AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

July 1955 • 35c

Range Plus Firepower

Equals TAC's New Global Role In Big Wars or Brushfires

Red Stars in the Jet Stream — A New Kind of Threat

Is the Air Force Over-Managed?

ARMA subminiature gyro compass . . .

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Provides a heading reference with a drift rate of 1/10° per hour when used as a directional gyro.

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A brochure describing the Arma Subminiature Gyro Compass will be sent to personnel engaged in military applications, by writing Dept. KB-2, Arma, Garden City, New York.
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AMERICA is a nation of air travelers—and civil aviation across the length and breadth of the land has reached astounding proportions:

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More Aircraft Land on Goodyear Tires, Wheels and Brakes Than On Any Other Kind

THE FREE WORLD FLIES

IF ANY ONE aircraft engine can be called the standard of commercial aviation in the free world, it is the dependable Double Wasp built by Pratt & Whitney Aircraft.

This 18-cylinder power plant, designated the R-2800, is installed in more than 1000 of the free world's modern, commercial airliners now in use or on order. Seventy-two airlines, and many large business fleets, are equipped with aircraft powered by Double Wasps. Included among these are all the models of the four-engined Douglas DC-6, as well as all twin-engined Convair and Martin airliners.

Like the earliest Wasp engine of 1925, and the famous engines of succeeding years, the 2500 hp R-2800 is outstanding for its power, its efficiency, and its clean-running dependability.

These are the power plant qualities that make Pratt & Whitney Aircraft piston engines first choice for nearly 80 per cent of all commercial aircraft. They are the qualities that have helped create and maintain an unrivaled position for America's commercial aviation.

DOUBLE WASP engines power three of the most widely-flown aircraft types. Included are all models of the four-engined Douglas DC-6, all twin-engined Convair and Martin airliners. In airline and private commercial service throughout the world, these aircraft have achieved an outstanding record of dependability, efficiency and safety. Double Wasps now power over 32 per cent of all commercial airliners.

Pratt & Whitney Aircraft

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WITH THE DOUBLE WASP

SEVENTY-TWO AIRLINES, operating in every part of the world, depend on aircraft powered by Pratt & Whitney Aircraft R-2800 Double Wasp engines. Modern versions of the engine, like that pictured here, develop 2500 hp for takeoff. Double Wasps are standard for three of America's most widely flown aircraft types.

PRATT & WHITNEY AIRCRAFT
DEPENDABLE ENGINES

ONE OF THE DIVISIONS OF
UNITED AIRCRAFT CORPORATION

air mail

Crew Identified

Gentlemen: Your picture on page 75 of the May issue of AIR FORCE of the four Mustangs of the 361st Fighter Group brought back memories of that outfit, since my brother was part of it while he was in Europe. The picture itself was taken from the waist gunner's position of a B-17, July 21, 1944, over Cambridge, England. The picture received wide acclaim for its composition, clarity, and the exactness of the formation flying. However, to my knowledge, no identification of the pilots has ever been made public. Consequently, I thought this an ideal time to bring them to your attention.

▲ Col. Thomas J. J. Christian
Maj. Urban L. Drew ▲

▲ Maj. Bruce W. Rowlett
Capt. Francis T. Glankler ▲

The squadron first of all is the 375th Fighter Squadron (not the 376th as reported) of the 361st Fighter Group, stationed at that time at Bottisham, Cambridgeshire, England. The identity of the pilots is as follows:

Colonel Christian, lead ship, was a West Pointer, and one of the best liked COs in the 8th Fighter Command. He was killed over enemy occupied France on August 12, 1944, twenty-two days after the picture was taken.

My brother, Major Drew (then lieutenant), flew seventy-six missions with the 361st Fighter Group. He became the first Allied pilot to shoot down two German jet aircraft when on October 7, 1944, he intercepted two Me-262s near Osnabruck, Germany, and shot them both down in a matter of fifty seconds. He finished his European tour with seven confirmed aerial victories to become an ace. He is now my partner in Columbia Air Service, Inc.

Major Rowlett (then captain) was leading the second element in the flight. He is the only member of the flight still on active duty with the USAF. His present assignment is unknown to me.

Captain Glankler (then lieutenant) is now a cotton broker in his home town of Memphis, Tenn.

Earl J. Drew
Moses Lake, Wash.

