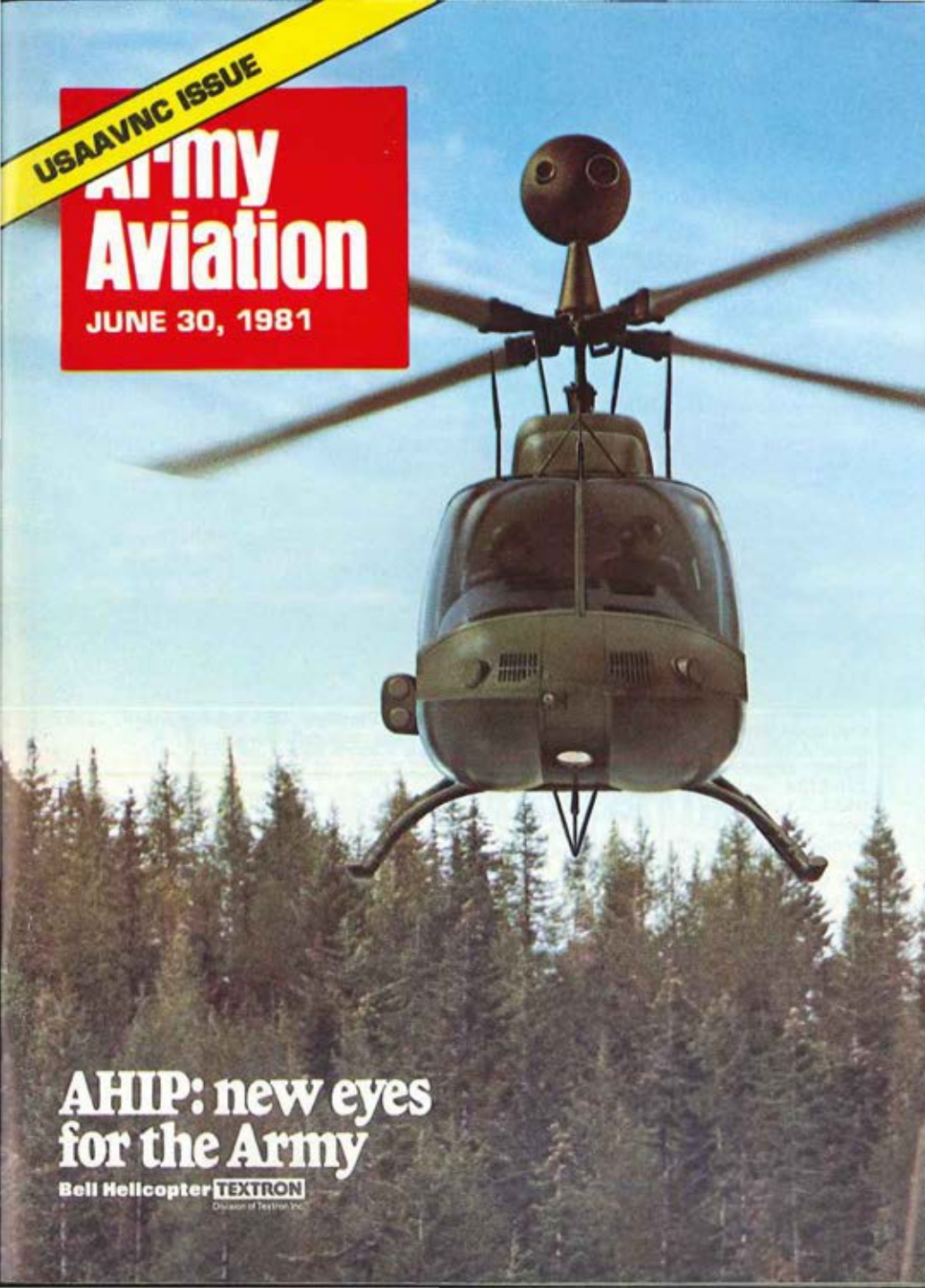
USAAVNC ISSUE

Army Aviation

JUNE 30, 1981



AHIP: new eyes for the Army

ARMY AVIATION

ARMY AVIATION
A professional journal endorsed by the Army Aviation Association of America (AAAA)

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VOLUME 30 — JUNE 30, 1981 — NUMBER 6

FEATURES

USAAVNC TODAY — A 72-PAGE REPORT

ADVERTISERS IN THIS ISSUE

This top-ranking military jetprop is volunteering for more special missions.

Beechcraft's rugged C-12 jetprop has earned its military stripes as a hardworking military transport. Its turboprop economy has been saving money for the Army, Air Force and Navy and Marines all over the world. In addition, the C-12 has gained an enviable reputation for reliability.

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New life for an

There are times when less can mean more as in the case of King Radio Corporation's U-21 avionic's update/retrofit program for the U.S. Army. While saving 268 pounds, the panel on the right clearly illustrates King's understanding of pilot workload and King's ability to plan, engineer, install and flight test complete avionics systems.

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John Marr installed in April as AAAA's 14th Nat'l President

INSTALLED at a National Board meeting held upon the conclusion of the 23rd AAAA National Convention in Washington, D.C., a new 48-member National Executive Board slate will guide the Association through the term ending at the 1981 National Convention.

Colonel John W. Marr, Ret., an Arlington, Va. consultant, long-time aviation veteran, and a member of the Army Aviation Hall of Fame, was elected as AAAA's 15th National President, succeeding Major General George S. Beatty, Jr., Ret., of Savannah, Ga. Arthur H. Kesten, an appointee with term ending in April 1982, will continue as the Association's Executive Vice President while Major General James C. Smith, Ret., of St. Petersburg, Fla., is the AAAA's new Senior Vice President.

The Board also reelected Paul L. Hendrickson of Ferguson, Mo., as its National Secretary-Treasurer. Incumbent Vice Presidents include:

Major Generals John L. Klingenhagen, Ret., of Alexandria, Va., and Carl H. McNair, Jr., of Ft. Rucker, Ala.; CW4 Michael J. Novosel of Ft. Rucker, Ala.; and Carl D. Perry of Culver City, Calif., and Eugene J. Tallia of Washington, D.C.

Newly-elected Vice Presidents with 1981-1982 terms of office are Major General Story C. Stevens of Granite City, Ill., and Brigadier General Charles E. Canedy, of Fort Sam Houston, Tex.

Completing the full Executive Board are Past Presidents Brig. Gen. Robert M. Leich, Evansville, Ind.; Bryce Wilson, Glenbrook, Nev.; James N. Davis, Springfield, Va.; Darwin P. Gerard, Alexandria, Va.; Brig. Gen. Glenn Goodhand, McLean, Va.; General Hamilton H. Howze, Ft. Worth, Tex.; Col. Richard L. Long, Hampton, Va.; Lt. Gen. Harry W.O. Kinnard, Arlington, Va.; Maj. Gen. Delk M. Oden, Alexandria, Va.; Col. Edward L. Nielsen, N. Palm Beach, Fla.; Lt. Gen. John M. Wright, Jr., Irving, Tex.; Lt. Gen. Robert R. Williams, Ft. Worth, Tex.; and Maj. Gen. George S. Beatty, Jr., Savannah, Ga.

A USAREUR Region President to be elected and six National Members-at-Large also serve on the Board. The latter include:

Maj. Gen. Edward M. Browne of Chesterfield, Mo.; Col. George A. Morgan of Springfield, Va.; Lt. Col. Bert L. Rice of Odenton, Md.; Mrs. Thyra V. Bonds of Webster Groves, Mo.; John J. Stanko, Jr., of Aberdeen Proving Grounds, Md.; and William P. Jones of Philadelphia, Pa.

The Presidents of thirteen Chapters with 150 or more members complete the full Executive Board.

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On the occasion of his PCS, Brigadier General Richard D. Kenyon discusses the past two years and the

Challenges Met and Unmet

YES, it has happened again. I have received orders to move on to a new assignment. It doesn't seem possible that almost two years have elapsed since I turned my thoughts to the initial article for this magazine in a new position as the Deputy Director of Requirements and Army Aviation Officer at HQ, DA.

The past two years have seen many activities, challenges and decisions for Army Aviation in both the personnel and hardware elements of the program. I have many times, and still do question whether, I, as an individual or we on the DA staff, have always made the right decisions.

In most cases that assessment cannot yet be made, but will be determined as we move further into the implementation process. I often ask myself how much progress has been made in these past two years.

On the plus side . . .

On the plus side, we are well along in the fielding of the **Black Hawk**; we continue to have fully modernized **Cobra's** coming off the production and modification lines; the AH-64 will soon initiate operational testing leading to a production decision this fall; the structure and rationale of the management program in CMF-67 for our enlisted personnel has had a comprehensive review with remedial actions ongoing; new warrant officer initiatives are in process; and our commissioned aviators are being assessed, trained, and managed differently in consonance with the new aviator career pattern.

Concern and discontent

Meanwhile, I have concern and discontent when I see discontinuities in programs whereby training devices significantly lag the fielding of the related major end item, like the AH-64 program; lack of resources to quickly and efficiently fully modernize the balance of our varied configuration **Cobra** fleet; highly competent CMF-67 non-commissioned officers and soldiers leaving the Army early because of perceived improper management and lack of job satisfaction; and, as a final example, but, by no means the end of my list, a deceleration in the definition of new concepts and doctrine related to aviation tasks and capabilities as a fully understood and utilized member of the combined arms team.

"I leave this assignment with the reinforced knowledge that . . . . the people associated with the . . . . aviation programs have the capability and dedication to keep Army Aviation "Above the Best."

CHALLENGES MET
(Continued from Page 9)

I would like to continue to try to expand my plus list and constrict or totally nullify my "discontent list". I, therefore, consider my departure from this assignment as somewhat of a "bad news" perspective because I have not been able to accomplish everything I would like to have accomplished.

However, the associated good news is the fact that as the Assistant Commandant at Fort Rucker, I will continue to be involved in all of the aviation programs and work with the highly dedicated enlisted, warrant officer and commissioned officer personnel so dedicated to the continued and expanded contributions of Army Aviation.

I convey my sincere thanks to all those who have helped me by applying their efforts and providing me the benefit of their experience and knowledge in both the military and in civilian industry. I look forward to seeing many old friends and acquaintances at Fort Rucker and to making new friends in this next assignment.

I leave this assignment with the reinforced knowledge and confidence that the myriad of people associated with the many facets of the aviation programs have the capability and dedication to keep Army Aviation "Above The Best".

BRIEFING—COL (Ret.) Ed Brown, above left, discusses the features of the building plan for the new Army Aviation Museum with members of AAAA's National Executive Board during their recent business meeting at Ft. Rucker, AL. Viewing the display of the Museum's Director of Development are, l-r, COL (Ret.) John W. Marr, AAAA Nat'l President, and MG (Ret.) James C. Smith, AAAA Senior VP. LEFT PHOTO: An initial production CH-53E SUPER STALLION heavy-lift helicopter built by Sikorsky Aircraft was accepted by the USMC at June 16 at Sikorsky's Stratford plant. Construction of 35 of the triple-turbine CH-53E's has been authorized.

Let's bring back the wing and prop lapel insignia for our branchless officers!

The case for Aviation—Peculiar Identification for Selected Commissioned Officers

A Viewpoint Expressed by MAJ Michael V. Stratton, USA Aviation Engineering Flight Activity, Edwards AFB, California

THE thrust of this article is the desire to see certain — not all — commissioned aviators identified as aviation specialists by allowing them to wear the "aviation branch" insignia worn by the Army Air Corps in World War II.

I know that by saying the word, "branch," in the same sentence with "aviation" I'll probably turn off many people who will promptly throw this article into the trash, but bear with me.

The Army's OPMS recognizes certain specialties and assigns at least two specialties to an officer at a certain point in his or her career.

Most officers enter the Army in one of the combat or combat support branches, e.g., Infantry, Artillery (FA or ADA), Engineer, Armor, Transportation, Signal, etc. These officers are in well-recognized branch fields and their specialties are reflected on their lapels by means of their branch insignia.

The majority of officers can be placed in a well-defined field that has been traditionally identified with one or more of the "established branches." Even if their once-called "primary" specialty is uncertain as to branch responsibility, their "alternate" specialty probably will fall into a particular branch's field of interest.

The uncertain, nebulous areas

Speaking only of aviators now, we see that an officer who is assigned the Aviation specialty (SC 15) is in one of these uncertain, nebulous areas. However, in most cases, the secondary specialty assigned takes care of clearing away this gray area.

As an example, let's takean officer who is commissioned an Infantry (SC 11) 2LT and who applies for flight school. In the past, this officer would have been required to perform Infantry troop duty to fully qualify him in SC 11. After performing this troop duty, he's assigned to flight school and, upon graduation, picks up Aviation as another specialty.

Later in his career he is formally advised of his two specialties and, generally, this officer can expect to have the dual specialties of 11 and 15. This officer will now be required to serve in both of these specialties for the rest of his career and to insure he's fully qualified in both. Cases such as this are cut and dry; no problem, he's infantry.

INSIGNIA
(Continued from Page 11)

We now come to the case of an officer who finds that, due to specialized schooling or whatever, his original non-aviation branch ends up in the **Previously Designated Specialty** block of his **Officer Record Brief (ORB)**, and his two specialties are now **Aviation** and some unidentifiable (as far as branch is concerned) specialty.

Example: The SC 11/15 officer is selected for advanced civil schooling or manages to pick up an advanced degree on his own. This advanced degree now makes him eligible for a specialty change and DA decides it can best utilize this officer in **Aviation** and in this new specialty.

An advanced degree in aeronautical or aerospace engineering by an Army Aviator may prompt DA to reclassify the 11/15 as a SC 15/51 (Research & Development).

What happens now? What traditional branch does this new 15/51 fall into? For the rest of his career he's supposed to bounce from Specialty 15 to Specialty 51 and back again, and can never expect to get another Infantry assignment. No more Infantry for this guy, he's an aviator and a highly qualified specialist and will stay that way.

Can we identify this group of Aviation specialists who are now **"officers without a branch?"** I know we can.

Let's bring it back!

The Army Air Corps in WWII wore the prop and wing insignia on their lapels; let's bring back that insignia for these **"branchless"** officers.

There are considerations as to who will be qualified or permitted to wear this insignia. The first criterion is that one of his specialty codes must be SC 15 (Aviation). This immediately eliminates all those aviators who are Transportation Corps (SC 71) or Medical Service Corps (SC 67), and otherswith an aviation specialty other than SC 15. Warrant Officers are also ineligible.

The second criterion is that the second specialty must not be branch related. This immediately removes all those aviators who are classified as 15/11, 15/12, 15/13, 15/14, 15/21, etc., since these officers are expected to maintain qualification in Infantry, Armor, Artillery, Air Defense, Engineer, etc., respectively and, hence, have a branch.

The officers who are left (15/51, for example) are candidates for the new insignia. The ORB has blocks for **Primary Specialty, Alternate Specialty,** and **Control Specialty.** If a clearly identified branch specialty is not in any of these blocks, then the officer should be considered as **"branchless."**

A separate section

MILPERCEN is currently organized into three divisions:

. . . Combat Arms,
. . . Combat Service Support, and
. . . Combat Support Arms.

Aviation is a separate section within the Combat Arms Division. This shows the coequal status of the Aviation community with Infantry, Armor, Artillery, and other Combat Arms Division sections, at least as far as MILPERCEN goes.

MILPERCEN is currently studying a program called **Special Skills Assignment and Utilization (SSAULS).** Two of the special skills identified are in **"branchless"** fields: Research & Development and Foreign Area Officer. Under SSAULS an officer would take a single track course and not be required to bounce from one specialty to another. Those officers identified as 15/51, if selected for SSAULS, would be even more in the branchless depths of the Army.

Aviators are not asking for berets, ascots, fourrageres, ascots, cowboy or tanker boots, spurs, cav hats, colored unit patches to put behind their wings, garrison cap flashes, or any of the other trumpery found on the Army uniform today. For that matter, most aviators are not asking for a separate branch anymore; and this request for recognition of branchless aviators is one that covers a small but select number of officers.

I'd like to see all officers identified as to their proper specialties and qualifications. Those officers who have no branch now, but who are wearing the brass of their Previously Designated Specialty deserve relief — They have pride in the job they're doing and in their specialty, too.

THE AAAA PRESENTS ITS 1981 NATIONAL AWARDS

A PHOTOSTORY COVERING THE SIX AWARDS MADE AT THE 23RD AAAA NAT'L CONVENTION HELD IN WASHINGTON, D.C.,AT THE SHOREHAM HOTEL DURING APR. 23-26

ABOVE: GEN Edward C. Meyer (right), the Army's Chief of Staff, presents the "Outstanding Reserve Component Aviation Unit Award" to MAJ Thomas A. Staadt (2d from right) and 1SG Paul M. Green, the Commander and Senior NCO of the 190th Aviation Company (Med Hel), Kansas-USAR, as MG William R. Berkman, Chief of the Army Reserve, looks on. The 190th was the first USAR aviation unit to win the AAAA Award since its inception in 1969.

ABOVE LEFT: MAJ Staadt accepts the AAAA Award for his officers and men. ABOVE: MG Berkman, Chief of the Army Reserve, cites the many CY 1980 accomplishments of the 190th Aviation Company. LEFT: In a head table assembly photo are, l-r, LTG James M. Lee, Director of the Army Staff; MG William R. Berkman; 1SG Paul M. Green; MAJ Thomas A. Staadt; GEN Edward C. Meyer; and MG George S. Beatty, Jr., Ret., the AAAA National President and the Banquet Master of Ceremonies.

ABOVE: The Chief of the Aviation Division of the Nat'l Guard Bureau accepts the "DAC of the Year Award."

ABOVE: LTG John F. Forrest, left, Commander, First US Army; John J. Stanko, Jr., "The Dept. of the Army Civilian of the Year"; Joseph P. Cribbins, Special Asst to the Deputy Chief of Staff for Logistics (Presenter); and MG Story C. Stevens, Commander, USA AVRADCOM, are shown at the head table assembly. RIGHT: John Stanko and Joe Cribbins hold the '81 Trophy. BELOW: Mr. Cribbins and the "DAC Award" winner are flanked by the latter's two granddaughters, Johnna Mader (left) and Lynn Mader (right), a member of the 28th Aviation Company, PA-ARNG; and Mrs. Stanko.

ABOVE: The 7th Cav, 2nd Infantry Division aviator accepts the "McClellan Award" at the 1981 Awards Banquet.

ABOVE: GEN Edward C. Meyer (right) joins the Honorable Howard E. Haugerud, (l.) McClellan Foundation President, in presenting the "James H. McClellan Aviation Safety Award" to Chief Warrant Officer (W3) Peter D. Maskunas.

★★★

RIGHT: Chief Warrant Officer and Mrs. Peter D. Maskunas pose with the award trophy after the 1881 AAAA Banquet.

LEFT: MG Carl H. McNair (left), USAAVNC Commander, and GEN William Knowlton, Ret. (right), join the Hononable Howard E. Haugerud, McClellan Foundation President, and award recipient CW3 Maskunas during the head table assembly prior to the AAAA Awards Banquet.

The "Aviation Soldier of the Year Award" trophy, shown in the photograph at the right, is a new AAAA award trophy that has been sponsored by Bell Helicopter Textron. The award recipient receives a replica with the perpetual trophy being retained on display at the Army Aviation Museum.

ABOVE: The "Aviation Soldier of the Year," SFC James D. Glendinning, Air Troop, 11th ACR, and Mrs. Glendinning, are shown with LTG Marion C. Ross, Deputy Commanding General, U.S. Army Forces Command, who presented the 1981 Award.

ABOVE: BG Richard D. Kenyon, left, Army Aviation Officer—DA, and Art Kesten, right, AAAA ExVP, join SFC Glendinning and LTG Ross at the head table assembly. RIGHT: LTG Ross calls for the "soldier's soldier" to come forward and, far right photo, SFC Glendinning responds.

ABOVE: GEN John R. Guthrie, right, USA DARCOM Commander, is shown presenting the "Aviator of the Year Award" to CW4 Richard S. Seefeldt, Office of the Project Manager (Black Hawk). Sponsored by Sikorsky Aircraft, the perpetual trophy is now on display at the Army Aviation Museum.

★★★

RIGHT: GEN Guthrie introduces the AAAA's "Aviator of the Year."

LEFT: AAAA President-Elect COL John W. Marr; GEN Guthrie; CW4 Seefeldt; and MG Emil L. Konopnicki, USA TSARCOM Commander, are shown at the head table assembly prior to the Banquet.

ABOVE: LTC Albert E. Hervey, Jr., 59th Air Traffic Control Battalion Commander; AAAA National President George S. Beatty, Jr.; GEN Edward C. Meyer, Chief of Staff, U.S. Army; and the 59th's Senior NCO CSM Johnnie M. Byram hold the "Outstanding Aviation Unit Award".

ABOVE LEFT: President Beatty, GEN Meyer, and LTC Hervey. LEFT: LTG Arthur J. Gregg, DCSLOG (far left), is shown at the head table assembly with CSM Byram, LTC Hervey, GEN Meyer, and MG Beatty. ABOVE: LTC Hervey lauds the effort of his unit personnel.

COL John W. Marr, Ret., left, AAAA's new Nat'l President, in his installation garb. The "moment of truth" (top right photo): receiving the gavel from outgoing President Beatty at the AAAA Awards Banquet. In his acceptance remarks on that occasion (photo below), he gestures in Presidential fashion, and six weeks later (bottom right) he addresses the Aviation Center Chapter at its June 5 Birthday Ball.

ARMY AVIATION ASSOCIATION

Wearing his official US Helicopter Team baseball cap, President Marr, right, presents the AAAA's "Special Unit Award" to COL William E. Crouch, Jr., Commander of the USA Aviation Development Test Activity at June 5 ceremonies at Ft. Rucker (Full AVNDTA Award details in the July 1981 issue.)

A New AAAA President Takes Office!

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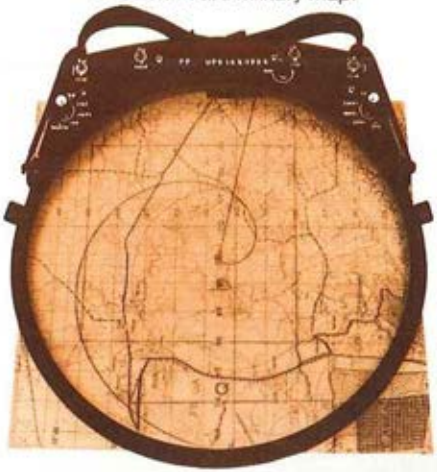

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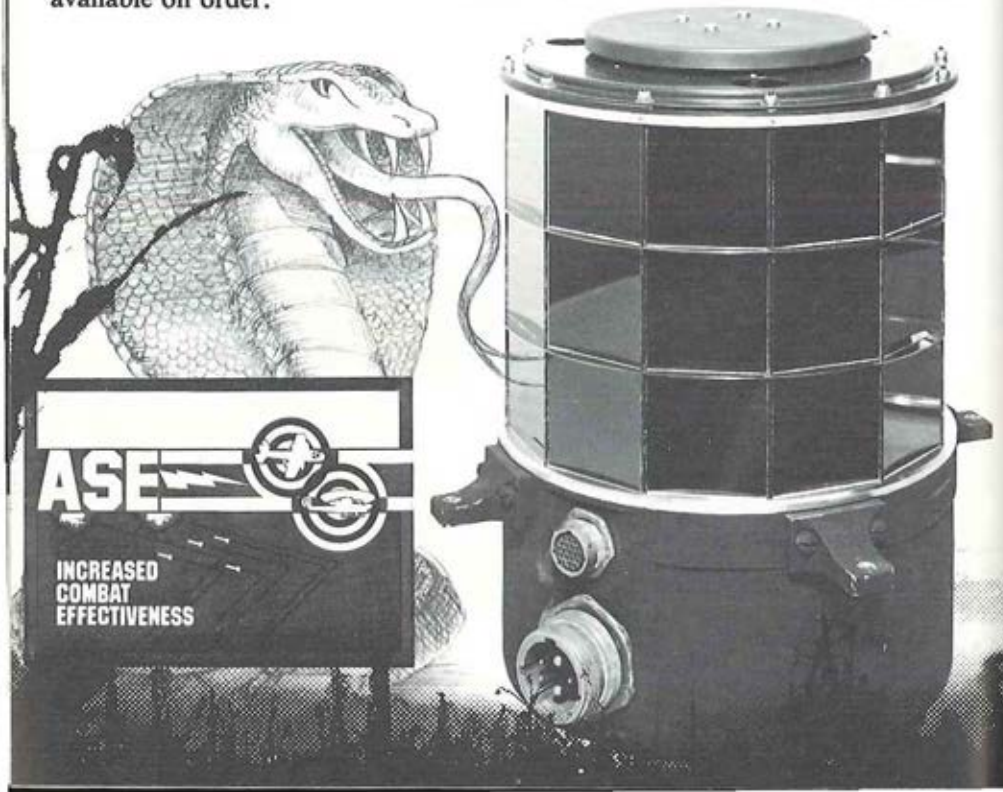


Proposal: No tail rotor!

