THE AIRMAN

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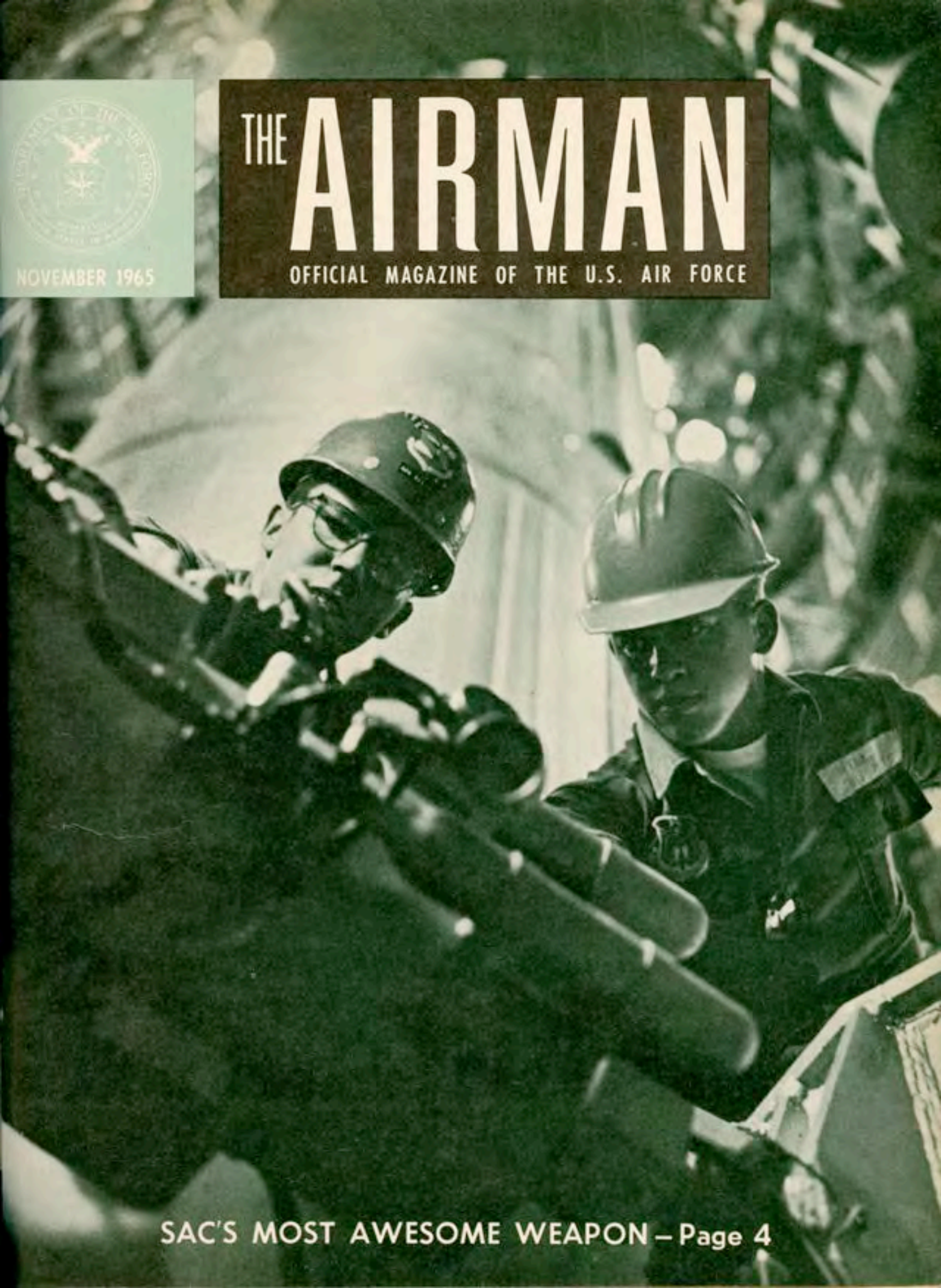

SAC'S MOST AWESOME WEAPON – Page 4

From the Chief of Staff

OUR TECHNOLOGICAL REVOLUTION IN MANPOWER

All of us in the Air Force today can talk with great enthusiasm and authority about revolutionary improvements in the performance, power and accuracy of our weapons. To illustrate our points, we usually cite radical changes of design in aircraft and missiles or impressive increases in their dimension, weight, miles of wiring and numbers of electronic tubes.

What we also realize, but rarely take time to explain in detail, is that we are achieving at the same time an equally important technological revolution in our people—in the knowledge and the skills required to use our weapons with greatest effect.

In accounting for this tendency to slight the subject of skilled manpower, we frequently fall back on the excuse that it is far more difficult to describe the major advances in human proficiency than it is to compare the highly publicized design features of our hardware—jet versus reciprocating engines and the variable geometry wing versus all of its forerunner types.

The fact remains, however, that the upgrading of technical ability must always keep pace with improvements in hardware as the basis for continued success in our defense task. We, therefore, must be able to offer convincing explanations of that point to insure that the public understands our need for highly trained technicians.

Fortunately, in preparing those explanations, we have ready access to much up-to-date information about increased skill requirements. All of this information is interesting and some of it is downright startling.

For example, an interceptor pilot handles electronics gear that equals the complexity of a commercial TV station, and a missile technician is required to diagnose more than 40 possible malfunctions correctly in a matter of seconds by scanning the lights on his launch console.

Some of our combat crews and trained technicians in logistics and research and development are solving even greater problems. Considering the critical functions they perform, it is only natural that they frequently are required to use a checklist approach. In their search for better ways to do things, however, all of them are expected to draw fully on their imagination and initiative.

These qualitative manpower requirements demand the most professional force that can be developed through all the ranks in all the specialties. To help meet this goal, we have increased our occupational specialties from 410 to 1,276 for airmen, and from 235 to 393 for officers since 1944. Over that period, the separate identification of pilot qualifications has gone from 19 to 85. In the missile field alone, since 1956, we have identified 350 separate jobs. As a related measure, we also have expanded greatly our program for educational achievement, and during the past year more than 4,400 officers and airmen have earned college degrees.

These are just a few of the points that we must emphasize to illustrate the steps required in matching the advances in our hardware with equal improvement in the competence of our people.

In seeking better weapons, it is not enough for us to say merely that we need systems that will go "higher, farther and faster." We have to be specific about the type and margin of improvement required. Likewise, in achieving higher degrees of human skill, it is not enough for us simply to insist that it takes a better man today to maintain and operate an aerospace weapon than it did centuries ago to throw a spear. We also have to sharpen the public's awareness of specific skills required for the effective operation of modern weapons. That is the only way to insure that our country is the beneficiary and not the victim of the worldwide revolution in technical skill that is now in progress.

J. P. McConnell

GENERAL, USAF

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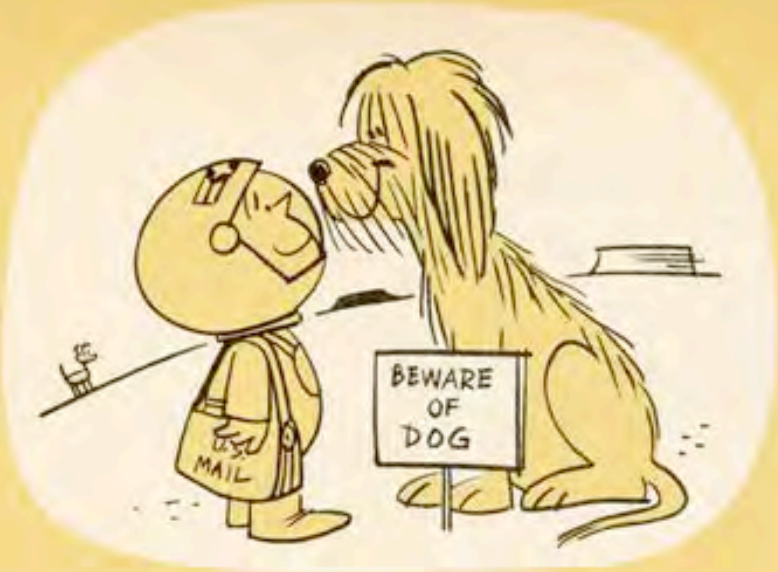

SOUNDING OFF

LETTERS TO THE EDITOR

George Controllers in Control

Sir: We in the air traffic control business are curious about the procedures described in the article, *The Best, The Doggone Best* (March '65 issue) wherein an airman in the squadron combat alert center issues landing clearances to aircraft on final approach. What happened to the control tower at George?

Maj. Robert H. Tefft
Westover AFB, Mass.

Sir: In reading the article, *The Best, The Doggone Best*, in the March 1965 edition of THE AIRMAN, we received the distinct impression that combat alert center personnel of the 329th FIS, George AFB, Calif., are engaged in control of air traffic.

Inasmuch as our command is charged with the responsibility of providing air traffic services at George AFB, you can readily understand our concern in this matter and our desire to preclude any false impressions in the minds of the users of our services. Would you clarify the above misconception?

Col. M. D. Eberts
Scott AFB, Ill.

• *The error is apparently the result of a misinterpreted conversation between an airman in the combat alert center at George AFB, Calif., and an aircraft in flight.* THE AIRMAN *is happy to inform its readers that the men of the 329th FIS are not performing air traffic control functions and that the job continues to be done by personnel of the Air Force Communications Service.*

ANG Pilots Wanted

Sir: Applications are now being accepted for Flying Training Instructor and Operations Training Staff Officer with the District of Columbia Air National Guard. Both positions pay $10,250 annual salaries plus approximately $3,000 military pay for NGC-12 ratings. Applicants must be jet pilots currently on flying status. Experience in F-100 aircraft is desirable for the instructor job. Contact Detachment Commander 113th TFW, Andrews AFB, Washington, D.C. 20331, Telephone: 981-6144, Area Code 301.

CWO Emerson H. Cashour
D.C. Air National Guard

* * *

Antarctic Pioneers

Sir: We read with interest the *Deep Freeze* article in the July issue of THE AIRMAN. The author forgot to mention, however, that crews of TAC's 61st Troop Carrier Squadron were the first to land ski-equipped C-130 *Hercules* aircraft at McMurdo Sound, Marie Byrd Station, and the South Pole during January and February 1960.

We don't want to take from APCS the honor of being "the first few airmen" at the South Pole, as stated in your article, but our C-130 crews were there first.

Jerry, Alex & Dick
Dyess AFB, Tex.

• *Although we normally don't acknowledge letters with omitted or*

(Continued on Page 30)

Behind the Scenes

At press time we received notice of the development by Freedoms Foundation, of a Medal of Honor Grove at Valley Forge. Since 1777, Valley Forge has been a shrine to the heroism and sacrifice of the American fighting man. For this month of Thanksgiving, when Americans everywhere pause to give thanks for their many blessings, it seemed singularly appropriate to tell you about this new memorial dedicated to the men who helped preserve the blessings which we all gratefully enjoy.

Purpose of the Medal of Honor Grove is to provide individual recognition to the more than 3,000 men who have earned the Medal of Honor since its authorization in 1861. Fifty-two acres of the hallowed ground at Valley Forge will provide a rustic woodland setting to recall the deeds of those men who loved liberty more than life itself.

Adjoining the grove will be an archives building containing complete records of the deeds of all the Medal of Honor recipients. It will also house displays on the historical background of the Medal of Honor and on the significance and background of the other medals awarded in the Armed Forces for outstanding individual heroism and service.

One display will be a collection of the various forms the Medal of Honor has taken in the little over 100 years of its existence. The Army and the Navy have always had distinctly different awards and since their origin, both medals have undergone three changes each.

Because of the age and scarcity of some of the medals, they are not available through normal channels. Freedoms Foundation is therefore asking anyone having possession of a Medal of Honor to loan it to the archives building of the grove where it will be placed under glass on public display with a suitable plaque recognizing the recipient and the donor.

For further information, write to:
Gen. Bruce C. Clarke
Vice Chairman
Freedoms Foundation
at Valley Forge
Valley Forge, Pa. 19481

The Editors

FOCUS

A ROUNDUP OF THIS MONTH'S IMPORTANT EVENTS

The Thunderbirds, official USAF Aerial Demonstration Team, will perform their fancy flying aerobatics this month at four Air Force bases in the Far West. Opening their schedule, the Thunderbirds will fly at Luke AFB, Ariz., November 6 for a special open-house celebration, and then perform the following day at Hill AFB, Utah, for that base's 25th anniversary.

During a Veterans Day open house on November 11, the Thunderbirds will thrill audiences at Hamilton AFB, Calif. They close out their November flying with an air show on November 20 at Nellis AFB, Nev.

Busy Air Force Band and com-ponent musicians will entertain thousands of people this month as they take to the road from their home at Bolling AFB, D.C. The Airmen of Note will open at the University of Illinois, Champaign, playing for the AFROTC military ball sponsored by AFROTC Detachment 190. Then they will move to St. Michael's College, Winooski, Vt., for another military ball on November 19. This affair is sponsored by AFROTC Detachment 865.

Another component, the Bagpipe Band, will play at Luke AFB November 6 as part of the special open-house day featuring the Thunderbirds and static displays.

Meanwhile, the USAF Band and Singing Sergeants will round out their fall musical tour with a number of engagements in California. They will play November 1 at Santa Maria, and perform two shows the following day at Fillmore and Thousand Oaks. November 3 they will appear at Los Angeles City College, and two days later play at MacArthur Park in the same city. The Band will be at Disneyland in Anaheim November 6 and close out its western swing November 7 in San Diego.

Officer selection boards will be active this month when they meet to consider a variety of groups for promotion, continuation, and selection to Air Force professional schools. A permanent regular majors promotion board will meet November 1, and a board to continue twice-deferred captains is scheduled to meet November 15. A non-active-duty ROPA majors promotion board will meet November 29.

Earlier this month (November 8) a special senior service school selection board convened to consider eligible officers for entry into fiscal year 1967 school programs.

A significant attendance by staff members of the Air Force's Electronic Systems Division, L. G. Hanscom Field, Mass., is expected at the Third Annual Meeting and Technical Demonstration of the American Institute of Aeronautics and Astronautics November 28 at Boston. A large variety of R&D subjects of particular Air Force interest will be discussed at the four-day technical meeting.

Thousands of fresh and frozen turkeys are now being rushed to hundreds of USAF dining halls around the globe for annual Thanksgiving dinners November 25. Remote Air Force units, including some of those now on combat duty in Viet-Nam, can look forward to the delicious dinners prepared by Air Force Food Service personnel.

An exciting new book featuring color reproductions of 140 famous Air Force paintings is being published this month by Spartan Books, Inc., Washington, D. C. Titled The U.S. Air Force in Art, the volume was written by James J. Haggerty, Jr. It features beautiful color reproductions of the most well-known paintings in the Air Force art collection. Maj. Lloyd M. Peterson, director of the USAF art program, played an active role in gaining its publication.

SAC'S MOST AWESOME WEAPON

UNDER DEVELOPMENT FOR ALMOST 20 YEARS, IT IS THE TOP TOPIC IN EVERY SHOP, AT EVERY UNIT AND ON

THE value and beauty of fine silver is enhanced by age, they say. Sharp edges of the filigree soften and the tone is enriched with a priceless patina. Only care, patience and the putting of the cloth to the silver year in and year out can achieve the envied appearance.

For almost 20 years the abbreviated name—SAC—has resounded around the world like a whip crack. Under the strong leadership of four commanders headquartered at three different locations in those years, the Strategic Air Command has adjusted to myriad changes in weapon system and to the swirling world conditions that necessitated their existence as well as the techniques for their employment. Like fine old silver, however, SAC—through nearly two decades marked with changes of overwhelming magnitude—has acquired a respected, enduring luster; a tribute to its quality.

It's big—nearly a thousand intercontinental ballistic missiles and as many multiuse bombers; it's powerful—responsible for better than 80 percent of the Free World's nuclear retaliatory force, and it's naturally costly—a fourth of Air Force manpower and almost a third of the Air Force budget goes to operate SAC and to maintain its effectiveness. But SAC is no idle luxury, for all the world's gold couldn't buy SAC today. Its accumulated experience and seasoned maturity are a priceless product of at least a million dedicated people over the years, a billon or more flying hours, countless missions and almost two decades of deterring potential aggression through its unquestioned power and its ceaseless alertness.

How It All Began

SAC today, acknowledged to be the world's most powerful force for peace, bears little resemblance to the infant organization established March 21, 1946, on

by SMSgt. JOHN D. CONKLIN
The Airman Staff

EVERY BASE THROUGHOUT THE STRATEGIC AIR COMMAND'S BRISTLING GLOBAL NETWORK.

Bolling AFB, D.C., under Gen. George C. Kenney. Seven months to the day after its creation SAC moved to Andrews AFB, Md., and spurred by the ominous encroachment of communism over the stricken Balkans, began building a nuclear striking force.

Through the remainder of the troubled forties, all of the turbulent fifties, and to the present point midway through the tense sixties, SAC's weapon-delivery capability has grown at a staggering rate.

Measured in bases, SAC's growth from its birth at Bolling has been rapid. The command once had some 70 bases scattered around the world. Its population grew from a mere 37,000 people in 1946 to approximately 280,000 in 1964. At one time its operational aircraft numbered over 3,000.

From an all-prop bomber fleet, consisting mainly of veteran World War II B-29s, the command's manned aircraft inventory transitioned over the years through the gigantic B-36 *Peacemaker*, the B-50 *Superfortress*, the swift jet B-47 *Stratojet*, the B-52 *Stratofortress* and the B-58 *Hustler*. The years 1946 through 1950 were the propeller era. From 1951 through 1959, the props gave way to the jets and the B-47s and B-52s became the backbone of the SAC bomber fleet. The last of the B-36s—although in its day one of the most formidable weapons ever to grace the skies—succumbed to obsolescence and flew off to the smelters in February 1959.

During most of the fifties the emphasis was on acquiring bases for SAC's overseas operations. A new numbered air force—the Sixteenth Air Force headquartered at Torrejon AB near Madrid, Spain—directed the activities of six bases in Spain and Morocco. In England the 7th Air Division was developing another network of SAC bases, and the 3d Air Division was formed at Guam in the Pacific. All were engaged for the most part in the overseas forward positioning of B-47 bombers on rotational alert assignments. This was essentially the era of mobility when men, planes, desks, literally everything but "mom and the kids" shuttled back and forth overseas.

At the height of its organizational complexity which was necessitated by the global dispersal of its short-range B-47 bombers to a string of bases encircling Europe, SAC had three numbered air forces in the continental United States—Fifteenth, Eighth and Second Air Forces—and one air force and two divisions overseas. The year 1959 marked the end of global expansion and the beginning of the present era of the SAC mixed force when initial operational responsibility for intercontinental and intermediate range ballistic missiles was assumed by the command.

As the intercontinental missiles—*Atlas*, *Titan* and *Minuteman*—appeared on the scene in ever-increasing numbers a gradual withdrawal from overseas bases began. First the Moroccan bases ceased their alert commitments and the B-47 rotational overseas deployments to bases of the Sixteenth Air Force and the 7th Air Division declined while the emplacement of operational

the deterrent force—the 'strategic umbrella' — under which our national leaders are able to respond to any international situation."

General Ryan's cryptic status report reveals much more than the mission. For example, the phrase "along with our tactical forces" reveals a team spirit which pervades the entire command.

Where Do You Get a SAC Man?