ADC Conference

Gentlemen: I was delighted to read in your April issue of the AFA-sponsored conference on Air Defense held at Colorado Springs and to read your report on the conference, the briefing by General Bergquist and the speech by General Chidlaw. Your artist's presentation of the sequence of warning (pp. 82 and 83) is excellent.

What pleased me most about the conference was that it included the men who should be the moving forces behind the Ground Observer Corps: business executives whose businesses are being protected, National Guard and Air Force Reserve representatives who are GOC "clients," and the Congressmen who hold the purse strings. A good combination of opinion leaders who are in a position to take constructive action.

May I suggest the following to your readers? You are all in a position to help the GOC in some way or other. Volunteer to serve at our Observation Post or Filter Center. Learn what the organization needs and see what you can do to provide it. The local units are almost all in need of money, supplies, publicity and personnel. Enlist the support of the groups to which you belong, business clubs, church, and naturally your local unit of AFA. We have a few ex-Air Force men in our Post but, so far as I know, only one AFA member—a WAF, God bless her—who gives me her copy of AIR FORCE when she has read it.

George F. Mueden, Jr.
Office of Civil Defense—14th Pct.
New York, N. Y.

Offer of Assistance

Gentlemen: I am assuming the executive directorship of National Aviation Education Council. As such I will want to belong to the Air Force Association although for some reason I had the idea that you had no provision for associates.

I hope we may be doing work of such caliber and quality that you will encourage your members to watch with interest to see if our materials are being used in the schools their children attend.

These materials of ours you will find are of such quality that leading educators, such as Harold Hunt of Harvard, Helen Heffernan and many others, enthusiastically endorse them.

Believe me we do want to help, or to act as a clearing house for all aviation education activities, and one of the things we want to do very quickly is to make a study of available scholarships. I am sure you would agree that a screening of such infor-

(Continued on page 7)

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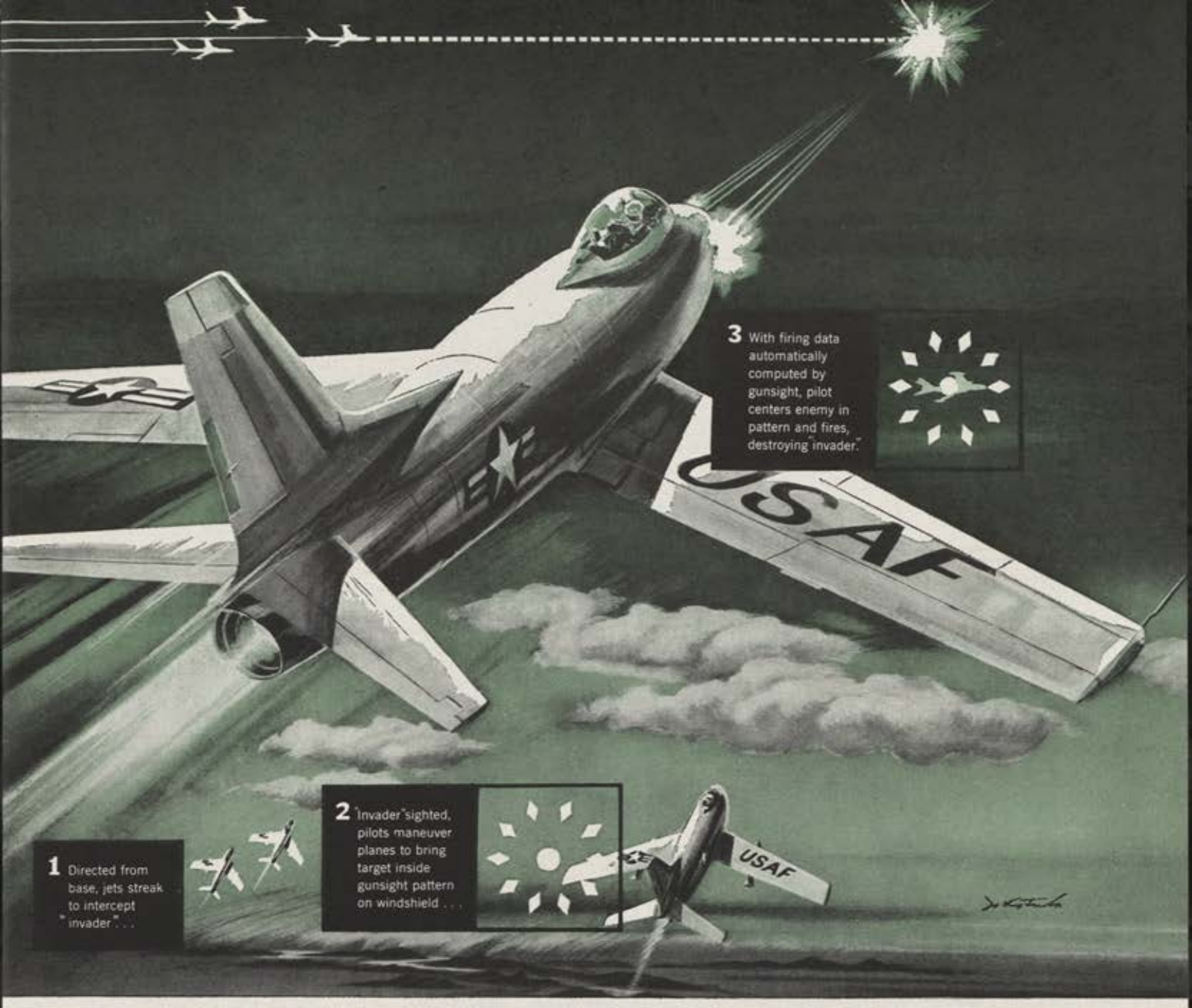