According to Hughes Helicopters, various tests conducted since 1975 indicate that the NOTAR concept should prove successful

THE possibility of eliminating tail rotors from future helicopter designs will be determined in the near future with the construction of a prototype helicopter that will fly without a tail rotor.

According to Hughes Helicopters, who will develop the revolutionary **No-Tail-Rotor (NOTAR)** design, tests conducted since 1975 that led to the design indicate the concept should prove successful.

Hughes officials, who made the announcement at the 36th Annual Forum and Technology Display of the American Helicopter Society in New Orleans in late May, said that the preliminary design, aerodynamic simulation, and all testing to support the design development of NOTAR had been completed and final detailed drawings were being completed.

The Army's Applied Technology Laboratory at Ft. Eustis, Va., and the Defense Advanced Research Projects Agency (DARPA) had previously awarded a $1.4 million, 24-month contract in September 1980 to design and build a prototype NOTAR helicopter to demonstrate the no-tail-rotor concept in flight.

If the NOTAR concept proves to be an alternative to the tail rotor, it will offer the same maneuver capabilities and power requirements but will eliminate the known disadvantages of the tail rotor, namely safety problems, aerodynamic inefficiencies, maintenance costs, and noise.

First flight in December

The first flight of the NOTAR prototype is to be conducted at the the Hughes' Carlsbad, Calif., Flight Test Facility this December. The prototype is to be a modified Army OH-6 with everything but the tail boom of the OH-6 remaining intact, including the pilot's controls.

Fabrication of the special boom is underway with the boom being made of bonded aluminum honeycomb.

Commenting on NOTAR, Andy Logan, the Hughes Program Manager for the NOTAR, said, "The concept is based on low pressure air circulation control that, in effect, turns the tail boom into the equivalent of a wing by producing anti-torque forces. Additional maneuver forces will be generated by a variable direct air flow jet at the end of the tail boom."

He indicated that "a variable pitch fan mounted at the forward end of the tail boom will produce the air that will pressurize the hollow tail boom at a measurement of less than one half PSI. The fan will not require any additional power from the engine and will be driven off a shortened tail rotor drive shaft."

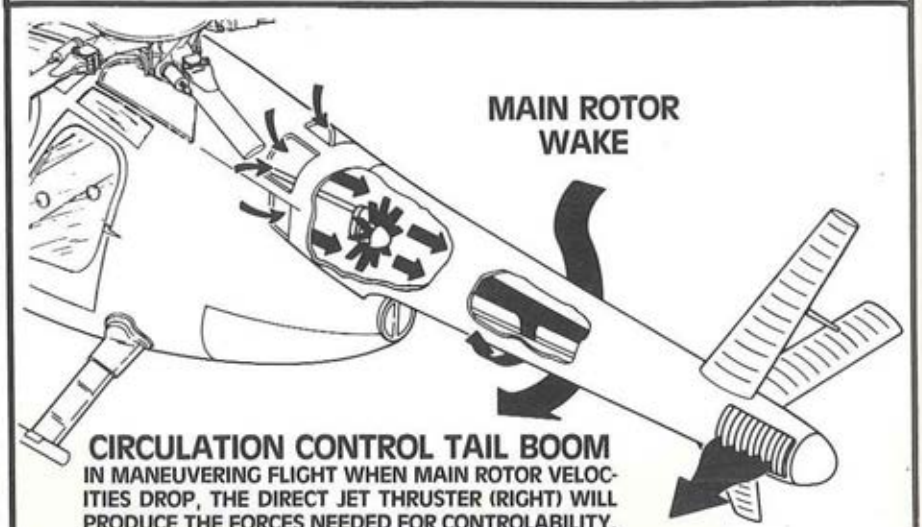
"The hollow tail boom acts as a plenum for a slot, approximately ⅓ of an inch wide, that runs along the lower right hand side of the tail boom. The air coming out of the slot joins the air from the main rotor wake and moves in a downward direction following the contour of the tail boom the same way air would travel over a conventional fixed wing. This movement of air produces the forces that counteract the torque produced by the rotating main rotor.

"Air that is not bled out of the tail boom will go back to the jet thruster, which is a fixed cone within a rotating cone. The fixed, or inner cone, has exit areas for air on both the right and left sides.

"There are vanes in both exit areas that direct the flow of air as the rotating, or outer, cone rotates. There is a window cut in the outer cone which controls the amount of air that is released out of the right or left exit areas of the inner cone. The direction of air being forced out of the tail jet is controlled by the pilot's movement of his 'rudder' pedals.

"Hence, the pilot of a NOTAR helicopter will control the ship in the same manner as a

THE HUGHES' NOTAR CONCEPT



NOTAR

(Continued from Page 23)

tail rotor-equipped aircraft since all movements of the pedals will result in the same maneuvers."

Logan continued by commenting that the circulation control boom will produce most of the yaw control (anti-torque) forces when the NOTAR helicopter is hovering. He indicated that "in maneuvering flight, such as rearward or sideward flight when the main rotor wake velocities have dropped down in intensity — and have actually moved off the tail boom resulting in a loss of force — the direct jet thruster will produce the forces for controlability."

According to Hughes engineers, a production version of NOTAR could incorporate a trimable tab on the vertical stabilizer because there would not be any tail rotor flapping interference. Such a trim tab would lessen pilot workload - especially in crosswind conditions - and could consist of a simple, blipper type button on the cyclic that would activate the trim tab adjusters.

Company-funded R&D

The company has worked on NOTAR since 1975, using its own R&D funds for studies conducted during 1975-76 on an anti-torque tail where the low pressure, bleed air, circulation control concept was developed. In 1977-78, an anti-torque tailbook was successfully flight tested leading to the design of the fully-integrated NOTAR system.

A variable pitch fan and direct jet thruster were bench tested in 1979, proving that segment of the system and leading to the government NOTAR contract in 1980. □

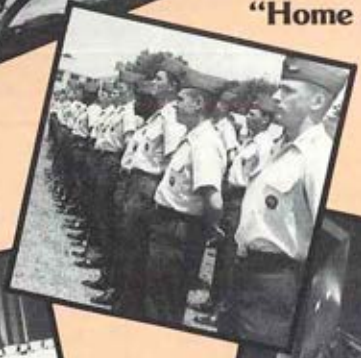
ANOTHER APPROACH

The Aerospatiale Corp. pursues another approach, the use of a fenestron, on its current **Dauphin** model (right). The fenestron reduces the danger to crewmen and is also said to prolong transmission life.

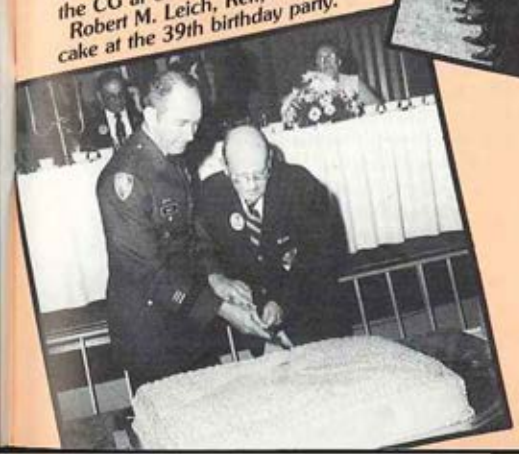
Fort Rucker — The U.S. Army Aviation Center

39 Years Young!

A 72-page Presentation on Today's Activities at the "Home of Army Aviation"



MG Carl H. McNair, Jr., left, the CG at USAAVNC, and BG Robert M. Leich, Ret., cut the cake at the 39th birthday party.



39 Years Young . . . Fort Rucker Revisited

Some observations of Major General Carl H. McNair, Jr., Commanding General, USAAVNC and Fort Rucker, AL

THIS month marks the 39th birthday of Army Aviation and, by coincidence, it also marks the 39th year for Fort Rucker as a military installation.

Although the two did not originate together, their history and chronology have now become inseparably intertwined. Thus, it is only fitting that this June "**Army Aviation Birthday**" issue look at Fort Rucker, the **Home of Army Aviation and the Heart of Airmobility**, as it is organized and functioning today.

We who serve here are pleased to have an opportunity in this month's magazine to bring you up-to-date on our broad but centrally oriented mission of aviation excellence. While most AAAA members are familiar with at least parts of our mission, this special issue provides the authors and the readers an unusual chance to cover the entire spectrum at one time.

Great strides

At the heart of our mission, Fort Rucker has been the home of Army Aviation training since the instructional base was moved here in 1954 from Fort Sill, OK. Great strides have been made over the ensuing years in training techniques, methodology and equipment.

However, the ultimate objective of training Army Aviation personnel in the optimum manner has remained constant. The actual magnitude and breadth of that training were evidenced in March by the graduation of the 50,000th aviator from the intial entry aviators' course at Fort Rucker.

During the peak period of the Vietnam conflict, the Aviation Center was operating at maximum capacity along with its satellite training facilities, Hunter AAF and Fort Wolters, TX, in order to generate a collective production of about 700 aviators each month.

By 1975, requirements had been reduced significantly, and the training done at Wolters and Hunter was consolidated at Fort Rucker. Output was then down to less than 700 aviators per year.

The pendulum has now completed its swing and initial entry aviator production is stabilized at approximately 2,000 initial entry students per year — including USAF and allied students. This is a near-capacity output when the 3,000 graduate flight students and about 5,000 maintenance and air traffic control personnel are added to the installation training tally.

The most visible product

Individual training is by far the Aviation Center's best known and most visible product around the world; however, there are many other less visible but equally vital areas in which the Center is deeply and daily involved. This issue of **Army Aviation** is then dedicated toward better informing and updating our AAAA membership as to "who, how and what" is underway at Fort Rucker.

Training Developments, Combat Developments, Standardization, Aeromedical Research, Safety, Aeromedical Evaluation — all of these back-up, support and, in some cases, lead the aviation force. What we are doing at the Aviation Center today stems from the legacy of Army Aviation's pioneers and is the springboard for tommorrow's achievements.

We recognize this, as well as the fact that the effect of our work reaches to the very perimeters of the United States' worldwide

military influence, both in the NATO environment as well as the RDF contingency areas around the globe.

Our present mission is, therefore, guided by the premise that we are fully accredited partners in preparing for the air land battles of the future wherever they may occur. Articles in this issue depict how this is being done.

As you read on, you will learn that a myriad of tasks are involved in fulfilling our mission and that there is a clear interface among them all. For instance, the Instructional System Development process which originates in the Directorate of Training Developments also requires implementation by the Directorate of Training and Doctrine and evaluation feedback by the Directorate of Evaluation/Standardization.

The end result of this process impacts on the substance and quality of the instruction given to the men and women who are domiciled in the 1st Aviation Brigade. Further, the safety of these people is the concern of the Army Safety Center; and the research initiated by agencies such as the Army Aeromedical Research Laboratory and the Army Aviation Development Test Activity also supports the Aviation Center's function.

On the ground floor

On the equipment side of the house, Fort Rucker is in on the ground floor for all new aviation materiel developments. The Aviation Center integrates all aviation materiel requirements and organizations for the Training and Doctrine Command.

While the proponent for a given system or organization may be at Fort Knox, Fort Benning, Fort Huachuca or Fort Eustis, its integration and coordination into the aviation force rests with the Aviation Center. Proofs of materiel needs come from the Directorate of Combat Developments, and central user monitoring of the actual hardware throughout its life cycle is accomplished by the four TRADOC system managers located here.

Each of this issue's articles covers the respective directorate or activity — how it fits into the Center team and, more importantly, the role it plays in keeping Army Aviation the dynamic and growing force necessary to meet our commitments in the future air land battles.

Without Army Aviation and the synergism, mobility and flexibility which it provides the ground commander, our Army would be missing a catalytic element and a formidable fighting force.

Earlier this month, the Aviation Center Chapter of the AAAA hosted the National Executive Board for its quarterly meeting and proudly shared with the board some of the newest facilities at the installation to include our ultramodern flight training simulators, unsurpassed quality of life areas and even a modern dining facility or two.

Continued progress is being made daily: this year will see Lyster Army Hospital modernized and expanded (to include the reopening of some clinics long closed because of doctor shortages), all stagefields upgraded and improved, and the opening of an all new, multimillion dollar Aeromedical Research Laboratory.

Next year will bring another modern barracks complex under construction and a new Post Exchange, followed in 1983 by a chapel and community center — all pointing toward another decade of growth and progress for Army Aviation and Fort Rucker as we move toward the half-century mark of service.

Thus, from a rather austere beginning, Camp Rucker — a World War II Triangular Division Infantry Training Camp, originally built in 106 days at a total cost of less than $25 million — has now become one of our Army's top priority training installations with annual expenditures more than ten times the original cost. Fort Rucker and Army Aviation have come of age together.

But, as noted earlier, our primary goal continues to be the best training humanly possible. The proof is in the aviation product.

Future conflicts will demand that our people — the products of this institution — fly in the most demanding of combat conditions, maintain helicopters under the most adverse environmental conditions, and control and direct aircraft in spite of the enemy's disruption of communications.

Our ultimate survival and victory will be largely dependent upon our preparation, organization and training. Our responsibility at the Army Aviation Center requires no further elucidation: "We strive for excellence!" □

"Show and teach" is now "learn and do" at DTD

COL Frank Estes indicates there are many new techniques being pursued at the Directorate of Training Development

THE Directorate of Training Developments (DTD) was established in 1976 as a result of the recognized need to standardize training development throughout the Army. With this innovation, we also saw a change in the Army's training philosophy. The "show and teach" practices of earlier years were changed to "learn and do."

Instead of trying to remember what he had been told, the student now learns by practicing the skills and tasks required in his job. Identifying these skills and tasks, and developing courses that enable the student to learn to perform most effectively is the primary goal of DTD.

Although the exact organizational structure of DTD may vary from one TRADOC installation to the next, each is similar to the Aviation Center's DTD, which is described in more detail below. The last three divisions described — Educational Television, the Training and Audiovisual Support Center, and Staff and Faculty Development — could logically be located in other directorates; however, at the Aviation Center, their location within DTD has proven very effective.

Organization

The capabilities provided by these organizations enable DTD to develop training material from inception to delivery of the final product. The accompanying chart provides an overview not only of the instructional development process within DTD but also DTD's interface with the **Directorate of Training and Doctrine (DOTD)** and the **Directorate of Evaluation and Standardization (DES)** and their responsibilities as well.

TADD

The **Training Analysis and Design Division (TADD)** of DTD performs the first two phases of the **Instructional System Development (ISD)** process and is responsible for the analysis, design, and, in some cases, development of training literature and material for a wide scope of Army Aviation specialties. TADD branches and some current major projects are as follows:

Analysis

The Analysis Branch performs job and task analysis for the proponent enlisted, commissioned officer, and warrant officer specialties and conducts training effectiveness analysis on aviation systems, subsystems, and training devices for both existing systems and those under development. Major projects include the Synthetic Flight Training System Requirements Study, which will recommend how to use all Army flight simulators to the fullest extent.

Another project will provide the preliminary job and task analysis for aviators who fly the Army's new cargo helicopter, the CH-47D. Other projects include the cost and training effectiveness analyses for the Army's AH-64 attack helicopter; the near-term scout helicopter; the **air-to-ground engagement system (AGES)**; and the utility helicopter visual flight simulators (UH-1 and UH-60).

Design

The Design Branch's diversified training products affect Army Aviation across the board. The branch produces the following:

This Mastiff — Tadiran's operationally tested mini-RPV system — knows more than a trick or two. Air reconnaissance with a zoom video and/or still camera (or special EW/ECM) payload, telemetry data transmission, autotracking, autopilot flight control, real-time processing and display of data and pictures — these are only a few. The Mastiff system comprises the payload-carrying mini-aircraft and the shelter-mounted ground control station. Once off its pneumatic launcher*, the RVP is extremely hard to detect, due to its low radar profile and weak IR signature. This has been our experience in test as well as in the field. Make it yours too.

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DTD

(Continued from Page 29)

- Soldier's Manuals for Army Aviation's air traffic control tower operators, ground control radar approach operators, and flight operations coordinators. These manuals spell out what is expected of each person in job performance.
- **Skill Qualification Tests (SQTs)** which are the quality control for the proficiency of enlisted soldiers.
- The Aviation Annual Written Examination (the aviators' version of the SQT). SQTs and the Annual Writ evaluation results provide commanders at all levels with a valid indication of the training proficiency of their soldiers.

For the unit side of the house, the branch produces **Army training and evaluation programs (ARTEP)**, a valuable diagnostic tool by which units can train combat critical tasks and realistically measure their progress against specified standards. The recently developed Combat Support Aviation Battalion ARTEP for the planned **Air Cavalry Attack Brigade (ACAB)** test at Fort Lewis, WA, is an excellent example of this training document.

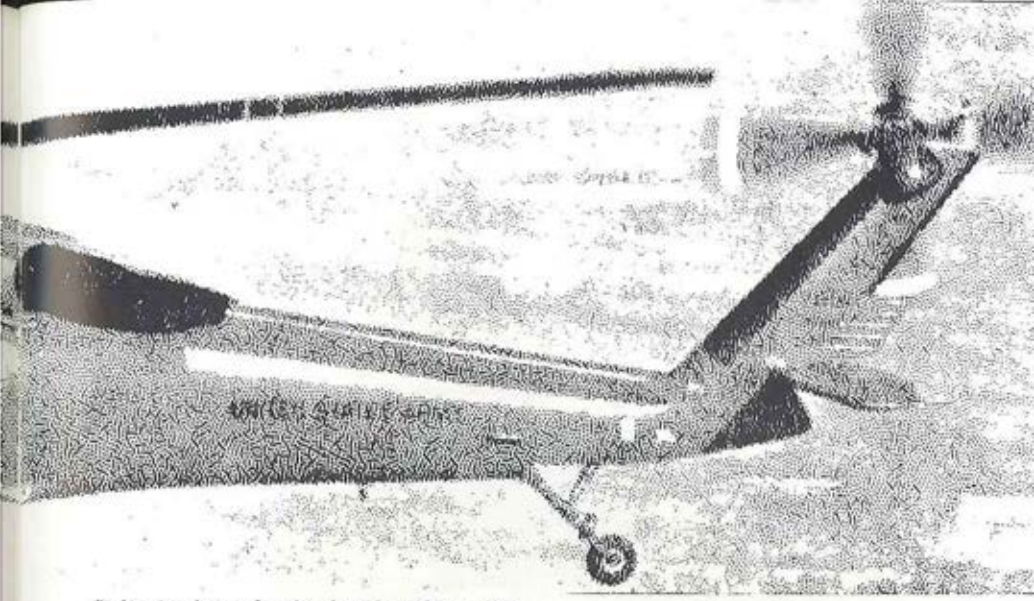
Training Devices

The Training Devices Branch develops requirement documents for procurement of training devices and simulators to support both institutional and field aviation training. As the user representative for all aviation training devices and simulators, the branch insures that devices meet the needs of the ultimate user.

One of the most recent studies, **"Army of the Eighties,"** directed that increased emphasis be placed on responding to contingencies worldwide. Training actions will include the increased use of simulation, devices, and facilities to enhance readiness and reduce operating and support costs. With these goals in mind, the Army must continue to acquire, and make optimum use of, modern synthetic flight trainers to improve training effectiveness, decrease the use of aircraft to conduct the training mission, and, most importantly, reduce the skyrocketing costs of fuel and ammunition.

Army experience with flight simulators proves that we can train in a safer environment; reduce the loss of resources resulting from aircraft accidents and incidents; provide both quality and economy of training; conduct realistic, effective, and meaningful training; extract the greatest crew learning efficiency; and significantly reduce the cost in fuel and ammunition required to keep the aviator force trained to combat levels.

Ongoing projects in the field of simulation include development and fielding of a family of



flight simulators for the Army's utility, cargo, and attack aircraft. Various other devices are also being developed to support training involving aircraft subsystems and aviation support activities.

NET Development

The New Equipment Training Development Branch develops training material in support of the testing and fielding of new and improved non-major aviation systems. In addition, it acts as the Aviation Center coordinator for key training input for emerging major aviation related hardware. Currently, training support packages are being prepared for the AN/ASN-43B, Heading Reference Unit, to enhance navigational accuracy; the **Aviator's Night Vision Imaging System (ANVIS)**, that enables night and low-visibility engagement; and the AN/ALQ-144 Countermeasures Set, which defeats enemy missiles.

Training packages have recently been completed for the **Ground Radar Emitter for Training Aviators (GRETA)**, which as a training device provides the pilot with the knowledge of radar-directed threats; and the AN/ALQ-147A Countermeasures Set that assists the pilot to defeat infrared guided missiles. The branch is now tracking 66 developing projects, including the Army's new attack helicopter (AH-64).

Officer Training

The RETO (Specialty Code 15) Branch was created as a result of the Army Chief of Staff's directive for a **Review of Education and Training for Officers (RETO)**. It has a variety of missions, including the conduct of officer job/task analysis effort for **Specialty Code 15 (SC15)** and for the aviation warrant officer; the integration for aviation subject matter into the officer basic and advanced courses of the combat arms schools; and the ultimate design and development of training for the SC15 and aviation warrant officer. Ongoing projects include the recent development, distribution, and continued update of 19 common aviation subject areas for integration into various officer basic and advanced courses of instruction.

The branch recently completed an SC15 officer basic course orientation program which will be presented to all SC15 officers early in their basic courses. This program provides information on the SC15 career progression and the training structure and rationale. In coordination with all aviation proponent schools and MILPERCEN, the branch has developed an SC15 company grade survey to determine exactly what is done by SC15 officers in various duty positions. To be distributed in the May-June 1981 time frame, it provides the training developers information on which to base fu-

DTD
(Continued from Page 31)

ture training programs.

Course Development

The **Course Development Division (CDD)** develops and revises **programs of instruction (POIs)** for all training conducted by the Aviation Center in close cooperation with the training department. This cooperative effort is essential to insure that training programs and materials are current and to produce effective training with a minimal expenditure of resourses.

Flight Systems

The Flight Systems Branch of CDD develops and maintains POIs and related materials for all flight training. This includes one undergraduate program and over 30 graduate programs. The **Initial Entry Rotary Wing (IERW)** undergraduate course is the cornerstone of the Army's aviation training and also provides training for Air Force and Allied students. This 34-week course includes 22 weeks of common training for all students. After that, selected students are "tracked" into the OH-58 observation aircraft for their night and combat skills phases of their training while the remainder of the class uses the UH-1 aircraft for those phases, resulting in the course being referred to as **IERW (dual-track)**.

A major revision is underway to incorporate the Aviation Center's AH-1 training into IERW. In addition to the third track, future aviators will receive increased instruction in combat skills; Night Vision Goggle qualification; a tactical field training exercise; increased NBC training; two weeks of survival, evasion, resistance, escape and rescue training; and two weeks of leadership/professional development instruction. Given the nature and extent of these improvements, the new course will be titled, **IERW Combat Aviator Course (Multi-Track)**.