The new CINCSAC, himself a product of 17 years in the command, knows from whence he speaks that SAC works best in concert with the Air Force as a whole and the Air Force in turn with the other services and the Department of Defense. Irrefutable proof that this team approach works lies not only in the record of the Cuban confrontation but in the smooth operation of the Joint Strategic Target Planning Staff, in the tactical employment of SAC B-52s in Viet-Nam, and in SAC's single manager air refueling services to the Tactical Air Command, to name just a few.

But the general is quick to turn attention to the people on his team. "People—trained and dedicated to the SAC mission—is our most important asset," says General Ryan. And it's people "who have SAC experience and who have made the many adjustments to change that we are trying so desperately to retain."

These people—about 15 percent officers and 85 percent enlisted personnel—range from General Ryan with his more than 30 years of military experience, U.S. Military Academy education, a brilliant record replete with wartime leadership examples, and a succession of command positions down to the newest technically trained airman fresh from a missile maintenance course of the Air Training Command.

Take for example, Lt. Col. Herbert A. Mailander, commander of the 764th Bomb Squadron at Amarillo AFB, Tex., with nearly 6,000 hours and 2.6 million miles in B-52 bombers—the equivalent of more than 100 times around the world. This is the kind of experience that SAC is hard-pressed to retain as many of its graying heads reach the likely retirement point.

The pilot upgrading program, of course, moves younger officers as quickly as possible across to the left seat and command pilot responsibilities, but this distance of less than three feet in the B-52 cockpit requires at least four years of intensive training.

Then, at the other end of the experience spectrum, there are youngsters with sharp minds, nimble hands and more than a year of exhaustive technical training who already fill important, highly specialized slots deep beneath the earth at the missile sites, on computers in the vast underground command post, or at 30,000 feet in an airborne command post aircraft. Their services are just as vital, their retention just as critically important to SAC today.

Retaining trained, motivated people is the command's major concern today. For awhile, the situation looked gloomy, indeed. What with base closures, retirement of the B-47s, discontinuance of the *Atlas* and *Titan I* missiles, SAC was faced with both immense retaining and retraining tasks simultaneously. More than 13,000 enlisted personnel alone had to be retrained when the *Atlas* and *Titan I* missiles were phased out and emphasis was shifted to the *Minuteman*. Crew members of the retiring B-47s had to be upgraded for B-52 and B-58 crew positions and many more placed in launch crew duties in the missile silos.

Then there were the command's new roles which made additional demands on its people. The single manager air refueling setup meant that the KC-135 crews had to adjust to new techniques for refueling tactical aircraft. A new, especially designed EC-135 replaced the modified KC-135 airborne command posts and dispensed with the need for the escorting B-47 power backups. And there was the new low-level flying concept for the B-52s, conventional bombing sorties in Viet-Nam, emergence of the SR-71 program at Beale AFB, Calif., and the SACCS command and control system. A staggering task just to obtain, train, retrain, and retain the people for all the new jobs created by these added roles.

Although the people problem is far from solved, SAC officials say they've got a good grip on it and have found many new ways toward its solution. MSgt. Billy G. Hanaway, a retention NCO at Larson AFB, Wash., has helped to show SAC one way to keep many of its young hands on board. Sergeant Hanaway with 10 years in SAC has seized the problem by the scruff of its neck and shaken out a lot of myth.

The sergeant and his wife, Janette, work as a team to encourage first-term airmen toward a career in the Air Force and staying on with SAC. You're probably thinking that the Hanaways have some "fat cat" deal going that makes retention at Larson AFB a snap. Nothing could be farther from the truth. Larson is practically remote duty—isolated from any major cities, few reasons for elation. Nevertheless, Sergeant Hanaway and his wife have thrown new life into the retention program there and have turned a low rating into one of the highest in the command.

Secret of their campaign, they say, is just putting the career facts on the line. Not only does Sergeant Hanaway counsel the young airmen with sincerity and conviction, but Janette gets together with the young airmen's wives, and over coffee in the pleasant, comfortable Hanaway quarters, gives them her views on the advantages in store for an Air Force family. "Sure there are hardships," she admits, "but being on the SAC team and carrying a share of the Free World's security is rewarding and satisfying."

Larson AFB recently retained 100 percent of its first-term airmen eligible to reenlist under the Air Force selective reenlistment program. Many of these are men in critical careers with considerable expensive training completed and just beginning to carry their share of the SAC load. SAC's job has been made slightly easier, the U.S. taxpayer is certainly dollars ahead, and for all of this what does Sergeant Hanaway get? Just the blessings of the command for a job well done. It's just

But heading the list is the biggest surprise of all—the remarkable adjustment made by the command's personnel over all of these years, and particularly the last four. They have met not only the overwhelming changes in mission, weapons and facilities, but the ever-increasing demand on their services. On this point there is no doubt: the command demands and gets the utmost in loyalty and intense performance of duties to a degree bordering on the sacrificial, and it gets these qualities in abundance despite many adversities.

To know its people one must know something of the nature of the command and its mission, too. The command was baptized in an atomic cloud at Eniwetok and flew into the face of the world's most ominous challenge—deterring the threat of a nuclear attack. But from its infancy through transition to its present maturity, SAC's mission responsibilities have expanded considerably and include, in addition to its primary nuclear deterrent capability, a host of other roles at every level of conflict.

SAC today is as different from the airpower foundling left at General Kenney's doorstep in 1946 as the Wright brothers' first frail aircraft is from the B-58 *Hustler*, and the command's importance today is far greater than ever before. Its mission is so vital, its tasks so unique that it is presently the only U.S. specified command directed by the Department of Defense through the Joint Chiefs of Staff.

Its name and abbreviated title have become widely known, but in years to come it is improbable that any school child will ever learn the names of the many leaders who built and maintained the greatest force for peace the world has ever known. And it is another irony in the wiles of opinion that there are those who today regard SAC as an aging, enfeebled veteran of another generation; its usefulness diminishing, its role vague.

Gen. John D. Ryan, Commander in Chief, Strategic Air Command, summed up the present vital status of SAC when he said recently:

"Today, the mission of the strategic forces of the United States, the greatest part of which is in the Air Force Strategic Air Command, is more important than ever before. Along with our tactical forces, SAC is providing direct support to the government of South Viet-Nam in direct confrontation with the communists in the Far East. SAC B-52 bombers have made raids against Viet Cong strongholds using conventional bombs. These combat strikes have not, however, limited SAC's ability to carry out its primary mission. The Strategic Air Command still possesses the power to discourage communist hope that expanding or intensifying their aggression will result in anything but a crushing defeat. In its bombers and missiles, SAC still provides

A transporter-erector prepares to lower a "ready" Minuteman Missile into a silo near Malmstrom AFB, Mont.

the deterrent force—the 'strategic umbrella' — under which our national leaders are able to respond to any international situation."

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another one of those surprising things about SAC people that keep cropping up.

Perhaps General Ryan was talking about all of the "Sergeant Hanaways" in SAC when he said: "Enlisted personnel comprise the largest part of Strategic Air Command manpower. We really rely more on them—numbers-wise—than any other segment of our force. SAC is fortunate to have such a large percentage of responsible, dedicated airmen and noncommissioned officers."

Change Has Become Natural

Despite all of the changes that have taken place in the world these past 19 years since the Strategic Air Command was created, more are yet to come and will affect SAC in a manner that will require its personnel to adjust to new and stranger weapons, concepts and environments. General Ryan, soon after his appointment as CINCSAC on December 1, 1964, just a few days before his 49th birthday, prepared the command for these prospects. "Personnel of SAC must anticipate more changes in the future, perhaps as radical or even more radical than those we had to undergo in the years past. This may well bring new problems and demands, but there is no doubt that SAC and the people of SAC will be able to handle them as successfully as they have handled all other problems and demands."

The changes the CINCSAC alluded to could well be even more spectacular than the changes being made now for the Mach 3 era of the SR-71, soon to appear at radically new facilities under construction at Beale AFB. Even the scene at Offutt AFB a thousand miles or more away is already changed in anticipation of the SR-71s. Sleek, gar-nosed T-38 *Talons* dart above the base and herald the day when they will follow the SR-71s like cowbirds to their new nest and provide pilot proficiency training for the SR-71 crews.

Advanced manned strategic aircraft (AMSA) which could join the SAC inventory in the future and cause still more changes throughout the command is under consideration. If the AMSA proposal never reaches a SAC base, other proposals are bound to be followed instead and make change necessary. A bomber version of the F-111 is presently under consideration, as are new air-to-ground missiles and armament for the B-52s and even other more sophisticated aircraft and missile-carrying platforms.

Whatever is in store for SAC in the next decade that begins in March 1966, it is certain that its maturity, the flexibility of its operational concepts, and above all the determination of its people to accept change as a challenge, will continue to earn it the undisputed title of "the most powerful combat team on earth."

Another great leader of the Strategic Air Command once said: "SAC air and missile crewmen are the backbone of the Free World's nuclear deterrent. They contribute qualities of courage, resourcefulness and reliability that no machine can ever match. SAC is an organization of men, not merely an accumulation of equipment." Therefore, people—dependable, dedicated and determined—is SAC's most awesome weapon.

WHO IS THIS AIRMAN?

A commander of the 389th Bomb Group of the 8th Air Force in England during World War II, this airman was 24 when he graduated from the U.S. Military Academy in 1939 with a B.S. degree in Military Science. Assigned to the cavalry, his eyes were already on the skies and this native Pennsylvanian switched to the Air Corps later that year. In June 1940 he had completed both primary and advanced flying training and stayed on at Randolph Field, Tex., as a flying instructor until October.

Skilled at training pilots, he later became commander of the Primary Flying School at Lakeland, Fla., a job he held until December 1943 when he was named deputy commander of the 491st Bomb Group, which trained in B-24s. In May 1944 the 491st went to England and joined other Eighth Air Force combat units. While on a mission over Misburg, in November 1944, the unit earned a Distinguished Unit Citation.

In April 1945 he became commander of the 389th, and following the war in Europe brought his unit back to Charleston AFB, S.C. In August 1945 he became deputy commander and executive officer at Charleston and held that position until November 1945.

He then went on to serve as Director of Personnel for Ferrying Division, Air Transport Command, the Atlantic Division of Air Transport Command, and Westover AFB, Mass., respectively.

From chief of staff, Atlantic Division of MATS (June 1948 to May 1949) he flew to Kindley AFB, Bermuda, to become base commander. Next as a command pilot he returned to Westover to command the 1600th Air Transport Wing. In 1953 he entered the Air War College at Maxwell AFB, Ala.

He pinned on his first star while deputy director, Directorate of Personnel Planning, at Hq USAF in 1957. McGuire AFB, N.J., was the next leg in his long flying career—first as deputy commander, then as commander of Eastern Transport Air Force (MATS).

As deputy chief of staff for Plans, MATS, at Scott AFB, Ill., he acquired a second star in March 1961, and in January 1962 was named Director of Budget at Hq USAF. He held that position until November 1964, when he was appointed to his present job and was promoted to lieutenant general.

If you can't name this combat commander, MATS flyer and financial manager, turn to page 37 for the answer.

Congo Rescue

How can you take a dog away from a soulful little boy who has just flirted with death? Here the amazing story of the Stanleyville and Paulis rescue is told by a pilot who flew on the humanitarian mission.

by Capt. JOHN R. EWING, USAF

NEGOTIATIONS for the release of hostages in rebel-held territory had broken down. The word was flashed to a group of U. S. Air Force airlift pilots and a detachment of Belgian paratroopers at Kamina in the Congo. It was the night of November 23, 1964. To be prepared for this eventuality, they had flown from Belgium to Ascension Island on November 17th and from Ascension to Kamina on November 21st.

With the breakdown of negotiations, caused by the refusal of rebel leaders to release the hostages, orders were issued to undertake a rescue mission.

At 0245 hours on the morning of November 24th the first airplane took off. On board were 68 paratroopers. Four more C-130 *Hercules* followed at 30-second intervals. Thirty minutes later five aircraft loaded with Belgian troopers and equipment took off. These airplanes would land at the Stanleyville airport, off-load their equipment, and evacuate the hostages.

The first portion of the route was flown at 21,000 feet. One hundred miles west of Stanleyville we descended to fly at 280 mph, 700 feet above the ground, at 10-second intervals. This technique, called Close Look, is designed to minimize the effectiveness of ground fire by offering the enemy only fleeting targets.

Two minutes from Stanleyville airport we slowed to 145 mph.

Our drop zone was a grassy strip, 200 feet wide, paralleling the right side of the runway at Stanleyville.

The rebels started shooting as the first airplane approached the open airport area. They were waiting for us! At 700 feet we were getting a real good look at them. Most of the fire came from small arms, but suddenly a line of tracers, obviously coming from a .50 caliber machine gun, sprayed across the path of our airplanes. The .50 caliber fire was a surprise—we had been briefed to expect only small arms fire.

The tracers spewing across the nose of the airplane were unnerving especially since a troop drop requires the pilot to maintain an exact heading and altitude. Any deviation could prove fatal to the paratroopers. To climb would leave them hanging helplessly in the air, exposed to enemy ground fire. To dive would not allow time for the chutes to open. Movement to the right or left would land the men in the jungle.

The planes had to fly right into the barrage! And at this range and speed the C-130 made a big target.

It was a beautiful drop. The first man to jump landed within five yards of his designated spot.

On the ground the Belgians formed into three groups, each with a specific task. One group engaged the rebels. Another cleared the runway so that the additional five aircraft could airland more Belgian troops and their equipment. The third and largest group ran three-quarters of a mile into Stanleyville in an effort to save as many of the hostages as they could.

In short order the runway was cleared of the broken vehicles and 55-gallon drums the rebels had placed there. The five aircraft loaded with troops and equipment then landed.

The fighting continued on all sides as the airplanes were unloaded. All five received several hits. Capt. Jim Ostrem's aircraft had fuel gushing from a hit in a fuel tank. His crew chief, A2C Mike Nicholson, was thinking fast! He broke off a short piece of a broom handle, wrapped it with a rag and jammed it into the leaking fuel tank. The patch held for the entire flight back to Leopoldville.

As Maj. Mack Secord started taxiing from the Stanleyville ramp, one rebel popped out of the grass and fired straight up into the wing as it passed over him. Another ran alongside the airplane attempting to force his way inside through the rear door.

All the aircraft flying the paradrop received multiple hits. Three were seriously damaged and their loss could have very easily resulted in many deaths. Two had ruptured fuel tanks, leaking volatile jet fuel all the way to Leopoldville. The pilots of these aircraft shut down the engine closest to the leaking fuel tanks and flew the hour and a half return flight on three engines.

In his aircraft, Capt. Charlie Gonzales took a hit in the right wheel well that blew a tire. A hard landing would have been disastrous. But Charlie's landing at Leopoldville was smooth as silk.

Aircraft that had dropped troops that morning, returned later to evacuate more refugees.

The author, Capt. John Ewing, relaxes after harrowing Congo rescue mission where U.S. Air Force officers and men braved rebel fire to save American and European hostages.

Last of 40 hostages from Paulis, Congo, arrive at airstrip to board U.S. Air Force C-130. They were flown to safety of Kamina, then by commercial aircraft to Elizabethville.

Counterattack!

We were the last airplane into Stanleyville that afternoon. As we were about to land, the rebel counterattack began. It was as if our arrival had been the signal to attack.

An open grassy area extended about 100 yards on each side of the runway. Beyond the clearing was the jungle.

Just as Capt. Keith McDonald, our aircraft commander, was about to touch down, all hell broke loose. Along the left edge of the jungle we saw several puffs of white smoke. A mortar hit 50 yards in front of us and to our left.

Let me tell you they made quite a splash.

The tower operator was excitedly shouting "Do not land . . . do not land."

We didn't need any encouragement from him. We already had the throttles firewalled!

We climbed to 5,000 feet and circled while the Belgians again secured the field.

At dusk, about 40 minutes later, we were on the final approach, this time landing on the opposite end of the runway. We didn't want to get

anywhere near the other end of the runway where sporadic firing was still going on.

Captain McDonald reversed the propellers just prior to touchdown, stopping the aircraft in less than 1,000 feet. As we taxied into the loading area we saw some four to five hundred refugees waiting to be evacuated.

The moment the big ramp and door were opened, refugees started running for the airplane. There was a lot of pushing and shoving. Many fought to get on the airplane. No doubt that counterattack had made them quite nervous. It's a terrible thing to have to turn people away when you don't know what they will face during the night. We took 112, just as many as we could.

We taxied out to the runway without lights, hoping to present a poor target during takeoff. We must have been successful for we received no hits.

The refugees were a ragged sight. Two-thirds were Europeans and one-third Africans. Most were bruised, their clothing torn and dirty. Half had only the clothes on their backs. Others carried a suitcase, box, or a gunny sack, the contents representing their total personal possessions. They were all thirsty and hungry. They finished off our normally small supply of chlorinated water in minutes. We then opened two cases of C-rations and fed them to the women and children, most of whom had had nothing to eat that day. Some had not had a real meal in over a month. The rebels had commandeered most of the food stocks.

The reunions back at Leopoldville were a touching sight. Relatives broke through police lines to crowd around the airplanes, clamoring for a position to watch our passengers unload. The joy, embraces, tears, and disappointments were enough to choke up the entire crew. Our airplane was the last one from Stanleyville for the day and it would be a long night for the disappointed since they had heard the stories of how quickly death was taking its toll. Early Wednesday three airplanes returned to Stanleyville and evacuated the remaining refugees.

At Leopoldville the crew chiefs and maintenance people were servicing our airplanes. They did a fantastic job keeping our birds in the air. Holes were patched, fuel tanks sealed, and tires changed.

On to Paulis

The aircrews enjoyed a good hot meal in the airport terminal which we topped off with a quart or two of orange soda. Dr. May, our flight surgeon, had briefed us that the local beer had more bugs in it than swamp water.

Later that afternoon we were briefed for the next mission—this time to Paulis. We were to take off from Leopoldville at 0200 hours on Thanksgiving morning, fly to Stanleyville, pick up 300 Belgians, then drop them on the Paulis airfield at daybreak.

Thursday's drop on Paulis was a great success despite the fact that it and the surrounding area was covered with a thin ground fog. Our navigators took us to Paulis all right, but when we got there we had a terrible time seeing the ground and finding the airstrip we were to drop on. The T-28s and B-26s—the latter modified World War II birds—that were to escort us never did find Paulis. The only reason we spotted the airfield through the fog was be-

Victoria Hotel Square massacre survivors in Stanleyville, Congo, are rushed aboard C-130 just minutes before rebel counterattack damaged this aircraft's left wing tank on takeoff.

Gen. John P. McConnell, Air Force Chief of Staff, congratulates SSgt. Earl Layton, member of TAC's 464th Troop Carrier Wing, for part he played in Congo rescue. The 464th TCW received the Mackay Trophy for "most meritorious flight of 1964" in ceremonies at Pope AFB, N. C.

cause of its bright red clay surface contrasting with the dark green of the jungle.

Once again all of our aircraft received multiple hits. We were expecting more .50 caliber machine gun fire, and were greatly relieved when there was none. The initial resistance at Paulis was less than that at Stanleyville. Although rebel harassment continued in the general area, the short strip remained secure throughout the day.

The first evacuation aircraft into Paulis, piloted by Capt. Jim Hunt, evacuated only women and children. He was on his way back to Leopoldville by the time we were about to land, and we could hear him calling for doctors and ambulances to stand by. His passengers were hysterical and many were in shock.

We found, however, that the refugees we picked up were much more orderly than the ones we had rescued at Stanleyville. We didn't have any problem with them.