RADAR GUNSIGHT HELPS TAC PILOTS BAG "FOE"

Korean-tested Device Proves Deadly Accurate in Stopping Jet "Invaders"

THE STORY BEHIND THE STORY:

Here at home, where air defenses are constantly being strengthened, there's a good chance of detecting and intercepting hostile planes before they reach their destination. And abroad, as you've probably noticed from headlines like the one above, chances are good that aggressors would be intercepted and shot down by fighters from our overseas bases or from NATO wings.

One reason for the impressive marksmanship demonstrated by Tactical Air Command pilots, of course, is their intensive training. Another is the accuracy of the computing gunsight first used in Korea and now serving TAC and NATO squadrons. Here's what it does, in the words of General "Jimmy" Doolittle:

"In jet combat you are chasing a small and elusive speck, and you have only seconds to shoot at it. You are travelling ten miles per minute, twisting and turning; your senses can't measure the speed and range of the target or the angles involved in hitting it—and even if they could, you lack time for necessary calculations. The new gunsight does this for the pilot. He watches an illuminated circle and dot reflected on his windshield. When circle and dot are superimposed on the target, he fires."

Developed through the joint efforts of the Instrumentation Laboratory of M.I.T. under Director Dr. C. Stark Draper, Sperry, and U.S.A.F.'s Armament Laboratory—the radar gunsight is an example of teamwork at its best – providing better weapons for defense efficiently and economically.

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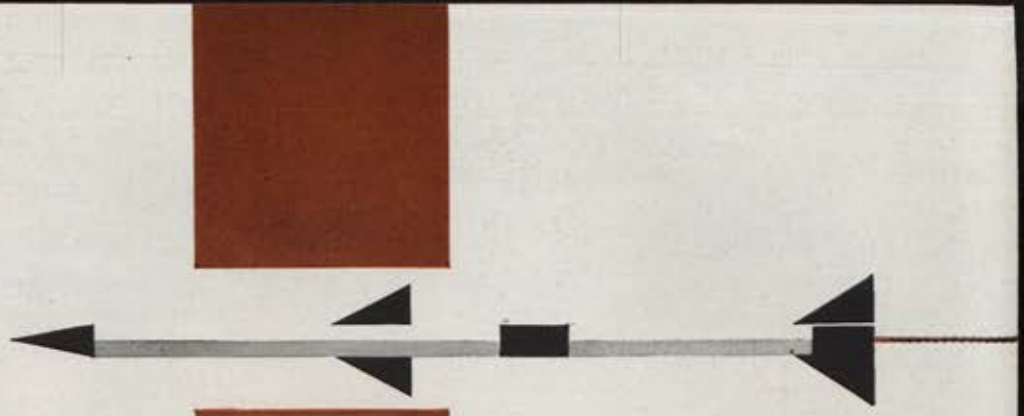

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mation should be made by an aviation education group. Unfortunately our organization has only barely enough funds on which to operate and no funds with which to provide a scholarship. I think, rather, our service can be in the area of coordinating and assembling information about available scholarships and lending assistance when called upon in setting up scholarship objectives, plans, and even in many cases we will be canvassing the applications and perhaps placing the scholarships.