EPMS/OPMS

The EPMS/OPMS Branch develops enlisted, officer, and warrant officer courses other than flight programs. These include initial training courses in Air Traffic Control (MOS's 93H/J) and Flight Operations (MOS 71P) as well as professional development courses for NCOs, warrant officers, and the pre-command course for designees for aviation command positions.

The branch recently completed a compreensive revision of four enlisted POIs using the ISD process and has received TRADOC approval of these programs.

This development process is proceeding as part of TRADOC's new policy for the **individual training plan (ITP)**. The ITP is a comprehensive process which covers all skill levels of an MOS, summarizes the current status of all training materials, and projects the resource requirements for the development, implementation, and evaluation of all training materials which will be needed for a five-year period.

In addition to resident training programs and materials, both division branches develop extension training associated with their proponent areas. This includes correspondence courses and **training extension course (TEC)** lessons. The division currently has 148 aviation correspondence subcourses and 15 scheduled for development through FY 81. Fifty-six aviation TEC lessons are now available in the field and 129 others are under development, including lessons on the UH-60, the modernized AH-1S, night vision goggles, and air traffic control.

The Course Development Division is responsive to current training needs based on an analysis of jobs and on feedback from field units. The **Aviation Center's Training Analysis and Assistance Team (ACTAAT)** includes a permanent member from CDD who accompanies the team on frequent visits to selected field units.

Training Literature

The **Training Literature Division (TLD)** directs development of proponent field manuals, training circulars, special texts, and augmentation of training publications, and coordinates with USAAVNC activities and other service schools and agencies in their preparation. The division writes and produces 30 manuals and also produces all EPMS material and ARTEPs for which the Aviation Center is proponent.

The Standardization Publications Branch

Put it all together and it spells: AHIP New Eyes For The Army!

Meet the team that can and will bring the Army a contemporary scout helicopter. Bell Helicopter Textron will modify an in-inventory OH-58A with a modern, high technology, dynamics system which assures outstanding performance in all altitude temperature conditions. McDonnell Douglas Astronautics, with the Northrop Corporation Electro Mechanical Division as a subcontractor, will provide the major sub-system, the helicopter mast mounted sighting system, while Sperry Flight Systems will assure man-machine interface through design of the helicopter visual controls, displays and multiplex systems.

Bell Helicopter Textron: Helping keep the free world free.

DTD
(Continued from Page 32)

writes all flight and standardization publications. All eight Aircrew Training Manuals were recently updated and work is now underway on TC 1-401, **Guide for Instructors**; FM 1-300, **Flight Operations**; FM 1-203, **Fundamentals of Flight**; and a new manual, TC 1-201, **Tactical Flight Procedures.**

The General Publications Branch writes all aviation-related handbooks and general subject publications. It is revising FM 1-230, **Meteorology for Army Aviators**; FM 1-202, **Environmental Flight**; FM 1-301, **Aeromedical Training for Flight Personnel**; FM 1-400, **Aviator's Handbook**; and FM 1-302, **Aviation Life Support Equipment (ALSE).**

The Publications Production Branch designs manuals for the Department of the Army printer.

The Directorate of Training Development's **Educational Television Division (ETV)** maintains currency in existing aviation-oriented TV productions to meet the present and future needs in military instruction and information areas.

Television tapes now in production include presentations covering academic areas and preflight procedures for the UH-60 **Black Hawk** aviation qualification course. Command

The Aviation Center's Educational TV capability assists in meeting various military instructional and general informational needs.

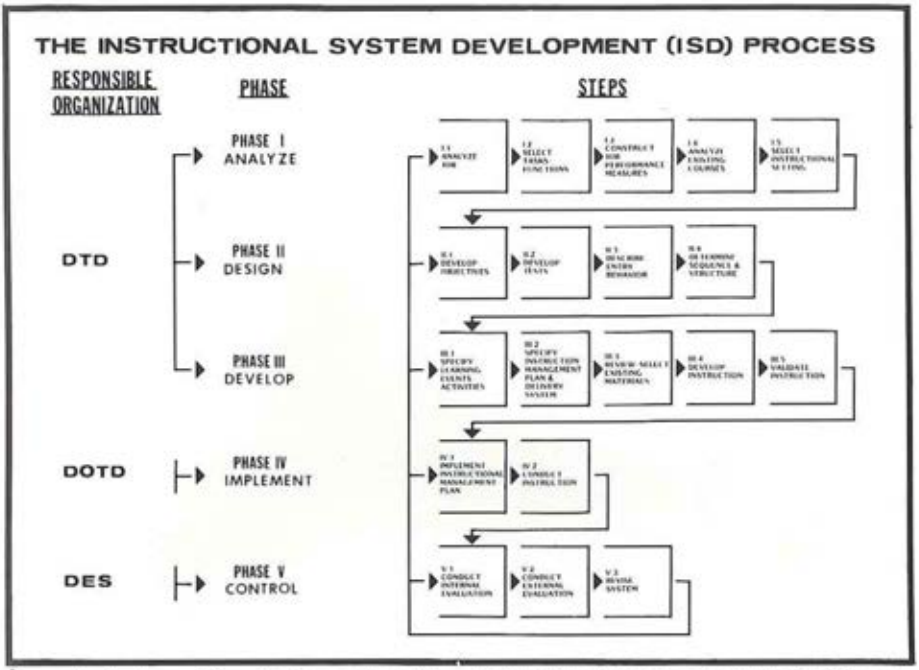
Futuristic flight stations for the 1990s, such as this Lockheed-Georgia concept, are considered by DCD.

emphasis has been placed on three productions dealing with flight training at Fort Rucker: development phase of **Warrant Officer Candidate (WOC) Initial Entry Rotary Wing (IERW)** Flight Training; flight training for WOCs and officer student aviators; and the delineation of facilities which are available to flight students on the Fort Rucker reservation and in surrounding communities. The tapes will be shown to individuals considering application for WOC flight training, to Army ROTC students, and to other appropriate audiences.

Training Aids

The **Training and Audiovisual Support Center (TASC)** provides academic classroom and instructor support for hardware and software end items to include early design and development, and production. It is a consolidated support activity providing single management for all audiovisual facilities assigned to the Aviation Center and is responsible for multimedia consultations, design, development, fabrication, procurement, and maintenance of items required to support the Aviation School, USAR, USARNG, and ROTC units assigned within the southern half of Alabama, Mississippi, and 12 counties in Florida.

Training Aids personnel provide direct consultation with academic instructors to develop graphic aids such as artwork for 35mm slides, overhead transparencies, charts, camera-ready mechanicals, and devices such as cutaways, operable models, mockups, and animated panel boards. This work is accomplished



through photo-graphics, devices, and audio sections.

Staff Training

The **Staff and Faculty Development Division (SFDD)** teaches instructors and training developers how to do their jobs at the Aviation Center. This is done with the following five courses:

The **Instructor Training Course (ITC)** provides officer, enlisted, and civilian student instructors a working knowledge of the methods and techniques of military instruction.

The **Student Counseling Course** teaches the principles, skills, and techniques necessary for counseling students and/or subordinates.

The **Instructional Systems Development Course (ISD)** provides the staff and faculty a working knowledge of developing instructional materials using the ISD process discussed above.

The **Criterion Referenced Instruction Course** provides staff and faculty members a working knowledge of the principles and techniques of developing criterion referenced instruction within the context of the ISD process.

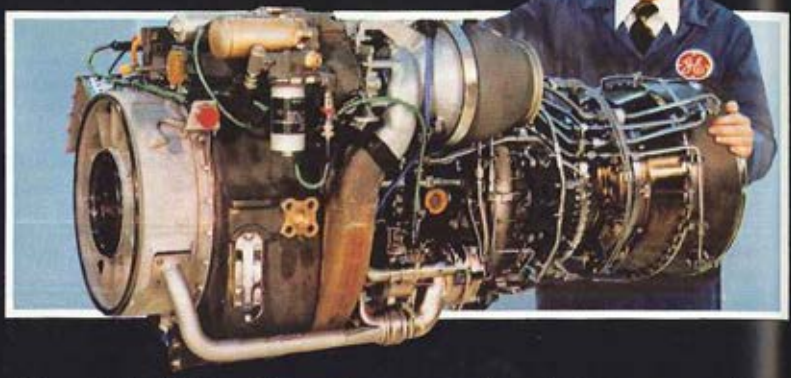
The most recently developed course in the SFDD program is the Action Officer's Course which provides the Center staff and faculty and tenant agency action officers with local, TRADOC, and DA staffing procedures.

Each member of the directorate performs a portion of the Instructional Systems Design process, with the culmination of their collective efforts being a training product designed to transfer institutional knowledge, in the most efficient manner, to the soldiers of the United States Army.

Great Strides

DOTD and DES perform their training development roles by using the material to instruct and evaluate students. Feedback from those two directorates provides stimuli for improvements to instructional material. Great strides have been made in the study of how and why people learn, but it still is an inexact science; and it is one in which the Directorate of Training Developments is deeply involved.□

AAH Power



The T700: The in-production engine ready for the rugged AAH mission

One real test of anti-armor airborne weapons is the nap-of-the-earth mission. Backed by rigorous testing and field experience in Army helicopters, T700 engines are superbly suited for the Hughes AH-64A Advanced Attack System. The reasons: integral inlet protection, fast response and power margins that provide durability, survivability and mission reliability.

GENERAL ELECTRIC

The Heart of the US Army Aviation School Staff . . .

That's what the Directorate of Training and Doctrine is often thought to be, according to COL Joseph F. Rutkowski

THE **Directorate of Training and Doctrine (DOTD)** conducts all resident training at USAAVNC and because of this mission is often thought of as the heart of the U.S. Army Aviation School Staff.

In order to facilitate its training mission and provide a better means of control, the DOTD is furthur divided into two major departments: the **Department of Academic Training (DOAT)** which conducts all formal classroom instruction, and the **Department of Flight Training (DOFT)** which conducts all flight training.

Resident training conducted by these Departments are divided into four categories: **Initial Entry Rotary Wing Training (IERW)** is training for new aviators. Advanced Flight Training qualifies rated aviators in new aircraft and new aviation related skills. Aviation Support Training is training for aviation mechanics and **Air Traffic Control (ATC)** personnel. Professional Development Courses given by DOTD provide career training for commissioned officers, warrant officers, and NCO's.

Initial Entry Training

The largest and most recurring course of instruction given at the Aviation Center is, of course, the IERW, which is conducted for both officers and **Warrant Officer Candiates (WOC)**.

The flight training for both officers and WOC's is 34 weeks in length; however, the WOC's must attend a six-week military development course that is conducted prior to flight training. This military development course as conducted is emotionally, mentally, and physically demanding, and must be successfully completed or entry into flight training is withheld.

The current initial entry course consists of 175 hours in an aircraft and 35 hours in the UH-1 **Synthetic Flight Training System (SFTS)**, a flight simulator to be discussed later.

All IERW students begin their training by attending the two-week academic pre-flight phase of the IERW course, receiving training in aerodynamics, aeromedical subjects, and aircraft maintenance during this phase. The pre-flight phase is the foundation of the IERW course upon which the remainder of flight training stands.

The first flight phase in IERW is Primary Training and in this phase students learn basic helicopter maneuvers and emergency procedures, and first solo an aircraft. The Primary phase is eight weeks in length and consists of 50 flight hours given by civilian contractor instructors in the Hughes TH-55 aircraft, commonly referred to by the students as the "Mattel Messerschmidt."

Huey Transition

The second phase of training is the UH-1 (Huey) Transition phase in which the students learn how to fly the UH-1 and master the emergency procedures associated with this aircraft. Autorotations, simulated tail rotor failures, and landings with the hydraulic control system deactivated are among the daily maneuvers practiced by IERW students during this four week phase, a block of training in which the students first meet their military flight instructors.

They then move into the Instrument phase of training, a phase often considered the most

The first phase of the initial entry rotary wing flight training is conducted in the Army's two-place, side-by-side TH-55 helicopter.

DOTD

(Continued from Page 37)

difficult because the student is required to fly the UH-1 without being able to see outside the aircraft; navigating and flying by relying solely on the instruments. Extensive use is made of the SFTS during the instrument phase.

Synthetic Flight Simulators are mechanical training devices which are designed to act, feel, and sound like an actual UH-1 during flight. The simulator cockpit, which is an exact replica of the UH-1, is functional down to the last detail. In use, all instrumentation on board the simulator will give the students the exact information he would receive from an aircraft on an actual instrument flight.

These simulators provide such realistic training that the Aviation School has reduced the number of actual aircraft flight hours from the original 50 to the present 20 during this phase. The student will fly the simulator for 30 hours.

Night Qualification

After the instrument phase, the students attend the Night Qualification phase in which they receive 20 hours of concentrated night flight instruction and instruction in the techniques of Night Hawk flying which is tactical night flight without the aid of night vision devices.

They also receive instruction in night flying with the aid of the AN/PVS-5 Night Vision Goggle. Upon graduation from this phase, the students are Night Hawk qualified and Night Vision Goggle familiarized, having demonstrated the ability to fly at night with little or no aircraft or landing zone lighting. They will also be able to perform many emergency procedures at night to include simulated engine failures.

The final phase of training is Combat Skills. This phase is taught in two different aircraft: the UH-1 or the OH-58 "Kiowa" aeroscout aircraft. Most students continue their training in the UH-1 and learn utility helicopter tactics and techniques. However, 10 U.S. Army students per class are selected to receive their combat skills training in the OH-58. These students transition into the OH-58 and then learn aeroscout tactics and techniques.

Upon graduation these students will be assigned to aeroscout positions throughout the Army. This phase of training lasts eight weeks and all students receive training such as low level navigation, nap-of-the-earth flying, tactical instrument procedures, and formation flying. The combat skills phase is often thought of as the "finishing school" for the initial entry student.

The Graduate Flight Training conducted at Fort Rucker includes training in both fixed and rotary wing aircraft. The Department of Flight Training conducts aviator qualification courses, instructor pilot courses, various instrument courses to include the Instrument Flight Examiners Course, and the Aviator Rotary Wing Refresher Course.

The fixed wing aircraft used for graduate training are the U-21 **Ute**, T-42 **Cochise**, and OV-1 **Mohawk**. Rotary wing courses are conducted in the UH-1 **Iroquois**, AH-1 **Cobra**, OH-58 **Kiowa**, CH-47 **Chinook**, and the UH-60 **Black Hawk**.

The Aviation School's flight instructor force consists of military, Department of the Army civilian, and civilian contractor personnel. Many of the instructors are Vietnam veterans. The various backgrounds and experience of these instructors add a breadth to the program by broadening the perspective of the instruc-

tion to include the aspects of many different types of combat flying.

Classroom Training

The **Department of Academic Training (DOAT)** conducts all academic training for officer, warrant officer, and enlisted courses at the Aviation Center. The various courses extend over the entire spectrum of Army Aviation. Included are MOS-producing schools, such as Aviation Maintenance (67N and 67V), Air Traffic Control (93H and 93J), and Flight Operations (71P); as well as officer and warrant officer career training and aviation training in the complex flight simulators.

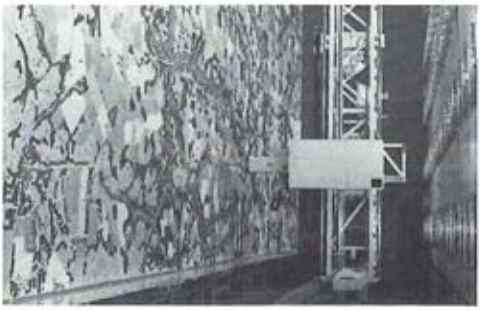
The courses are staffed with highly professional instructors and the instruction received in all courses is of the highest quality. Classrooms are equipped with modern training aids including detailed functional training devices and closed circuit TV with both live and video taped productions.

DOAT Structure

DOAT is organized into five divisions which are responsible for the training programs. These divisions are supported by an Administration and Supply Branch. Elements of the five divisions are as follows:

The **Operations Divisions** consists of the Aviation Learning Center and **Training Literature Management Branch (TLMB)**. The Learning Center operates facilities for the purpose of offering additional, suplemental, and remedial instruction to students utilizing the self-paced and other modes of instruction combined with a variety of trainig media. TLMB provides a vital link for units and service schools worldwide in their queries and requisitioning of aviation oriented instructional material. The school staff and faculty may also use these facilities in order to maintain their own proficiency.

The **Air Traffic Control (ATC)** provides academic instruction in all phases of air traffic control. This unit conducts training in the 93H, 93J, and 71P skills which result in the award of MOS identifiers. Instruction provided varies from self-paced academics to actual coordination and control of aircraft in a tactical environ-



The 24-by-56 foot terrain model board, the movable gantry with TV camera, and optical probe, and the bank of 174 1,000-watt lamps comprise the visual system of the CH-47 flight simulator at Ft. Rucker, one of the four different flight simulation systems now in use at the US Army Aviation Center.

The Maintenance Training Division provides maintenance training to commissioned officers, warrant officers, and enlisted personnel in utility, attack, cargo, and observation aircraft.

DOTD
(Continued from Page 39)

ment. Students in the 93H and 93J courses are tested and awarded the FAA **Control Tower Operator (CTO)** Certificate. The 71P course is designed to provide enlisted personnel with the working knowledge to schedule and coordinate aircraft flights and related administrative support functions pertaining to airfield operations.

The **Career Training Division** presents academic instruction in general aviation flight subjects, management, leadership, combined arms, and combat skills. The instruction provided includes everything from classroom lectures to battle simulation practical exercises. A tactical laboratory provides a very realistic approach to the parameters of NOE flight.

In addition to IERW, the Career Training Division also provides instruction for the Aviation Warrant Officer Advance Course, the Warrant Officer Senior Course, and the **Warrant Officer Orientation Course (WOOC)**. The WOOC is a branch immaterial course for newly-appointed warrant officers, taught for the first time on 2 March 1981.

The **Flight Simulator Division** utilizes the modern UH-1, CH-47, and AH-1 flight simulators to provide basic and proficiency flight training in a simulation environment. Through the use of huge terrain boards and a vast array of computer assisted devices, the flight training has progressed to allow not only IFR but also visual flight. The division also provides software programs to units worldwide that use flight simulator trainers. In the near future, a UH-60 simulator will be added to DOAT's flight simulation training capabilities.

The UH-1 Synthetic Flight Trainer is used extensively in providing student instrument training.

The **Maintenance Training Division** provides avaition maintenance training to commissioned officers, warrant officers, and enlisted personnel in utility, attack, cargo, and observation aircraft. The enlisted maintenance training culminates in the award of a 67N or 67V MOS. All training is conducted in the immense Yano Hall complex.

Yano Hall

Yano Hall contains 28 classrooms with over 67,000 square feet of hangar space and was designed specifically as a maintenance training facility. The division also provides requesting units with support utilizing mobile training and new equipment training teams.

In addition to training active Army flight students DOTD provides training to Army Reserve Component, USAF, and Allied students. The majority of these students attend the IERW course. DOTD is also planning to implement a new aviation qualification course in the AH-1S fully modernized **Cobra**.

In conducting its flight training mission, DOTD utilizes a 4,200 square mile flight training area. The flight training is conducted out of three major basefield facilities; Cairns Army Airfield, Hanchey Army Heliport, and Lowe Army Heliport. Within this local flight training area are 12 stagefields, over 150 tactical training sites, over 84 **nap-of-the-earth (NOE)** routes. Currently, there are over 600 flight line aircraft at Fort Rucker, and over 30 non-flyable aircraft used for maintenance training.

We Strive for Excellence

During FY 80, the Army logged in excess of 1.5 million aircraft hours with over 24% of those hours being flown at Fort Rucker. The Army's class A mishap rate for every 100,000 flying hours was 2.41 during FY 80. Fort Rucker's rate for the same period was 0.27 with no class A mishaps occurring at night.

The measure of a trainer's success is the quality of the finished product; the graduate student. The Aviation Center has long enjoyed a reputation of excellence in training and DOTD takes great pride in its contribution toward the maintenance of that reputation. The motto **"We Strive for Excellence"** says it all. □

Aiding the Army's Flight Standardization Program

Colonel George F. Newton details the role played by DES in enhancing theoverall combat readiness of Army Aviation

THE **Directorate of Evaluation and Standardization (DES)** was formed on 15 November 1974, following the Department of the Army, DCSOPS, designation of the U.S. Army Aviation Center's Commanding General as the Executive Agent for the Army-wide Flight Standardization Program.

Structure

The directorate is organized into a headquarters element and two functional divisions. The twofold mission of the directorate is to serve as action office for the Commanding General, Fort Rucker, in accomplishing his Army-wide responsibilities in the Army Flight Standardization Program and to conduct the Aviation Center Training Effectiveness Program.

In addition, the directorate evaluates standardization of flight and academic training at the Aviation Center; represents the user during the development/review of operating procedures and techniques published in Army aircraft operators' manuals and aircrew checklists; and monitors and assists in the development of synthetic flight training systems.

Flight Standardization

The Flight Standardization Division contains the lion's share of DES personnel. Functionally subdivided into a Plans and Operations Branch, a Cargo and Fixed Wing Branch, a Utility Branch, and an Aeroscout/Attack Branch, it conducts flight standardization evaluation/assistance visits to major and subordinate commands worldwide.

During flight standardization visits, DES **standardization instructor pilots (SIP)** conduct flight evaluations to determine the level of flight standardization and aviation training in all aspects of individual aviator qualification and proficiency in aircraft; to insure the effective application of the **Aircrew Training Manuals (ATM)** and AR 95-1; and to insure that the individual training objectives support the unit training program. The results of these visits provide information and guidance on matters of flight standardization and training to local standardization committees, commanders, standardization instructor pilots, instructor pilots and aviators.

In addition to the worldwide mission, the Flight Standardization Division provides SIP's to various agencies and directorates at the Aviation Center to act as subject-matter experts for all types of aviation-related activities or projects. The DES SIP's are also responsible for conducting all end-of-course evaluations for DA instructor pilot courses, medical flight evaluations, post-mishap evaluations and SIP evaluations at the Aviation Center.

The Flight Standardization Division provides a quality control check of all IERW and AQC courses at the Aviation Centrr by assisting in the conduct of course evaluation rides. The division assists in Aviation Center IP/SIP AAPART evaluations and performs no-notice evaluation functions for the Aviation Center Standardization Committee.

Evaluation

The **Evaluation Division** conducts the Aviation Center training effectiveness program in consonance with the USA TRADOC training mission, and is comprised of an Internal and

DES
(Continued from Page 41)

an External Branch, supplemented by a Technical Support Branch. The Internal Evaluation Branch primarily monitors and evaluates effectiveness of training conducted in residence at the Aviation Center, together with related systems, manuals and equipment. It also assesses student progress and works to improve the quality of Aviation Center courses.

The External Evaluation Branch determines the effectiveness of training and related systems equipment as measured by individual and unit performance in the field.

The **Aviation Center Training Analysis and Assistance Team (ACTAAT)**, which also serves as the Aviation Center Branch Training Team, is managed by the External Evaluation Branch. The ACTAAT establishes and maintains a productive dialogue with Aviation Center proponent units — aviation and air traffic control in the field. During ACTAAT visits, the field commander's staff and soldiers are provided an update on current activities at the Aviation Center.

Team members are given the opportunity to interview and survey unit personnel. Informal discussions with soldiers at all levels and in varied positions contribute to the data collection process and sensitizes the Aviation Center as to the adequacy of training products and the needs of the field.

More highly trained aviators are the end product of the Directorate of Evaluation and Standardization's analyses of IERW programs of instruction and those of UH-1 contact instructor pilots' POI.