We loaded the wounded, women, and children first. We flew 105 refugees and one dog out that trip. We weren't supposed to take pets. But how can you take a dog away from a soulful little boy who has just flirted with death?

Once again we dipped into our dwindling supply of C-rations. Our crew joined the women and children in a C-ration Thanksgiving dinner on the way back to Leopoldville.

The Tucker family was on board this trip, that is Mrs. Tucker and the three children. Mr. Tucker had been killed just minutes before the paratroopers landed.

The Tuckers rode in the cockpit. One son, about 10, was excited about being up front. A very bright lad, he was very interested in what was going on. I got out of my copilot's seat, put a survival pack on the seat, and strapped the boy in, complete with my radio headset. This diversion temporarily shut out the terror of his father's death only hours before.

The next morning we returned to Paulis to evacuate more refugees who had come there from the surrounding area. En route and during our return, the radios were alive with messages ordering a clean up and move out. Early Friday afternoon we arrived back at Kamina Air Base with the last of the troopers and their equipment.

Later that afternoon we were blessed with a thunderstorm. Yes, blessed! We had been sleeping in the Lockheed Hilton (our aircraft) since we arrived in the Congo. Few of us had had a bath since we left Ascension Island six days before. Ninety-degree African weather and no showers for six days just don't mix.

I don't know who got the idea first, but the word spread fast. In no time at all, 30 or 40 men, officers and airmen, were lathering up, stark naked in the middle of a thunderstorm. What a sight we must have been! I have never enjoyed a shower more in my life.

Lt. Col. Robert A. Lindsay, our squadron commander, has a favorite expression—"We've got to be flexible." That afternoon during the thunderstorm we showed him just how flexible we could be.

Early Sunday we left Kamina for the long trip back to Brussels, Belgium. Our rescue mission was over. During the last week our crews had been fired upon nearly every day. We had lived in our airplanes eating C-rations. But most important we had done a job, and we had done it well. In four days we had evacuated over 1,700 refugees.

There is a lot of satisfaction in knowing we saved so many lives. For surely a good many of those we rescued would have died violently without our intervention.

It is a mission such as this that makes me proud to call myself . . . Air Force.

Whether you are saying hello, or requesting assistance, your nearby MARS station can give you

A DOCTOR in Honduras, about to perform abdominal surgery on a four-year-old child, urgently needed technical advice.

In Massachusetts, an exchange student from Bolivia required an operation. Parental permission was necessary, however—and in a hurry.

Both of these recent, emergency situations were resolved with timely assistance from Military Affiliate Radio System (MARS) radio stations manned by alert USAF airmen.

A1C Harry F. Odil operates the MARS station at Sewart AFB, Tenn., on a part-time basis. The 1999th Communications Squadron flight facilities repairman was on duty when he picked up the call for help from the Honduras doctor.

The physician had broadcast an appeal for technical assistance. Airman Odil, hearing the call, telephoned the 839th Tactical Hospital at Sewart AFB and learned that the nearest abdominal surgeon was at Fort Campbell, Ky.

He contacted Capt. (Dr.) James Bowers at the Fort Campbell hospital and asked him to talk with the doctor in Central America. Odil then set up a radio-telephone patch which the two medical men used for 45 minutes to discuss surgical procedures.

At L. G. Hanscom Field near Bedford, Mass., Chief Operator A2C George J. Neumann and fellow MARSmen of the 2014th Communications Squadron received an urgent telephone call from a base officer.

The Bolivian girl exchange student had been seriously injured in an automobile accident. The base hospital needed parental permission to perform a necessary operation and an earlier commercial request had not produced a reply.

The Hanscom Field radiomen went on the air. Within six hours the parents had been reached and the injured girl was readied for surgery.

A Personal Touch

Although USAF and other military MARS stations are geared to perform emergency communications services—both official and personnel in nature—the bulk of their daily traffic includes messages as personal as proposals of marriage and birthday congratulations.

The more than 900 Air Force MARS stations operating around the globe are supplemented by thousands of civilian and military amateur radio operators, or "Hams"—people from all walks of life, including men, women, and teen-agers.

In addition to providing a vast, backup communications service renowned for timely service during national emergencies or in other crises, these "professional" amateurs and military operators process thousands of personal messages annually.

In many cases MARS operators establish telephone patches which permit direct radio-telephone conversations between sender and receiver.

The Secretaries of the Army and Air Force established MARS on November 26, 1948. It was officially named the Military *Amateur* Radio System and membership was limited to military personnel. In September 1950 membership was extended to include civilian "Hams" and in 1952 the title was changed to Military *Affiliate* Radio System.

MARS members earn credit, through participation in handling message traffic, which helps them earn the right to obtain surplus government equipment on a loan basis.

Send a Message

Next time you have reason to reach someone in a hurry, don't overlook your local MARS station. Many of them will even take a *MARSmessage* by phone, eliminating a trip to the station site.

Dependents, too, may use MARS facilities. Many Air Force members who perform temporary duty to points around the globe stay in touch with families through MARS—and vice versa.

Official traffic and messages of an emergency nature are given priority, of course, but personal transmissions are also broadcast as rapidly as possible.

There are men like Airmen Odil and Neuman wherever you may be stationed. They render a valuable service and are eager to serve. Try them. —J.A.G.

HELP IN A HURRY

CAREER MAN AT WORK

THE SERGEANT WITH A TIGER IN HIS TANK

MSgt. Donald R. Coontz

YOU can't tell it by looking, but MSgt. Donald R. Coontz, line chief of the Air Force's YF-12A test force at Edwards AFB, has a tiger in his tank.

He talks quietly and is so shy he gives everyone but himself credit for keeping the YF-12A in record-setting shape. But the truth is that Sergeant Coontz is one of the key men who make the YF-12A fly fast, faster, and fastest. *(Turn page.)*

Coontz supervises some 20 hand-picked SAC and ADC NCOs, including some who actually outrank him. But because Coontz *is* the line chief of the command which is responsible for the test (AFSC), the other NCOs—regardless of rank—report to him. And since no sergeant in the Air Force knows more about the complicated YF-12A than Coontz, they are eager to follow his effective lead.

Just how well Coontz knows his job was revealed publicly when the new YF-12A claimed nine world's speed and altitude records. It all started one day in April when Lt. Col. Clarence E. Fox, director of maintenance for the test force, called Sergeant Coontz into his office.

"We might be going after some flight records soon," said the colonel. "Get your maintenance teams together, put the YF-12As in perfect condition, but don't say a word to anyone about why we are doing it."

That afternoon Coontz began quietly huddling with his top maintenance supervisors. He gently suggested it might be wise for them to get their respective teams ready for a maximum effort—and soon.

Coontz discussed field maintenance with CMSgt. Eloy Fuentes, and then talked materiel requirements with SMSgt. Lou Ayers. Instrumentation was reviewed with SMSgt. Jack Sherman, structural repairs with SMSgt. Fred Wong (one of the best metalworkers in the Air Force), and power plants with CMSgt. Allen Hudson.

Finally he told TSgt. Ken Channel to get his air-ground equipment ready, and asked CMSgt. Clarence Peake to serve as top liaison man between himself and the key maintenance chiefs.

Unknown to Peake and the other capable NCOs, the speed and altitude world-record attempts were set for Saturday, May 1. Two weeks before this day Coontz began applying pressure to his teams. Work hours became longer; supervisors became supercritical.

On Wednesday preceding May 1, Coontz doubled the pressure. Test force maintenance teams worked through Thursday night. Early Friday morning Coontz finally told a selected few what was planned the next day.

By 0400 Saturday the test force YF-12As were on the flight line, along with dozens of maintenance specialists, piles of parts (all carefully catalogued), and the test force's ready flight crews.

Less than four hours later the first mission was launched, and the following eight hours were as pressure-packed as nearly any other time in Air Force history. With cool deliberation, Sergeant Coontz gave his instructions to the various ground crew specialists as the YF-12As took off and landed during the speed-run missions. At last the final flight was over, and the YF-12A claimed nine new world's speed and altitude marks.

Modest Sergeant Coontz, who had worked some 60 hours straight, gives his "turn-around team" full credit for this marvelous maintenance effort. He discounts his own role. But others feel differently, particularly Col. Guy Townsend, then deputy for systems test at the Air Force Flight Test Center.

"I've known Sergeant Coontz for over 10 years, and you just wouldn't believe his professionalism and dedication," he said. "For example, Coontz was late to his own wedding dinner because he felt compelled to complete a flutter test on an F-86."

Years ago Sergeant Coontz left the Air Force for a short time and worked for Boeing Aircraft Company where he doubled his previous salary. But eight months later he voluntarily returned to active duty. Why? "Mostly I just missed the service with its genuine feel of spirit and teamwork," he said.

Since returning to active duty Coontz has spent a major portion of his time at Edwards, where he is truly remarkable at solving problems on experimental aircraft. His unusual degree of professionalism continually draws the highest praise. As Col. Robert L. Stephens, the YF-12A test force director, remarked, "When you climb into a 'Coontz' aircraft, you *know* it's ready, so you simply light the fire and go!"

But of all the compliments paid the sergeant with a tiger in his tank, perhaps the most revealing is by Colonel Townsend. "If I had a dream of grandeur," said the test-pilot colonel, "I would want my own T-39 with Sergeant Coontz as its crew chief!"

THE ASTOUNDING YF-12A

Claiming nine world's flight records, the new YF-12A is the most remarkable airplane ever built.

by Capt. BRIAN SHEEHAN

IN the early morning hours of May Day 1965, at Edwards AFB, Calif., a handful of valiant Air Force pilots, radar operators, and ground crewmen sent a strange-looking new aircraft into the skies.

When *this* airplane—the YF-12A—returned from its missions, claims were established with the *Federation Aeronautique Internationale* for nine world's speed and altitude records; records formerly held by Russian aircraft. Headlines were made around the world.

This marvelous achievement proved the fact that America—and the U.S. Air Force—has, in the new YF-12A, the most astounding aircraft ever built.

The remarkable YF-12A has a fascinating history. The aircraft had been a hush-hush project known only to top government officials until February 29, 1964, when President Lyndon Johnson stunned the aviation world by revealing its existence at a news conference.

Up to February 29, 1964, there were very few people who knew about the new aircraft. Some 20 members of Congress had been told, and only a few top Air Force people.

Since then, of course, many new facts and figures about the YF-12A have been revealed, and the Air Force is now actually studying different versions for possible use in combat organizations.

At this moment, however, the aircraft is still undergoing a comprehensive test program at Edwards AFB, Calif., under the guidance of Col. Robert L. Stephens, YF-12A test force director, and Lt. Col. Daniel Andre, deputy director.

Inside a heavily guarded hangar on the Edwards flight line, scores of pilots, fire control system operators, and maintenance men from SAC and ADC are quickly learning all about the "Titanium Tiger" (the aircraft is constructed primarily of titanium alloys).

The new YF-12A is a bat-winged jet, powered by two Pratt and Whitney J58 engines equipped with long-burning afterburners.

It has a wing span of about 55 feet, is approximately 100 feet long, and has a landing system featuring three wheels on each main landing gear. Twin horizontal "rudders" are used for precise flight control at speeds of 2,000 m.p.h.

The aircraft can easily swing up to altitudes of 80,000 feet, turn tightly at very high speeds, and outperform any other aircraft in the world today. It even flies beautifully with one engine out.

In describing the YF-12A, President Johnson said, "One of the most important technological achievements in this project has been the mastery of the metallurgy and fabrication of titanium metal which is required for the high temperatures experienced by aircraft traveling at more than three times the speed of sound."

Thus far, the original basic aircraft design has gone through at least a dozen refinements, resulting in the current basic design.

The bulk of the jet's fuselage is devoted to fuel

Test force aircrews that swept nine claimed world's records in YF-12A included, l to r, Maj. James P. Cooney, Lt. Col. Walter Daniel, Col. Robert "Fox" Stephens, Lt. Col. Daniel Andre, and Maj. Noel T. Warner.

tanks that feature a sloping concave-convex fairing running along both sides of the fuselage to house engine and flight control systems, and to provide an aerodynamic lifting surface.

This fairing runs from the point where the nose radome ends to the point at which supports for the engine nacelle join the fuselage. The two-man tandem cockpit is similar to that found in earlier two-place interceptor aircraft.

The YF-12A's fuselage tapers to a coned fairing that houses a drag chute to help brake landings. The tricycle gear uses a triple-tired main gear, retracting inward into the wing roots while the double-wheeled nose gear retracts forward into the fuselage.

A special "double-delta" design allows the new aircraft to perform at super-high speeds with maximum control. Such designs are under study for aircraft even more advanced than the YF-12A, such as the SST.

The YF-12A experimental fire control and air-to-air missile system were developed by Hughes Aircraft Co. They represent the most advanced armament systems and include the ASG-18 pulse doppler fire control system and the AIM-47A air-to-air guided missile. This armament system was originally designed for the F-108 interceptor. It was continued as a separate development after that program was canceled.

Unique aircraft and armament problems associated with the aircraft's high-speed flight required special solutions. For example, since the aircraft flies very fast, it is necessary to eject the missile downward with a special explosive charge to insure safe clearance from the airframe before the missile's rocket motor is fired.

The fire control system features a long-range search and track "scope" effective through all altitudes. This capability—coupled with an exceptional combat radius—enables the YF-12A to cover a much greater air defense area than any present interceptor system.

The missile carried by the aircraft is a long-range weapon with precise accuracy. It can blast high- or low-altitude targets while the YF-12A remains at its optimum cruise altitude and speed.

Today's interceptor type aircraft usually require accurate control from ground radars to direct them to the proper altitude, speed, and heading for the intercept. In contrast, the systems of the YF-12A are designed to operate totally independent of ground control if it becomes necessary.

Not Tough to Fly

Overall, the YF-12A is a giant technological stride for either air defense or strategic reconnaissance missions. But even so, the aircraft is not difficult to fly.

According to YF-12A test force director Col. "Fox" Stephens, the aircraft is a straightforward machine to fly. "It handles very much like the B-58 or F-106, and lands at conventional century series jet fighter speeds."

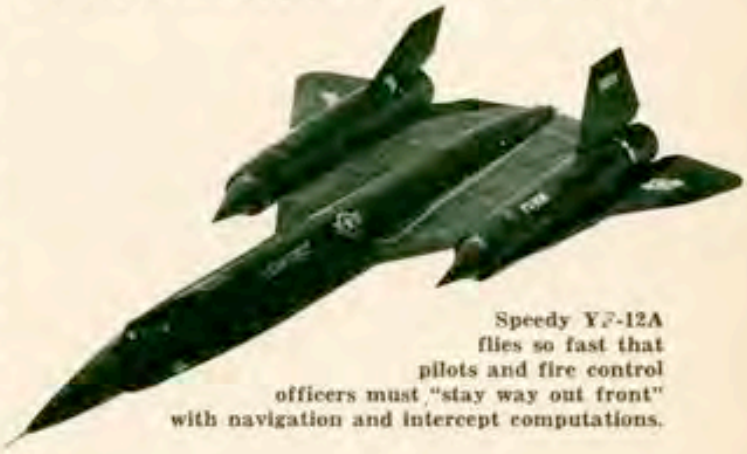
Stephens said the aircraft is equipped with automatic pilot and navigation systems which are both reliable and accurate. He revealed that all crews now getting checked out will be expert in the weapon system before they return to their home commands.

The test director, who has been a test pilot for 18 years and has competed in the famous Bendix air races, calls the YF-12A "a real going machine, quite an improved performer over any we've had before; and yet you feel right at home inside its cockpit."

Agreeing with Colonel Stephens is the deputy test force director, Lt. Col. Dan Andre, a man described by one colleague as "the world's finest fire control system operator."

"During a typical mission," said Andre, "you're busy as hell working the navigation and target acquisition systems. Because of the extreme speed of the YF-12A it is necessary to always stay 'out front' with your computations." The system operator in the YF-12A sits "tandem" behind the pilot, and his cockpit is relatively conventional in size.

Other test force members helping wring out the new aircraft are Lt. Col. Walter Daniel, Maj. Noel T. Warner, and Maj. James P. Cooney. All of these pilots and system operators, plus Colonels Stephens and Andre, were the crews that set the new world's flight records last May 1. The ADC crew on the test force consists of Col. Vern Henderson, pilot, and Capt. Sam Ursini, fire control system operator.



Speedy YF-12A flies so fast that pilots and fire control officers must "stay way out front" with navigation and intercept computations.

Speaking to the YF-12A test force at Edwards AFB after his plane swept the nine world's flight records, "Kelly" Johnson, the man who designed the YF-12A, said that many people often ask him why we want to fly higher and faster. "I'll tell you why," he said.

"The Soviet E266, which took the FAI 1,000 kilometer closed-course speed record in April of this year, represents their solution to technical problems of sustained supersonic flight above Mach 2.0.

"Soviet developments in aviation mean the U.S. Air Force—for the security and peace of the Free World—must be able to continue to develop advanced-technology aircraft to meet every conceivable aircraft crisis in the atmosphere.

"The YF-12A is typical of the advances the United States must continue to pursue to keep abreast of advanced technological and operational possibilities."

by Lt. NORMAN M. GUENTHER, USAF
Hq Defense Atomic Support Agency

THERE is a small island in the Aleutian chain that holds an unusual amount of interest for Air Force Lt. Col. Benjamin Grote, Weapons Test Division, DASA (Defense Atomic Support Agency). Colonel Grote is the DASA deputy test group director for one underground nuclear detection experiment which is part of an Advanced Research Project Agency (ARPA) program called VELA UNIFORM. Through VELA UNIFORM, ARPA is developing techniques to detect underground nuclear explosions. The main problem, it seems, is how to tell the difference between signals originating from earthquakes and those originating from underground nuclear blasts.

Seismometers and related instruments located throughout the world are the key detection devices, and test groups like the one Colonel Grote heads conduct nuclear tests in different kinds of rock strata. The seismic signals received are then compared with those received from earthquakes.

Late this fall the Aleutian island that Colonel Grote's group has been preparing will be the location of an 80-kiloton shot, deep underground.

"The test," the colonel explains, "is considered to be a major step in ARPA's VELA UNIFORM series, because the test site is near the USSR's Kamchatka-Kuril region where nearly 70 percent of all Soviet earthquakes occur." It is the hope of DOD's top scientists that data from the test will reveal how test signals can be identified in that earthquake-prone area.

It has been more than 20 years since the world's first atomic bomb was detonated at the top of a 100-foot-tall tower in an isolated desert area near Alamogordo, N. Mex. With World War II raging, the development, construction and testing of that device was accomplished in tight-lipped secrecy by an unusual group of civilian and military scientists. The development, the world was soon to learn, was called the "Manhattan Project" and has since gone down in the books as one of the best kept secrets of this nation's history.