I am having our Washington office send you a set of our materials and I am looking forward to the privilege of visiting with you after I move to Washington in August.

Evan Evans
Executive Director
National Aviation Education Council
Overland Park, Kansas

Strong-Arm Method

Gentlemen: My brother isn't much of an airpower advocate since his B-17 was intercepted by an 88 millimeter about a decade ago, but I'm going to bleed five bucks out of him for AFA if I have to threaten him with a flight in a T-Bird. He hasn't been up in a flying machine since they flew him out of Germany and he hates the sight of the tin birds. Even hates to have them fly over his house. I guess he's the only smart one in our family. At least he's making money, which is something damned few airplane drivers can do once they're dethroned from their charged seats.

Dave McCallister
Folsom, Penna.

Subs For All Cadets

Gentlemen: It was with a great deal of interest that I read the article entitled "Just A Second, Lieutenant" in the June issue of AIR FORCE. I know that a few brief references to this story will be of great use to me when I receive my commission next year. I hope that it will interest others as it interested me.

A few months ago when I became initiated into the Arnold Air Society, I received a letter which suggested that if I had any comments or ideas for AIR FORCE, I should write to your offices concerning them.

Articles like that mentioned above are very informative to the junior officers of the Air Force; however, AF-ROTC senior officers would greatly benefit by perhaps a series of stories that concerned them directly. This would be especially beneficial if AIR FORCE Magazine were made more readily available to all seniors enrolled in advanced AF-ROTC. At the present time subscriptions are limited only to members of Arnold Air Society at Rutgers University.

I hope that this suggestion will meet with your approval and that articles pertaining to senior AF-ROTC will appear in future issues.

Robert O. Ennever, Jr.
Rutgers University, N. J.

● AIR FORCE Magazine *is available to all AF-ROTC cadets at a special cadet membership rate of $3.00 annually. If a cadet is a member of Arnold Air Society, of course, he is automatically an AFA member at the joint rate of $5.00 annually.—The Editors.*

Abbreviation Explanation

Gentlemen: The June '55 issue of AIR FORCE Magazine was one of the best I have ever read. I thoroughly enjoyed all the articles, but "Just A Second, Lieutenant," by M/Sgt. Frank J. Clifford and Len Morgan's "A Ten-Year-Old Goes to War" were outstanding.

I would appreciate it very much if you would explain some of those abbreviations used in Sergeant Clifford's article. Specifically: "201, AFSC, PCS, TDY, TPA, and delay."

In future issues of the magazine I

(Continued on following page)

Air Force Combat Control Team maneuvers, Sewart AFB, Smyrna, Tenn.

AIR MAIL—CONTINUED

should like to see more articles about AF-ROTC and possibly fighter aircraft in World War II.

William C. Grayson, AF-ROTC
New York University, N. Y.

● *201—Officers' personal file of all orders, citations, etc.*

AFSC—Air Force Specialty Code—or job number.

PCS—Permanent change of station.

TDY—Temporary duty.

TPA—Travel by private conveyance authorized (drive your own car).

Delay—Authorized stopover en route from one assignment to another.—The Editors.

The CAP

Gentlemen: The Story, "Volunteers All," is a vivid, realistic description of the everyday tasks which Civil Air Patrol volunteers throughout the country are performing for their fellow men. Stories such as this help to pay tribute to these patriotic Americans—these modern minutemen of the air.

On behalf of the more than 80,000 members of the Civil Air Patrol and as National Commander, may I extend our appreciation to you for this fine story about the CAP and urge you to continue your untiring efforts in behalf of adequate American airpower.

Maj. Gen. Lucas V. Beau
Bolling AFB, D. C.

Troop Carrier Talk

Gentlemen: I think your magazine alone is worth the price of membership. I read it from cover to cover, including the advertisements. In addition, I am Commandant of Cadets in Civil Air Patrol in Omaha, Nebr., and have based a number of my lectures on information and articles in the AIR FORCE Magazine.

Gerlad W. Raschke
Omaha, Nebr.

Gentlemen: I've enjoyed AIR FORCE Magazine, although serious and extensive thought must be given to most articles found therein.