Technical Support

The Technical Support Branch provides the expertise which permits a scientific approach in the design and conduct of evaluation plans. This consists of the construction of valid data collection instruments, the application of proven techniques for gathering information and the use of sound statistical analysis procedures. The coordinated efforts of the three elements furnish effective quality control of training at the Aviation Center. Samples of the Evaluation Division efforts are evaluations of the Initial Entry Rotary Wing Course, 97H/J programs of instruction, and the UH-1 contact instructor pilots program of instruction.

During the course of these evaluations, it is necessary to gather information from the field by using questionnaires. This method permits feedback in sufficient quantity with a relatively small expenditure of funds. A conscientious effort on the part of personnel responding to questionnaires assures a valid evaluation. Findings from evaluations, fed back to the training developer and the trainer, ultimately will produce a more highly trained soldier.

One way of disseminating information generated in DES is through the **"Army Aviation Digest"** which was recently made a function of this directorate. The monthly magazine serves the worldwide Army Aviation community with its readers being its primary source of material.

Combat Readiness

The principle objective of the DES is to enhance the ability of Army Aviation to contribute to the overall combat readiness of the Army. This objective is accomplished through the Army Aviation Standardization Program — a safety-conscious program that encompasses standardized publications, training literature, a disciplined instructor pilot force, frequent tests, flight checks and command supervision and the Training Effectiveness Evaluation Program which insures quality graduates from the Aviation Center. □

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Combat Developments: Preparing for the Future!

"Helping the user is paramount with us," says Colonel Clark A. Burnett of the Directorate of Combat Developments

THE Directorate of Combat Developments (DCD) is comprised of five divisions whose officers specialize in creating the concepts, methodologies and structures that will be used to mold the physical and doctrinal character of Army Aviation on the integrated battlefield and in the Air Land Battle 2000.

The basic theme we adhere to is that we represent the user; everything that we develop, concept through reality, is designed to help the user cope with the threat, offensively and defensively. We are the TRADOC integrator for the development of all aviation systems and aviation related systems, and as such act as TRADOC prime representative in all dealings with the DARCOM project managers and laboratories throughout the combat development life cycle, i.e., birth to fielding.

Concepts & Studies

Since the threat is our key driver it follows then that we have an entire branch assigned to the Concepts and Studies Division that operates as an all source facility for DCD and the Aviation Center. The branch's data collection and analysis of threat evolution enables them to provide constant updates on threat capabilities to the Directorate project officers writing requirements documents for systems and subsystems that will satisfy the user's combat needs.

In addition, they support threat training throughout the center and through continuous contributions to notable periodicals, magazines and professional journals, such as the **Aviation Digest** and **The Military Review**.

When voids in doctrinal procedures and/or equipment capabilities are discovered, the Concepts and Studies Division project officers will start the ball rolling by capturing on paper solution-oriented ideas and alternatives that counter or defeat threats to Army Aviation perceived from threat analysis or emerging scenarios and mission area analysis.

Shared Ideas

Their conceptual thoughts and ideas are staffed and shared with other aviation proponents, the Combined Arms Center and the Deputy Chief of Staff for Concepts and Doctrine of TRADOC. The Concepts Branch of the division concentrates on developing the alternative courses of action to such challenging problem areas as air-to-air self-defense mechanisms and procedures and Class III & V aviation resupply from the communications zone rear to the forward edge of the battle area — a monumental task that will affect all aviation units, systems and supply procedures for fuel and ammunition.

Once alternatives are developed and agreed on by the aviation community as a whole, the study branches of the division take the reins to determine viability, feasibility, and affordability.

Studies Branch I, for example, is deeply involved with the advanced attack helicopter cost and operational effectiveness analysis, a very involved analysis of the life cycle costs and tradeoffs to assist TRADOC decision making bodies in making rational choices for systems and subsystems. This particular COEA will be a significant input to the production decision of the AH-64.

Study Branch II is currently conducting a

detailed mission area analysis of Army Aviation functions to be performed on future battlefields that are required to defeat the threat. Some of the more involved subanalyses are airspace management, joint suppression of enemy air defense, joint counter air/air defense operations and joint second echelon interdiction. They are also examining our requirements for rapid deployment force operations, self-deployment and requirements for the Air Land Battle 2000.

The SCORES Branch assists the Combined Arms Center at Fort Leavenworth, KS, and other TRADOC centers and schools with the integration of aviation in scenario development, to help insure that Army Aviation is used effectively as a member of the combined arms team in studies and other simulations.

War Games

The branch, in close coordination with threat and concepts project officers, creates detailed computerized simulations for the development of aviation unit employment concepts as adjuncts to existing standard TRADOC scenarios.

These hypothetical war games are used for the projects and studies conducted throughout the combat developments community. Presently they are developing and analyzing scenarios for the advanced attack helicopter, cost and operational effectiveness analysis update, mission area analysis, and the advanced helicopter improvement program.

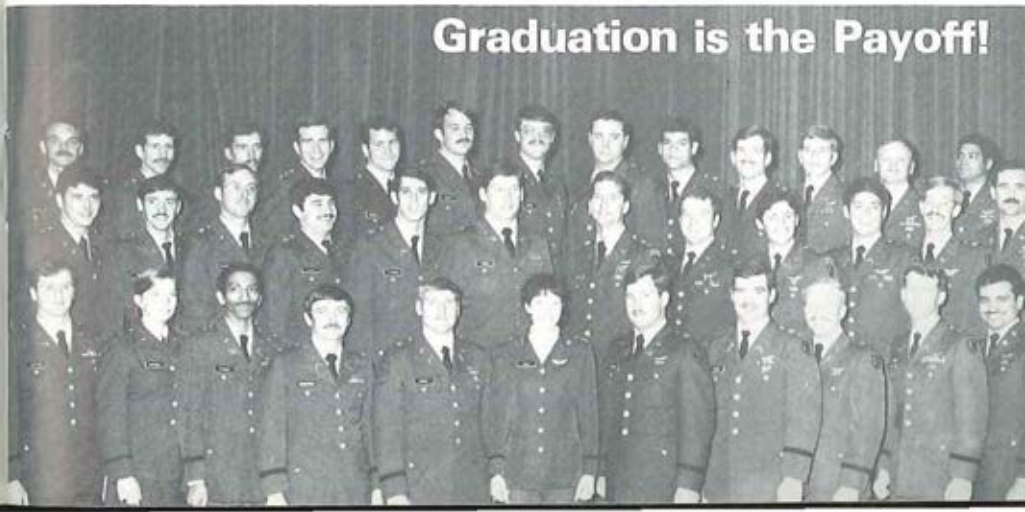
In addition to USAAVNC projects and studies, SCORES is developing an aviation portion for TRADOC's most recent endeavor, Europe III and Middle East III. In short, these experts are the combined arms tacticians who develop computer simulations for conducting mission profiles for given aircraft and/or units.

Looking Ahead

Task Force 86 was established as the Aviation Center's player in the TRADOC Army 86 studies to assist aviation proponents in developing the most combat effective organizations for the 1986 Army's light and heavy divisions, corps, and echelons above corps. The purpose of these studies is to facilitate the integration of new and advanced materiel systems, operational concepts, and human resources into the Army.

The Air Cavalry Attack Brigade organization is a result of Division 86, the first in the series of Army 86 studies. Once the optimum organization for Division 86 has been developed, a transition plan will be developed for the introduction of these organizations into the Army's force structure.

In early February 1981, the Army Chief of Staff selected one of our proposed Air Cavalry Attack Brigade organizations for fielding and evaluation; and in March 1981, the Army's first Air Cavalry Attack Brigade, consisting of a Cavalry Squadron, Combat Support Aviation Battalion and two Attack Helicopter Battalions, was activated at Fort Lewis, Washington. The Brigade will be part of the Army's high technology test bed program.



DCD
(Continued from Page 45)

At some point in the future, Task Force 86 will become just as deeply involved in the Army 90 studies that will address the aviation force structure in preparation for the Air Land Battle 2000.

Organization/Force Development

The Organization/Force Development Division experts work closely with the Concepts and Studies Division, Task Force 86 and Materiel Division as they go about the business of analyzing current and future aviation unit structures, creating tables of organization and equipment, coordinating basis of issue plans, or in relation to the human dimension, the impact that new items of equipment will have on the aviation units (TOE personnel structures) in the future.

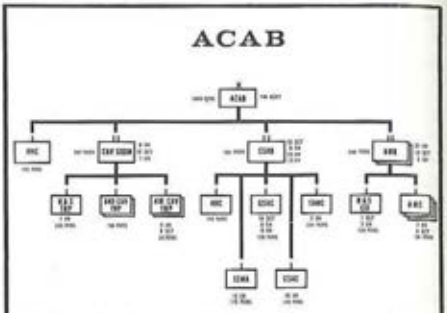
Most recently they have been concentrating on the development of over 100 supporting aviation personnel and equipment documents for the ongoing Army 86/90 studies and assisting Task Force 86 efforts in the creation of the fielding plan of the recently activated Air Cavalry Attack Brigade at Fort Lewis.

Let's turn now to the people who have the responsibility of writing the documents outlining requirements and performance characteristics that the military laboratories and civilian industrial communities will use as parameters for drawing the blueprints that will be used to mold the raw materials into prototype aircraft and systems.

Materiel Developments

The Materiel Developments Division, once directed, will prepare and coordinate the letters of agreement to build prototypes, the required operational capability documents that outline what a system must do in order to fill the existing void in a user aircraft, or aircraft subsystem performance. The division is separated into a Systems Branch that deals with the aircraft or mission related equipment and, the Avionics, Visionics, and Electronic Warfare Branch whose title speaks for itself.

The project officers of the Systems Branch have recently completed a change to the



Addressing the aviation force structure of the '80's and '90's is the ongoing responsibility of the Directorate of Combat Developments.

UH-60 mission-need statement that provides for an extended stores support system that can be used for external fuel tanks, mine dispensing or other mission related jobs. They also recently completed the requirements documents for a forward-looking infrared augmented Cobra TOW sight that gives the TOW Firing Cobra an all-weather, day/night capability.

The requirements documents for an air-to-air and air defense suppression misile are currently being staffed within the TRADOC communities and will soon be sent to DA for staffing. Perhaps the hottest issue they are working on is the preparation of a letter of agreement between TRADOC and DARCOM to initiate prototype development of an entirely new lightweight aircrew protective system that will allow aviators to fly and fight in a chemical warfare environment.

On the communications side, the Avionics projects officers are no less involved with the preparation of the documentation to support nap-of-the-earth communications radios, a global positioning system, improved night vision equipment, joint microwave landing systems and an entire suite of aircraft survivability equipment that will offer passive protection against the threat for the entire fleet. Other front burner issues include IFF improvements and target acquisition systems.

Test & Evaluation

Once the prototypes are manufactured, the
(DCD/Continued on Page 51)

AH-64A:

Operational Testing... Transitioning To Production

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DCD
(Continued from Page 46)

project officers of our Test and Evaluation Division develop the independent evaluation plan, supervise and coordinate all the developmental testing that insures the item meets the specifications that insure the people can use the items under given mission requirements.

Most recently they have been very involved in the test and evaluation exercises of the man-equipment-machine interface problems of existing chemical protective equipment and the AAH conducted at Yuma Proving Grounds. Next summer they will also be involved with the pending AAH DT II/OT II proceedings also to be accomplished at Yuma.

That's a rather quick explanation of what the Directorate of Combat Developments is and some of the things we are working on. At this juncture I would be a mite remiss if I did not mention just a little of what the Air Land Battle 2000 concept is and what effect it will have on the combat developments process.

Air Land Battle 2000

The Air Land Battle 2000 concept is an umbrella concept of how we will fight in the future. When fully developed it will extend the focus of our current thinking out to the year 2000, as opposed to the current battlefield scenarios that are centered around 1980's equipment and operational concepts.

The entire concept is still in a formulation stage. However, I can tell you that the battlefield of the 21st century will be dense with sophisticated combat systems whose range, lethality and employment capabilities far surpass contemporary arms and will be characterized by high tempo, high mobility, independent combined arms actions.


A FAMILIAR SCENE

The successful commander will require equipment and aircraft specifically designed to make well defined and exacting contributions to the close combat maneuver scheme. That includes all types, shapes, and sizes of equipment ranging from secure communications devices, to intelligence-gathering equipment, to fire-and-forget weapons with high reliability and high probability of first-round kill.

Concept-Based Acquisition

What this all means to the Combat Developments community is that we will soon see the appearance of a long-term research, development and procurement methodology known as the Concept-Based Acquisition Strategy. This strategy will drive our technology base and development process with the concept of how we want to fight on a future battlefield. It will provide long range guidance to the technology base and modernize only those capabilities needed in the future.

In a nut shell, the process will serve as a "mechanism to translate that broad operational concept into requirements for doctrine, force design, training and materiel."

The Directorate of Combat Developments is where it all starts. The work itself is tough, mentally exacting, and often requires a lot of time. Getting the job done means continuous intra-TRADOC school and center integration and maximum inter-command coordination with the scientists and engineers of the many DARCOM laboratories. The issues are involved, the challenges great, the frustrations many, and the satisfaction of working with a team spirit is immense.

The Greatest Challenge

Perhaps the greatest challenge in problem solving is to assemble all the disparate facts, understand them, then to articulate the cause and effect relationships of the people, systems and organization to insure the most precious resource we have, "the man in the loop," has what he needs to fly, fight, and survive on the integrated battlefield or in the high, dynamic Air Land Battle 2000. □

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Colonel Robert A. Bonifacio indicates this is done by the many operationally-oriented tests conducted by his Aviation Board

ENGINEERS and scientists resolve problems to provide the best equipment in the world to our soldiers. The **U.S. Army Aviation Board (USAAVNBD)** verifies the adequacy of materiel or concepts to insure that they meet the needs of the user in his normal tactical environment.

Equipment, concepts, and training must be orchestrated as a system in order to assure that hardware works as intended when used by typical soldiers, that human factors considerations are assessed, that training can be properly oriented, and that concepts of employment are attainable.

The final test to see if the equipment meets the engineering specifications set by the Army is a development test. An operationally oriented test is the final test that determines if everything to support the equipment to be fielded is as it was intended and that the equipment will in fact perform to standards in a typical user environment.

User Representation

Prior to July, 1976, materiel acquisition was heavily weighted toward hardware development. The **Office of the Secretary of Defense (OSD)** and the **Department of the Army (DA)** recognized a need for user representation during the acquisition cycle. The former U.S. Army Aviation Test Board was split and portions of that unit composed a new DARCOM organization, the U.S. Army Aircraft Development Test Activity (later renamed U.S. Army Aviation Development Test Activity).

The second portion was designed to meet operational testing needs and was titled the USAAVNBD. The USAAVNBD became a **U.S. Army Training and Doctrine Command/U.S. Army Aviation Center (TRADOC/USAAVNC)** activity and was chartered, along with seven other TRADOC boards, as an operational tester.

The USAAVNBD accomplishes user testing of aviation related equipment and concepts. This includes planning, conducting, and reporting on Operational Tests, Force Development Testing and Experimentations, Concept Evaluation Programs, Follow-on Evaluations, and Customer Tests. The Aviation Board also supports the Chief, Tri-Service Working Group, in conducting foreign materiel exploitation testing.

The Aviation Board conducts other tests as directed by TRADOC and advises the CG, USAAVNC, on test and evaluation matters. Additionally, aviators from the Board participate in development tests for the U.S. Army Aviation Development Test Activity, which is also located at Cairns Army Airfield, Fort Rucker, AL.

The Board's Role

The Aviation Board's role in user testing can best be illustrated by an explanation of the various types of tests:

Operational Test (OT). These are normally conducted in phases which are geared to appropriate decision points in the materiel acquisition process. Military utility, operational effectiveness and operational reliability, availability, and maintainability are key areas of concern. Adequacy of doctrine, organization, techniques of employment, logistics and training supportability are also key issues examined during testing. Each aspect interrelates to

others. For example, the ability of Army schools to train the operator or maintainer is affected by the complexity of the item, its logistics support requirements, and the manuals provided for support.

Therefore, when a test design plan is written, all of the components of usage are regarded in order to determine the value of the item and its supporting systems. The test is conducted with typical users. This may mean going to places like Fort Campbell or Fort Hood where the environment, the mission of the unit, and the logistical support are most representative. One of the most recent Operational Tests was conducted at Fort Stewart, GA, where the AH-1S (Modernized) Fire Control and Weapons Subsystem was tested.

Force Development Testing and Experimentation (FDTE). These may be scheduled at any time in the acquisition cycle to resolve specific issues which may have evolved from studies, development, or earlier testing. Concepts of employment, **table(s) of organization and equipment (TOE)**, training, tactics, and techniques are appropriate subjects for the FDTE. These may range from small, highly instrumented, high resolution field experiments to larger, low resolution field tests, using less instrumentation and less controlled scenarios.

Black Hawk Testing

An example of FDTE used in conjunction with **initial operational capability (IOC)** was the IOC/FDTE of the UH-60A **Black Hawk** at Fort Campbell, KY, from May to September, 1979. Among the vital issues answered in this test was integration of a totally new utility helicopter into the 101st Airborne Division (Air Assault). Logistics supportability, training supportability, aircraft reliability, availability, and maintainability were all addressed as was transportability of the unit, TOE, and individual training.

Additionally, some follow-on issues from earlier testing were evaluated. The FDTE also lends itself to operational feasibility testing of the potential suitability of equipment and systems developed by other services, foreign nations, or commercial firms.

Concept Evaluation Program (CEP). The Aviation Board evaluates commercial items, modified existing items or fabricated prototypes by use of the CEP. This type of evaluation provides TRADOC commanders with a timely, simplified process to resolve questions dealing with tactics, doctrine, logistics, training, and hardware. The helicoper **mast mounted sight (MMS)** was evaluated by CEP.

Follow-on Evaluation (FOE). These are conducted specifically to resolve operational issues which were surfaced in previous testing of an item. The OH-58C, for example, was the subject of FOE when adequacy of engine power and new instrumentation developed as issues from earlier tests.

Customer Test (CT). These are funded by and conducted for an agency which has developed hardware to meet specific military needs. The Aviation Board conducted a CT on an improved OH-58 tail rotor and **stability control augmentation system (SCAS).** A comparison was made of the basic OH-58C with an OH-58C having the improved tail rotor and another OH-58C having the new tail rotor and SCAS. The potential improvement in mission performance of the OH-58C was assessed with

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each of these improvements as well as with both improvements, using 6th Cavalry Brigade (Air Combat) aviators at Fort Hood, Texas.

A Key Job

An important ingredient in any test program is the Test Project Manager or Test Director. He becomes intimately involved with programs early in development in order to design a test which will address important user requirements. For instance, a Test Project Manager is currently following the development of the **Advanced Attack Helicopter (AAH)**, combat mission simulator, an advanced technology flight and weapons simulator, even though the AAH is yet to be fielded. During the conduct of a test the Test Project Manager is responsible for the management of funds, personnel, and test support programs to insure that all issues are answered and that test costs do not exceed the programmed budget.

USAAVNBD Structure

To accomplish its mission, the Aviation Board is organized into six divisions: Administrative Support; Resource Management; Test Concepts and Operations; Electronic Systems Test; Aircraft Systems Test; and Major Systems Test. On tests of large, complex systems, such as the AH-1S Fire Control and Weapons Subsystem, a test directorate is task organized with expertise from various divisions of the Board and tailored to meet specific test requirements and objectives.

The Aviation Board works closely with the principal agencies of the Aviation Center team, as well as with other combat arms proponents and materiel developers. Many new concepts and items of materiel require that the Aviation Board consider the effects of changes in doctrine, logistics and maintenance, training of ground and aircrew personnel, standardization of equipment and operating techniques. Coordination among the Aviation Center team and with other Army Aviation organizations and branch proponents ensures that the highest quality product is obtained for the aviation user in an effective and timely manner.

Recent Testing

During 1980, the Aviation Board conducted 19 tests. The scope of individual tests varies greatly and it is difficult to establish a relative importance among tests. Some operational and development tests lend themselves to combining or "**piggybacking**" with other tests on a selective basis. This allows significant savings to be realized without compromising the user testing process. As an example, the XM-21 Stabilized Monocular, envisioned for use on scout and other aircraft for observation, was evaluated during the test of the modernized AH-1S Fire Control and Weapons Subsystem. Some other tests in 1980 were the Integrated Avionics Control System, the **Black Hawk** Infrared Suppressor Kit, and the **Black Hawk** Extended Range Kit.

Flexibility and responsiveness are characteristics of the Aviation Board. Within a 60-day period, in response to a query from the Secretary of Defense, a test was designed and conducted, data analyzed, and recommendations given concerning the capability of the UH-60

Black Hawk to perform as an attack helicopter. For the first time, issues vitally important to the user concerning attack helicopers were quantified. Some of the issues addressed were:

- Suitability, agility, maneuverability, and performance of the utility aircraft when performing AAH mission profiles.
- Suitability of side-by-side seating configuration in performing AAH mission profiles versus that of tandem seating.
- Relative detectability of the utility helicopter compared to the AH-1S (used as a surrogate for the AAH).
- Human factor implications of pilot workload and crew duties.
- Safety implications of employing the UH-60 as an attack helicopter in AAH operational mission profiles.

Results of the test were significant enough to eliminate the UH-60 as an attack helicopter candidate. The question was asked and the user representative, the USAAVNBD, responded expeditiously, thoroughly, responsibly, and professionally.

Fast Action

The Near Term Scout Helicopter test which compared the UH-1 and the OH-58 in the scout role was another example of information needed quickly for major decisions. While the test found both aircraft to be marginally suitable in the Near Term Scout role, the OH-58C was generally considered more compatible with the AH-1S as a teammate. The OH-58C was also considered more suitable because of visibility, detectability, size, and most importantly, the OH-58C was more acceptable to the user aviators and observers while performing the scout mission.

Current Testing

Currently being tested is the Improved Heading Reference System which is a product improvement application to increase the accuracy of the Lightweight Doppler Navigation System. A **Transportable Helicopter Enclosure (THE)** is being tested to assess physical characteristics and operational suitability. Another test being conducted is the operational test of the AN/ALQ-156 Radar Missile Detector.

The AN/ALQ-156 uses radar to sense the approach of a missile then causes a flare to be ejected from the M-130 Aircraft General Purpose Dispenser to decoy the threat infrared missile away from the aircraft. Even the old warriors of the Aviation Board were conspicuously hesitant to test this system — on an aircraft — live fire! Still, aircraft characteristics such as vibration, rotor flicker, etc., could po-

A cameraman from USAAVNC's ETV Section focuses on an open panel sesssion.

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tentially degrade the performance of the system which was demonstrated on a cable car during development testing. A unique test plan was conceived in which artillery was fired on an off-set trajectory past the aircraft.

With the projectile offering an equivalent degree of reflectivity for the radar and traveling at velocities typical of threat infrared missile systems, the AN/ALQ-156 was adequately tested operationally. As you can imagine, stringent safety precautions were in effect to protect the aviators. Additionally, a sophisticated instrumentation system was incorporated into the test to provide highly accurate measurements as to the effectiveness of the AN/ALQ-156.

Some Projected Tests

The test schedule projected for 1981 contains tests of equal importance and similar diversity in scope and application. This spring an FDTE will be conducted on a NICAD Battery Charger/Analyzer. The capability of the new equipment to maintain and charge aircraft batteries and NICAD batteries used with ancillary or ground equipment will be tested. Compatibility with power generating equipment in the inventory will also be examined.

Also planned for this spring is the operational test of the AN/AVR-2 **Laser Detection System (LDS)** and the **Aviation Night Vision Imaging System (ANVIS)**. The ANVIS test will be conducted June through September 1981 and will determine the operational effectiveness and suitability of the system at night and during periods of reduced visibility.

In the spring of 1982, an FDTE will be conducted on the **Self Propelled Elevated Maintenance Stand (SPEMS)**. This test will validate the operational suitability and effectiveness of the SPEMS to support ground maintenance personnel performing maintenance on CH-47 and other aircraft.