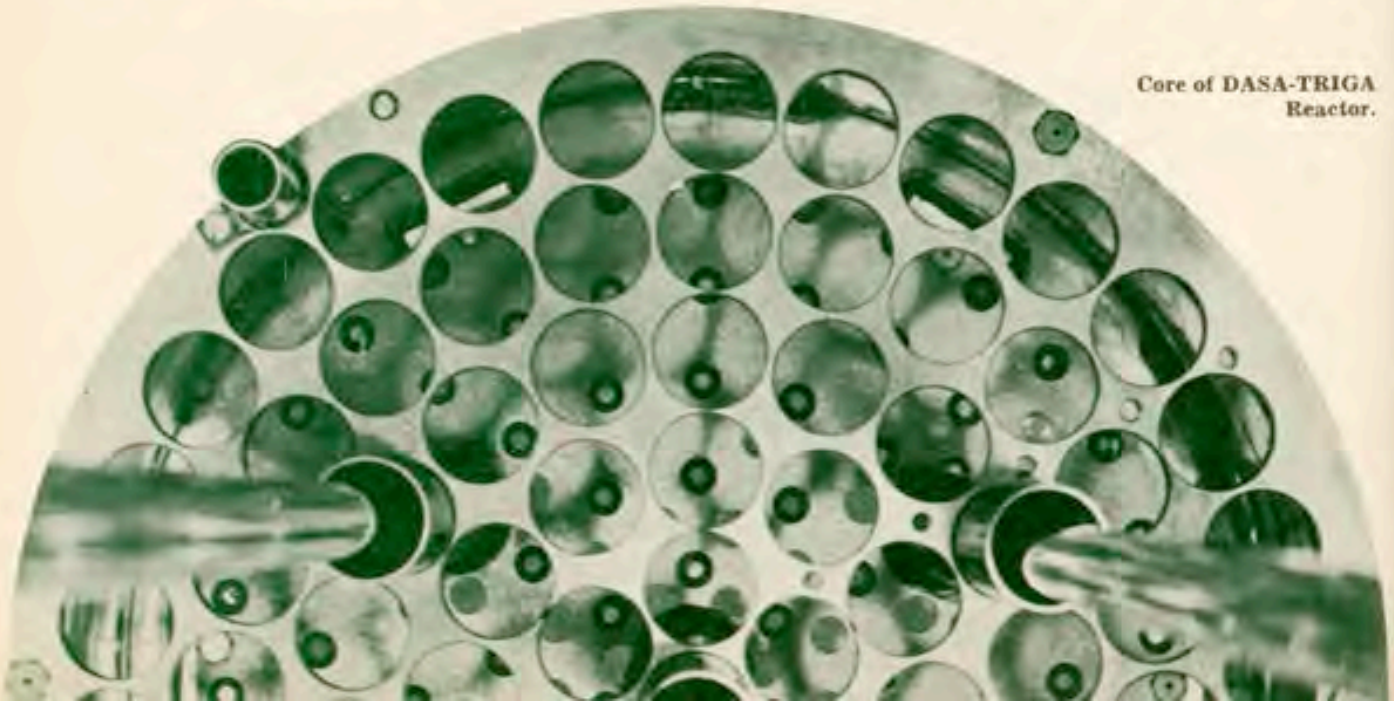
DASA is a direct descendant of the famed Manhattan Engineering District. Made up of personnel from all the military services, this Department of Defense agency coordinates the Defense Department's nuclear weapons programs. Its responsibilities are extensive. They include research on nuclear weapons effects, underground test programs, and monitorship of the nuclear stockpile, to name only a few.

Among the most important DASA responsibilities are those associated with the limited nuclear test ban treaty of 1963. The importance of these latter responsibilities can hardly be over-emphasized. Although the treaty which prohibits nuclear testing in the atmosphere, including outer space or underwater, was signed in August 1963 by more than 100 nations, it is imperative that this nation maintain safeguards against possible treaty violations.

The United States has four such safeguards. Briefly, they are: (1) to continue underground testing, (2) to maintain modern laboratory facilities and programs, (3) to maintain a readiness to resume testing prohibited by the treaty, if required, and (4) to continue to improve our capability to monitor the terms of the treaty.

DASA, of course, plays an active role in maintaining all four. Organizationally, the agency has units (or representatives) throughout the United States. From its Pentagon headquarters, DASA exercises command over Joint Task Force Eight (JTF-8) and the Armed Forces Radiobiology Research Institute (AFRRI), both in the Washington, D.C. area. The largest subordinate unit is the DASA Field Command with headquarters at Albuquerque, N. Mex. DASA also has representatives at various nuclear research labs and select bases throughout the country.

The Air Force is ably represented within all these DASA organizations. For example, Lt. Gen. H. C. Donnelly, USAF, is DASA director and Maj. Gen.



Core of DASA-TRIGA Reactor.

John D. Stevenson commands JTF-8. The DASA Field Command, headed presently by RAdm. Ralph C. Johnson, USN, boasts Air Force colonels in key positions as deputy commander and chief of staff. This Air Force representation continues down to Airman James W. Klein, one of many DASA nuclear weapons specialists who helps maintain and modify the nation's war reserve weapons.

At the Pentagon

On the first floor of the Pentagon—where Lt. Gen. Leslie R. Groves, USA, commanded the Manhattan Engineering District years ago—the task of maintaining our nuclear posture and advancing our nuclear knowledge goes on. But somehow the atmosphere is different.

There, men like Air Force Col. H. C. Rose work on methods of gaining nuclear radiation effects data from laboratory experiments and underground nuclear tests. There also, men like Capt. James Choromokos, Jr., study methods for obtaining nuclear shock effects data from high chemical explosive detonations.

"We concentrate on blast effects from 500-ton high-explosive tests," said Captain Choromokos, "and then extrapolate to determine what the blast effects would be from larger detonations."

All scientific programs within DASA headquarters are grouped under two categories—Nuclear Weapons Effects Testing (NWET) and Nuclear Weapons Effects Research (NWER).

"Management is an important term here," explained one officer, "to insure there is no duplication of effort or funds." Since DASA manages projects of interest to more than one service, and acts as "middleman" between a service and the Atomic Energy Commission (AEC), all managerial efforts are aimed at obtaining data most essential to the DOD nuclear effects program.

As one might well imagine, one of DASA's foremost efforts is weapon safety. The agency continuously joins with the services and the AEC to insure nuclear weapons are safe to handle, transport and maintain. DASA weapon safety officers continually attend and conduct safety studies and operational reviews on proper safety procedures for the services. Rules are constantly reviewed, instruction is given and discrepancies, when discovered, are thoroughly investigated.

How the ionizing radiation from nuclear detonations effect man is a question of paramount interest to the Armed Forces Radiobiology Research Institute, a multiple radiation source facility in Bethesda, Md. There information is gathered for DASA on the biomedical aspects of ionizing radiation. AFRRI's research activities cover the biomedical areas of experimental pathology, behaviorial sciences, physical sciences, and radiation biology. AFRRI, like DASA, is multiservice, though many of the military are medical doctors and scientific investigators. Air Force Capt. Martin N. Nosan, for example, conducts research in AFRRI's experimental pathology department. He has a master's degree in radiation biology.

TSgt. Donald R. Quick, who came to the AFRRI from the 731st Radar Squadron at Sundance, Wyo., helps operate and maintain the unique DASA-Triga nuclear reactor at the Institute. "It's the only one of its kind," Quick pointed out. "It has an exposure capability specifically designed for the biologist." The reactor can produce extremely large doses of radiation in a fraction of a second, allowing AFRRI scientists

Lt. Gen. H. C. Donnelly, USAF, Director of the Defense Atomic Support Agency.

From towers to tunnels

YOU'D THINK THAT AFTER THE TEST BAN TREATY AND 20 YEARS OF NUCLEAR WEAPONS DEVELOPMENT, THE DEFENSE ATOMIC SUPPORT AGENCY WOULDN'T HAVE MUCH TO DO. YOU'D BE WRONG.

The NC-135A, a diagnostic aircraft used during test readiness exercises in the Pacific.

to simulate the radiation doses and dose rates associated with nuclear detonations.

Atomic Complex

Not far from where scientists viewed the first mushroom cloud at Alamogordo is the huge atomic complex at Albuquerque, N. Mex. One installation within this complex—Sandia Base—is the DASA Field Command. Here, data on any nuclear weapon can be obtained at the push of a computer button. And here, too, is where training courses are conducted on the assembly, maintenance and safety of nuclear weapons. As one officer at the base said, "Just about every type of nuclear-related activity goes on at Sandia."

Since new weapon systems go to each service and old systems are occasionally modified, a comprehensive training program must be maintained for the services by the DASA Field Command. More than 2,500 military personnel attend some 70 courses conducted there each year. These range from the basic courses to the "nuts-and-bolts" courses on individual weapon assembly, maintenance and safety. There is even a graduate program which permits military personnel to earn degrees in nuclear physics. This program is not restricted to DASA personnel. DASA, in fact, only provides quotas to the services. Each service then selects members most qualified to attend.

Although all "nuts-and-bolts" training courses on Air Force weapons are conducted at Lowry AFB, Colo., the Air Force is well represented on the Field Command training staff. For example, TSgt. Robert R. Monget, a nuclear specialist with eight years' experience, is one of the group's training instructors. He is qualified to instruct basic radiation physics, basic mathematics, and the theory of radiation detection operations and procedures.

Maj. Roger S. Baird, also Air Force, is a member of the training group's briefing team which conducts periodic briefings on the latest developments in nuclear weaponry for members of unified and specified commands. To keep current on the latest weapon and delivery system developments, team members spend nearly two months a year gathering information at various laboratories and bases.

The Operations Group at the DASA Field Command is headed by Navy Capt. J. F. Dorrington. The group conducts extensive nuclear weapon activities and keeps an eye on every nuclear weapon within the nation's arsenal.

"Not only can we get information on the location of any weapon at the press of a button," says Captain Dorrington, "we can also obtain information on many parts or components of that weapon." This is a con-

Air Force Maj. C. S. Kuritsky places a radiation detection device on the tissue-equivalent human phantom at the Armed Forces Radiobiology Research Institute.

After underground explosion, Air Force photographers take motion pictures to determine effects of detonation.

stant surveillance activity performed by the operations group, which also acts as the central coordinating agency for all new service publications on nuclear weapons. These publications provide the uniformity essential for proper understanding of nuclear policy and procedures among the military departments.

Also under the Operations Group is the Joint Nuclear Accident Coordination Center (JNACC) headed by Lt. Col. Carl Johnson, USAF. It keeps a continuous record of military and AEC nuclear accident teams. The JNACC assures that the team closest to any accident scene gets there immediately if a nuclear weapon is involved. This is a personficiation of another DASA role—coordination of nuclear-related activities with the AEC for the services.

How DASA Works with AEC

Just a little more than a year after the 1945 Alamogordo event, the Manhattan Engineering District was abolished, and two new organizations were born. The civilian scientists from the District were grouped in the Atomic Energy Commission. The military scientists were grouped in the Armed Forces Special Weapons Project, later renamed the Defense Atomic Support Agency.

The Atomic Energy Act of 1946, which abolished the Manhattan District, also provided for a Military Liaison Committee. This committee helps provide the needed "coordinated effort" in nuclear development and tests between the Department of Defense and the Atomic Energy Commission.

The service-AEC coordination activity by DASA is best shown through the DOD underground nuclear effects testing program at AEC's Nevada Test Site, Mercury, Nev. These effects tests are carried out by the Weapons Test Division (WTD), a DASA headquarters division located at Sandia Base. The Division is headed by Air Force Col. Donald I. Prickett, a command pilot who has been in the nuclear field since 1948. The division has a branch office at AEC's Nevada Operations Office in Las Vegas, where people like Lt. Col. Carl R. Roemer, USAF, coordinate test site activities with the Commission. Besides its Las Vegas office, the division has project and support personnel right at the test site and representatives at various AEC laboratories.

Not all tests are conducted exclusively under the eyes of the Weapons Test Division, however. DASA often uses the talents of people from Air Force Special Weapons Laboratory and Air Force Cambridge Research Laboratories at the test site. One of the WTD project officers is Air Force Capt. James P. McInerney, a construction engineer who has been with DASA since May 1964. His job is to see that all project specifications are met by the contractor.

During these test preparations, each project officer must be sure of having the proper equipment on hand when needed. This is where the WTD support people are so essential. The test site support section, headed by Army Lt. Col. Warren E. Gittleman, provides administrative, engineering, transportation and supply support for all DOD tests.

One of these support functions, supply and procurement, is particularly unique. TSgt. Thomas P. Moriarty, a veteran of some 15 years' service, helps guide this function. The Air Force NCO is often confronted with procuring test equipment, odd-sized generators, and other equipment uncommon to an Air Force procurement office. He has found his greatest job difficulty is that of getting used to Army supply forms. When asked just what he does to procure on a daily basis, Sergeant Moriarty replied, "Anything from a pencil to a drill rig."

Readiness with a Purpose

Joint Task Force Eight, with units throughout the Pacific and headquarters in Washington, D.C., is the organization responsible for maintaining the nation's readiness to resume atmospheric nuclear testing, if necessary. One of its responsibilities is the maintenance of Johnston Atoll, a small group of US islands southwest of Hawaii.

Another of the JTF-8 responsibilities is the conduct of "dry-run" exercises to keep our testing reaction time within safeguard stipulations. One of these "dry-run" exercises, called Operation Crosscheck was conducted in October 1964 in the Pacific area. "The objective of such exercises," explains one JTF-8 officer, "is to provide a periodic check on our readiness to resume atmospheric testing should the need arise."

Two of the more unique aircraft used in such "dry runs" are the RB-57F and NC-135A. Both are flown by crews from Kirtland's 58th Recon Squadron, Air Weather Service. It is normally a high-altitude weather aircraft, but during the exercises it simulates gathering high-altitude air samples. The NC-135A is a modified version of the Air Force cargo aircraft. It was modified and instrumented for three AEC laboratories, pri-

marily for use in the nation's readiness posture. This diagnostic aircraft is flown by members of the Special Weapons Center (AFSC), at Kirtland.

Two NC-135As were used during a National Science Foundation-sponsored expedition to explore the ionosphere during an eclipse of the sun, May 30, 1965. The pilot and navigator of one aircraft, Maj. James Wells from Albuquerque, N. Mex., and Capt. Steve Poesik from Sherman Oaks, Calif., were cited by the scientists for their outstanding contribution to the expedition. "If the aircraft had not been positioned in the exact location at the exact time," the scientists said, "the expedition would not have been a success." The two aircraft were flown by Kirtland crews for scientists from the Sandia Corporation at Albuquerque and for scientists from the Los Alamos Scientific Laboratory, N. Mex. During the eclipse expedition, DASA conducted four experiments which were gauged to solve ionosphere communication problems through data obtained during the eclipse.

Simulation techniques are being developed and used in all areas of nuclear weapons effects research and DASA contracts for effects simulation work to both military and civilian laboratories. For example, the Naval Weapons Laboratory (NWL) houses a DASA-sponsored conical shock tube facility at its Dahlgren, Va., installation. This facility will simulate air blast up to that from a 20,000-ton detonation by using only 1,000 pounds of high explosives. "With this facility," says one DASA scientist, "we can perform more experiments in less time and with less expense than current high explosive experiments."

The Air Force Special Weapons Laboratory conducts much DASA-sponsored research. One example is a "gas bag" technique which allows scientists to obtain exaggerated ground shock effects from a small amount of high explosives. Another example is a high-speed rocket sled at Holloman AFB, N. Mex., which will give scientists the means to obtain data on re-entry vehicle effects.

The Army's Engineering Research and Development Laboratory at Fort Belvoir, Va., also has a DASA-sponsored simulator contract. This facility, once completed, will be used to study the electromagnetic pulse (EMP) generated by a nuclear detonation. According to Air Force Capt. Donald R. Smith, project officer, these studies will help to determine the damaging effects of EMP on large pieces of military equipment.

The Alamogordo event gave birth to a new age—an age which called for close control of nuclear weapons, their research and testing, deployment, maintenance and safety. DASA provides a central point of contract for the services in each of these areas, giving the necessary uniformity.

Lt. Gen. H. C. Donnelly, DASA director, says the agency constantly strives to increase its efficiency in all areas. "We have made tremendous use of the computer in the control and maintenance of weapons," he emphasized, "and we are always looking for other areas where computers will advance our efficiency.

"We have decreased our cost for research and testing through the use of many new approaches to each experiment," he added, "and we have reorganized to provide greater efficiency in management." The general applauded each of the services for fine nuclear safety records, pointing out that "the fact that there has never been an accidental fission explosion from a nuclear device during the 20 years since Alamogordo attests to the fine nuclear safety programs in each service." However, the DASA director warned that "the greatest continuing effort is needed in this area of safety to keep programs active and meaningful."

DASA, considered to be the oldest joint-service agency in the Department of Defense, has stayed young in the modern nuclear age.

TSgt. Robert R. Monget, a training instructor in New Mexico, demonstrates proper equipment use for a trainee.

Net fishing is a favorite off-duty pastime for DASA people at remote Pacific islands.

OUR BALLOONING SPACE RESEARCH

by HAP HARRIS
The Airman Staff

The world's first aerospace system is still performing a vital role, but oh, how it has changed!

THE frightening spectacle of the huge silvery object looming over him stopped the coyote in his tracks. It cost him his breakfast—a jackrabbit that lost no time disappearing into the sagebrush.

Tense, the coyote cocked his ears and sniffed the dry desert air for danger signs. A cluster of men working busily on the ground near the tall, round, gently swaying object paid him no heed. Then suddenly a shout reached the coyote's ears. The gigantic "thing," now almost 150 feet in the air, began to rise higher and higher.

It was all too much. The coyote turned and loped uneasily toward a rocky hideaway to relieve his fears and gnawing hunger, the only spoils of his morning hunt.

For the men, too, it was an awesome sight. It was a beginning—the start of a flight to the edge of space. For the gigantic "thing" that frightened the desert predator was a huge, clear, mylar-plastic balloon inflated with 3.2 million cubic feet of helium gas and carrying a sealed gondola which Air Force Capt. Joseph W. Kittinger and a Navy civilian astronomer, William C. White, shared with a mass of scientific equipment. It was a strange-looking vehicle indeed, that was destined to carry the men and equipment almost 16 miles into the atmosphere.

The project? *Stargazer I*. The date? December 13, 1962. The place? The scrubby desert surrounding Holloman AFB, N. Mex. The 40 people gathered there that day included the Air Force launch crew, project scientists, security guards, and military and contractor officials. Scores more Air Force men and women, and members of organizations such as the Federal Communications Commission, Federal Aviation Agency, air traffic monitoring sites, and White Sands Missile Range tracking stations watched from distant locations as the balloon rose into the dark blue of the early morning sky. On the Holloman AFB flight line, the crew of a C-123 "chase" aircraft warmed up the engines.

More Air Force personnel were working in specially built trucks equipped with radio direction finders, theodolites, two-way radios, and other instruments. They were prepared to track down and recover the balloon's human and instrument load. The balloon gondola was gently landed as a unit by Captain Kittinger, who had valved the system down from altitude. After landing, the balloon was released from the gondola by Kittinger to prevent it from acting as a wind sail and dragging the gondola.

Stargazer I was underway. Its mission was to make astronomical observations unhindered by the earth's atmospheric distortions. In its 18½-hour flight the high-altitude research balloon would take Captain Kittinger and Mr. White to 82,000 feet over the southwestern United States.

Part of a program conducted by the Air Force's Office of Aerospace Research, *Stargazer I* was the last manned balloon flight in which Air Force personnel participated as crew members. In recent years, the USAF has been deeply involved in unmanned scientific balloon work, and in 1964 alone 130 instrumented balloons were launched from Holloman, from another launch base located at Chico Municipal Airport, Calif., from temporary sites aboard ships at sea, and from allied countries around the world.

Lt. Col. Michael S. Kretow, head of the Balloon Research and Development Test Branch at Holloman, is a master navigator and an acknowledged balloon launch and recovery expert. His branch is maintained for the purpose of providing a complete balloon launching, tracking, controlling, data collection, and recovery complex for high-altitude research programs of the USAF and its contractors, and for other organizations having programs of interest to the USAF. Colonel Kretow considers Air Force balloon research to be a vital link in the nation's space effort, providing the most effective method of exploring the earth's atmosphere up to about 30 miles.