I feel that it is the most up-to-date publication for us who find the Air Force an honorable and interesting field of endeavor. Would like to see more articles concerning factual pros and cons regarding this service as a career. Also, I, as a troop carrier pilot, would like to see more articles concerning this highly skilled type of flying published. Not just publicity, but actual technical pieces which present the complex teamwork necessary for operations of this nature.

1st Lt. Charles R. Richards
APO, San Francisco, Calif.

RENDEZVOUS

Where the Gang gets together

22D BOMB GRP. REUNION: We're having our annual reunion the 20th of August at the Sheraton Hotel, Chicago, Ill. Watch for reservation card. Contact *Arnold Greenberg, 22d Bomb Group Reunion, Sheraton Hotel, Chicago, Ill.*

50TH TC SQDN. REUNION: The 50th Troop Carrier Sqdn., 314th Group, World War II, will hold its third annual reunion September 9, 10, 11 in Columbus, Ohio. Write *Paul Funderburg, Rte. 5, Columbus, Ohio.*

376TH BOMB GRP. VETS REUNION: The 376th Heavy Bomb Group Veterans Assn., World War II, will hold its ninth annual reunion at the Hotel Rieger, Sandusky, Ohio, August 4-6. Write *Wiley Golden, 371 Probasco Ave., Cincinnati 20, Ohio.*

507TH FIGHTER GRP. REUNION: The Group is holding its reunion at the Hotel President, Kansas City, Mo., September 4-6. Make reservations with *Raymond Stoddard, 5 S. Maple Ave., Avoca, N. Y.*

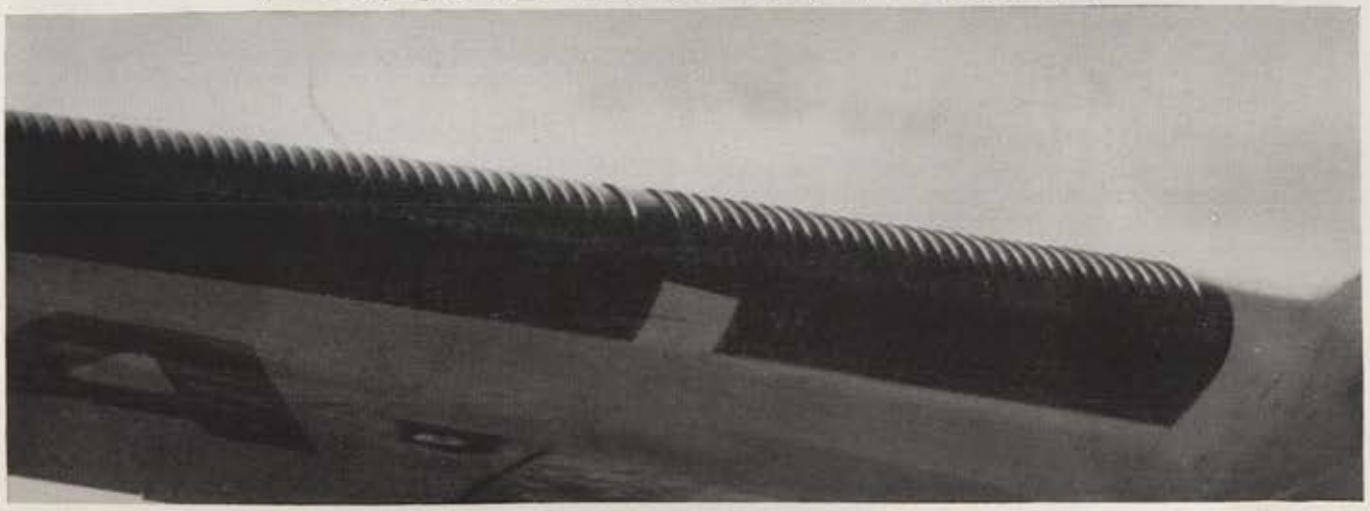
RICH FIELD WW I VETS REUNION: Veterans of Rich Field, Waco, Tex., WW I, are holding their reunion August 26-27 at the Bellevue Hotel, San Francisco, Calif. Contact *William E. Beigel, Pres., 312 Northcrest Dr., Kansas City 16, Mo.*

96TH BOMB GRP. (VH): The 96th Bomb Group (VH) has been reactivated and we are attempting to establish a list of customs of our parent organization and make up histories for each bomb squadron. Former members please write *Maj. W. A. Stanley, Information Services Officer, Altus AFB, Okla.*