Currently scheduled for the summer of 1982 is a test of the AN/ALQ-169 **Optical Warning Locator/Detector (OWL/D)**. Other tests scheduled are contained within the Department of the Army's Five Year Test Plan, the master document which integrates the U.S. Army's testing into the entire research and development/materiel acquisition effort. Tests which satisfy immediate needs, such as the Armed **Black Hawk** and Near Term Scout Helicopter tests, are conducted in addition to those tests within the five year plan based on the urgent need for test data.

Army Aviation is a fully integrated combat arm. Consistent with that statement, you may have noted that the Aviation Board provides test services to the Aviation, Transportation, Infantry, Armor, Chemical, other TRADOC centers, and Reserve Components as required.

A Proud History

During its short history, the USAAVNBD has firmly established itself as a valuable member of the testing community. The Board is continually meeting the challenges facing Army Aviation and takes great pride in the professional execution of its mission. The Aviation Board's motto, **"Fidelis Operanti"** (Fidelity to the Operator), signifies the commitment of the Board to the user. We are proud of the role we play in contributing to the efforts of the U.S. Army to supply vital, modern, effective equipment to the aviation user in the field.

The USAAVNBD is eager to represent you, the user. My staff and I welcome any comments or innovative ideas concerning user testing. These should be directed to Chief, Test Concepts and Operations Division, at AUTOVON 558-6578/2875. □

Developmental testing: A major responsibility

"Over 300 ADTA technicians pool their expertise at Fort Rucker's TECOM facility," says COL William E. Crouch, Jr.

THE United States Army Aviation Development Test Activty (USAAVNDTA), located at Cairns Army Airfield, is a tenant at Fort Rucker, AL. It is one of nine field operating activities assigned to the U.S. Army Test and Evaluation Command (TECOM)), Aberdeen Proving Ground, MD.

TECOM, in turn, is one of fifteen major subordinate commands of the U.S. Army Materiel Development and Readiness Command (DARCOM). The primary mission of TECOM is the test and evaluation of proposed Army materiel through a series of development tests and evaluation of test results. TECOM commands several major test installations and provides some of the world's most unique test facilities and services.

Mission/Organization

As the only solely aviation-oriented unit assigned to TECOM, USAAVNDTA has the primary mission of conducting development tests of aviation materiel to include new aircraft, aircraft components and subsystems, and aviation-related support and personnel equipment.

Development testing is defined as those tests and evaluations conducted to verify that the engineering design and development process is complete, the design risks have been minimized, and the system will meet specifications, and to estimate the system's military utility when it is introduced into the Army inventory.

This mission requires a highly qualified, technically oriented workforce. To meet this need, the Activity is authorized approximately 300 officers, warrant officers, enlisted personnel, and Department of the Army civilians, and is organized under a commander with a deputy commander for testing operations, five functional divisions, and supporting offices.

Contractors provide aircraft maintenance; additional engineering and technical support; onsite human factor engineer support; and additional assistance in the reliability, availability, and maintainability (RAM) data collection area. These contractors bring approximately 180 additional people under the Activity umbrella.

A Broad Spectrum

The military personnel represent a broad cross-section of the military capability and expertise available within the Army and also provide experts such as experimental test pilots, engineers, and highly qualified maintenance technicians and RAM data collectors. The technically oriented Department of the Army civilian workforce consists of test pilots, engineers, technicians, and test support personnel.

Although the Activity has a large pool of technical personnel, it still lacks all the expertise required to conduct its everchanging development testing mission. The need for additional highly qualified people is the reason why the Activity's location at Fort Rucker and its collocation with the Aviation Center and other members of the Aviation Center Team are so important to the effective accomplishment of its mission.

The Aviation Center, in addition to providing host support, furnishes skilled personnel to assist and participate in the Activity's test programs. Collocation with the U.S. Army Aviation Board permits close liaison between the developer and user during both develop-

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ment and operational testing. The Activity and the Board share some assets such as pilots, illustrators, and photographers, since neither organization was given a stand-alone capability as a result of a 1976 reorganization.

The U.S. Army Safety Center provides assistance in evaluating the safety aspects of new equipment under test, while the Aeromedical Research Laboratory assists in measuring and evaluating the physiological effects that operating equipment may have on persons using it. The Fort Rucker Field Unit of the Army Research Institute aids in evaluating the training aspects of new equipment operation and maintenance.

A Long History

A word about when the Activity started would be useful in understanding the what, where, and how of aviation materiel testing. The lineage of the Activity started in 1945 when the Ground Aircraft Service Test Division, Army Field Forces Board Number 1, was established in North Carolina.

In the last 35 years, USAAVNDTA has gone through a series of name, organization, and mission changes to meet the rapidly expanding role of Army Aviation and major changes in Department of the Army organization and functions. The Activity was previously known as CONARC Board Number 6, Army Aviation Board, and Army Aircraft Development Test Activity.

We Test It All

What is tested? You name it. If it has been used in Army Aviation, the Activity has probably tested it. Virtually every airplane and helicopter used by the Army, both past and present, have undergone tests by the USAAVNDTA, including many of the experimental models found in the Army Aviation Museum.

Individual engines, radios, navigation equipment, aircraft components, **aircraft survivability equipment (ASE)**, flight jackets, helmets, life rafts, and generators are just a few of the 98 test projects currently assigned. If an aircraft mechanic installs an improved bearing on a helicopter, in a maintenance shelter, using a revised maintenance procedure, the Activity has evaluated the bearing, the helicopter, the shelter, and the revised maintenance procedure.

Where is testing conducted? The answer to that question is "wherever the testing needs to be conducted." Testing sites include the Republic of Panama, Alaska, Canada, and virtually every section of the United States. The majority of the testing is conducted from Cairns Army Airfield and within the local flying area.

Shown during AVNDTA testing, a YCH-47D Chinook performs its first water landing at Fort Rucker's Lake Tholocco. Water operations were conducted to assure that design changes did not adversely affect the aircraft's handling characteristics.

Major Test Sites

Other major test sites are Pikes Peak and Fort Carson, CO, for high altitude testing; Yuma Proving Ground, AZ, for desert testing; Fort Greely, AK, for arctic testing; Fort Clayton, Republic of Panama, for tropic testing; Fort Drum, NY, for temperate winter testing; and Eglin AFB, FL, and White Sands Missile Range, NM, for electronic counter measures testing.

On the average, the Aviation Development Test Activity operates 25 aircraft, which includes at least one of each type in use in the Active Army units.

How It's Done

How is testing done? A brief discussion of the **Utility Tactical Transport Aircraft System (UTTAS)** test program will illustrate. The development testing of the **Black Hawk** started with the competitive fly-off between the two

competing helicopter manufacturers. This evaluation was conducted to provide technical data for determining the system's readiness for transition into production and to determine which of the two manufacturers best met the system specifications.

These tests measured technical performance including reliability and maintainability, compatability, interoperability, safety, man-machine interface, and the supportability of the system and its associated support equipment. Evaluation of these factors lead to the selection of the **Black Hawk** as the model best qualified to meet the Army's needs.

Since the initial tests, the Activity has conducted a series of evaluations on preproduction and production model aircraft starting with Northern CONUS testing at Fort Drum, NY, during March, 1977; continuing with high altitude testing at Fort Carson, CO, and desert testing at Yuma Proving Ground, AZ; and ending in January, 1980, with the arctic testing.

The Activity is presently conducting a RAM growth test which was scheduled to be completed in March 1981. This type of testing is done to determine the maximum safe operating life and inspection cycles of costly major aircraft components such as engines, transmissions, and rotors.

Aircraft in this phase of testing are flown using predetermined and rigidly controlled flight profiles. By logging many flying hours on test aircraft well ahead of the field fleet usage, the Activity enables the Army to expedite delivery to the field, while assuring that the aircraft is safe to operate, maintainable, and logistically supportable. The current **Black Hawk** RAM test calls for 1,200 flying hours.

During USAAVNDTA testing of the UH-60A Black Hawk, Army personnel tested the practicability of a medical evacuation kit.

Now Underway

Some of the major system tests presently being conducted by the Activity are the CH-47D RAM growth testing, **Advanced Attack Helicopter (AAH)**, and UH-60 flight simulator. The CH-47D RAM growth testing is a continuation of the CH-47 program which started in the early 1960's. The Activity is responsible for the Army portion of the testing of AAH (YAH-64A) and is involved in conducting engineering design tests to assess the aircraft's military utility.

Activity involvement in synthetic flight training systems started with 2B24, the UH-1 trainer; and continues today with the 2B38 system for the UH-60A. The Activity has done various tests of the OH-58 for more than 10 years. A 3,000-flight-hour verification test program for RAM on the OH-58C has just been completed. The 3,000 hours were accumulated using two OH-58C's.

Another major effort for the Activity is the testing of Aircraft Survivability Equipment. This includes such items as equipment to warn the aircraft crew that they are being tracked by a detection device, such as radar, and other devices to jam or otherwise decoy the enemy detection device. Such countermeasures span the electromagnetic spectrum to include visible, infrared, and the radio frequencies. Other devices tested involve reducing the detectability of the aircraft.

Given the nature of developments in the countermeasures field, testing of ASE presents a continuing and ever changing challenge, one that the U.S. Army Aviation Testing Community is determined to meet.

An Important Role

The United States Army Aviation Development Test Activity has an important role in insuring that the Army has the best aviation equipment that American industry can produce within cost constraints.

The men and women who comprise the Activity are proud to be a part of the organization that generally is first to fly, operate, and assess the potential of new aviation materiel; and they are pleased to be members of the Center Team.□

Its 24-Hour Operations Center Gives You a Clue . . .

"Everything you wanted to know about the Army Safety Center, but were afraid to ask." Colonel Edward E. Waldron, II, touches all bases in covering the missions of the Center.

THE United States Army Safety Center is a field operating agency under the Deputy Chief of Staff for Personnel. Its mission as defined in AR 10-29, and within the scope of AR 385-10, is to support the Army Safety Program in order to conserve manpower and materiel resources and to increase the Army's combat effectiveness.

Where It All Began

History reflects that the first formal aviation safety organization was the Army Aviation Accident Review Board, a section of the Army Aviation Training Department of the Artillery School at Fort Sill, OK. As Army Aviation expanded, so did the work of the Review Board which, along with the U.S. Army Aviation School, was moved to Fort Rucker, in 1954.

Three years later, in 1957, the Review Board was renamed the **U.S. Army Board for Aviation Accident Research**, better known as **USABAAR**. USABAAR's mission included not only the review of aircraft accident reports, but also crash site investigations and research into aviation safety matters involving aircraft design, operations, and training as well as supervision, maintenance, inspection, and human factors.

Another Change

In 1972, USABAAR became the **U.S. Army Agency for Aviation Safety (USAAAVS)**, under the supervision of the Director of Army Aviation, Office of the Assistant Chief of Staff for Force Development. The agency's responsibilities were expanded in 1974, when the Army Safety Program was placed under the Army Inspector General, to include accident prevention education, safety assistance visits Army-wide, establishment of Army Aviation safety policy, collection of all Army Aviation accident data, promotion of system safety, and a more direct role in support of the Army's general safety program.

The mission of USAAAVS was again expanded in 1978 to include operational responsibility for all disciplines of safety, and USAAAVS was redesignated the U.S. Army Safety Center.

Our Current Role

Currently staffed by 100 civilians, 45 officers, and 17 NCO's and enlisted personnel, the U.S. Army Safety Center in conjunction with the Office of the Army Safety Program, ODCSPER, develops policies, procedures, goals, objectives and standards, applying a common safety management system throughout. The Safety Center's roles revolve around analysis and execution of the Secretary of the Army's stated yearly objectives. The Center's safety management cycle begins with the collection of accident data and includes data analysis, safety education, the development of countermeasures, and evaluation of actions taken — a total approach to safety.

In accordance with Army Regulation 385-40, any Army aircraft mishap involving a fatality, the total destruction of the aircraft, or property damage and injury costs exceeding $50,000 must be immediately reported by telephone to the Safety Center's 24-hour Operations Center. Each mishap is evaluated on a case-by-case basis and, within two hours of being notified, the Safety Center can have an investigation team on its way to the crash site.

Investigations of selected aircraft mishaps are conducted under a concept called Centralized Mishap Investigation. Through a systematic analytical process which deals with the man, the machine, and the environment as an integrated system, investigators seek to answer three basic questions: what happened, what caused the mishap to happen, and what to do about it.

Mishap Prevention

One of the key elements in the Army Safety Center's comprehensive mishap and accident prevention program is its **Army Safety Management Information System (ASMIS).** This system calls for the collection, storage, and quick retrieval of timely Army accident data and is essential to the Center's research and analysis efforts. Efforts are on-going to advance the capabilities of the ASMIS to better support the Army Safety Program and field commanders.

The Safety Center currently receives and processes approximately 430 aviation and more than 1,700 general mishap reports a month. In addition, each quarter it handles about 285 accident exposure reports from major and subordinate commands worldwide. Each report is assigned a case number, logged, checked for completeness, and immediately reviewed for urgency of the identified system inadequacy. The report is then coded and the information subsequently fed into the Center's new computer system.

Crash investigators check the wreckage of an AH-1 Cobra as part of the ongoing USAAAVS responsibility.

Current and historical mishap experience data provided by the Center's automated management information system plays a vital role in almost all aspects of the Army's accident/mishap prevention efforts. Through analysis of mishap data, Safety Center specialists identify specific system inadequacies and develop countermeasurers. System inadequacies are then ranked in order of those contributing to the greatest losses and detailed information is given to appropriate resource managers having responsibility for the system involved.

This totem pole ranking helps direct Army-wide prevention efforts at problems on a "worst-first" basis. Commanders are now provided feedback which is essential in the development of their accident prevention programs.

The payoff from this approach is straightforward. By eliminating or reducing Army system inadequacies, a more efficient system will result and the number of accidents will be reduced.

A Total Approach

The Safety Center's total approach to safety includes systems management which attempts to improve the safety of all Army systems, giving consideration to the man, machine, and the environment. Safety Center aviation system engineers and managers are directly involved in all aspects of the operation and development of Army aircraft systems.

From concept to disposal, aviation system engineers and managers assist their counterparts in TSARCOM, TRADOC, DARCOM, and other agencies making recommendations about system safety in the design and operation of equipment and the training of personnel.

System management is also being applied to general safety. The Center monitors Army equipment to detect problems in existing systems and to insure safe performance of systems to be fielded in the future.

Another element in the Safety Center's management cycle is its comprehensive edu-

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cation program. The Center provides indepth safety training on all aspects of safety doctrine and safety management to Army military and civilian personnel. The Center conducts accredited resident training courses in both aviation and general safety and annually graduates more than a thousand qualified safety personnel.

Safety instruction is also provided to Advanced Warrant Officer Course students, officers, and warrant officer candidates in their initial flight training, flight surgeons, and selected aviators advancing toward broader command responsibilities.

In addition to its resident courses, the Safety Center also exports training in the form of one and two-week courses and, upon request, conducts on-site mishap prevention seminars and gives special presentations at installations Army-wide.

The Safety Center also makes available OSHA educaitonal material and a variety of safety correspondence courses to all safety staffs.

Safety in the Field

To promote safety during training and contingency operations, Safety Center teams are available to visit commanders in the field. The teams assist during the planning stage of joint training exercises, monitor the safety aspects of activities, and make recommendations for improving unit safety programs. These on-the-spot consultation visits give commanders and safety personnel the benefit of the Safety Center's Army-wide experience in identifying problem areas and potential hazards.

Health and industrial-hygiene-related aspects of safety are also of concern to the Safety Center. The Center monitors data bank information to determine hygiene-related mishap trends, analyzes this information, and formulates countermeasures. This is accomplished through close coordination with the Office of the Surgeon General, the Army Health Services Command, and Army Medical Department activities.

Getting the Word Out

In support of the Army's safety objectives, the Safety Center maintains an active communications program which develops and distributes mishap prevention information and safety promotional material worldwide. Analysis of mishap data, reviews of recent mishap causes, and suggested remedies are highlighted in a variety of informative periodicals, technical reports, pamphlets, and posters. In addition to print media, the Safety Center also uses motion pictures, television, and radio to carry its safety messages to the field.

A Sharp Focus

The Army Safety Center's scope of operations has significantly expanded since its early days at Fort Sill, but its focus remains the same: safety in the cockpit, safety on the ground, safety during training and contingency operations and all Army activities, all of the foregoing making safety an integral part of every Army mission. □

Q. What similar purchase have more than 12,000 Army Aviators made in the past 15 years?

A. They've purchased AAAA-endorsed flight pay insurance. As an active duty or or as a Reserve Component Army Aviator, don't you think you owe it to yourself to get the basic facts about this coverage which has returned more than $2 million in lost flight pay to claimants?

All it costs is an 18 cent stamp.

ARMY AVIATION ASSOCIATION

LADD AGENCY, INC.
1 CRESTWOOD ROAD WESTPORT, CONN

Gentlemen:

Please forward me the pertinent details of the AAAA-endorsed flight pay insurance coverage.

☐ I am on flying status with a U.S. Army unit. ☐ I am an AAAA member.
☐ I am a student pilot undergoing Army flight training.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

MY DATE OF BIRTH IS _____

"Research efforts never provide timely answers!"

"Not true!" says Army Research Institute (ARI) Field Unit Director C.A. Gainer whose new unit provides key answers

TRAINING and Selection Research Programs are often discounted with offhand comments to the effect: "What does that do for the Army?" or "Research efforts never provide timely answers," or "The results are textbook solutions and can't be used," or maybe "That information is nice to have, but will we use it?" These are the more pleasant and printable comments.

Army Research Institute (ARI) planners themselves were keeping these types of questions in mind as they considered the orientation the new Field Unit should take. Army Aviation was faced with a number of immediate training problem areas, not the least of which were threat, increasing hardware sophistication, round-the-clock operations, a changing trainee population, and resource limitations.

Central Questions

Considering these training problems and the Army management's concern, the ARI research planners developed a guiding set of questions as a point of departure for research: "What form should the research product take?" "What are the changing needs of aviation?" "Are there common problems at all phases of an aviator's career?" and "What should be the balance between cost and training in order to maximize aviator and unit proficiency?"

The above questions, the Army's needs, and the operational environment guided the research planners to the following set of principles: (1) to have operational Army personnel participate in each effort, (2) to maintain an operational, product-oriented program, (3) to maintain flexibility without degrading scientific integrity, and (4) to perform long range research in support of Army Aviation's future inventory.

The common thread holding this program together was the obvious observation that the aviator's career parallels that of a hardware system life cycle (**Figure 1**). Reflect for a moment on the aviator's career: selection, institutional training, combat unit training, aircraft qualification, staff positions, and finally, retirement.

The program was molded into four, time based layers which consisted of the following: (1) Quick reaction - Technical Advisory Service, (2) near-term research - six to 18 months, (3) intermediate research - up to three years, and (4) long-term research - beyond three years.

Four Problems

The preliminary training research requirements analyses resulted in an identification of four basic aviation problem areas which remain viable today:

1. Aviator Selection and Training Management.
2. Flight Simulation Requirements and Utilization.
3. Performance Measurement and Assessment.
4. Combat Unit Training and Proficiency Maintenance.

In order to incorporate a well balanced, integrated and responsive research program, three technical research teams were established to research and develop aviator selection methods, combat unit skills, training techniques, and maintenance programs to prepare the Army aviator to perform the combat arms

role and survive in a high threat environment.

Selection and Training Team

The Selection and Training Technical Team performs research in support of two aspects of the early stages of the aviator's career: Selection and Institutional Training. ARI has long been the prime force in developing methods of selecting personnel for aviation training. Several aviator selection programs are in progress or have recently been completed.

Flight Aptitude Selection Test

The **Flight Aptitude Selection Test (FAST)** is a paper and pencil test battery which has been demonstrated to be a valid predictor of aviator candidate performance in the **Initial Entry Rotray Wing (IERW)** training. In March, 1980, the Revised FAST, as described in DA Pamphlet 611-256-2, was introduced. The Revised FAST has a shorter administration time, simpler scoring procedures, more objectivity and an improved predictive validity.

An alternate form of the Revised FAST is under development to provide for retesting of individuals who were initially unsuccessful. This alternate form is to be available in FY 82. In the past, the retest process required a Department of Army waiver.

The ARI developed **Performance-Based Aviator-Applicant Selection System (PASS)** is a job sample test which identifies applicants who demonstrate the aptitude for helicopter flight training. PASS requires the applicant to perform basic flight maneuvers in the UH-1FS over five one-hour periods and measures the applicant's ability to acquire the skills required to control a helicopter.

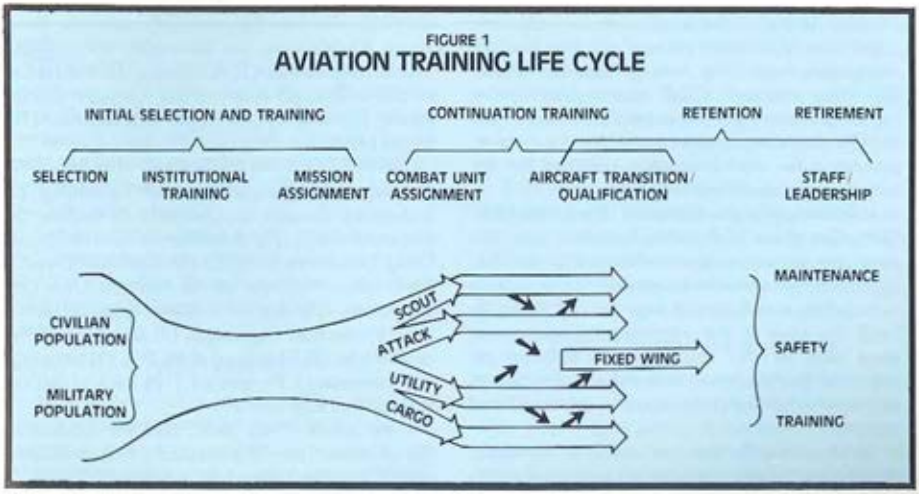
PASS will be a part of a sequential selection process designed to identify those individuals with the psychomotor, cognitive and perceptual abilities required for successful performance in not only the flight training program, but also in an operational environment.

Mission Track Assignment

In June, 1977, the USAAVNC began a dual-track IERW program in which 25% of aviation candidates were assigned to tactical training in the Aeroscout mission in the OH-58 aircraft. ARI developed a method to identify those candidates most likely to succeed in the Aeroscout track. The Aeroscout assignment algorithm has been effective in predicting success in Aeroscout tactics training.

This Aeroscout algorithm research was a quick reaction effort (see above) designed to provide an answer to a specific short term, high priority requirement. ARI is also pursuing a more comprehensive and objective long range solution for multi-track assignment in IERW. This assignment procedure examines

FIGURE 1



USARI
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the abilities and aptitudes of each candidate in order to determine which of the four basic helicopter missions would best fit the candidate's particular skills.

This assignment procedure will use a battery of eight paper/pencil tests, a psychomotor test and PASS to predict the candidate's probability of success in each generic mission: Aeroscout, Attack, Cargo, and Utility. The Mission Track Program is not intended to lock the aviator into a particular mission/aircraft for his/her entire Army Aviation career but rather to provide a systematic and empirically based means of initially identifying the mission in which an individual will succeed early in that aviator's career.

Aviator candidate selection and mission assignment is to be based upon the operational (mission) performance and requirement. This emphasis on mission performance capabilities is a significant departure from past selection research where the validity of selection testing was based solely upon institutional success.

Aviation Warrant Officer Retention

In response to MILPERCEN tasking, a major effort was recently completed to determine the primary factors associated with the voluntary separation of aviation warrant officers. The primary objectives of the Aviation Warrant Officer Retention research effort was to identify the considerations rated as most influential in the AWO's decision to separate. This research is providing the documentation required for the initiation of corrective actions.

Preliminary data obtained from MILPERCEN files show a sizeable increase over the past year in separation at the end of the first tour of duty for aviation warrants. This attrition represents a substantial loss to the Army in both the size of the experienced manpower pool and in the utilization of training resources. Each aviator who departs represents an extensive initial investment of time and money.