"This area is being explored more often, for much longer time intervals, at a considerably less project cost, than with any other type of space or flight vehicle now in operation," he explained.

"For example," the colonel continued, "probing rockets like the *Aerobee* remain at peak altitudes only seconds at a time. Experimental spacecraft and the orbiting capsules fly infrequently and require months

of flight preparation. Satellites like the *Explorer* and *Discoverer* have different research objectives involved with deep space penetration.

"Since 1950, at Holloman alone, more than 1,500 balloons, ranging up to 13.5 million cubic feet of gas capacity, spanning over 332 feet in diameter and nearly the length of 2 football fields, and carrying payloads up to 5,300 pounds have been launched on research flights for a wide variety of science-probing missions," he added.

Early Air Corps Balloonist

Lighter-than-air flight to the fringes of space owes much to men like Air Corps pioneer Capt. Hawthorne C. Gray and others who followed him. The risks they took blazed the trail for the successful manned and unmanned flights of recent years.

"Captain Gray's name isn't well known in or out of aerospace circles," Colonel Kretow explained, "but in May 1927 over Scott Field, Ill., he went to an altitude of about 42,000 feet, beating the official world balloon record of 35,433 feet set in 1901 by two Germans, Berson and Suring. Certainly Captain Gray set out to top the record, but even more important, he went up to study how rarified air affects humans, atmospheric conditions, winds aloft, and other upper air unknown quantities. He had to parachute out because hydrogen gas escaped too quickly from the balloon and he could not control its descent. Unfortunately, he died on a later high-altitude flight (44,300 feet) due to oxygen system failure."

A Swiss scientist, Professor Auguste Piccard, trying for additional data on cosmic rays, successfully completed a series of balloon flights from 1931 to 1934, one of which took him to 54,120 feet, the highest anyone had ever reached at that time. In May 1931 Piccard and Mr. P. Kipfer, an engineer, used a 500,000-cubic foot balloon to ascend to 51,775 feet in a pressurized cabin. The 16-hour flight to record air conditions at changing altitudes was the first attempt to use a sealed gondola for scientific observations in the environment miles above the earth.

American pioneers in the "balloon race to space" included Lt. Comdr. Thomas G. W. Settle, USN, and Marine Corps Reserve Maj. Chester L. Fordney. In November 1933, riding under a 600,000-cubic-foot balloon launched in Akron, Ohio, they went to 61,237 feet—a new altitude record for the time—and helped test sealed gondolas and life-support systems, forerunners of those that keep orbiting astronauts safe today.

Air Corps Capts. Albert W. Stevens and Orville A. Anderson on Armistice Day, November 11, 1935 went aloft from Rapid City, S. Dak., to a new altitude record of 72,377 feet in a 3.7 million-cubic-foot balloon. A big load of scientific instruments produced "rich cosmic ray data and photographs." This month marks the 30th anniversary of this flight in *Explorer II*, jointly sponsored by the National Geographic Society and the Air Corps.

Mr. Bernard D. "Duke" Gildenberg, meteorologist, described advances in balloon technology. He modestly avoided his own important meteorological role in the *Man High* balloon flights of June and August 1957 in Minnesota, and the fact that rib injuries kept him from taking part as a balloon pilot in the history-making events.

Man High I, a 3 million-cubic-foot balloon with Air Force Capt. Joseph W. Kittinger as pilot, went aloft June 2 for 6 hours 32 minutes and reached 96,000 feet. *Man High II*, a similar size balloon launched August 19 with Maj. David G. Simon as pilot, went to 101,500 feet, was airborne for 32 hours 10 minutes, and set a new official FAI (*Federation Aeronautique Internationale*) altitude record for manned flight.

Duke Gildenberg noted that research accomplishments through use of balloons were made possible, in large part, by advances in the development of new balloon materials, balloon designs, balloon manufacturing,

Col. Mike Kretow, third from left, head of the Balloon R&D Development Test Branch at Holloman AFB, directs operations from control room at the base during flight of a huge balloon.

Air Force NCOs attach release devices to the bottom end fitting of a huge plastic research balloon. Lighter-than-air vehicle is carefully laid out on long canvas prior to inflation with helium from the tank trucks.

and techniques of launch and flight operations.

Basic changes in the balloons themselves—from the rubberized fabric vehicles used for manned stratosphere ascents in the thirties—enabled the Air Force, other government agencies, universities and industry to amass vast scientific knowledge.

Today's polyethylene plastic balloon—unlike the older rubber balloon which kept expanding as it rose until it burst—is made of very thin, exceptionally strong nonextensible material. Radio signals control an electrically operated valve at the top of the balloon and also control dropping of ballast (powdered metal).

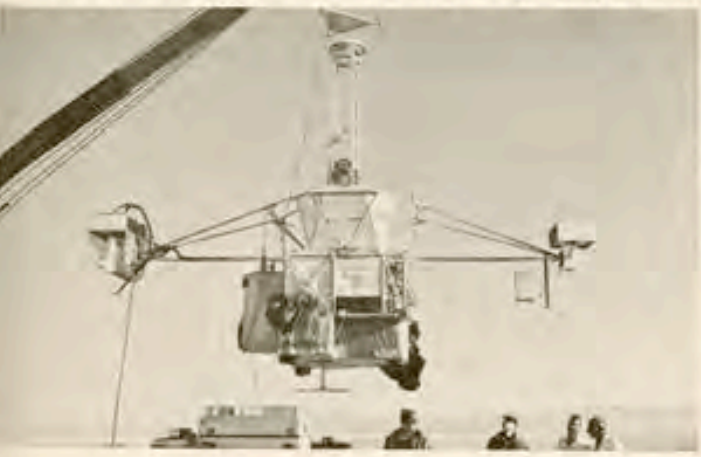
While floating in air, the balloon is subject to remarkably little vertical oscillation or rotational movement. As a balloon rises, the pressure of the outside air goes down continuously, and the contained gas expands under the reduced pressure. To prevent the expanding gas from bursting the balloons, they are only partly filled at the start of the flight. Gas ports are provided to vent off the excess lifting gas when the balloon is completely filled at ceiling altitude.

The first nonextensible polyethylene plastic balloon launch by an all Air Force crew took place on August 29, 1950. Launchers used a comparatively small balloon, 72 feet in diameter, which hoisted a 50-pound payload to 90,000 feet.

In 1961 the operational work at Holloman for scientific and equipment test purpose was combined with research and development aspects of ballooning carried out since 1953 at Air Force Cambridge Research Laboratories, Mass. The program at the laboratories has five balloon branches under the Aerospace Instrumentation Laboratory with Mr. Charles S. Tilton, the laboratory's senior engineer, responsible for the technical direction of the work.

He views "the gas bags" this way: "At first glance this strong interest in balloons seems strange in an age of research satellites. Yet balloons, far from being replaced by satellites, play a very important part in the pretesting of satellite equipment and procedures."

A space research project is ready for lofting to the upper atmosphere by a huge plastic balloon at the AFCRL launch site in New Mexico. A solar pointer or "sun seeker" device, with its instrumentation, will be tested.



Record-breaking Air Force parachutist Capt. Joseph W. Kittinger just before his ascent and bailout from open balloon gondola at 102,800-foot altitude as a part of biomedical research.

The Control Center

MSgt. James J. Bragg of the Balloon R&D Test Branch told of the interesting work performed by the Balloon Control Center, the focal communications point of all balloon flights. An integrated complex of command control, communications, and tracking operation, the center uses radio to link airborne and ground tracking crews and the balloon launch site.

Direct lines to the Federal Aviation Agency flight service stations are used for reporting launch, in-flight, and termination information.

Continuous plots of balloon flights are also maintained, and the balloons are tracked by many different means. These include fixed and mobile radar, aircraft, fixed and portable optical trackers and radio direction finders, and the Federal Communications Commission high-frequency direction finding network.

Sergeant Bragg pointed out that recovery of balloon-borne equipment, which is normally released from the balloon at altitude and floats to the ground on a parachute, is accomplished by tracking aircraft including helicopters, and ground recovery vehicles.

"Recovery crews sometimes find themselves in unusual spots," the sergeant said. "A group once had to make its way to the floor of the Grand Canyon to pick up the instrument payload. Their primary interest was, of course, high-altitude equipment, yet they got a rare view of a world wonder."

Will the balloon continue in its important role? Charlie Tilton has few doubts that it will. In fact, he summed it up with a sly smile when he said:

"There are jokes about the gas bags, lighter-than-air types and such, but I think an Air Force historian was on the right track in describing the spirit of Air Force balloon men when he said, 'Its members even harbor the ambition to go on temporary duty themselves—to launch balloons on Mars.' Morale and spirit certainly can't rise much higher than that!"

THERE'S a STAR over Viet-Nam.

Day and night, it's leading an ever-widening path to Viet Cong targets for U.S. Air Force and Vietnamese Air Force pilots.

And it's keeping all USAF and VNAF aircraft supporting the Vietnamese operation at a higher level of combat readiness than was believed possible—even a matter of months ago.

An alphabetical condensation of the words Speed Through Air Resupply, STAR, is a logistics concept tested in 1948-49 during the Berlin Airlift, employed effectively during the 1962 Cuban Crisis, and operational today—in a highly refined version—in Viet-Nam.

After the Cuban showdown and as U.S. air operations grew in response to stepped-up communist aggression in Southeast Asia, then Air Force Vice Chief of Staff Gen. William F. McKee and Gen. Mark E. Bradley, commander, Air Force Logistics Command, ordered top priority to finding an answer to the gnawing question:

What kind of logistics support is needed to fight "brush fire" wars capable of growing into sustained, conventional conflicts?

To assist in finding the answer, Generals McKee and Bradley established a 10-man advisory committee from Hq USAF, TAC, and AFLC.

Its task: Take a hard, critical look at Air Force material levels and logistics procedures for worldwide support.

Committee research through trips and plain talks within Air Force commands showed supply procedures were basically sound.

But the urgency of devising improved techniques to keep aircraft in flying condition while operating from forward combat areas offered AFLC a challenge for an all-out effort.

Cuba had been a far different breed of logistics for AFLC.

It required a fast, massive buildup of airpower to fight, if necessary, anything from a quick, limited action to total, nuclear war. It did not require support for a drawn-out conflict.

Electrical supplies, such as light bulbs, fluorescent lamps and plugs, are stored at a base for distribution as needed.

In sharp contrast, Viet-Nam called for sustained support while cutting through a host of logistics problems, foreseen and unforeseen.

For instance, sturdy C-123s were being transferred from Air Force units to Reserve forces before the aircraft were tagged as ideally suited for yeoman duty in Viet-Nam.

Although some parts levels had been lowered in anticipation of a phasedown of flying hours, demand for these parts climbed sharply as the C-123s were employed for a multitude of missions.

These aircraft proved to be murderously hard on tires, wheels, props, and other components as they repeatedly bounced to landings on short, rough air strips in remote Viet-Nam areas.

Added to these difficulties were requirements for repairing and replacing battle-damaged parts and combating the destructive effects of corrosion from Viet-Nam's tropical dampness and frog-strangling monsoons. (Average yearly rainfall at Saigon is six feet.)

When 30-day, spare-parts kits proved inadequate, other supply sources had to be tapped. This problem was unexpectedly complicated by a serious communications obstacle.

Dislocated Digits

When a line mechanic pulled a defective gyro from an aircraft, chances of getting a replacement in time to quickly put the plane back on flying status depended not only on his, or base supply's ability to adequately identify the part but on accurate transmission of a teletype request from Viet-Nam to the main supply backup point at Clark Air Base in the Philippines.

Sun spots played havoc with teletype transmissions.

"Guys at Clark went crazy trying to figure out what somebody wanted in Viet-Nam," recalls Walter Wilson, supply distribution officer on the AFLC portion of the STAR fact-finding committee.

Even when the requesting base correctly identified a part by exact stock number, digits frequently became jumbled or dropped because of solar mischief.

This resulted in erroneous requests being relayed from Clark's radio transceivers to an inventory manager at AFLC's Sacramento Air Materiel Area in California. The requests frequently were relayed again

from Sacramento to another inventory manager at a different AMA in the ZI—only to be rejected by computers at the end of the line because of the digit foul-up.

Finally, even wholly accurate requests from Viet-Nam to a stateside AMA didn't guarantee results in cases where the request lacked a funding citation.

As a result of these communications and funding difficulties, a combat squadron might discover 20 days after initiating a request, that there had been a hitch somewhere in the supply pipeline and that the urgently needed part was not on its way to Viet-Nam as the squadron had anticipated.

Meanwhile the aircraft would be grounded for the lack of the vital component.

AFLC removed the communications deficiency by installing a radio transceiver at Tan Son Nhut Air Field near Saigon. And to further insure prompt supply action, Weapon System Control Points (WSCP) were set up at AMAs for each type of aircraft in Viet-Nam.

Manned by 10 to 150 persons, depending upon the volume of responsibility involved, the WSCP's sole purpose is to do everything feasible to get operational units everything they need as speedily as possible.

Today, at squadron level, a mechanic can provide base supply with a general description of an item—such as "a Westinghouse generator from such and such an aircraft"—and Tan Son Nhut can supplement the description from an Air Force identification catalogue.

Then the request is put into a standard DOD requisition format and punched into the Tan Son Nhut transceiver for transmission to the WSCP at the prime AMA for the aircraft involved.

Computerized Logistics

Under this refined system, a request for a C-123 gyro can be transmitted from Viet-Nam to Middletown AMA, Olmsted AFB, Pa., within minutes. At Middletown, a computer can order immediate shipment or take other appropriate action.

If an item isn't available at the prime AMA, an AMA computer kicks out a card to a WSCP trouble shooter who gets on the telephone and contacts other possible sources which may satisfy the request.

Is there a broken spare available that can be repaired? Is the part on a procurement order that can be delivered directly to the requesting squadron in time to meet the requirement? Can the part be salvaged or removed from another aircraft?

In addition to other managerial abilities, WSCPs have money to pay bills, eliminating the possibility of clogging supply pipelines with funding blocks.

The efforts to smooth the material flow halfway around the world from the United States to Viet-Nam have lowered the pipeline time to a remarkable average of 8 to 10 days. For urgent requests, the time has been compressed to three or four days.

On one of his visits to Viet-Nam, Lt. Col. Albert Jacobs assisted in the establishment of base stock levels for those items being used on a day-to-day basis. This allows the operators to have those items on hand when they need them, and reduces the high-speed reaction requirement placed on the supply and transportation systems when an aircraft is grounded. Resupply of these levels is through the STAR system.

The proven effectiveness of STAR places World War II and Korea War supply procedures in comparative antiquity.

With materiel depots such as those formerly maintained at Tachikawa, Japan; Chateauroux, France; Burtonwood, England; and Nouasseur, Morocco; as only memories to veteran AFLC men, rapid communications, computerized data processing and rapid airlift have brought the U.S. Air Force along giant strides toward near-instant logistics support.

Upon returning from Viet-Nam to AFLC headquarters at Wright-Patterson, now retired General Bradley told newsmen:

"I went over there to listen to complaints. But it was difficult to find any. The units are combat ready and they have high morale."

STAR, the general said, must be given credit for the superb report.

No doubt, this ever-improving system will continue to enhance the "Go" condition of U.S. aerospace forces whenever and wherever they are called upon to deter communist aggression.

Aircraft spares are stored in base supply areas, and the parts are then issued locally or airlifted by cargo planes.

HE'S GOING TO HAVE A HEART ATTACK

That's right. Now doctors can get advance warning—wherever in the hospital the patient may be!

SSgt. Joseph V. Halpern, now a lab technician with School of Aerospace Medicine, demonstrates what the well-equipped cardiac patient wears these days.

THERE was little to indicate a pending emergency—no sirens wailing, no bells ringing, no klaxons squawking. Instead, just the low-keyed monotone, heard only by the sergeant seated at the control console of a most unlikely looking piece of hospital equipment.

In a smallish room at the USAF Hospital Andrews, near Washington, D.C., MSgt. Lemoyne V. Lindsay sat at the console of the Central Cardiac Monitoring System (CCMS). Headset in place, his trained hands darted over the array of switches and knobs. His eyes scanned the cryptic message flashing on the screen before him. The erratically bobbing line tracing across the face of the oscilloscope, the ominous tone signal and the brief message read in red on the screen—HEART RATE FAST—all spelled trouble for patient 4, as the machine knew him.

Speaking calmly and quickly into the microphone before him, Sergeant Lindsay alerted a team of specialists—doctors, nurses, corpsmen—and described, as though he stood at the bedside, the plight of patient number 4 far from his view in Room 203. Although his language was highly technical and couched in the exacting terms of the medical profession, what Sergeant Lindsay announced, in essence, was: "THE PATIENT IN ROOM 203 IS GOING TO HAVE A HEART ATTACK!"

Silent Invisible Sentry

That's right, "going to have." Those were the key words which reveal the marvelous state of the art of medical automation and telemetry now in use at USAF Hospital Andrews. Through the use of such sophisticated devices as the Central Cardiac Monitoring System, not only has patient care been advanced, but foreknowledge of a patient's impending condition is now available.

The CCMS presently installed at Andrews is the first centralized recording station employed for monitoring and diagnosis of the hearts of patients suffering various cardiac diseases and impairments. The CCMS is essentially a centrally located computer capable of receiving telemetered data from several ambulatory patients simultaneously. The data can be received, stored, processed and displayed in milliseconds, helping doctors to make a valid diagnosis in a manner never before possible.

The system, and chiefly the lightning swift computer core, has made possible the standardization of data and the establishment of specific parameters on the many types of heart ailments. Thus, the system is capable of literally watching and listening to as many as four patients at a time and alerting the staff when any condition exceeds the norms established for the particular patient. It also provides for playback of any of the audio or visual data it has ever received. This feature alone has produced a priceless library of a number of tape reels containing data which will help to program other similar equipment someday or the careful reexamination of any aspect of a patient's heart history months or even years later.

A Spin-Off of the Space Program

Key to this particular medical automation and telemetry system is the compact, remote transmitter worn by each of the cardiac patients as they eat, sleep, or move unencumbered about the hospital. It is little larger than a man's hand, but it packs a DC power output greater than similar equipment worn by United States astronauts on their recent earth orbits.

As a matter of fact, the very transmitters in use at USAF Hospital Andrews today are similar to those designed for the nation's space program by the electronic engineers of the Air Force School of Aerospace Medicine at Brooks AFB, Tex. Those at Andrews, however, are even more powerful, in order to send signals through the masonry and steel of the hospital structure.

MSgt. Lemoyne V. Lindsay tests two of the transmitters which ambulatory heart patients wear to keep in touch with the Central Cardiac Monitoring System computer.

Medical science and electronic engineering have been combined to serve cardiac patients at USAF Hospital Andrews — a breakthrough in medical automation.

The tiny transmitter, complete with pre-amplifying and amplifying circuitry for electrocardiography, broadcasts its milliwatt signals without interference on 236 to 245 megacycles. At the CCMS, both the audio and visual data are processed, stored, and displayed by the computer and can be further recorded on both paper and magnetic tape as well as the oscilloscope.

Sergeant Shows the Way

Sergeant Lindsay has served continuously with the Central Cardiac Monitor since early 1962 when it came to Andrews as the only system of its kind in the armed services. The sergeant's 17 years in the medical career field, including many years' work with cardiac and pulmonary patients, made him exceptionally well qualified to *learn* the machine.