12TH AF HISTORY: Back in 1947 a book called "The 12th Over the Mediterranean" was advertised in AIR FORCE Magazine. I wonder if someone can give me a lead on where to locate a copy. *John R. Vaughan, R. R. #5, Fairfield, Ill.*

AL LANKER: I'd like to locate 2d Lt. Albert Lanker who was assigned to the 10th Photo Reconnaissance Group of the 9th Tactical Air Command in 1944. *Edward F. Cullen, 12 E. 41st St., New York 17, N. Y.*

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER



New De-Icers mark B. F. Goodrich's 25 years of leading fight on ice

New chordwise De-Icers improve airflow

You're looking at the most efficient ice protection yet developed—new B. F. Goodrich chordwise De-Icers.

The small rubber tubes that inflate to snap off ice are built chordwise, in line with the air stream. This enables the De-Icers to maintain a smooth flow of air over the wings even during the brief three-second inflation cycle.

New BFG chordwise De-Icers are standard equipment on TWA's Super-G, above, also Lockheed's 1049-G's for Northwest. They climax 25 years of leadership in the fight against ice. We first gave airplanes ice protection in 1930. Here's how we started . . .

1927—Most planes still grounded in cold weather. Ice often forces airmail pilots to turn back or bail out.

World's first ice protection system, BFG De-Icers tested on Douglas mail plane.

1928—Dr. William C. Geer and B. F. Goodrich engineers develop world's first ice protection—a rubber "overshoe" containing inflatable tubes that crack off ice. Copyrighted name: De-Icers.

1929—First flight made by planes with test sections of De-Icers.

1930—First flight of a plane completely equipped with De-Icers. Although hand pumped, BFG De-Icers bring plane through severe icing conditions.

B. F. Goodrich builds world's first refrigerated wind tunnel to speed work on ice problems.

1931—BFG's "Miss Silvertown" is first plane to have engine-driven pump for inflating De-Icers.

1932—First commercial installation of De-Icers on fleet of Northrop Alpha mail planes. Soon followed by installation on Boeing 247's, Douglas DC-1's and DC-2's, Martin B-10's and pursuit ships piloted by Jimmy Doolittle.

1936—By now De-Icers have been made more efficient by increasing number of tubes and making them smaller.

1938—B. F. Goodrich develops De-Icers for 4-engine flying boats and transports.

1940—Improved air operating system results in faster tube inflation-deflation.

B. F. Goodrich pioneered use of Mt. Washington, N. H., for aircraft ice removal tests.

1942—Every U. S. combat bomber and personnel-carrying transport is equipped with B. F. Goodrich De-Icers. Throughout war, dependable De-Icer operation saves thousands of lives, many planes.

1943—Solenoid manifold distributor system with electronic timer gives infinite variations of De-Icer control. This new De-Icer control system used on B-29's flying on first Tokyo raids.

1948—100,000th BFG De-Icer installed. All major airlines that fly in icing conditions use De-Icers.

1952—New super-small tube De-Icers installed on all Super Constellations. Cemented on, new De-Icers eliminate fairing strips, assure longer life.

1955—First B. F. Goodrich chordwise De-Icers installed on Lockheed 1049-G's.

Only B. F. Goodrich makes De-Icers. Only B. F. Goodrich can give you the proved advantages of De-Icer protection. For special applications, B. F. Goodrich has also paralleled De-Icer progress with developments in chemical and electrical ice protection. *The B. F. Goodrich Company, Aeronautical Sales, Akron, Ohio.*

B.F.Goodrich
FIRST IN RUBBER

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AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

Volume 38, No. 7 • July 1955

FEATURES

DEPARTMENTS

THE COVER

Tactical Air Command, which used to be a junior, junior partner with SAC and ADC, is fast rising to a full-fledged equality in the Air Force team. Vast strides in weapons technology and means of delivery made in recent months lie behind TAC's new capability to play a decisive role in brush-fire wars and an indispensable one in deterring the so-called "big war" or winning it should all-out war come. See page 38.

HELICOPTER LEADS DISASTER DRILL—The U. S. Coast Guard and the American Red Cross combine forces to practice highly effective rescue techniques in a simulated disaster. The drill took place off Brooklyn, New York. Having led two surfboats to the beach, a Coast Guard Sikorsky HO4S hovers nearby to effect any further rescues necessary. Versatile Sikorsky helicopters see extensive service in Coast Guard units.