When those factors are added to continuation training cost, the critical need to retain as many aviation warrants as possible is revealed. The initial results of this research (**Army Aviation Magazine**, January-February, 1981) has already impacted DA policy regarding aviation warrant officer career management and aviation career incentive pay.

Combat Unit Training Team

Graduation from flight school merely marks the end of institutional training and the beginning of the aviator's early career activity — unit training. The Combat Unit Training Technical Team conducts research to identify operational unit training problems and requirements and to produce prototype, exportable training modules that will aid a commander in training and maintaining the unit's combat effectiveness. A module is a training "package" which consists of equipment, film, tape, etc., with instructions for use, and has demonstrated training value.

In a recent worldwide survey of major aviation units, commanders were asked "What are your current performance deficiencies and obstacles to training?" The results of the research indicate that there were a total of 55 common deficiencies and 51 obstacles. The aviation unit commander's ten highest priority items in each category are as follows:

DEFICIENCIES — (1) Operations in an NBC Environment, (2) Aided (NVG) Terrain Flight, (3) Night Terrain Flight Navigation, (4) Unaided Night Terrain Flight, (5) Combined Arms Team Operations, (6) Surviving on a High-Threat Battlefield, (7) Battlefield Coordination of all Assets, (8) Maintaining Organic Equipment, (9) Day NOE Flight Operations, (10) Night Hawk.

OBSTACLES — (1) Shortage of Aviators, (2) Inadequate Night and Weather Capability, (3) Voluntary/Involuntary Attrition of Aviator Experience Base, (4) Inability to Communicate Long Distances at NOE, (5) Battalion-Division Staff Lacks Knowledge of Aviation Unit Employment, (6) Lack of Wire Hazard Detection/Protection Capability, (7) Shortage of Aircraft Parts, (8) Shortage of NCO's, (9) Shortage of Maintenance Personnel, (10) Lack of Decontamination Capability.

The above "Top Ten" and the remaining list of items have illuminated many problems which require research solutions. Some of

them, for example, items three and ten of the deficiencies list, have research efforts in progress and are discussed below.

Night Hawk/Night Vision Goggles Training

Night terrain flight, night hawk training and practice of night emergency procedures are vital activities, but these are confronted by obstacles such as noise abatement, IP's concentrating on safety rather than instruction, the physiological protests of the body, and the spouse's lack of appreciation for keeping unusual hours. One solution being investigated is to convert day to night by wearing a **light attenuating filter (LAF)** which effectively reproduces the night visual scene.

Experiments have shown that the sun, wind, and dust goggles with LAF inserts enables aviators to train in hovering, terrain flight, and emergency night flight maneuvers by day, thus bypassing the objections raised above and allowing the IP to instruct with his full daylight vision.

Tactical Terrain Flight Navigation

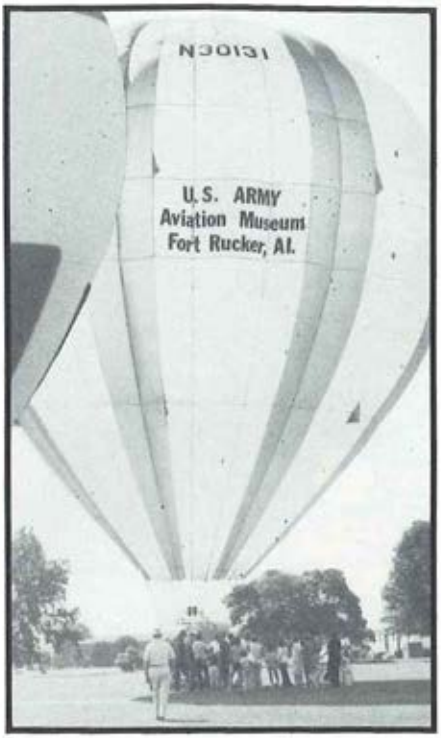
A long-term ongoing research effort by this team is the development of Tactical Terrain Navigation Training. In a recently completed effort, the ARI developed **Map Interpretation and Terrain Analysis Course (MITAC)** was modified and validated for use with Night Vision Goggles and unaided night vision for navigation training.

This training module, entitled **Map Interpretation and Terrain Analysis for Navigation at Night (MITANN)**, was developed both for implementation at USAAVNC and as an exportable package for use by aviation units in the field. This material exemplifies the training module principle.

Other examples of training modules under development are a pre-mission planning checklist and speeded speech (without raising the voice frequency) as a briefing and training technique.

NOE Lexicon

Is it a draw or a saddle? The very high workload engendered by flying NOE in a combat environment means that intra-cockpit communication must use a crisp, unambiguous,



and standard vocabulary wherever possible. ARI has just completed a book of navigational commands and terrain descriptors which lists the most widely used and least ambiguous terms (as garnered from a wide range of Subject Matter Experts) and which provides an appropriate picture and map symbol to accompany each term.

This is an example of user participation and the operational orientation of ARI, as information was gathered in the field using more than 100 combat unit aviators from six geographical regions. The product is to be a Training Circular for use by aviators Army-wide.

Flight Simulation Team

The Army continues to demonstrate cost and training effectiveness of flight simulation. The Flight Simulation Technical Team participates in direct research support to the family of Synthetic Flight Training Systems. There

BLACK HAWK

SYNTHETIC FLIGHT TRAINING SYSTEM

Now that the Army's most advanced utility helicopter, the Black Hawk, is in service, its extended survivability in a hostile environment will also depend on the best trained crews. Today at Fort Rucker Link simulation technology through the Army's Synthetic Flight Training System (SFTS) is making that prerequisite a reality.

Link
FLIGHT SIMULATION DIVISION
THE SINGER COMPANY
BINGHAMTON, N. Y. 13902

USARI
(Continued from Page 67)

is still a need for systematic, planned research to determine the most advantageous mix of training devices, simulators and aircraft in the acquisition and maintenance of proficiency.

The advent of full motion and visual system simulation in the CH-47FS, the AH-1F/WS, the UH-60FS and subsequent systems, presents an even greater challenge and potential in the development of a cost-effective total training system. A transfer of training model was developed to provide empirical data as to the most cost and training effective mix of simulator and aircraft practice for qualification training. An example of this data is provided in **Figure 2**. This same model will be adapted for use during the UH-60FS training effectiveness research.

Performance Measurement

In order to maximize the use and optimize the effectiveness of flight simulator training, a **performance measurement grading system (PMGS)** for the UH-1FS has been completed. The product provides the aviator with a comprehensive and functional printout of his/her performance. This research involves the use of a number of instructional features available in the UH-1FS which had previously not been used. Based on this research, an instructor's guide and course of instruction was developed which formulated the text and body of TC 1-75.

Yet to be resolved are the basic issues which concern the requirements for motion; the role of kinesthetic and control movement feedback in the acquisition of helicopter flight skills; the validation and acceptance of the role of training devices in a total training system; and a host of questions concerning with what and how to simulate for effective training to take place.

As both the complexity of required battlefield skills and the cost of each flying hour increase, so does the necessity for optimizing training both at the USAAVNC and throughout the Army. ARI, Fort Rucker, continues to anticipate needs of this fast changing environment by identifying problems at an early stage, and then conducting research leading to the development of cost effective training techniques and modules.

The goal is to insure that the aviator has quality training at all career steps so that he/she always has the appropriate skills and knowledge wherever and whenever needed. It is well recognized that achievement of this goal will require close coordination, planning, and participation of Army aviators, Army Aviation commanders, and Army Aviation policymakers. □

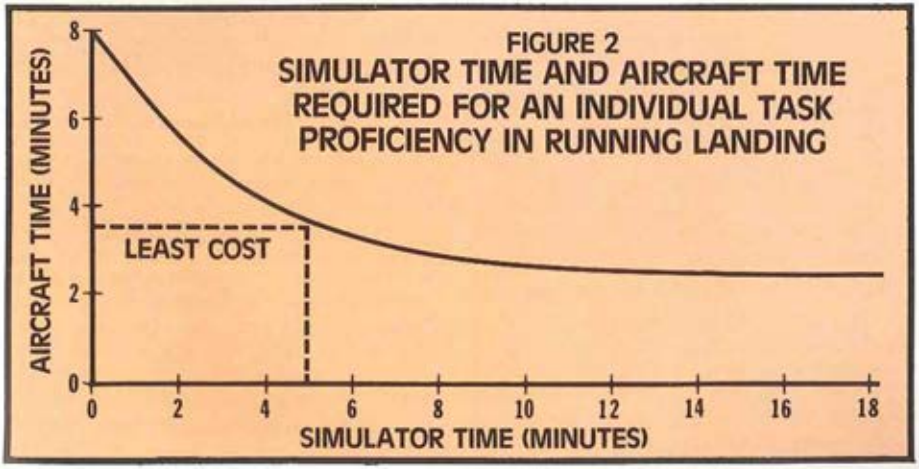


FIGURE 2
SIMULATOR TIME AND AIRCRAFT TIME REQUIRED FOR AN INDIVIDUAL TASK PROFICIENCY IN RUNNING LANDING

The Aeromedical Center supports three missions

COL R.J. Kreutzmann's center covers FLATIRON, Lyster Army Hospital, and the training of Army flight surgeons

WHILE the Aeromedical Center at Fort Rucker, AL may be the smallest facility in the Medical Corps, identified as a center, it is tasked with a vast spectrum of clinical, research, and aviation missions.

In 1963, **COL Spurgeon Neel** (later MG) established the Basic Army Medical Officers Course in the old Fort Rucker hospital to train Army physicians as flight surgeons. Army flight surgeons were previously trained by the USAF.

In 1971, aeromedical subjects were extend ed to Army Aviation personnel during various flight training courses at Fort Rucker to satisfy NATO Standardization Agreements for aircrew training. The subjects offered included altitude physiology, night vision training, disorientation, G-forces, stress, and fatigue.

In 1972, an altitude chamber was procured from Langley Air Force Base and installed at the Hanchey Army Heliport. All WOR-WAC/ORWAC and selected transition course students were offered training in the new altitude chamber. This chamber was used until August, 1977, when it was donated to the Army Aviation Museum. A new and larger altitude chamber was procured from Craig Air Force Base at Selma, AL.

In 1973, the Army Aeromedical Center was established as a subordinate unit within the newly established Health Services Command.

Aeromedical Center Comes of Age

The new Aeromedical Center had three major responsibilities: Lyster Army Hospital (named after the Father of Army Aviation Medicine, Theodore Lyster) provided community hospital service to the Fort Rucker military community. FLATIRON, the Center's air ambulance unit, continued to provide crash rescue support to the Army Aviation School and aeromedical evacuation services to the surrounding military and civilian communities.

Lastly, the Army Aeromedical Activity, under the directorship of **LTC Nick Barreca**, MC/SFS, enhanced worldwide aviation readiness by training Army physicians as flight surgeons and giving aeromedical training to aviation personnel. Aeromedical consultation for aviation personnel who had medical disqualifications was provided to determine if a recommendation for possible return to flight status could be made.

All Army Class 1 and 2 flight physical examinations were reviewed and an Aeromedical Data Repository was formed to collect data on the health status of aviation personnel. The Aeromedical Center's diverse missions continued to evolve and focus upon Aviation Safety and readiness through emphasis upon combat effectiveness and sustainability of our valuable aviation force.

The Hospital

The Aeromedical Center's Lyster U.S. Army Community Hospital is responsible for the care of over 44,000 people of which 7,000 are on active duty while another 37,000 represent dependents and retired families. A full spectrum of community hospital services might be available in the near future when the Medical Corps recovers from its recent and severe shortage of physicians. The Center's Veterinary Activity will shortly assume an expanded mission to support regional Navy and Air Force facilities due to the loss of veterinary officers in those services.

A Diverse and Unique Mission

The Center's Aeromedical Activity provides Fort Rucker's medical facility much of its uniqueness. The Army Aeromedical Activity (AAMA) has a diverse mission to provide postgraduate medical training to physicians who became Army flight surgeons and to conduct physiological training for aviation personnel. Primary medical care for over 4,000 aviation personnel at Fort Rucker is provided by the AAMA physicians. Over 34,000 Class 1 and 2 Army flight physical examinations are reviewed by AAMA's Waiver and Review Service annually.

Aviation personnel having a medical disqualification are evaluated on a selected basis by the Aeromedical Consultation Service for possible waiver recommendation for return to flight status. Medical data collected from review of the physical examinations and consultations is maintained by AAMA in an Aeromedical Data Repository. The data are used to determine medical status parameters of the Army Aviation population.

About eighty physicians are trained in three Army Aviation Medicine Basic Courses conducted each year. Upon their graduation from the concentrated seven week course, the physicians earn the basic flight surgeons' badge, crewmember flight status, and recognition as an Army flight surgeon. During their course, the physicians review the aeromedical aspects of ophthalmology, orolaryngology (ENT), neurology, pharmacology, orthopedics, cardiology, and psychiatry.

They also receive instruction in aviation topics to include: chemical warfare, aerodynamics, night vision, altitude physiology, high and low magnitude G-forces, crash injury protection, noise and vibration, and aircraft accident investigation. Flight physical examination techniques, administrative topics, and medical policies are also covered in the course of instruction.

Flying Doctors

The physician receives flight instruction in the TH-55 helicopter similar to that offered to West Point Cadets. Flight training gives the flight surgeon essential insight into occupational stresses and skill requirements of Army aviators. Following a year's field experience, the flight surgeon may elect the specialty of Aviation Medicine if he desires. If selected, he obtains a Master of Public Health degree at a civilian university and spends the second year of training at Brooks Air Force Base, TX where academic, patient, and research experience is obtained.

The resident physician also receives instruction in the Air Force T-37 jet training aircraft. Upon finishing his postgraduate medical training program, the flight surgeon becomes board qualified and may take the Aviation Medicine Specialty Board Examination to receive formal recognition in the specialty. The fully trained flight surgeon is specially trained to apply scientific and medical principles to the Army's operational needs.

Aeromedical Teaching

The Aeromedical Activity conducts over 4,000 hours of classroom lecture to aviation personnel at Fort Rucker in training. This training includes: night vision techniques, disorientation and flight, altitude physiology with experience in the low pressure high altitude chamber, stress and fatigue, noise and vibration, use of aviation protective equipment, G-forces, and crash injury protection.

The training is given as a comprehensive effort to reduce human factors accidents and improve Army Aviation readiness. Future plans include the integration of many of these

NEW HOME—An aerial view of the new home of the U.S. Army Aeromedical Research Laboratory, giving the Army "the newest and finest research equipment to be found anywhere." The move into the new 116,620 square foot structure is just about complete.

USAAMA
(Continued from Page 71)

medical subjects into flight training so the instructor pilot can vividly demonstrate the principles to his student during flight maneuvers.

Consultation Service

Aviation personnel who fail to meet the medical standards for flight are considered for waiver by the Aeromedical Consultant Advisory Panel. This is an advisory body for the Commander, U.S. Army Aeromedical Center, and is comprised of physicians who have completed the Aviation Medicine Specialty and two senior dual-rated aviators as selected by the Commander, U.S. Army Aviation Center. About seventy percent of the cases considered by this panel are recommended for waiver to DA for return to flight duties.

A recommendation given to DA by this panel might include a waiver for dual-flight status only for the aviator having abnormal color vision. The Panel's orientation is to recommend a return to flight status to DA whenever possible to preserve valuable and expensive aviation experience.

Conditions which cannot be recommended for waiver include the medical conditions which might result in acute incapacitation during flight. This would include conditions involving the heart and central nervous system.

The Consultation Service is authorized under AR 600-108 to evaluate selected aviation personnel who have specific physical disqualifications. Those selected for evaluation by the Consultation Service are usually given temporary flight orders to undergo inflight evaluation by a senior IP and medical examination by a flight surgeon.

Following their evaluation, determination of a waiver recommendation is made to DA. Several aviators, including one who had lost an eye and another with a below-the-knee amputation have been returned to flight status as Army aviators through this mechanism.

FLATIRON

FLATIRON is the Center's crash rescue/aeromedical evacuation unit. FLATIRON's (always hot) mission is to provide a crash rescue service for the Aviation School and to transport critically ill patients to medical facilities where necessary emergency care can be obtained. Both military and civilian patients from the surrounding area benefit from this service.

The civilian emergencies are transported under authority of the **Military Assistance to Safety and Traffic (MAST)** program. This gives excellent experience for medical and aviation crews who have a similar wartime mission.

Exchange With Other Organizations

Due to its close proximity to the U.S. Army Aeromedical Research Laboratory, the U.S. Army Safety Center, and the U.S. Army Aviation Test Activity, the Aeromedical Center staff can participate in many facets of Army Aviation. This greatly facilitates the exchange of ideas, enhances enthusiasm, and promotes readiness. The Aeromedical Center closely supports the U.S. Army Aviation Center and many of its flight surgeons serve as "faculty members."

Total Support of the Aviation Force

The Aeromedical Center provides total medical support for the aviation force: patient care is given at Lyster Army Hospital and the Aviation Medicine Service. Administrative waiver, review, and data respository services are provided for personnel on flight status. Consultation, waiver, and review is conducted on a worldwide basis for Army Aviation.

Army physicians are trained as flight surgeons to apply their scientific and medical knowledge to support and enhance operational aviation requirements. The physiological training given the aircrewmen at Fort Rucker is a direct link between Health Services Command and a line element to develop military readiness.

The aviation physiological training is highly important for the aviator to understand the comprehensive battlefield threat; namely: enemy strengths, tactics, and weapon systems, diseases, climatic extremes, psychological stresses and their effects on the aircrews, enemy logistics, disorientation in flight, and visual decrements under night viewing conditions, and many others as well. The Aeromedical Center helps Army Aviation in its mission to build an effective force which can be sustained in combat. □

The Aeromedical Research Lab works for you . . .

The six areas of acoustics, vision, crew workload, vibration, impact, and LSE are described by Colonel Stanley C. Knapp

RESEARCH efforts at the U.S. Army Aeromedical Research Laboratory (USAARL) have two objectives: enhancement of the individual soldier's combat performance and efficiency, and the prevention of injury or death in the operational environment.

USAARL's research and development efforts are directed to supporting the safety, efficiency and effectiveness of the healthy soldier while training or working at his high risk occupation: war and the training for war.

A Look Back

USAARL was established in 1962 to accomplish medical research in support of the Army Aviation community and airborne activities and to provide a central aeromedical research and reference library for the aviation effort. Additional visual research missions were added to the laboratory with the closing of the Fort Knox Medical Research Laboratory in 1974. The laboratory's further expanded mission now includes the assessment of the medical impact of advanced armor and artillery weapons systems and other non-medical materiel.

USAARL is one of nine medical research laboratories of the U.S. Army Medical Research and Development Command. It is the only medical laboratory designated to deal with Army Aviation's unique occupational problems.

Effective management of a scientific research laboratory requires continuous evaluation of the scientific programs. New directions are constantly under consideration by the laboratory and are based on Department of the Army R&D priorities, on input from the Medical Research and Development Command, interservice discussion, international meetings, threat intelligence, and most importantly, on information from you — the user and benefactor of all our research.

USAARL is working in six major areas: acoustics, vision, crew workload and stress, vibration, impact, and life support systems. Within each of these areas are many separate but related projects.

Noise Control

The whine of turbine engines, the steady whop, whop of helicopter blades, the rumble of tracked vehicles, the boom of heavy weapons, and the crackle of microphone static besiege the soldier. Noise abouds in the military occupational environment.

But noise, all kinds of noise, is a hazard to hearing. Turbine engines and gears produce high frequency noise; rotor blades and vibration of tracked vehicles create low frequency noise; and weapons produce impulse noise.

We're investigating the effects these various noise threats have on hearing and communication, and seeking ways to reduce the noise or to protect the exposed soldier. Our continuing acoustics program validates helmets and hearing protective devices — such as earplugs and ear muffs — to assure that the soldier receives adequate environmental noise protection.

Vision Research

TV's Geraldine used to tell viewers that "What you see is what you get," and that holds true for soldiers, too.

USAARL

(Continued from Page 73)

The military operational environment depends heavily on visual information. Computers, aircraft, tanks, ships — all must have methods of displaying and transferring visual information rapidly and efficiently to the human operators.

USAARL conducts laboratory and field experiments searching to improve the efficiency of the eyes in interpreting information presented by helmet mounted displays, CRT's and a variety of sophisticated vision enhancement techniques.

We are working to determine the human ability to function under conditions of extremely low light when vision is degraded by hypoxia or exotic chemicals. Researchers are testing a person's visual ability to identify moving targets under the adverse lighting conditions expected on the battlefield of the future. A soldier must locate and follow the target for efficient job performance.

Investigation of the compatibility of the human eye, statically and dynamicaly, to alternative display phosphors will help to determine what color and how bright displays have to be for optimum day/night viewing.

We are determining man's head aiming/tracking capability while using the **integrated helmet and display sight system (IHADSS)** that will be used in the YAH-64. The vibration laboratory was the site of a visual tracking experiment where we vibrated the individual and measured how well he could follow a moving target and destroy it. An oversimplification, certainly, but this experiment gave us information on basic head aiming error when tracking a moving target. This became a foundation block in the development of the IHADSS.

Spectacles and protective masks have always been an incompatible and worrisome combination for the soldier, in the field and in the air. We believe the "mask compatible spectacle" now being tested should overcome this problem. The "mask compatible spectacle," made of nylon frame held firmly in place by a silicone temple strap, will fit snugly and comfortably under a protective mask.

Work Load & Fatigue

One of the problems facing Army aviators is that of fatigue. Man has very definite limits; and though he can adapt up to a point, adaptation occurs at a specific rate for each individual. What makes it difficult for unit commanders is that each of their people adapt at a different rate.

So far, no one has come up with a thermometer we can pop into a pilot's mouth and measure the degree of fatigue. However, we are studying the workload associated with each of a pilot's senses, with his muscles, and with the hard to define aspect of fear and anxiety and how they contribute to fatigue.

Inflight assessment of aviator performance and analysis of human performance data give us information on which aircrew work-rest cycles can be based. This accumulated human performance data will assist in developing models that can be used in the developmental designs of future hardware systems.

The Integrated Helmet and Display Sight System (IHADSS) and TADS/PNVS represent examples of the advanced technology of the '80's. Linking the optical and computer capability with the human is USAARL's goal.

A quantitative study of co-pilot workload in navigating at nap-of-the-earth flight levels with a doppler navigation system and projected map display is in progress with an eye toward lightening the co-pilot's workload and improving intra-crew procedures.

Those of you who've flown with the **night vision goggle (NVG)** have experienced the outside to inside the aircraft transition problem when getting aircraft instrument information. NVG's with a digital readout are being evaluated and may help alleviate that problem. We've placed a digital display giving aircraft altitude, heading and airspeed within the peripheral view of a pilot wearing the NVG. Experiments show that this information is useful and beneficial to pilots. Experiments are continuing to determine if attitude, trim information and caution warning can be added to give the pilot all necessary flight information within the NVG. Soon, we plan on defeating the NVG transition problem.

Injury Studies

Today's injury studies indicate that approximately one in three aviator fatalities is due to head and/or neck injuries. Skull fracture tolerance is fairly well known; but research on the mechanisms of head injury (including concussions) in crown impacts, side impacts, and facial impacts is still needed. Whole body tolerance to forward and vertical impact forces is established, but the military needs to know the tolerance of the body to combined downward, forward and sideward impacts.

We have contract and in-house projects where we are looking into body tolerance of impact force on the whole body, impact to the head and neck, and impact forces of defeated projectiles. Vests are available that projectiles can't pierce, but what do the impact forces do to the body behind the vest? We're trying to find out.

We've been dropping helmets from the drop tower for years — and we'll be continuing. For example, the U.S. Army Natick Research and Development Command is formulating design requirements and criteria for a new combat vehicle crewman's helmet and USAARL will determine what impact and acoustic levels are required. This is one way we fulfill our mission to develop the biomedical criteria for design and development of life support equipment.