"The system was unique. Not only did we have to program it and learn to operate it, but even to maintain it. Just now, after more than three years in development, a contract is being prepared to obtain commercial electronic engineering assistance. I am presently helping to write the instructions that will guide the contractor in the selection and development of test and preventive maintenance equipment," Sergeant Lindsay explained. He speaks enthusiastically about the prospects of the CCMS and similar equipment destined to grow out of its use.

"We are the sole source of training for operators of this telemetry equipment. Five airmen assist me in keeping this system at the USAF Hospital Andrews on the air 24 hours a day. Soon these airmen will be slated to move to other USAF hospitals."

No wonder Sergeant Lindsay beams with elation as he talks on his favorite subject. He works under the tutelage of a renowned authority on cardiac diseases, Brig. Gen. A. A. Hoffman, commander, USAF Hospital Andrews, Fellow of the College of Cardiology, and member of the Cardiovascular Study Section of the National Heart Institute.

General Hoffman writes and lectures inexhaustibly on the subject of automation and telemetry in patient care.

In 1962, General Hoffman and Dr. Rod Jensen of the International Business Machines' Advanced Systems Development Division spent several weeks studying and defining the many areas within the Andrews Hospital alone where medical automation and telemetry could be employed. Their study revealed that medical electronics could ably serve the operating suite, intensive care areas, clinical areas, investigative areas, laboratory, physiological training unit and medical records departments. Drs. Hoffman and Jensen concluded that subordinate functions were ripe for medical electronics.

Today the Central Cardiac Monitoring System at USAF Hospital Andrews marks a breakthrough into the vast, bright era which General Hoffman envisions. The development of microelectronics with a subsequent improvement in instrumentation stability and a marked reduction in cost may well accelerate the employment of many more types of automated medical equipment, General Hoffman says.

Right now the Air Force is taking a giant step forward in the establishment of a new Air Force career field and a new Air Force specialty code—909X0 for medical corpsmen trained in the research aspects of cardio-pulmonary medicine.

And what about the patient in Room 203? He's recovering nicely, thanks to modern medical wonders administered in time to avoid a possible serious heart attack. The data on this case, stored in the memory of the computer could well help to show the way to the prevention of many more heart attacks and the eventual reduction of the impact of heart disease on the Air Force and in the civilian community. —J. D. C.

LETTERS, continued

partial signatures, we feel the men of the 61st Troop Carrier Squadron, Sewart AFB, Tenn., deserve recognition for their pioneer efforts in air operations involving heavy transport, ski-equipped aircraft in the Antarctic. THE AIRMAN *has received confirmation of the fact that Lt. Col. (now colonel) Wilbur Turk, commander of the 61st, set the first C-130 down at Byrd Station on January 25, 1960. It has been recognized that use of the C-130 was considered a major factor in the unqualified success of the U.S. Antarctic Research Program,* Deep Freeze.

"Slug" for SAC Booms

Sir: I read the June AIRMAN with interest but had the distinct feeling after digesting *Twilight of a Gallant Warrior* that TAC led the field in the use of KB-50s. I don't think this is the intent, and I think some of the old timers would verify that this system was first used by SAC. How about someone looking into this and giving us SACites a small slug for services rendered?

Lt. Col. R. D. Elliot
Westover AFB, Mass.

• *Check pages 4-9, this issue.*

* * *

Can I Cross-Train?

Sir: I am currently working in my Primary AFSC but I also have an additional AFSC, to which I possibly would like to revert. If I cannot revert to my additional AFSC, I would like to cross-train. Can you tell me what regulation or manual covers this? Also, is it possible for one to revert to his additional AFSC?

SSgt. Thomas O. Jones
Belton, Mo.

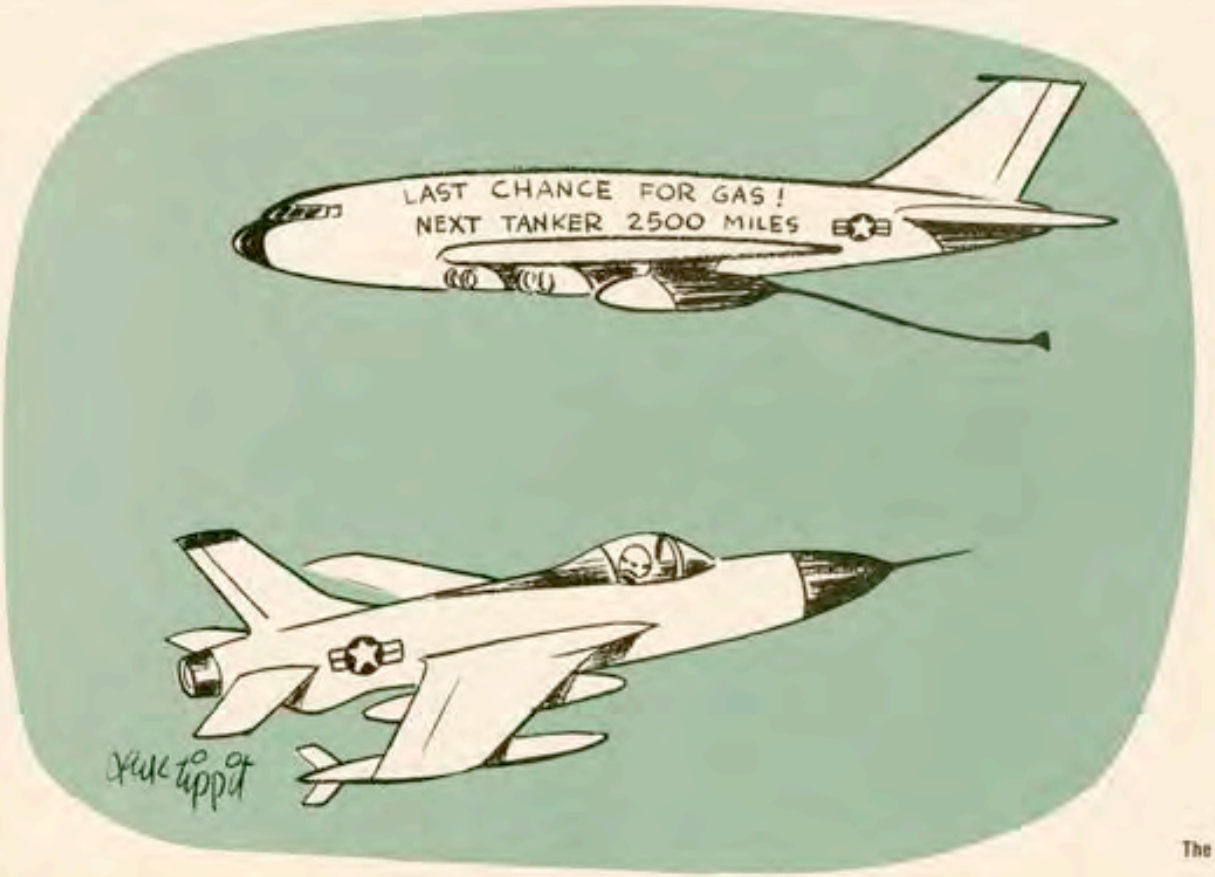
• *Retraining (cross-training) is permitted in accordance with AFRs 39-8 and 39-9. Airmen may be utilized in their additional AFSC provided there is a requirement in the additional AFSC at either the airman's base of assignment or within his major air command. It is hoped this guidance will benefit not only Sergeant Jones but others in his same category.*

* * *

Geometrical Similarity

Sir: I wonder how many readers have noticed the similarity in the geometrical pattern of the photogram of the Air Force Academy Chapel appearing on the back cover of the December 1964 issue of THE AIRMAN and the photograph of the air inlets of the B-70, pictured on page 10 of this same issue? I was quite impressed by the similarity of these two subjects that are yet so dissimilar in purpose and scope.

SMSgt. Neil H. Farrar
APO San Francisco, Calif.



AIR FORCE REPORT

A simplified personal propulsion unit with fingertip controls designed to transport an astronaut from one spacecraft to another is under test and evaluation by the Aerospace Medical Research Laboratories (AMRL) at Wright-Patterson AFB, Ohio.

Project engineers Capt. John N. Schofield, Jr., and Lt. Gary B. Reid, assigned to AMRL's Crew Stations Branch, said the unstabilized device is composed of a pair of hand-mounted propulsion nozzles with fore and aft thrust control. The nitrogen supply assembly is mounted in a backpack. The wearer controls his movements by aiming and activating fingertip throttles. Gross control is obtained by proper positioning of the arms, and fine control by wrist movements.

Test flights are made aboard KC-135 and C-131B aircraft flying a parabolic arc to achieve brief periods of weightlessness. A six-months program involving approximately 25 flights is planned to evaluate the unit's maneuverability and the operator's visual orientation in a simulated space field.

AIR FORCE REPORT

WORLDWIDE AIR FORCE NEWS

Three American medical men at Bien Hoa AB in Viet-Nam see more lepers in a day than most doctors see in a lifetime.

Once a week, Air Force Capts. Calvin C. Chapman and Hans W. Polte, and Army Capt. Joe F. Altomonte journey by helicopter from Bien Hoa to St. Joseph's Leprosarium, located in the Viet Cong infested War Zone D, 30 miles north of Saigon.

The Catholic leper colony is one of 10 in the Republic of Viet-Nam, and depends on the Vietnamese Ministry of Public Health and charitable groups in seven nations—including the United States—for support. St. Joseph's is staffed by a Swiss priest and eight Vietnamese nuns who care for nearly 300 patients ranging in ages from 10 to 85.

Captain Chapman is chief medical officer for the 6251st Tactical Fighter Wing, Captain Polte is the unit's dental surgeon, and Captain Altomonte is a flight surgeon for the Army's 118th Aviation Company.

"America can be proud of these men," said Father Berset, multilingual chief of the leprosarium.

Captain Chapman said fear of leprosy is based on ignorance about the disease, which "is not very communicable at all," and is treatable by drugs which enable many lepers to live normal lives.

A modern success story has unfolded in central Japan, where Air Force men and women with musical talents have joined together in an extremely popular community relations endeavor.

Musicana tells the American story with music. It is the brainchild of Maj. Gregory H. Oldenburgh, Chief of Information for the Kanto Base Command at Tachikawa AB. He also produces and directs the show.

The show's performers are from a variety of ethnic groups, including Japanese, Hawaiian-Filipino, Negro, German, Indonesian, Scotch, Irish, Swedish, Dutch, and Indian — to name a few.

Each performs a number representing his or her native origins or home state, thereby relating in song the story of America's growth as a nation composed of many peoples. From folk music and jazz to hymns and patriotic songs, the performers—most of whom are professionals — sing in different tempos and languages.

They are ably abetted by the smooth sounds of the Fifth Air Force 16-piece dance band, directed by TSgt. Tom Pomeroy, and the Fifth Air Force Glee Club, composed of eight enlisted men.

The mayor of Tachikawa City, Mr. Mitsuo Sakurai, wrote to the Hon. Edwin O. Reischauer, U.S. Ambassador to Japan, and said that the show was not only highly entertaining, it also helped the Japanese audience understand that "America consists of many different races, and is rich in inherent national cultures . . . while remaining united as a nation."

Although audience enthusiasm is high throughout the show, the finale always receives a tremendous ovation as all performers join on stage, in uniform, to sing *America the Beautiful*.

Musicana has been presented more than 20 times this year, largely to Japanese-American Community Relations and Advisory Councils. The results in easing national differences and cementing relationships can never be measured, of course, but the show is such an obvious success that it will probably be staged again and again—thanks to the great enthusiasm and warmth with which *Musicana* has been received by our Japanese friends.

The Air Force's air traffic control facilities at McGuire AFB, N.J.,

SSgt. Emil Kumer, accordian medley.

CONTINUED

IN BRIEF

and a master sergeant from Clark AB, Philippines, have been named winners of the Air Traffic Control Facility and Air Traffic Controller of the Year awards presented annually by the Air Force Communications Service.

MSgt. William E. Boatman, of Harper Woods, Mich., an air traffic control technician with the 1st Mobile Communications Group (AFCS) at Clark was named for the controller award.

The radar approach control and control tower operated by the 2017th Communications Squadron at McGuire were named to share the outstanding facility award. Nearly 200 air bases and more than 6,000 controllers were eligible for the awards.

The McGuire squadron, commanded by Lt. Col. Samuel Lynn, drew praise for improvements in its operations during the year, which included complete modification of airspace responsibilities in an extremely high density area, and also for outstanding support of the many missions at the New Jersey base.

Sergeant Boatman has held a variety of assignments with 1st Mob, and in 1964 led a team of mobile communications men to Bien Hoa AB, South Viet-Nam, to install and operate mobile ground controlled approach and tactical air navigation units used to control aircraft operating from the combat air base.

Both the McGuire squadron and Sergeant Boatman will receive silver cup trophies in recognition of their achievements.

Maj. Oscar Maurterer is probably still sneaking down to the Bien Hoa AB aircraft ramp at odd hours to check on his A-1E *Skyraider*. He lost it once, several weeks ago. It just disappeared.

It happened when Major Maurterer was supporting an Army helicopter assault landing northwest of Song Be, South Viet-Nam. He made four strafing passes against Viet Cong positions, then his *Skyraider* started trailing smoke.

Landing at a nearby strip that had a large crater right in the middle, he was picked up by helicopter almost immediately, and flown to a Special Forces camp.

About four hours later he went back to the strip for his A-1E but it was gone—vanished!

So Major Maurterer hitched a ride via Army *Caribou* back to Bien Hoa. And there was his *Skyraider*, parked right where it belonged.

Visibly shaken, he investigated and learned that a team of USAF maintenance men from the 6251st Consolidated Aircraft Maintenance Squadron, and a pilot, were flown into the area. They had repaired the A-1E in 35 minutes, installing a new rocker box cover on the engine that had been hit by enemy small arms fire, and returned the downed aircraft to base.

Lt. S. Lundstrom, American folk song.

MSgt. B. Bowman, "Without A Song."

A1C Gerrit Arends, Indonesian ballad.

CASTLE'S COMBAT CREWS

Story and photos by
Capt. MEL BAILEY
Hq SAC

ONE early morning, a blue Air Force bus stopped in front of a giant B-52 bomber parked on the flight line at fog-shrouded Castle AFB, Calif. Lt. Col. Thurber L. Hoyt briskly led his crew off the bus. For most of today's flight they would be on their own. It was sortie number nine, one flight away from final checkout for two student pilots, two student navigators, and a student electronics warfare officer.

Hoyt's instructor navigator, Maj. Glenn E. Haas, watched as the students began their preflight check of the bomber's exterior. Ahead was a nine-hour mission, typical of most training sorties flown by Strategic Air Command bomber crews from Castle—north to Oregon for some navigation legs, an hour on the end of a refueling boom of a KC-135 tanker, two high-altitude bombing runs over Los Angeles to be scored by Army *Nike* units, instrument flight work over the Pacific Ocean, and then back to central California for precision approaches to the home base.

This long and difficult mission had been carefully planned the day before. It was an important part of SAC's combat crew training program for B-52 and KC-135 crews handled at Castle by the 93d Bombardment Wing (Heavy). The wing, commanded by Col. James V. Reardon, not only manages the complexities of a large combat crew training program, but must also maintain its capability to support its Emergency War Order mission down to the last deadly detail.

When students (pilots, navigators, electronic warfare officers, and gunners for the B-52; pilots, navigators, and boom operators for the KC-135) are first assigned to Cas-

tle they report to the 4017th Combat Crew Training Squadron. Following 22 days of academic training, they are assigned to either the 328th or 329th Bomb Squadrons (B-52) or to the 93d Air Refueling Squadron for their flying training. Then they spend 36 training days on the flight line, fly 11 missions with the same instructors, and culminate their training with a standardization check.

Though production of the B-52 stopped in 1961, the need for new combat crews continues. Other crews reassigned out of SAC must be replaced. For this reason five classes are in training at all times and the end of the training program is not in sight.

Although the students train as a crew, their destinations are usually varied upon completion of combat crew training. Most pilots will join combat crews as copilots. More experienced copilots are upgraded to aircraft commander within the tactical units, as vacancies occur.

Various Backgrounds

Inputs to Castle for B-52 and KC-135 training come from many sources, including inactivated B-47 and KC-97 units, overseas returnees, and Air Training Command graduates of pilot, navigator, and electronic warfare officer schools. Gunners and boom operators come from SAC resources, and often, in addition, from a myriad of career fields.

Col. Ray M. Watkins, the 93d's deputy commander for operations, notes a terrific change in the age and experience level of students arriving at Castle. "A couple of years ago we were getting pilots with 1,500 to 3,000 hours of multijet time," he said. "Now most of our pilots come directly from flying school."

Typical of the dozens of student pilots undergoing training at Castle is Lt. Marshall Boslow who, along with Lt. Joe Forrest, recently learned to fly the B-52 with Colonel Hoyt. Boslow earned his wings at Craig AFB, Ala., flying the T-37 and T-33. "Flying the 8-jet, 200-ton B-52 after flying the T-33 is a big adjustment," said the lieutenant. "It took me eight rides to just get the feel of the bird."

Colonel Hoyt's student navigators included Lt. Marshall Mackinen, a commissioned navigator for 13 months with 500 hours' flying time, and Maj. Frank Moritz from Catasaqua, Pa. ("That's across the river from Hokendauqua.") Moritz is a returnee to SAC crew duty after graduation from Air Command and Staff College. He had been a B-47 navigator for seven and a half years in the 306th Bomb Wing at MacDill AFB, Fla.

Lt. Dave Moore was the student electronic warfare officer. MSgt. William R. Camp, gunner on Colonel Hoyt's regular combat crew,

Colonel Hoyt lines up his student crew for roll call. From left are Lieutenants Forrest and Boslow, Major Moritz, Lieutenants Mackinen and Moore, and Sergeant Camp.

filled the tail slot.

"We let the students assume as much responsibility as they can carry," Colonel Hoyt remarked in describing his teaching techniques. "By nine rides they have progressed to the point where they can be soloed. Instilled in the student pilot is the desirability of progressing from copilot status to aircraft commander, how the AC must assume responsibility for his crew members, how he must know them, evaluate them, and form them into an effective combat-ready team."

For the navigators, Major Haas teaches the equipment in the B-52 —and how to use it correctly. "We assume students know their basic celestial when they get to Castle. We stress crew coordination after the first couple of flights. By flight number nine, I leave them alone and only correct their mistakes."

On a typical B-52 training mission, nine men are aboard the aircraft. An instructor gunner usually takes the first mission, and then one other flight later on during the intensive program. An instructor electronic warfare officer rides the others.

Instructing a gunner can present difficult problems. For example, during flight there is room in the cramped tail compartment for only one man. So the instructor helps with the preflight and then flies in the front crew compartment talking with his student over the interphone during the mission.

By now Colonel Hoyt and his men had been on the flight line less than an hour. Preflight checks had been made, engines were started to meet a tightly controlled takeoff time, and ground power units were unhooked. At the same time a constant stream of other B-52s taxied through the lifting fog into takeoff position.

At the other end of the ramp, KC-135 tankers were getting ready to meet their takeoff times and preplanned rendezvous time for refueling.

For some student boom operators, this day would be their first experience at the tricky business of placing the end of a 40-foot pipe into a small receptacle atop the B-52's fuselage.

