having full review over all aspects of aviation logistics, including acquisition, research and development, production, distribution, maintenance and supply activities.

His depth of understanding and innovative approaches, as well as his application of intensive management procedures, improved overall logistical efficiency, increased aircraft operational readiness, decreased maintenance manhours and spare parts consumption, and provided aviation unit commanders with a great response and flexibility.

Under Cribbins, Army aviation logistics became a leader in innovative and unique logistics procedures and systems that are being more frequently emulated by the rest of the Army logistical community. His unexcelled dedication and many contributions to Army aviation have earned him the title of "Mr. Army Aviation Logistics."





Ground warfare scene created using the Ensemble" image general

The Big Guns Without the Big Price

Simulating ground warfare requires a delicate balance-high performance with low cost. To simulate battle scenes down on the ground, the visual system must depict scenery; textures; vehicles; and all types of weather, sensor, and special effects in sharp detail. In addition, ground warfare training involves many different vehicle types, all networked together, and all with the same content and fidelity. But that's only half the battle-while these visual system requirements are very demanding, the large number of simulators required for ground warfare training demands a low cost per unit.

Evans & Sutherland's Ensemble™ PC-based image generator offers the solution. Designed especially for ground warfare applications, Ensemble is a fully integrated, turnkey system with true determinism and all the functionality required for realistic training for under \$50K per channel. The only complete PC-based visual system with

features usually found only on high-end visual systems, Ensemble offers high polygon capacity for high 3D feature density, high pixel capacity and screen coverage optimization for high target resolution, robust texture anti-aliasing, physics-based atmospherics and sensor effects, and support for a variety of database formats.

With Ensemble, you get the world's best product for ground combat simulation backed by the experience of the big guns in simulation-Evans & Sutherland. We have led visual simulation technology for more than three decades, and we continue to deliver the future of simulation to our customers today.

For more information about proven solutions for ground warfare simulation, visit our website at www.es.com http://www.es.com, or call us at +1 801 588 1000.



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