A soldier experiences simulated vehicle vibration in evaluation of occupational muscle stress during USAARL's vibration research program. The bite-bar (in the mouth) measures linear and rotational acceleration.

Vibration

Vibration was once considered just a nuisance, but advances in equipment technology have made vibration a real concern. Advanced tracked vehicles operating at higher speeds expose restrained crews in unusual seating positions to direct coupled vibration. The resulting effects on the visual, auditory, vestibular and neuromuscular function are not fully known since the exposure factors are unique to emerging military weapon systems. Aviators have long experienced vibration-related musculoskeletal disorders.

Vibration effects the body in two hazard areas: health and effectiveness. The general goals of the vibration program are to define these effects and determine a means to alleviate detrimental influences of vibration exposure. We're searching for vibration exposure effects to your eyes, your hearing, your joints, and your muscles.

A Tri-Service Effort

Letters of agreement with the Air Force and Navy designate USAARL as the agency to evaluate and analyze tri-service life support equipment involved in an aircraft accident. The **Life Support Equipment Retrieval Program (LSERP)** operates anytime there is an aircraft accident where life support equipment either prevents an injury or allows an injury to

USAARL
(Continued from Page 75)

occur. The LSERP is learning from the most expensive of all experiments — the aicraft accident.

Relentless change, one certainty of the aviation environment, demands continual health hazard assessment of new or altered equipment and environments. The use of nuclear, biological and chemical weapons changes the combat environment. There exists the need to identify, evaluate or protect against these hazards. Researchers are evaluating a chemical-biological protective uniform for aviators. Some of the outfits developed for ground troops don't work too well on aircrews.

In the past, Army aircraft have been dubbed "low and slow" and needed no oxygen support, but that's a bit old fashioned now. Today's aircraft reach altitudes and have missions requiring effective oxygen systems; therefore, altitude chamber static and flight tests on a molecular sieve oxygen generating system are in progress.

A Busy Place

USAARL is a busy place. What we discover here helps you to be more safe, more efficient and more effective in what you do. Research is our business — that's what we do, and we have qualified people doing the work. There are flight surgeons, physicians, psychologists, neurophysiologists, audiologists, optometrists, engineers, chemists, research aviators, veterinarians, physiologists, and physicists.

Behavioral science assistants, psychology technicians, EENT specialists, optical lab technicians, cardiopulmonary technicians, and x-ray specialists, to name a few, function as additional hands and extended minds for primary researchers.

The support of a research project is no minor factor; it is a vital function. Within the laboratory we have computer specialists, librarians, mathematicians, biomedical maintenance personnel, budget personnel, supply people, all sorts of people.

Our growth at USAARL has been in research, people, and facilities. We're proud of them all.

The use of nuclear, biological, and chemical weapons dictates that aircrews wear appropriate protective clothing. USAARL reseachers are involved in evaluating distinct uniforms for aircrews since some gear developed for ground troops does not work very well in the cockpit.

Our New Home

Of course, our most visible growth is seen in our new laboratory. The 116,620 square foot structure sits on a knoll with the vivarium just to the rear. The new laboratories, anechoic chambers, flight simulator, and hybrid computer give us some of the newest and finest research equipment to be found anywhere. Laboratory construction began in 1978. The move to the new building is just about complete. Everyone feels we'll do more and do it better in our new home.

Research to conserve fighting strength research for the soldier remains our guiding principle. □

(The views of the author do not purport to reflect the positions of the Department of the Army or the Department of Defense.)

Diversity is the byword at the 1st Avn Brigade!

With 3,750 personnel, Colonel David J. Allen's GOLDEN HAWKS provide immense support to the Aviation Center

DURING the last two decades, Army Aviation has established itself as an integral and flexible part of the combined arms team. An important and illustrious member of the Army Aviation team is the 1st Aviation Brigade. From its mammoth combat role in Vietnam, to its current diverse role at the USAAVNC at Fort Rucker, the **Golden Hawk Brigade** has always been a kingpin in support of Army Aviation.

Born in Vietnam

Before detailing the Brigade's current contribution to Army Aviation, it would be well to briefly review the enormous contribution it has made during its short history. The Brigade was organized and deployed to Vietnam in 1966 under the command of **BG George P. Seneff, Jr.** During its deployment there, the Brigade's units had control of over half of the aircraft employed in the conflict; at its peak in June, 1970, this control extended to over 4,000 aircraft and 27,000 personnel.

At that time, the Brigade consisted of four Combat Aviation Groups, 16 Combat Aviation Battalions and 83 companies — almost the size of two divisions. Not only was the Brigade large in numbers, but its men were also prolific winners of awards for bravery and excellence, winning over 28,000 awards in one month alone! In Vietnam, the Brigade indeed played the paramount role in the employment of aviation assets. The Brigade was redeployed to Fort Rucker in March, 1973, to begin its present role in support of aviation at the USAAVNC.

The Brigade Today

At the 1st Aviation Brigade diversity is a byword. The Brigade, as it is configured today, has command and control of four battalions, each with distinctly different missions. These include two student battalions (the 4th and 6th) and one permanent party battalion (the 1st) as well as one FORSCOM battalion (the 46th Engineers). In addition, the Brigade has control of the reactivated C Troop, 1st Squadron, 6th Cavalry Regiment, 6th Cavalry Brigade (Air Combat).

The total configuration consists of 22 companies, three detachments, and an Army Band with the assigned personnel numbering some 3,750 permanent party personnel and, at any one time, over 2,000 officer and enlisted students. Each of these battalions in the Brigade fulfills its own unique function in support of Army Aviation.

Administrative Support

The Brigade's 1st Battalion, numbering some 2,300 personnel, provides necessary administrative support to four numbered companies, as well as the 141st Military Police Company, the 98th Army Band, the 260th Field Artillery Detachment, and C Company (PFDR/ABN) 509th Infantry. The four numbered companies provide administrative support for personnel assigned to the installation staff, ranging from instructors to administrators. The 141st MP Company and the 98th Army Band perform normal post support functions.

Fire Support

The 260th Field Artillery, Composed of two gun sections and a Fire Direction Center, plays a large support role at USAAVNC that belies its

1ST AVN BDE

(Continued from Page 77)

small size. In 1979, while fulfilling its mission of providing artillery support for **Initial Entry Rotary Wing (IERW)** training, this unit fired in excess of 5,400 rounds of high explosive and illumination ammunition. Without this unit's yeoman-like support, much of the tactical training for future Army Aviators at Fort Rucker would be impossible.

Pathfinders

One of the most unique units assigned to the Brigade, and to Fort Rucker, is the 1st Battalion's C Company (PFDR/ABN) 509th Infantry. It is unique not only in that it is the only infantry unit assigned to the post, but also in that it is the only pathfinder company in the United States Army. Company C not only provides a special operations capability to Army Aviation, but also plays an important role in supporting the Aviation Center and contributing to the development of current aviation and pathfinder doctrine.

A pathfinder from Company C (PFDR/ABN) of the 509th Infantry establishes radio contact with an incoming aircraft.

In support of IERW flight training at USAAVNC, the unit conducts both day and night operations, establishes landing and drop zones, and provides terminal landing guidance during tactical training.

One recent and note-worthy contribution by Company C has been their participation with the Aviaiton Board in exercises to develop techniques for positive night time ground control of aircraft, utilizing non-visible light sources. The results of this test will lead to new pathfinder operational doctrine.

In addition to its other duties, this unit provides rappelling demonstrations for post visitors and to area ROTC units, and assists in conducting special operations training for the Alabama State Policy Acedemy. Perhaps another notable way is, that dressed in their camouflaged fatigues, they are a quiet reminder to the Army Aviator that he is trained to support and compliment ground combat forces.

Mission: Impossible

As any Army Aviator knows, his mission would be impossible without the support of a myriad of skilled and dedicated soldiers. At USAAVNC, the soldiers of the 4th Battalion are trained in the vital MOS's of Utility Helicopter Repairman (67N), Observation/Scout Helicopter Repairman (67V), Flight Operations Specialist (71P), Air Traffic Control Tower Operator (93H), and Air Traffic Control Radar Controller (93J). Providing administrative support for these soldiers is the mission of three numbered companies (41st, 42nd, and 43d) of the Battalion. The unit trains over 2,500 soldiers each year.

The 4th Battalion's motto — **Soldier On!** — is a daily reminder to all soldiers of the unit that his or her ultimate value to the Army rests in how well each one develops and matures as a soldier. It implies total reliability, regardless of the challenge or difficulty of the task. It originated from an article appearing in a 1973 issue of **FLYING** which highlighted the old Beech 18 aircraft.

Among other things, the article discussed the reliability of the Beech 18 ". . . as it soldiers on . . ." This phrase is indicative of the pride, spirit, and high morale of the sol-

diers assigned to the unit as they train to support the best aviators in the world.

Our Major Objective

The development and training of aviators is, of course, one of the major objectives of USAAVNC. All IERW students and those rated aviators seeking to further develop and expand their skills, come under the control of the 6th Battalion. To accomplish its mission, the battalion is organized into a battalion headquarters, three distinctive **Warrant Officer Candidate (WOC)** companies (60th, 61st, and 62d), two officer companies (63d and 64th), and the Allied Military Training Division.

The WOC program is divided into four distinct phases: **Warrant Officer Candidate Military Development Course (WOCMDC)**, Primary, Junior, and Senior. These phases mark the stages of progression through the course. The 60th Company is composed of those individuals in the WOCMDC, and is responsible for administering the program. The WOC's attend classes in academic military subjects taught by the **Department of Academic Training (DOAT)** and undergo intensive leadership and military development training carried out by **Training, Advising, and Counseling (TAC)** officers at the company.

The TAC officers, senior CW3's and CW4's, seek not only to develop warrant officers, but to develop combat aviators by creating a stressful environment in which to evaluate candidates. The WOC's are constantly evaluated as to their appearance, personal discipline, and leadership ability. Integrated into this program is a rigorous daily PT schedule. Upon graduation from the six-week WOCMDC, the candidates have passed their initial test toward becoming warrant officers and aviators.

Into the Air

After progressing through 60th Company and WOCMDC, the WOC's are assigned to 61st Company and begin Primary Flight Training in the TH-55 Osage trainer, adminsitered by **Directorate of Flight Training (DOFT)**. During this phase, candidates are still subject to strict discipline administered by the company. Upon graduation from their eight weeks of Primary, the candidates move to 62d Company and advance to the Junior phase of training where they begin training in the Army's workhorse helicopter, the UH-1 "Huey Iroquois".

At this point, though they are still undergoing difficult flight training, the candidates acquire more responsibilities as well as more privileges. Additionally, married candidates whose spouses reside in the local area are given the privilege of living at home.

The Senior phase is the last phase of the WOC program, and of IERW training. During this phase, the students receive tactical training in current aviation doctrine. Upon graduating from flight training, the candidates are appointed warrant officers in the United States Army.

The 63d Company supports students attending some 28 commissioned and warrant officer graduate-flight and academic courses. Some of the courses included are all transition

Air Traffic Control students from the 1st Avn Bde's 4th Bn practice positive control of aircraft flown by flight students from the 6th Bn.

1ST AVN BDE
(Continued from Page 79)

and instructor pilot courses, Warrant Officer Advanced and Senior Courses, and the Aviation Precommand Course.

Similar to its sister WOC companies, the 64th Company supports students attending commisioned officer initial flight training. Just as with the WOC's, the flight program lasts for 34 weeks. At the beginning of the Primary Phase the Warrant Officer Candidates and the commissioned officers are integrated into a flight class and go through the flight program together.

Training Our Allies

The Allied Military Training Division supports all Allied flight students attending all phases of flight training at Fort Rucker. These students originate from 15-20 countries each year, and number upwards of 300 annually.

If there are any "unsung heroes" at Fort Rucker, surely the 46th Engineer Battalion (CBT) (HVY) and its attached units qualify. The Battalion, consisting of three lettered engineer companies, the 427th Medical Company (AMB), the 108th Quartermaster Company (PRT) (FWD), the 416th Transportation Company (MDM TRK PETRL), the 91st Engineer Detachment (FF), and the 123d Ordinance Detachment (EOD), plays a visible and noticeable role in support of aviation training at USAAVNC. Indeed, if one could sum up what the unit has done for the post, it would be "support."

The engineer companies of the battalion are involved in a diverse number of construction projects, both on and off post. The units have erected six different TVOR navigational aid sites throughout Fort Rucker and the surrounding area, as well as being involved in numerous smaller construction projects, building renovations, and paving projects.

The PARCOURS Fitness Trail, enjoyed by everyone at Fort Rucker, is an unusual and worthwhile project built by the men of Company C. In addition to the on post projects, the units have participated in several Civil Action projects. These include recreation-area construction, the Fort Chaffee Cuban Refugee Relief, and the Hurricane Frederick Relief operations.

We Haul Fuel

If you ask anyone from the 416th Transportation Company, a petroleum truck company, what they do, you'll be told, "we haul fuel." They are responsible for transporting fuel to the tactical sites used for USAAVNC aviation training, and work closely with the 108th Quartermaster Company on refueling. The 108th has five active refuel sites and has the capability to refuel all aircraft currently in the Army inventory.

"Hot Refuel" enables the pilots of refueling aircraft to keep their engines running while taking on fuel, greatly reducing their ground time. Two of the company's platoons are actively involved in refuel missions at all times, as well as in refueling various transporting equipment such as 5,000 gallon tankers, 10,000 gallon bladders, and 5 ton and 2½ ton tractors.

Any discussion of aviation support would be incomplete without mentioning the other attached units of the Battalion. The 427th Medical Company is an ambulance company that provides coverage for the post ranges, and is always on hand to support post activities, such as Lyster Army Hospital.

The 91st Engineer Detachment is a small unit of combat ready fire fighters who support aviation training at one of Fort Rucker's fifteen stage fields. Explosive Ordnance Disposal is the job of the 123rd Ordnance Detachment as it performs a critical safety function for the post and the southeastern United States.

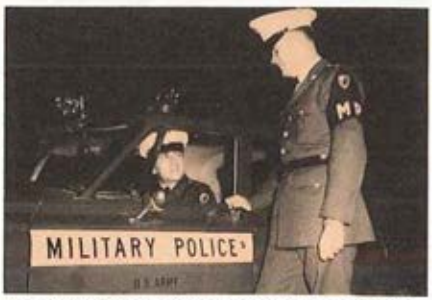
Combat Ready

One would be remiss if we did not mention the FORSCOM role played by several of the Battalion's units. Its engineer companies and the 427th Medical Company are REFORGER units, their primary mission being to train and maintain readiness for deployment to Europe in the event of hostilities there.

Two additional attached units, the 108th QM Company and the 416th Transportation Company, are designated Rapid Deployment Force units, prepared for deployment to any place in the world. The training and planning necessary to keep the units combat-ready is a constantly on-going process.

In addition to its FORSCOM role, we should restate that support is the name of the game here at Fort Rucker for the 46th Engineer Battalion. A great deal of this effort is highly visible, some is not, but it all adds up to a considerable amount of work in support of aviation training at USAAVNC.

The unit's other mission is to provide support to the United States Army Aviation Center activities. In this role, the Troop provides aerial support for the 260th FA Detachment and the 46th Engineer Battalion. Additionally, it provides support to the Aviation Board in developing and testing new aviation doctrine.



Top left: Yano Hall, the maintenance training hub. Lower left: 'Hot Refuel' reduces the total down time. Top right: Hard at work on repairing a UH-1 Huey are two helicopter maintenance trainees. Lower right: The 141st Military Police Co does its job, day in and day out.

In addition to its battalion-sized units, the 1st Aviation Brigade has attached to it the reactivated C Troop, 1/6th Cavalry, which has a long and glorious history. Originally activated in 1861, the 1st Squadron, 6th Cavalry Regiment has participated in almost every conflict in which the U.S. has been involved, and as a result the unit's standard is adorned with 35 Battle Streamers. The unit now has a twofold mission at Fort Rucker. Their primary mission, of course, is to prepare for combat, with their attack mission being "To destroy enemy armored, mechanized or other forces by aerial combat power, using fire and maneuver."

An Immense Job

As we have stated, the 1st Aviation Brigade is indeed a diverse and flexible organization, providing immense support to USAAVNC and to aviation Army-wide. From the soldiers involved in giving and receiving flight training, to the engineers constructing aviation facilities, to the pathfinders guiding in aircraft in the dark of night, the soldiers of the 1st Aviation Brigade are professionals doing a difficult job well. The **Golden Hawks** are indeed proud of the support they give to Army Aviation and of their ability to **SOLDIER ON!** □

There is a pressing need!
Support the new Museum!

CHARTER MEMBERSHIP—Contributions of $1,000. The individual names will be engraved on individual plaques.

LIFE MEMBERSHIP—Contributions of $100. The names of Life Members will be engraved on permanent plaque.

"IN MEMORIAM" SPONSORSHIPS—Contributions of $100. The memorialized persons' names will be engraved on a permanent plaque.

ANNUAL MEMBERSHIPS—Annual contributions of $10.00.

YOUR CONTRIBUTION MAY ALSO BE A MEMORIAL ("IN MEMORIAM" SPONSORSHIP — $100.00)

Gifts are promptly and gratefully acknowledged to the concerned family or person designated by the donor. The name and address of the donor, and the amount of the donation are mentioned in the formal acknowledgement.

IN MEMORY OF _____

PLEASE SEND GIFT CARD TO:
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FROM (YOUR NAME)
NAME _____
STREET _____
CITY-STATE_____ ZIP_____

CHECK ONE:

☐ Charter Membership, $1,000.00; ☐ Life Membership, $100.00 ☐ Annual Membership, $10.00

PLEASE CREDIT THIS CONTRIBUTION OF $_____ TO:

PLEASE PRINT NAME _____
ADDRESS _____
CITY/TOWN _____ STATE _____ ZIP_____

Your contribution should be made payable and addressed to: The Army Aviation Museum Foundation, Inc., P.O. Box H, Fort Rucker, Alabama 36362

The Museum preserves the past for each of us!

Curator Thomas J. Sabiston points to the Army Aviation Museum's many priceless displays that preserve our heritage

THE monetary worth of the U.S. Army Aviation Museum's displays at Fort Rucker, AL, is about $70 million. Even more valuable, however, is the historical record they represent of Army Aviation's people, equipment and mission.

One of the main tourist attractions in Alabama, the museum is open to the public with no admission charge seven days a week — from 10 a.m. to 5 p.m. on Monday through Friday, and from 1 to 5 p.m. on weekends and holidays. It is closed only on Christmas Day.

An Educational Treasure

Operating under the provisions of AR 870-20, the Army Aviation Museum serves as an educational institution to the military and civilian communities. Included in its collection are more than 100 aircraft, about 2,000 documents and books, more than 2,000 photographs, and hundreds of other historical memorabilia ranging from a model of the Wright Military Flyer which was purchased by the Army in 1909 and received the designation of "U.S. Aeroplane No. 1," to paintings of some Army Aviation recipients of the Medal of Honor.

The documents and related items are arranged as a reference library that provides guidance to the museum staff as they restore and preserve the aircraft. It is also widely used by writers and other researchers.

Some of the more notable aircraft on exhibit are the VCH-34 helicopter used by President Dwight D. Eisenhower during his term of office, the C-121 Constellation used by General Douglas MacArthur in the Korean War and later by NASA on the Apollo XI mission, the YOH-6A Cayuse helicopter which holds 23 world records, and a 1954 model of a Mi-4 Soviet helicopter.

Proud Memories

Other features of the museum are the Army Aviation Hall of Fame and the "Cold War" Memorial. The latter contains brass plates reflecting the names of individuals who were killed in action, died of wounds received in combat, or died while in a captured status while assiged to Army Aviation units in Southeast Asia.

The Hall of Fame is sponsored by the Army Aviation Association of America as a means to recognize military and civilian persons who have made outstanding contributions to Army Aviation. That roll now numbers 35, and more will be elected for this special honor from time to time.

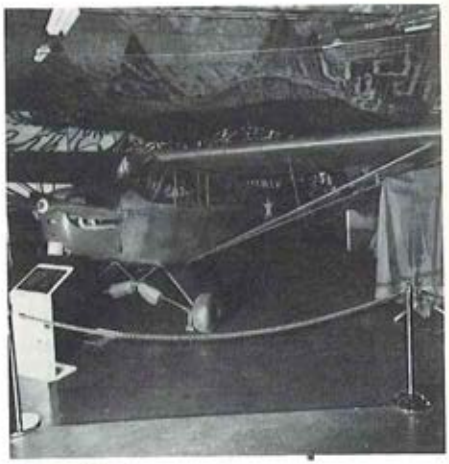
A bright, sunny day at the Aviation School Museum highlights many of the aircraft in the Museum's outdoor display.

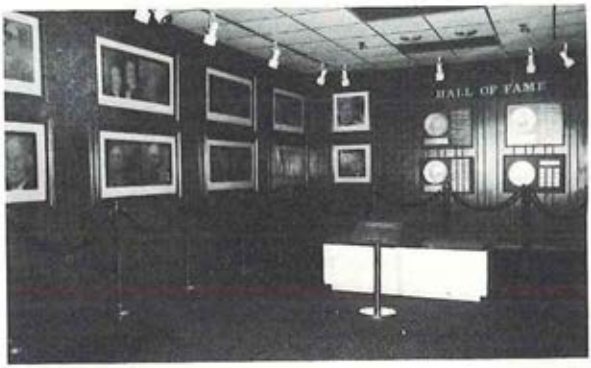
THE MUSEUM

(Continued from Page 83)

Time for a Change

The Army Aviation Museum occupies three World War II shop buildings and adjacent outside areas. The inadequacy of these quarters for the irreplaceable displays has been recognized by some museum supporters. They have organized a private, non-profit organization to raise $2 million through donations and memberships to construct a new building with all of the environmental features necessary for preservation of the artifacts. Additional information and details on this may be obtained from the U.S. Army Aviation Museum Foundation, Inc., P.O. Box H, Fort Rucker, Alabama 36362.



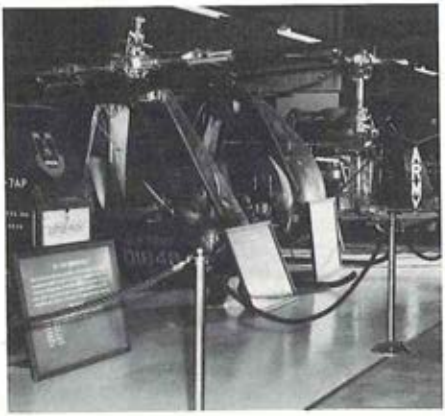


ABOVE: A World War II vintage Piper L-4 Cub under a camouflage net. LEFT: The AAAA-sponsored "Army Aviation Hall of Fame" includes Inductee portraits, and large plaques (right rear) bearing the names of all previous "Aviator", "Aviation Soldier", "DAC of the Year", and "James H. McClellan Aviation Safety Award" recipients who have been 1959—1981 win- of AAAA National Awards. BELOW: Interior view of the Experimental Aircraft Displays.

In addition to its mission to serve the general public, the Museum makes a vital contribution to Fort Rucker's training program for aviation, maintenance and accident prevention students. They are given tours of the facility; and the guide uses the exhibits to explain the technological development, the failure or success of many test programs, and the progress of Army Aviation through the years.

Our Heritage Preserved

All of the work done by the Army Aviation Museum staff is based on their belief that they are engaged in a tremendous undertaking — because knowledge of Army Aviation's heritage serves to enlighten today's aviators for tomorrow's duty to the nation. □



Calendar

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JUNE-JULY 1981 AAAA MEETINGS

■■MAY 15. Hanau Chapter. Late afternoon professional meeting. MG John W. Woodmansee, guest speaker. Beacon NCO Club. Fleigerhorst Kaserne.