"We used to get all our boom students from the KC-97 program; now we're getting some cooks and bakers," said Captain Chet Eby, a KC-135 instructor pilot. Some of these trainees have never flown in an airplane until they get to Castle. They come to crew duty from various mechanical and administrative (yes, even food service) career fields. Basic prerequisites are a desire and an aptitude.

Student boom operators get an extended ground school running 43 days instead of the normal 22, and according to Captain Eby, spend a great deal of time in the tanker on the ground with the instructor until they can perform a blindfold check of the boom operators' station.

Before noon, all daylight sorties, including Colonel Hoyt's, were airborne. Another wave would take off after dusk for nighttime flying requirements.

Meanwhile, in a building far removed from the noisy flight line, Maj. Leroy Robinson was telling a group of young pilots how to land a B-52 with partial spoiler failure on the left wing.

"Which hydraulic pack would drive those of the outboard group on the left?" he asked, noting that the emergency procedures were listed on page 65 of the Dash One. The Dash One is the Tech Order for the B-52 and the text book for combat crew trainees. It's about four inches thick.

Major Robinson, like other instructors, is a B-52 veteran, He must keep current in the aircraft. Instructors like him are rotated from the flight line for two-year tours.

At this stage of the course Major Robinson's student pilots had not been given a chance to fly the B-52. They were only in their 16th training day. Most of them had not been exposed to heavy multi-engine jet aircraft; one of the 18 was a former B-47 pilot.

"They have a lot to learn when they come to us, but I've found them eager and quite intelligent," summarized Major Robinson.

Less Responsive

Is the B-52 a difficult aircraft to fly?

"For those who have never flown

Students give undivided attention to instructor during class on hydraulic systems emergency procedures.

"I think you'll recognize this as a B-52 . . . flying away from you." Major Robinson tells student pilots.

anything but light aircraft, I think the consensus of opinion is that it is difficult . . . but only initially, until the transition is made. You might compare it to driving an automobile with power controls and then switching to a Mack truck."

He explained that in flying fighter-type aircraft the response is fast and there is only small pressure on controls. It takes considerably more effort to move the B-52 around, especially at slow speeds such as in the traffic pattern. "After a half dozen missions, however, everything seems normal," he emphasized.

After eight rides, student pilot Lt. Tom Clark agreed, remembering his first attempt at aerial refueling which he called "rather spastic on my part. It takes quite a while to get this bird to do what you want."

Meanwhile, the classroom work necessary to complement the actual flying training is all-encompassing and time consuming. Spare minutes are something not well known at Castle's combat crew training school.

During the academic phase, the student pilots' schedule includes instruments, engines, communications, pneumatics, electrical, flight controls, bomb systems, fuel systems, tactical doctrine, escape systems, positive control, gunnery, air refueling, and of course, emergency procedures involving systems other than hydraulics. Other crew positions receive comparable courses. There's a two-hour exam at the end of the 11th training day and a final on the 20th day.

In order to cram all this information into a relatively short period, classes are conducted from 0730 to 1630. Students are scheduled at the synthetic trainers in the evenings, and this program, in itself, is quite sizable.

Synthetic trainers, according to Lt. Col. Arthur E. Magrill, are basically electronic devices which reproduce nearly every flying condition which occurs in an airplane.

"We can simulate any emergency, including a complete crash," said Colonel Magrill, director of synthetic training for the 4017th.

The 4017th has a synthetic trainer for all bomber and tanker crew positions except boom operators. For pilots, there are six C-11 instrument trainers, four B-52 flight simulators, and three KC-135 flight simulators.

Electronic warfare officers train on T-4 simulators—machines based on punch cards and magnetic tapes which generate synthetic signals that the student must take countermeasures against. Situations presented are the same a student would later face trying to jam enemy radars en route to a wartime target.

In addition to all these synthetic trainers, there are five gunnery trainers and three T-10 ultrasonic bombing-navigation devices. They help increase aircrew professional proficiency without the need for actual in-the-air experience.

The 4017th CCTS, commanded by Col. Troy Drew, also operates eight mobile flight simulators mounted on railroad cars, which make the rounds of designated SAC bases periodically for "continuation proficiency training." Much of this simulator time is accomplished while the combat crews are on ground alert.

Though the basic 58-training-day course is the bread and butter of the 93d's program, there are variables to the basic course and a number of other specialized classes.

For example, at the end of flightline training, B-52 crew members scheduled to go to bomb wings equipped with "G" or "H" model aircraft go through a G-H Difference School. It runs 11 days for pilots; 5 days for the others. Basic design changes of the newer aircraft, beyond the "F" models available at Castle, make the classes mandatory.

There is even a short senior officers familiarization course and a special 21-day academic-flying course to check out SAC division and wing commanders.

Since the first B-52s were delivered to the 93d Bomb Wing on June 29, 1955 (the KC-135s came two years later), thousands of SAC combat crew members have gone through the program at Castle. And even though these crewmen are now keeping the peace at a hundred different locations, instructors such as Colonel Hoyt and Major Robinson still affectionately call them "Castle's Combat Crews." As one proud instructor said, "they had to successfully pass through here to get to where they are going."

Answer to Who Is This Airman?

November's *Who Is This Airman?* is Lt. Gen. Jack G. Merrell, Comptroller of the Air Force.

THE ROK AIR FORCE'S SUPERSONIC ADVISERS

IN SOUTH KOREA, A SMALL GROUP OF AIR FORCE MEN CONDUCT A VAST PROGRAM THAT KEEPS THE ROK AIR FORCE RIGHT UP TO DATE.

by SSgt. JOSEPH A. YOUNG
6146th Air Force Advisory Group

At the end of a new 9,000-foot runway at Suwon Airfield, an F-86 *Sabrejet* of the Republic of Korea Air Force roared upward toward the bright blue sky. The modern, swift military aircraft was in marked contrast to the landscape left behind: rice paddies, deforested stony mountains, straw-thatched mud huts, ox carts, and people carrying A-frame loads and working the land with primitive hand tools.

Three miles north of the airfield lies the City of Suwon, an agricultural center with a population that has swollen to 118,327 since the Korean War. This city, like many other of South Korea's war-torn communities, is—a decade later—still engaged in the long process of rebuilding its economy.

Since the 1953 armistice was signed, communities all over South Korea have been slowly but surely reaching their pre-war state. And near many of these communities are modern Republic of Korea Air Force bases—manned by professional airmen and equipped with modern aircraft.

In the years since the war ended, the U.S. Air Force's 6146th Advisory Group had helped the Republic of Korea Air Force (ROKAF) bring itself up to date from propellor driven F-51 *Mustangs* to the more sophisticated F-86 *Sabrejet*, and this year to the supersonic jet Northrop F-5 *Freedom Fighter*.

In this same period, also, the U.S. Air Force has assisted the Republic of Korea Air Force with the gigantic task of establishing its aircraft control and warning (ACW) system—an effective radar and communications defense complex for the Korean Peninsula south of the 38th parallel.

The ROK Air Force was in its infancy when the U.S. Fifth Air Force in Japan first sent 5 officers and 100 airmen to assist the fledgling air force. They landed in Korea on July 3, 1950, a few days after the beginning of the Korean War, and formed the 6146th Air Base Unit under the command of U.S. Air Force Maj. Dean E. Hess, now a colonel stationed at Randolph AFB, Tex.

Upon the arrival of Major Hess and his air base unit, their attention was divided between the growing pains of the young ROK Air Force and its survival against the brutal North Korea communist invasion forces which were heading south.

Now, 12 years after the armistice, the 6146th Air Force Advisory Group, successor to Major Hess' unit, is still on the job advising and assisting the ROK Air Force to grow increasingly more effective as a tactical air organization.

A veteran combat pilot, Col. Wayne E. Thurman commands the 6146th Air Force Advisory Group from the Seoul headquarters of the Republic of Korea Air Force. The advisory group is assigned to the U.S. 314th Air Division under Brig. Gen. William L. Mitchell, Jr., commander of Air Forces, Korea.

The group is in the chain of command of the U.S. Pacific Air Forces. For planning and programming, it has a responsibility, also, to the Joint Military Assistance Advisory Group Korea (Provisional), known as PROVMAAG-K, which administers the U.S. Military Assistance Program (MAP) in Korea.

Today the group numbers about 160 USAF advisers, approximately half of whom are officers experienced in command and staff functions, or in specialized fields. The other advisers are seasoned noncommissioned officers of outstanding professional ability.

This select group works daily with their ROKAF counterparts in maintaining and improving the airborne defenses. Since Korea serves as a buffer in the Far

During a practice alert, Republic of Korea Air Force pilots run to their ready F-86F Sabrejets.

USAF adviser Lt. Col. Joe Orell, right, walks with Brig. Gen. Man Ho Ock, former commander, 10th Fighter Wing.

U.S. Air Force NCO advisers assist an ROK Air Force officer with a flight line inspection of maintenance work.

East between communism and the Free World, the jobs performed by U.S. Air Force people there are critically important.

Twelve of these advisers, including the group commander, fly regularly in ROKAF aircraft. Thus, they add to their words their flying skills in assisting the Korean pilots.

Extensive Area to Patrol

Besides its headquarters personnel, the advisory group has members spread to nine other locations over

the southern half of the Korean peninsula. Some of the group's detachments are truly far-flung—to the very borders of the Republic of Korea. (South Korea stretches east and west some 150 miles between the Sea of Japan and the Yellow Sea, and extends 280 miles southward from the armistice-declared Demilitarized Zone (DMZ) to Cheju-Do, an island lying in the East China Sea off the tip of the Korean peninsula.)

The three most extreme detachments are located at radar sites, where a handful of USAF airmen work with ROKAF ACW personnel. Two of these farthermost sites are islands; the third lies between the Sea of Japan and the towering mountains rising precipitously a short distance from the sandy beach of the east coast.

Semitropical Cheju-Do, a volcano-formed island half the size of Long Island, N.Y., is the home of one detachment. The other island, about the size of Manhattan, is Paengnyong-Do shortened to P-Y-Do. Nicknamed "The Rock" by the USAF airmen on isolated duty there, it's situated in the Yellow Sea, and lies 55 miles farther north than any other UN outpost in Korea. It is only five miles from the communist-held island of Wolli-Do and eight miles from the communist mainland of north Korea.

At both Cheju-Do and P-Y-Do, the Air Force detachments depend upon twice-weekly air transportation. Flying into and out of these islands, however, is restricted by long spells of adverse weather. During Korea's late summer rainy season, for example, the weather over these islands is notorious for low ceilings, fog, high winds, and even typhoons. "You must be a versatile pilot to fly supply missions in this country," said one experienced adviser.

When the weather is clear and the ceiling unlimited, the grass sod landing strip at Cheju-Do and the beach landing strip at P-Y-Do serve well enough for indefatigable "Gooney Birds." But even then—at P-Y-Do—daily landings and takeoffs are tightly regulated by the tides which flood the beach landing strip.

The advisory group's largest detachment, with 44 USAF advisers, is stationed with the ROKAF Air Materiel Depot at Taegu. On the other hand, only one USAF adviser is presently assigned to the ROKAF Technical Training Center at Taejon.

These USAF advisers have a firsthand understanding of the spending of millions of dollars by the Department of Defense through its Military Assistance Program for the ROK Air Force. Since they work beside their ROKAF counterparts at all levels and in all functions, they assist in obtaining the most efficient use from the money spent for Korean tactical and air defense systems.

Much military assistance program money, of course, has gone into buildings and facilities badly needed by the Republic of Korea for its growing air force. Two new runways were completed in 1964 at ROKAF airfields, for instance. One was constructed at Kwangju Airfield, the first air installation to be built in Korea in peacetime. The other, which replaced the old one at Suwon Airfield, has dramatically increased the combat readiness of the ROK Air Force.

Other facilities recently have included an Aeromedical Center in Seoul with its 110-bed hospital, dedicated July 3, 1964. The ROKAF Aeromedical Center has the most modern high-altitude pressure chamber in the Far East in its physiological training facility. "Money is saved by putting ROK pilots through the simulator here, rather than at some other PACAF base," said one U.S. Air Force officer.

Having significant importance in the development of the ROK Air Force also are a number of training programs conducted for Korean pilots and technicians. Many ROKAF personnel have been sent to the United States for training. The U.S. Air Force also has helped to train ROK airmen in some of the free countries of the Pacific area.

In addition, special USAF teams are often sent to Korea to conduct specialized training there. Particularly noteworthy was the team of management experts which brought the U.S. Air Force Resources Management Program to the ROK Air Force in November 1964.

This three-phase program for Air Force officers in all grades opened with a week's staff management seminar in Seoul for general officers and senior colonels. Lt. Gen. Won Suk Park, ROKAF chief of staff, attended along with 12 other general officers of the Republic of Korea Air Force.

Korea was the first country in the Far East to participate in the Resources Management Program established by the U.S. Air Force for countries under the U.S. Military Assistance Program. Previously this management training had been provided to nine countries in Europe, Africa, and the Middle East. After the program's success in Korea, Nationalist China and the Philippines were scheduled to receive the same training.

ROK Air Force tactical wings, aircraft control and warning units, and their training and support functions today are organized similar to the U.S. Air Force. Like the U.S. Air Defense Command, the ROK Air Force maintains a constant alert force with its aircraft, pilots, and ground crews. Its 24-hour vigilance guarantees that any unidentified, or unfriendly, aircraft crossing the nation's borders is challenged.

Last spring the jet F-5 *Freedom Fighter*, a supersonic tactical aircraft, was added to the ROK Air Force inventory of F-86 *Sabrejets*, the ROKAF main weapon system since February 1957. With the coming of the new *Freedom Fighter* to Korea, USAF advisers to the Republic have taken on another job—to help the ROK Air Force make the transition to the supersonic F-5A aircraft in operations, training, maintenance, and supply.

Based on its 15-year history as a separate military service of the new Republic, the ROK Air Force has taken giant strides in the aerospace age. Assuming a proud role in this development have been the U.S. Air Force and its supersonic advisers in Korea. And for as long as its mission remains, the 6146th Air Force Advisory Group will share its talents in the interest of the new nation—and its valiant airmen.

SERGEANT THEYE'S FANCY FOILS

His greatest thrill was when he beat Poland's champion.

by SSgt. GARY D. SMITH
Hq USAF Security Service

"FACING an adversary in armed combat is one of the most exciting experiences in life," says SSgt. Donald Theye, Headquarters United States Air Force Security Service. And he should know! As an accomplished fencer with over 13 international tournaments to his credit, he has dueled Olympic swordsmen from many countries.

Theye became interested in the age-old sport while he was serving with the 6901st Special Communications Group, Zweibrucken, Germany, in 1960. He joined a German fencing club where he learned the basic fundamentals from the experts. He trained hard and was finally awarded the Fencing Sports Pass from the *Deutscher Fechter Bund* (Germany Fencing Society). This pass serves as a record of all official fencing activities and schools in which a fencer participates. He is one of approximately six active Americans to possess this pass.

His daily training consisted of running one mile, executing 50 to 100 lunges, jumping rope, and performing various gymnastic exercises. This training system teaches grace and coordination, and is an excellent stimulant for the mind. It also keeps the figure slender and the muscles firm. Twice weekly he attended classes at the University of Saarbrucken. These classes were financed by the fencing society.

As his training progressed, he was entered in small tournaments where he triumphed in a score of individual matches. These victories eventually led to international competition.

In 1962, at the urging of Kurt Noe, he went to Neunkirchen, Germany. There he became a pupil of Herr Karl Bach, a brilliant teacher of saber tactics—the saber being Theye's specialty.

Under Herr Bach's expert tutoring, he won the 1962 Germany Sports Conference saber title and placed second in the foils competition. Subsequently he was elevated to Neunkirchen's First Team for saber competition—a truly great honor. In 1963 his team won the Saarland title and went on to the Germany Team Championships where they finished eighth.

Sergeant Theye was Germany Sports Conference saber and epee titleholder in 1964, and in that same year won the United States Air Forces in Europe (USAFE) saber and foils titles. Aside from the USAFE events and his final three international tournaments, Sergeant Theye fenced for Germany in all competition.

Asked about his greatest thrill on the fencing strip, Sergeant Theye recalls that it happened at Bad Durkheim, Germany, in April 1964.

"I automatically qualified for the tournament semifinals because of my overall standing in Germany, but I was competing as a representative of the United States. We were fencing in pools, a contest in which each member of a team successfully engages each member of another team.

"In my pool was Egon Franke, the Polish champion. He had defeated two other members and was now matched against me, the most inexperienced fencer in the pool. Against a background of shouting spectators, I beat this great swordsman 5-2. My teacher, Herr Heiner Petri, grabbed me in a hug as throngs of people crowded around slapping me on the back and shouting congratulations in several languages.

"Later Franke went to Tokyo as a member of the Polish Olympic squad and won a Gold Medal in foil competition. It was only then that I realized the true significance of my feat," he said.

Returning to the United States in 1964, Sergeant Theye was virtually an unknown in this country. To establish his eligibility for this year's American Championships in Los Angeles, Calif., he was required to qualify in a tournament held at Fort Worth, Tex.

Despite a lengthy illness which had halted his fencing activities since returning to this country, he went to Fort Worth and gave an excellent performance, placing fifth in sabers and qualifying for the top American meet.

Sergeant Theye trained hard for the American Championships, with assistance of the French master Poujardeiu, instructor for the United States Modern Pentathlon team. Despite his European style and being unaccustomed to U.S. national level competition, Sergeant Theye stood 26th on final unofficial standings among the top 100 or more Amateur Fencers of America.

His performance in Los Angeles brought an invitation to the International Fencing Tournament in Mexico City October 10-12 and the Mexican Invitational Tournament on October 15.

Sergeant Theye recommends fencing to everyone, but emphasizes that the key to success in this sport, as in any other, is training.

GEARED TO TOMORROW

SOME OF THE STUDENTS AT SHEPPARD TECHNICAL TRAINING CENTER ARE LEARNING ABOUT EQUIPMENT NOT YET IN GENERAL USE. THE TRAINING, IN OTHER WORDS, IS AS HOT AS THE WEATHER!

by TSgt. HAROLD L. CRAVEN

Photos by A2C Eddie E. Lewis and A3C Terry D. Pittsford

THE temperature at Sheppard Technical Training Center, Wichita Falls, Tex., was 102 degrees, but the squadron of airmen marched briskly, singing and counting cadence, toward a troop dining hall. Their sharply pressed fatigue uniforms were new and the airman third class chevrons on their uniforms proclaimed them to be basic technical school students. Their leader, also an airman third in fatigues, clearly and melodiously sang out:

"Look right here and what do you see? The sharpest troops in ATC! SOUND OFF!"

"One-two-three-four, ONE, TWO—THREE, FOUR!" The airmen shouted in unison, loudly enough to be heard in the Capehart family housing area beyond the North Gate.

The formation halted on command and the airmen moved single file into the dining hall. Other formations, equally sharp in appearance, marched up the street, singing and counting cadence as enthusiastically as the first.

My mind went back 20 years to the summer and autumn of 1945 when I was stationed there with an overseas processing and replacement unit. Sheppard was so overcrowded then that we often had to stand in line 20 minutes or more to buy a bottle of cola. Many of us lived in rows of tents pitched alongside the jam-packed, open-bay, two-story barracks.

Then, as now, Sheppard was primarily a training base.