■■MAY 15. Morning Calm Chapter. Professional meeting/Farewell to COL(P) E.D. Parker, Chap Pres. EUSA O-Club.

■■MAY 16. Delaware Valley Chapter. Visit to Indiantown Gap/Luncheon/SFTS/static display/return to Philadelphia.

■■MAY 21. Mt. Rainier Chapter. Late afternoon professional meeting. Bell, Sikorsky briefings. Ft. Lewis O-Club.

■■MAY 23-25. Taunus Chapter. Rodeo; Corn-on-the-cob concession as Chapter moneyraiser. McNair Kaserne.

■■ MAY 27. Monterey Bay Chapter. Chapter reactivation and professional luncheon meeting. COL Joseph Campbell, II, USA Plant Rep—Hughes Helicopters, guest speaker. Ft. Ord Officers' Open Mess.

■■ MAY 30. Suncoast Chapter. Beach Party and Pot Luck Dinner. BYOL/BYOFood. Dunedin Beach, FL.

■■ JUNE 5. Army Aviation Center Chapter. Army Aviation Birthday Party. (NEB Quarterly Meeting. Dothan Air Fair). Ft. Rucker O-Club.

■■ JUNE 5. Rhine Valley Chapter. Professional Luncheon Meeting. COL Ivar W. Rundgren, AHIP-PM, speaker. Coleman NCO/Club.

■■ JUNE 6. Lone Star Chapter. Professional Membership Meeting. Presentation by a Ragsdale Aviation Rep; new Cessna aircraft on display. Austin Army Aviation Support Facility.

■■ JUNE 10. Taunus Chapter. Gen'l Membership Meeting; discussion of upcoming programs and events. 97th Gen'l Hospital O-Club.

■■ JUNE 11-14. Franconia-Marne Chapter. Trip to the Paris Air Show and tour of a Champagne Factory.

■■ JUNE 12. Corpus Christi Texas Chapter. Gen'l Membership Meeting & Promotion Party; Chapter nominations. NAS Party House.

■■ JUNE 16. Fort Benning Chapter. Chapter Reactivation Meeting & Social Get-Together. Party Room, Follow Me Golf Club.

■■ JUNE 18. Franconia-Marne Chapter. Gen'l Membership Meeting. Election, VP-Membership. "Giebel-People Inn", Giebelstadt AAF.

■■ JUNE 20. Air Assault Chapter. Family Day Picnic. Kiddie games, pony rides, unit competitions. Clarksville Base Picnic Grounds.

■■ JUNE 21. Jack H. Dibrell (Alamo) Chapter. Father's Day Family Bar-B-Q. Roast Pig and all the trimmings. U.S. Army Recreation Area — Canyon Lake.

■■ JUNE 23. S. California Chapter. Social Get-Together/Professional Dinner Meeting. MG Edward M. Browne, PM-AAH, guest speaker. AFRC O-Club, Los Alamitos, Calif.

■■ JUNE 26. Monmouth Chapter. Gala AAAA Birthday Ball and Farewell to COL LeRoy White. Gibbs Hall, Fort Monmouth O-Club.

■■ JUNE 26. Cedar Rapids Chapter. Activation Meeting. Selection of Chapter name, election of officers, planning future programs. The Longbranch.

■■ JUNE 26. Fort Riley Chapter. General Membership Meeting. Open Bar . Fort Riley Main NCO Club.

■■ JUNE 27. Lindbergh Chapter. AAAA Scholarship Golf Tournament and Tournament Awards Dinner. Trophies and prizes. Clubhouse, SLASC Golf Course.

■■ JUNE 27. Washington, D.C. Chapter. Tour of the Paul E. Garber Restoration, Preservation, and Storage Facility of the Smithsonian Air & Space Museum.

■■ JULY 3. Franconia-Marne Chapter. "Afternoon Delight" 12 KM Cross-Country Run. Awards to be presented to winners. Giebelstadt Army Airfield.

■■ JULY 19. Connecticut Chapter. Annual Summer Skirmish. BYOB, BYOWife, BYOBar-BQ, backyard games. Home of Art & Dotty Kesten, Westport, CT.

■■ AUG. 17-19. Franconia-Marne Chapter. USAREUR-Wide Combat Aviation Helicup. Aviation Competitions, Awards Presentations, Party. Giebelstadt Army Airfield.

COL Ronald K. Andreson (holding model), BLACK HAWK—Project Manager, and MG Emil L. Konopnicki, TSARCOM Commander (far left), discuss the aircraft with LTG Robert J. Lunn (2d from left), Deputy CG for Materiel Development, DARCOM; and LTG Harold F. Hardin, Jr. (far right), Deputy CG for Materiel Readiness, DARCOM. The high ranking officers participated in day-long briefings at the St. Louis, MO TSARCOM Hqs.

NIGHT PROWLER

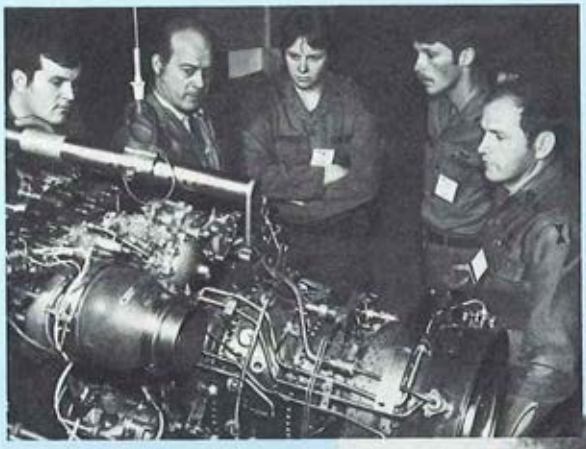
The U.S. Army's AH-1S COBRA attack helicopter is now equipped with a telescopic sight, part of the airborne TOW missile system, that has been augmented with a forward-looking infrared (FLIR) receiver. The system, known as the FLIR-aumented COBRA TOW Sight (FACTS), represents a quantum jump in capability for the COBRA, giving it a substantially improved night vision capability and enabling it to provide around-the-clock combat support. The FACTS, mounted on the aircraft's chin, enables gunners to "see" through the darkness, smoke, or haze to accurately fire TOW missiles, rockets, and cannon. The COBRA's night vision was used in simulated combat for the first time during recent field exercises at Fort Polk, LA.

Members of AAAA's Bonn Area Chapter are shown during their February visit to Bueckeburg, the home of the German Army Aviation School where they heard a presentation by MTU, a German aircraft engine manufacturer at a professional membership luncheon. They then toured the German Helicopter Center, and followed this with a tour of the nearby Heye Glass factory. They concluded their day's activities with an evening banquet.

◄*COL Robert A. Bonifacio, r., President of the USA Aviation Board at Ft. Rucker, AL, accepts the AAAA's "Special Award" for "Outstanding Unit Performance over an Extended Period." Retired BG Robert M. Leich, the AAAA's National Awards Chairman, makes the presentation at the 39th Birthday Ball held at Fort Rucker on June 5. The unit was cited for its "long record of testing and evaluating major aviation systems during the period July, 1976 and December, 1979." The unit was selected in CY 80 and was only the fourth unit to receive the "Special Award."* *(USA photo)*

Three YAH-64 Advanced Attack Helicopter (AAH) prototypes are shown being ferried to the site of the U.S. Army's Operational Test II (OT-II) which began June 1. Manned by Army pilots and co-pilot gunners and maintained by Army crewmen, the YAH-64's will use harmless laser beams instead of bullets, rockets, and missiles in the test, with computers serving as judges and deciding which tank, anti-aircraft vehicle, or AAH is "destroyed" during the mock battles. The Combat Developments Experimentation Command (CDEC) will administer the test for the Army's Operational Test and Evaluation Agency (OTEA). ►

◄*Major General Harold I. Small, right, Commander of the U.S. Army Transportation Center and Ft. Eustis, Virginia, accepts a check for $25,000 from Robert F. Daniell, Chief Executive Officer of Sikorsky Aircraft, during a recent ceremony held at Ft. Eustis. The Sikorsky check represented the aerospace manufacturer's donation to the Army Transportation Museum located at Ft. Eustis.*



◄*Under the guidance of Hughes Helicopters, Inc. instructors, Ft. Ord Army personnel study installation and maintenance of the AH-64's twin G.E. T700 engines and related systems. Shown, l-r, at the Culver City Hughes facility are SSG Jeff Winters, 2/10 Air Cav; Jim Jones, Hughes supervisor; and SGT Sue Garrett, SP4 David Lucas, and SFC Arnie Burrell, all of the 7th Aviation Battalion.*

Pictured are the principal members and Company Commanders of the new 1st Combat Aviation Battalion, 1st Infantry Division, at Ft. Riley, Kan. Along with the superficial name changes the Battalion has undergone extensive equipment, personnel, and administrative changes. Although official "Activation" is to occur on September 1 the carrier codes were officially adopted on March 1.

◄*The Combat Skills I Branch of Lowe Division was awarded TRADOC's Daedalian Army Aviation Flight Safety Award at May 30 ceremonies at Ft. Rucker. From left are COL Bruce H. Gibbons, Director, DOFT; MG Carl H. McNair, Jr., USAAVNC Commander; BG Richard A. Ingram, Air C&S College (Presenter); LTC Steven B. Dodge, Lowe Division Commander; and CPT Calvin E. Ball, Combat Skills I Branch Commander. (USA photo)*

An exchange of Certificates of Appreciation and reciprocal association was made February 24 between AAAA's Bonn Chapter represented by its President, LTC Helmut A.G. Roeder, right, and LTC Scholz of the German Army Aviation School, who is Vice-Chairman of the Bueckeburg Helicopter Center. The ceremony took place at the FRG facility located in West Germany. ►

◄LTG Willard W. Scott, 2d from left, receives an AAAA plaque in the form of a V Corps crest during his visit to the German Army Aviation School on March 9. Also shown, left to right, are COL Kurt J. Veeser, Commmandant of the German School; LTC Helmut A. G. Roeder, President of the Bonn Chapter of AAAA; and MAJ Thomas W. Sinclair, President of the Taunus Chapter of the AAAA.

(Delayed). Shown left to right are LTG Willard W. Scott, V Corps Commander; LTG(R) Harry W. O. Kinnard and LTG(R) Robert R. Williams, Past Presidents representing AAAA National Hqs; SP5 Wanda Kirby; and Mr. Paul Weissmuller during the late March Garmisch Convention of AAAA's USAREUR Region. Mr. Weissmuller holds the "Outstanding Aviation Unit Trophy" awarded by the Region to the 59th ATC Bn.

month's takeoffs

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AAAA LEADERSHIP

THE MT. RAINIER CHAPTER—AAAA 1st in a Series of Group Photographs of Current Chapter Executive Boards

FORT LEWIS, WASH.—THE FIVE KEY OFFICERS OF THE RECENTLY REACTIVATED MT. RAINIER CHAPTER OF AAAA ARE, LEFT TO RIGHT, MAJOR FREDERICK C. SCHATTAUER (SECRETARY), CW3 RICHARD T. HENSELEN (VP—MEMBERSHIP), COLONEL PHILLIP E. COURTS (SENIOR VP), COLONEL THOMAS H. HARVEY, JR. (PRESIDENT), AND COLONEL (RET.) HERB D. PRATHER. SOME 50 MEMBERS SIGNED THE ACTIVATION FORM AT THE CHAPTER'S MARCH 24 REACTIVATION MEETING, AND THE CHAPTER HAS SINCE HELD ITS FIRST PROFESSIONAL MEETING ON MAY 21 WITH BELL AND SIKORSKY BRIEFINGS.

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Not receiving your issues? Did you send in a change of address? — Page 91

Support your U.S. Helicopter Team in a personal way. Join 1,070 who have donated $10 to the AAAA's "Uniform Fund"

A GUARANTEED WINNER! MAKE A $10 TAX-DEDUCTIBLE DONATION TO THE "AAAA" AND RECEIVE AN OFFICIAL

UNITED STATES HELICOPTER TEAM BASEBALL CAP!

USA
1981 HELICOPTER TEAM

HELP AAAA'S APRIL—AUGUST, 1981 EFFORT TO PROVIDE UNIFORMS FOR THE 24-MEMBER "U.S. HELICOPTER TEAM" BY MAKING THIS ONE-TIME CONTRIBUTION TO THE AAAA.

THE AAAA CAN'T COVER THE TEAM MEMBERS' AIR FARES OR THE TRANSPORT OF OUR COMPETITION AIRCRAFT TO THE 1981 FOURTH WORLD HELICOPTER CHAMPIONSHIPS IN POLAND, BUT WITH YOUR DONATION, IT CAN UNDERWRITE THE U.S. TEAM'S UNIFORMS THIS AUGUST 14-23!

THE ADJUSTABLE ROYAL BLUE COTTON CAP IS LINED AND BEARS THE OFFICIAL EMBLEM OF THE U.S. TEAM

LIMIT OF 36 TO A CUSTOMER!

THE DATED TEAM CAP WITH ITS RED AND WHITE PATCH IS CERTAIN TO BECOME A COLLECTOR'S ITEM!

TO MAKE A $10.00 DONATION AND TO RECEIVE YOUR PERSONAL "U.S. HELICOPTER TEAM" BASEBALL CAP WITH ITS OFFICIAL TEAM EMBLEM, MAKE YOUR CHECK PAYABLE TO "AAAA" AND SEND IT WITH THE YOUR NAME AND ADDRESS STUB TO AAAA, 1 CRESTWOOD ROAD, WESTPORT, CONN. 06880. PLEASE ALLOW 4—6 WEEKS FOR YOUR CAP'S DELIVERY.

DONATION FORM

I HAVE ENCLOSED A CHECK MADE PAYABLE TO "AAAA".PLEASE SEND ME AN OFFICIAL "USA 1981 HELICOPTER TEAM" BASEBALL CAP. I UNDERSTAND THAT I MUST CLEARLY PRINT MY OWN RETURN LABEL BELOW:

TO _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

All U.S. Helicopter Team members are involved in long, hard training days

An On-the-Scene Report from Ft. Campbell
by Major Roy E. Mann, Team Coach, USHT

We think the team's supporters would like to know that the **United States Helicopter Team** is conducting a very demanding and challenging training program at Ft. Campbell, KY.

The training starts each morning with a three-mile run followed by classroom work in both navigation and map reconnaissance, and then flight. It's a long day, one that usually ends at 1730.

As you know from earlier articles in **Army Aviation**, the 101st Abn Div (ASLT) is hosting the USHT's training camp. Immediate responsibility for support of the Team is by the 2/17th, under the command of **LTC Robert S. Young.** This unit has given us valuable office and classroom space in addition to maintenance work areas and full supply support.

The 5th Transportation Bn, under the command of **LTC Allen C. Cornell,** is providing us with the bulk of our maintenance support. Again, like that of the 2/17, their support of our effort has been just tremendous. In fact, the overall preparation and training of the Team has truly been an "Army community effort" in every respect, and this post-wide feeling of "We're with you!" has encouraged each Team Member to train even harder.

All have become experts on the international rules and codes for competition flying with frequent exams being given on the many different aspects of the competition. While we're becoming more and more knowledgeable with each passing week, there are still many, many areas on which we seek clarification.

As you might suspect, map reconnaissance comprises a very large part of the training program. Our pilots have been able to recreate from memory the relative locations of major Polish towns (in the actual competition area) as well as highways, railroads, power lines, and major waterways.

Within two seconds!

To give you an example, the week of 14-19 June was devoted to navigation training. All crews flew a 90 n.m. course at 500 feet with photographs that had been taken along the route. Some crews were able to identify all of the photos with six-place coordinates, and crossed the finish line within **two seconds** of their projected time, and we hope to do better!

The Team is developing a small Polish vocabulary with the aid of the Team's Executive Officer, **CPT(P) Bronislaw Maca,** and the Team's Supply Officer, **CPT Karol Kawalec,** both being of Polish descent and being fluent in Polish. **CPT Maca** had the occasion to visit Poland in early June to discuss many of the details of the coming **Fourth World Helicopter Competition** with the officials of the Polish Aero Club, and to make final coordinations on the food, lodging, etc. for the Team.

In checking with the AAAA National Office on 24 June, I learned that the **AAAA Uniform Fund** had reached the unbelievable total of 1,077 individual donors!

As Team Coach, I assure you that each Team Member — whether pilot, co-pilot, crew-

man, interpreter, etc. — is cheered by the fact that so many people wish them well and will be wearing red, white, and blue Team Baseball Caps along with them in the weeks to come.

Speaking about uniforms, we have them, and they're just great! . . . Blazers, slacks, ties, flight suits, flight jackets, and baseball caps. Your contribution to the Team's **Uniform** Fund is very tangible!

A growing excitement

We'll have a group photo taken in the next few weeks to show AAAA members and others just what their donated dollars have returned.

There is a growing excitement in the training camp as our proficiency in each of the four competition events rapidly improves . . The motivation to win is there . . Our attitude is good . . We're starting to feel like champions.

—Major Roy E. Mann

Where's my cap?

By the time this is read in early July, some 600+ donors will have received their official **U.S. Helicopter Team** baseball caps, much to the happiness of the AAAA National Office that had to respond to many gentle **"My check has been cancelled. Where's my cap?"** prods. The manufacturer's promise (3-4 week deliveries) did not jibe with its production schedule (6-week deliveries). An almost daily "hoot and holler" on their 800 phone line has turned things around and AAAA is now getting 2-3 week deliveries.

ABOARD—John Williams, left, and Morten Meng, right, the two civilian helicopter pilots on the 1981 US Helicopter Team, join their military teammates at the Fort Campbell training site in late June. Both Williams and Meng are experienced test pilots with Bell Helicopter Textron at Fort Worth, TX.

WELCOME—Major Roy Mann, left, Head Coach of the 1981 US Helicopter Team, is greeted by Major Tom Roy, Executive Officer of the 2/17 Cav, 101st Abn Div, at Ft. Campbell, on his arrival. The 2/17 will host the full US Team during the June-August pre-World Helicopter Competition Training period. The sign to their rear says it all.

BG "Don" Parker, new Aviation Officer at DA, completes 2,000th Mohawk hour

THE new Deputy Director of Requirements & Army Aviation Officer, ODCSOPS, DA, **Brigadier General Ellis D. Parker** assumed the duties of his new office in early July, succeeding **Brigadier General Richard D. Kenyon,** who became Deputy Commanding General, USAAVNC.

In one of his last actions while serving as Eighth Army Aviation Officer, **BG "Don" Parker** reached another milestone in his aviation career in May when he logged his 2,000th flight hour in the OV-1 MOHAWK aircraft.

Flying his final two hours in an OV-1D from the 146th MI Bn (Aerial Exploitation), **General Parker** was presented with a plaque to commemorate the event by the 501st MI Group Commander, **COL William Fritts,** on behalf of the manufacturer, Grumman Aerospace Corporation.

BG Parker began flying the MOHAWK in 1961 and is one of a handful of Active Duty Army Aviators who has 20 years in the aircraft. Speaking to members of the 146th after the flight, he praised the professionalism of IP **CW3 Gabe "Bubba" Mayeux** and the aircraft maintenance personnel.

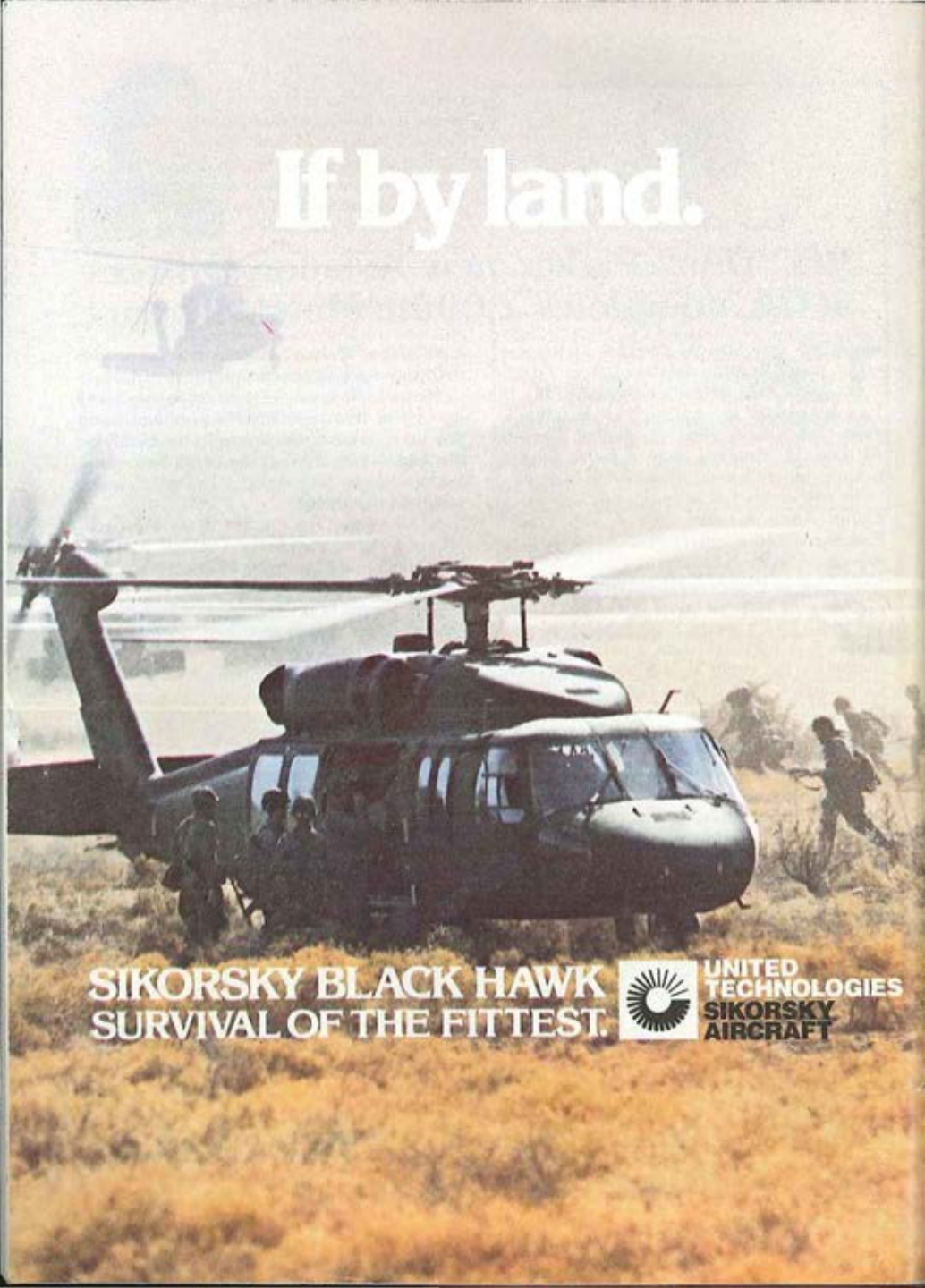
He said, "This was a dream come true. Every time I hear or see a MOHAWK overhead, I stop and think of how great it is to fly the bird." He thanked all personnel of the 146th for making the event possible and said, "This is an event I will always cherish."

As fate would have it, **SFC Clive Peacock,** one of **General Parker's** crewchiefs when he was a lieutenant flying the MOHAWK in Italy, was on hand to congratulate him.

LTC Henry U.B. Brummett, 146th MI Bn Commander, coordinated the flight for the Master Army Aviator for the purpose of updating the General on the advanced flight and systems capabilities of the OV-1D.

In 1980, the 146th, then the 146th ASA Company (Aviation) (Forward), under **MAJ Kenneth Loudermilk,** was AAAA's "Outstanding Aviation Unit of the Year" receiving the coveted AAAA Trophy from **General Edward C. Meyer,** Chief of Staff, for its CY 1979 accomplishments. □

MILESTONE—COL William Fritts (left), 501st MI Gp Commander, reads the citation commemorating the 2,000th flight hour flown in a MOHAWK by BG Ellis D. Parker, (r.), then EUSA Aviation Officer.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