The original site was purchased for a dollar from J. S. Bridwell, a Wichita Falls cattleman. The base was dedicated in 1941 and named in honor of Senator Morris E. Sheppard, who, as chairman of the Senate Military Affairs Committee, had been a strong advocate of military preparedness. The first class of aviation mechanics entered training in October 1941. A few weeks later the nation was at war and the field's training role expanded rapidly. Sheppard Field served as a basic training center, advanced pilot training base, glider mechanic school, helicopter pilot training school, and liaison pilot training base. It became a school for B-29 engineers, an overseas processing and replacement center, and finally a separation center. It reached its peak personnel strength of 46,304 officers and enlisted men while serving in its latter role between September and November 1945.

Today, Sheppard Technical Training Center is responsible for training in conventional aircraft and helicopter mechanics, data processing, transportation, *Atlas* and *Titan* missiles and space systems. The school is divided into six major departments: Transportation, Communications, Comptroller, Civil Engineering, Aircraft Maintenance, and Missiles and Space. There were 20,425 graduates during fiscal year 1965, and as of June 30, 4,154 students were enrolled in 130 basic and advanced courses.

The base looks somewhat as it did during World War II, but lacks the thousands of khaki-clad men standing in line and, of course, the rows of tents. The barracks' interiors have been modernized and air conditioned, and there are attractive Wherry and Capehart housing areas for permanent party personnel and their families. A modern 300-bed hospital has been constructed, there are more trees, and personnel facilities have been expanded and improved.

Despite these improvements, it seemed incredible that the singing, cadence-counting students could exhibit high morale on so hot a day. Curiosity impelled me to fall in behind one of the formations and enter the dining hall. I expected the food to be better than I had remembered and I was not disappointed.

Inside I heard students talk of their lessons, their plans for the coming weekend, and the bases where they hoped to be stationed after graduation. One airman said he wanted to come back to Sheppard later to attend an advanced course. Another said he planned to compete for an Air Force Academy appointment. Everyone seemed to be thinking positively. I returned to the serving line for "seconds" of the superbly prepared fried chicken. Completing my meal, I then went to 3750th Technical School headquarters where I had an appointment with CMSgt. John W. Parrish, Jr., the sergeant major.

He's Been Around

I had met Parrish earlier that day when he and the school commander, Col. Charles W. Johnstone, had given me a preliminary briefing on the organization of the technical training center.

Sergeant Parrish had really been around. As a member of the Army Air Forces' first jet detachment at Muroc Dry Lake, Calif., in 1943, he became familiar with the Bell P-59 and Lockheed P-80 before most Americans—including AAF pilots—knew we had a jet program. Among the planes at Muroc were several captured enemy aircraft including a German Me 262 jet. One task at Muroc was to perfect a system to tow P-80s into combat behind B-17 *Flying Fortresses*. The project

Jet engine mechanics students Airmen Third Class Paul Tranbarger, Sammy Stump, Dennis Robinson, and Stephen Collins inspect training mockup of conventional R-1830 engine. SSgt. Wm. Sheetz answers their questions.

Data processing machine operator A1C Betty Bodkin of Travis AFB, Calif., at Sheppard for advanced training, tours Comptroller School facilities with instructor SSgt. T. H. Morrison.

SSgt. Richard E. Murphey introduces helicopter students to Bell UH-1F helicopter trainer.

was halted when the Pacific war ended, and the idea was later abandoned altogether in favor of air refueling.

Parrish's early experience with jet aircraft led to postwar service with operational jet squadrons, and eventually to assignment as noncommissioned officer in charge of advanced training in the Aircraft Maintenance Department at Sheppard. He later received factory training on the *Atlas* missile and returned to Sheppard as NCOIC of *Atlas* training. He went to Turkey with a *Jupiter* missile training detachment in 1961, returned to Sheppard in 1963, and served briefly as NCOIC of the mechanical branch of the *Titan* training program. Later that year he became technical school sergeant major.

He told me the students at Sheppard and other Air Training Command (ATC) bases are being given the same advantages he enjoyed as a member of the first AAF jet detachment.

"The training is geared to tomorrow's needs, and some of the students are becoming familiar with equipment not yet in general use. Others are learning to maintain the newest equipment presently in the Air Force inventory.

"Basic technical training is only the beginning. Later in their careers these young airmen will receive instruction in new systems and weapons at their own bases from ATC personnel assigned to field and mobile training detachments. Many of them will return to technical school bases for advanced courses."

He said the students at Sheppard realize that they are receiving instruction they couldn't obtain anywhere else.

"This is a strong morale factor, and it's probably one of the reasons they are able to sing on a hot day like this," he added, "but there are other reasons, too."

Later Sergeant Parrish drove me around the base in his car. We passed the officer and NCO open messes, airmen's club, and service club, and a forest of telephone poles where basic communications students were learning how to install telephone lines. He pointed out missile launch training facilities, the flight line of SAC's 494th Bomb Wing, and the small trees along part of our driving route.

"Those trees were donated by local citizens who wanted to help make the base a more attractive school campus. We have a squadron adoption program here in which every squadron is sponsored by some business firm or civic group," he explained.

I had heard of this program. It was initiated in 1959 and its originators had stated formally:

"We declare it to be our purpose and intent to apply ourselves, our institutions, agencies and associations assiduously to the task of learning about our Sheppard Air Force Base airmen and to give them in turn an opportunity to know us well."

This program has grown steadily. Participating firms and civic organizations now organize hundreds of events annually to make their community a "home away from home" for permanent party personnel and the thousands of students who attend courses at Sheppard every year. Among these events are picnics, pancake festivals, barbecues, sports tournaments, and tours. Sponsoring organizations buy television sets for squadron dayrooms and distribute rodeo, theater and concert tickets, and they participate in on-base activities with the squadrons they sponsor. These group activities lead to individual friendships and mutual understanding.

"Invariably airmen who are transferred to other bases take with them a high regard for Texans in general and residents of Wichita Falls in particular," Sergeant Parrish said.

"Aside from these organized activities," he continued, "there are many other opportunities for off-duty recreation, on and off base.

"Sheppard has several hobby shops, two gymnasiums, four swimming pools, club facilities for all ranks, lighted softball diamonds, bowling facilities, and an 18-hole golf course. Squadron intramural sports include touch football, soccer, basketball, volleyball, and softball."

According to Sergeant Parrish, fishing and boating

Basic technical school students inspect primitive Viet Cong crossbow with CMSgt. John F. Parrish, missile-qualified school sergeant major.

Loadmaster instructor SSgt. William D. Sutterer explains procedure for putting Titan missile in C-133B to Capt. T. C. Robertson, SSgts. John M. Davis, Jesse Scaramella, Donald E. Davis, Joe Marcus, SMSgt. Robert A. Fagan.

are excellent at four nearby lakes: Kickapoo, Kemp, Wichita Falls, and Diversion. Other fine entertainment and recreational facilities are also available.

"Wichita Falls Memorial Auditorium is the scene of numerous cultural activities, including concerts, opera performances, and several Broadway plays. There are several golf driving ranges, occasional rodeos, and 27 neighborhood parks," Parrish said.

We completed our driving tour of the base, then I visited some of the classrooms, hangars, and outdoor training areas.

Where the Training Is Done

Neel Kearby Hall houses the Department of Missile Training classrooms and Sheppard's closed circuit educational television station. The early phases of work in this department were begun in 1955. Announcement was made in February 1958 that Sheppard was the prime training center for *Atlas, Titan, Thor,* and *Jupiter* missiles, and the first class of missile students entered training in October 1959.

The educational television station is used extensively in the missile training program and to an increasing extent in other training departments. The TV equipment is maintained and operated by members of the 2054th Communications Squadron of the Air Force Communications Service. Mobile TV units are sometimes used to transmit live instruction from simulated launch sites located on the base. Other live, taped, or filmed lesson material is transmitted from the studios, control room, and associated TV facilities in Kearby Hall to several classrooms simultaneously.

Aircraft maintenance still commands an active role in the Sheppard AFB training structure. Propeller-driven aircraft, jet aircraft, and helicopters are included in the program. Instruction is accomplished in hangars, in classrooms, and on the flight line.

Associated with the Department of Maintenance are the Field and Mobile Training Detachments which take the classroom to students in many parts of the world.

The Civil Engineering Department offers instruction in the utilities, construction, and facilities career fields. The main portion of the facilities instruction is associated with the *Titan II* program.

My visit to the Civil Engineering Department included a brief look at a *Titan II* "automatic start" unit. The instructor on duty was SSgt. Nicholas Zamora.

"In the event of regular power failure," he told his students, "this unit would take over in a fraction of a second. And in that fraction of a second between normal power and power from this unit, the missile could be launched on battery power."

Elsewhere in the department other students were learning a less glamorous, but nonetheless important trade, plumbing. The training is intensely practical, and each student has to assemble a complete bathroom as part of the basic course.

Comptroller training, I learned, is provided in two major areas. These are Accounting and Finance and Management and Statistics. I watched students in this department learn to operate the latest data-processing equipment, then visited the Communications Department's classroom facilities.

Communications instruction embraces the full span of telephone and telegraph circuitry, including automatic equipment and missile support equipment. Part of my tour included a visit to an outdoor area where a class of airmen third class students were learning how to attach 35-pound crossbars to telephone poles. It was difficult work under temperature conditions exceeding 100 degrees, but they were going about it with stubborn determination.

Courses offered by the Transportation Department include missile and nuclear safety, air passenger handling, air freight handling, loadmaster training, and staff officer training. One of the training devices in this department was a mockup of a C-133B transport plane, used to teach loadmaster students how to put a *Titan* missile aboard.

All the instruction given at Sheppard is under constant evaluation in the field, and courses are continually being improved. The courses taught at Sheppard are written there by instructors and technical writers who collaborate to turn out the most accurate and clearly written lessons possible. At this time 289 resident volumes are in production.

Because there are 793 classrooms in 45 buildings and 45 acres of outdoor training area, my visit was necessarily superficial. I saw enough, however, to realize that most of the students and all of the instructors were taking their learning and teaching responsibilities seriously. As I left Sheppard that evening I remembered and agreed with what the school commander, Colonel Johnstone, had told me earlier.

"Those of us who are members of the older generation needn't worry about the future of the Air Force. These bright and eager young people are going to take over where we leave off, and they will do as good a job as we are doing, and perhaps better."

PENTAGON

Board considers Reserve captains

A board of officers will convene at the Air Reserve Records Center in Denver, Colo., on November 29 to consider qualifications of some 5,000 captains, not on extended active duty, for permanent major grade promotions. To be eligible, officers must have a promotion service date on or before June 30, 1960, and a total years' service date on or before June 30, 1953. Eligible officers may submit communications under provisions of Section 8362, Title 10, U.S. Code, and Paragraph 60-3, AFM 35-3, to the President, AFRes Selection Board, ARPC, 3800 York Street, Denver, Colo. 80205.

Returning airmen getting choices

Airmen returning from overseas assignments this month are doing almost as well as October returnees in getting a base or area of choice. Those en route to the States (or other overseas PCS sites) from Southeast Asia are signing in with 96.3 percent of them getting one of their choices. Slightly over half are getting first base of choice (up from 43.3 in October); 22.2 percent are going to bases they listed as second; and 23.2 percent are going to the states they wanted. Remote area returnees are batting out a 69.2 percentage in receiving something they requested. Airmen leaving isolated areas are doing almost as well with 64.2; and all other returnees are going to selected bases or areas at the rate of 55.7 percent. More would get a choice if their AFSCs were needed at the bases, states, or areas they chose. For example, 44.3 percent of regular overseas returnees this month asked for locations which couldn't use them.

Trainees fly instruments first

Air Force pilot trainees will soon be using a new "instruments first" method to learn flying. A year-long test by Air Training Command indicates that by "flying" instruments first, students become thoroughly familiar with the cockpit and later learn to relate instrument readings to visual conditions. The new method will use flight simulators with built-in cockpits to provide practical instrument knowledge before actual flight training. Students will learn combinations of pitch, bank, and power—most important skills pilots must develop and most difficult for them to learn. With new procedures, students ready for solo flight will be more experienced in their aircraft, have a greater safety awareness, and be better qualified to recognize and correct inflight errors. The instruments-first method is to be used at all eight undergraduate pilot training bases.

Regular nominees from Reserve ranks

Central Appointment Boards will convene in December, January, and March to consider Reserve line of the Air Force and Medical Services officers for Regular Air Force appointments. A December 6 board will consider ResAF line officers on active duty who, as of the start of fiscal year 1966, had completed two, but less than three years' total active federal commissioned service (TAFCS). The March 28 board will consider ResAF line officers on active duty who had seven, but less than eight years' TAFCS as of the start of FY 66. The January 31 board will consider medical, dental, Medical Service Corps, Veterinary Corps, Nurse Corps, and Biomedical Science Corps officers for Regular appointments. Considerations are automatic, but recommendations will be required for each officer.

PERSONAL

Special duty changes made

Airmen volunteering for overseas special duty will no longer be vulnerable for worldwide assignment. Interim change 18 to AFM 39-11 now requires airmen volunteering for MAAG, Mission, Attache, and other *special* assignments to indicate a minimum of three countries in which they desire placement. They will be considered as volunteers for *only* those countries they select. Hq USAF anticipates the change will increase the number of special duty applications (AF Form 109) and permit a broader base of selectees with a higher quality of selections.

Five fields open in AECP program

Especially sought during the fiscal year of 1966 Airman Education and Commissioning Program are applicants in the fields of Astronautical, Aeronautical, and Civil Engineering; Meteorology, and Precision Photography. Waivers of the one-year active duty requirement are being granted for exceptionally well-qualified applicants for these five academic majors. Since AECP's inception in 1961, 55 percent of AECP airmen commissioned from Officer Training School have been distinguished military graduates.

USAF listing jobs open to civilians

The manpower reapportionment program involving 75,000 military assignments, recently announced by Secretary of Defense McNamara, is expected to speed up and reduce the cost of the nation's military buildup. Initial phase of the program involves hiring 60,000 civilians during 1966 to do civilian-type jobs now being done by 75,000 military officers and enlisted men in non-combat support assignments. Early indications are that Air Force will probably use some 17,000 civilians in jobs now requiring 20,000 Air Force members. Positions noted by Secretary McNamara where civilians can substitute for military personnel include administration and clerical, supply and maintenance, medical, food service, and transportation. Some overseas positions are involved, but the bulk will be in the ZI.

Allotments aid to forgetful

An ALMAJCOM letter from The Comptroller to personnel and accounting and finance officers liberalizes the procedures to process Class E allotments for personnel en route to Southeast Asia. (Such allotments are used primarily to provide support to dependents, or pay insurance premiums.) Under provisions of the letter, a member bound for Southeast Asia can process a Class E allotment at *any* accounting and finance office while en route, even though he may not have his pay record with him. The procedure was established to allow a member to make an allotment in the event he failed to do so before leaving his previous duty station. The Air Force Accounting & Finance Center in Denver will process all allotments received through the last day of each month. Members who apply late in the month are cautioned to let the allotee know that payment may be delayed up to 10 days after the end of the month. Normal procedures of certification and handling by base personnel offices is waived *only* for personnel going PCS or TDY to Southeast Asia. Air Force officials stress that although this method of making Class E allotments is permitted, every effort should be made to initiate such action prior to departing the last duty station. —J. A. G.

AIR FORCE HONOR ROLL

A monthly record of decorations awarded to personnel of the Air Force.

DISTINGUISHED SERVICE MEDAL

MAJOR GENERALS Perry M. Hoisington II and John W. Vogt, Jr.

First Oak Leaf Cluster

LIEUTENANT GENERALS William S. Stone and Edward J. Timberlake. MAJOR GENERAL Gilbert L. Meyers.

SILVER STAR

CAPTAINS Lloyd E. Lewis, Morgan W. Pummill, and Gerald J. Smith.

LEGION OF MERIT

BRIGADIER GENERALS Joseph S. Bleymaier, John O. Bradshaw, Donald W. Graham, and Andrew S. Low, Jr. COLONELS Alan F. Adams, Carmelo V. Alba, Harry C. Bayne, Eddie J. Broussard, Jr., Lloyd D. Chapman, William W. Eledge, Jr., Arthur T. Frontczak, Ritchie B. Gooch, Francis L. Grable, Albert L. Haley, Gordon L. Hart, Joseph G. Johnson, Jr., Richard A. Knobloch, Joseph E. Krysakowski, Bernard R. Kuntz, Raymond E. Lambert, Emmert C. Lentz, Neil G. MacEachern, Gilbert E. Montour, Hubert B. Palmer, Ralph A. Reeve, Clarence B. Slaughter, Jr., Wallace B. Twichell, Jr., John P. Wells, Joe M. Whitfield, and Gust J. Yandala. LIEUTENANT COLONELS Angel J. Angel and Stanton G. Daries. MAJOR Lawrence A. Skantze.

First Oak Leaf Cluster

MAJOR GENERALS Richard D. Curtin, Lee W. Fulton, and Joseph T. Kingsley, Jr. BRIGADIER GENERALS Thomas H. Crouch and Robert W. Strong, Jr. COLONELS John T. Ford, Downs E. Ingram, John P. Lisack, James M. McGarry, Jr., Andres G. Oliver, William E. Ruark, Jr., Joseph J. Semanek, Albert R. Shiely, Jr., and Claude M. Stubbs. LIEUTENANT COLONEL Harry N. Cordes.

Second Oak Leaf Cluster

MAJOR GENERAL Robert M. Stillman. COLONELS Loran J. Anderson, Henry L. Crouch, Jr., and Warner E. Newby.

Third Oak Leaf Cluster

MAJOR GENERALS Walter E. Arnold, Sory Smith, and Robert H. Warren.

AIRMAN'S MEDAL

LIEUTENANT COLONEL Milton F. Tarr. CAPTAIN Thomas L. Cookson. SENIOR MASTER SERGEANT Howard W. Adams. MASTER SERGEANTS Samuel P. Bianco, Maurice S. Langley, and Marvin J. Maynard. TECHNICAL SERGEANT William R. Walls. STAFF SERGEANTS Wheeler W. Carson, Joseph G. Janasov, John E. Mapes, Ayers A. Mello, Domingo Opio-Opio, and Chester D. Wade. AIRMEN FIRST CLASS Joseph R. Bevilacqua, Larry E. Butler, Franklin G. Jones, Harvey K. Lum, Stanley F. Newby, Billy L. Rhoads, Oneal Shankle, Robert W. Williams, and Robert L. Wilson. AIRMEN SECOND CLASS Robert R. Gage, Charles S. Goodwin, Gerald Kearney, John H. Pulsifer, Wayne M. Schmidt, and John W. Stoner. AIRMAN THIRD CLASS John G. Cullison III.

UNITED STATES AIR FORCES

SOUTHERN COMMAND

- ☆ USAF School for Latin America
- ☆ Tropical Survival School
- ☆ 605th Air Commando Squadron
- ☆ Air Missions in Latin America
- ☆ Civic Action Programs

25th ANNIVERSARY

ESTABLISHED NOVEMBER 20, 1940

PRELUDE: Three decades ago, the Air Force (then U.S. Army Air Corps) began its assault on the threshold of space with stratoballoon flights from South Dakota under the auspices of the National Geographic Society. In the first ascent, which reached 60,000 feet, the big balloon shredded and the crew was forced to bail out. Maj. William Kepner uses his foot to free Capt. Albert W. Stevens from the gondola's port so he could hit the silk. The second attempt, November 11, 1935, 30 years ago this month, took Stevens and Capt. Orvil A. Anderson to 72,395 feet, a record which was to stand unbroken for 22 years. Results of the scientific research conducted during the two ascents proved invaluable when the U.S. prepared to venture into aerospace.

TODAY:
For the balloon's role in man's experiences in the atmosphere, see page 23.

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