AROUND THE WORLD WITH SIKORSKY HELICOPTERS

CONGO COPTER—Sabena Belgian World Airlines officials prepare to test one of three Sikorsky S-55 helicopters soon to fly over Belgian Congo jungles. The helicopters will spray and dust insecticides in the never ending battle against disease-bearing insects. Sabena will operate these S-55s along with the S-51s which pioneered this jungle work in the Leopoldville area.

HELICOPTERS RESCUE 93—Two H-19 Sikorskys from the U. S. Air Force's Air Rescue Service last March rescued 93 men, women and children from a storm-swept South Carolina lake. They were stranded on sandbars and small islands when violent storms struck suddenly. The helicopters made more than 23 trips to bring the marooned people to safety on the mainland.

ARMY GETS FIRST H-34s—Two big H-34s, Army versions of Sikorsky's new S-58 helicopter, take off on their delivery flight. First deliveries of this model began in March. The H-34 provides a substantial increase in size, capacity and performance over the Sikorsky H-19s already in wide use by Army units. The big H-34 has as its Navy counterpart the anti-submarine HSS.

HELICOPTER HISTORY:

First helicopters sent overseas by the Army

In November, 1943, the first helicopters to be sent overseas, Sikorsky R-4s, were delivered at Stratford, Connecticut to the Army Air Force. They were disassembled and loaded into cargo planes for the long flight to the China-Burma-India war theatre.

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A VALUABLE REFERENCE BOOK . . .

Modern Air Logistics

You can now order your own copy of the complete transcript of the Air Force Association's Air Logistics Conference

We now have plenty of copies of the entire transcript of the AFA-sponsored Air Logistics Conference, held in Washington last December. All the speeches, the question-and-answer periods, and other material is included in this book, which is attractively bound in permanent form. You'll also find the luncheon program remarks of AFA's Board Chairman, Gen. George C. Kenney, and those of the luncheon speaker, Dr. Theodore P. Wright of Cornell University. Order early to receive your copy of this basic reference work. The price is $1 to AFA members, $2 to others. In quantity lots, prices as follows: 300-500 copies, 90¢ each; 501 to 1,000, 80¢; and above 1,000, 70¢. Please send your remittance with your order.

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wing tips

By Wilfred Owen

Last year's air travel between the US and Europe showed a twenty percent increase in tourist business and a nine percent decline in first-class passengers.

° ° °

Tourist travel now accounts for seven out of every ten transatlantic flights. During the year there were 2,826 "mixed" flights that provided both tourist and first-class accommodations.

° ° °

Family rates will be in effect for transatlantic flights in off-season months beginning next November 1 until the following April. Under the new plan, a family of four will be able to fly tourist class from New York to London for only $342 per person round trip. Total saving over normal rates: $660.

° ° °

California has 40,707 active pilots—twice as many as any other state. Texas is second with 20,202, followed by New York with 18,713, and Illinois with 17,685.

° ° °

There are 660,449 civilian pilots registered with the Civil Aeronautics Administration. Of these, only 311,639 are active—that is, with current medical certificates.

° ° °

Air freight business is mounting so rapidly that Pan American's vice president for traffic and sales predicts

that in ten years airline revenues from cargo will equal or exceed passenger revenues. Pan Am has a railroad siding adjacent to its cargo planes at Miami to expedite Latin American freight movement.

° ° °

Coach service accounts for one out of every three miles traveled on scheduled airlines in the United States. Last year TWA became the only scheduled airline to provide more coach than first-class travel.

° ° °

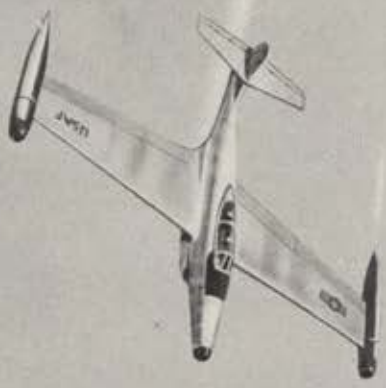
In 1954, for the first time, US scheduled airlines consumed more than a billion gallons of gasoline.

° ° °

US scheduled airlines, including trunk and local service lines, carried nearly thirty-two million people last year, fifteen million more than in 1950.

° ° °

The runways at New York International Airport are equivalent to 100 miles of two-lane highways.



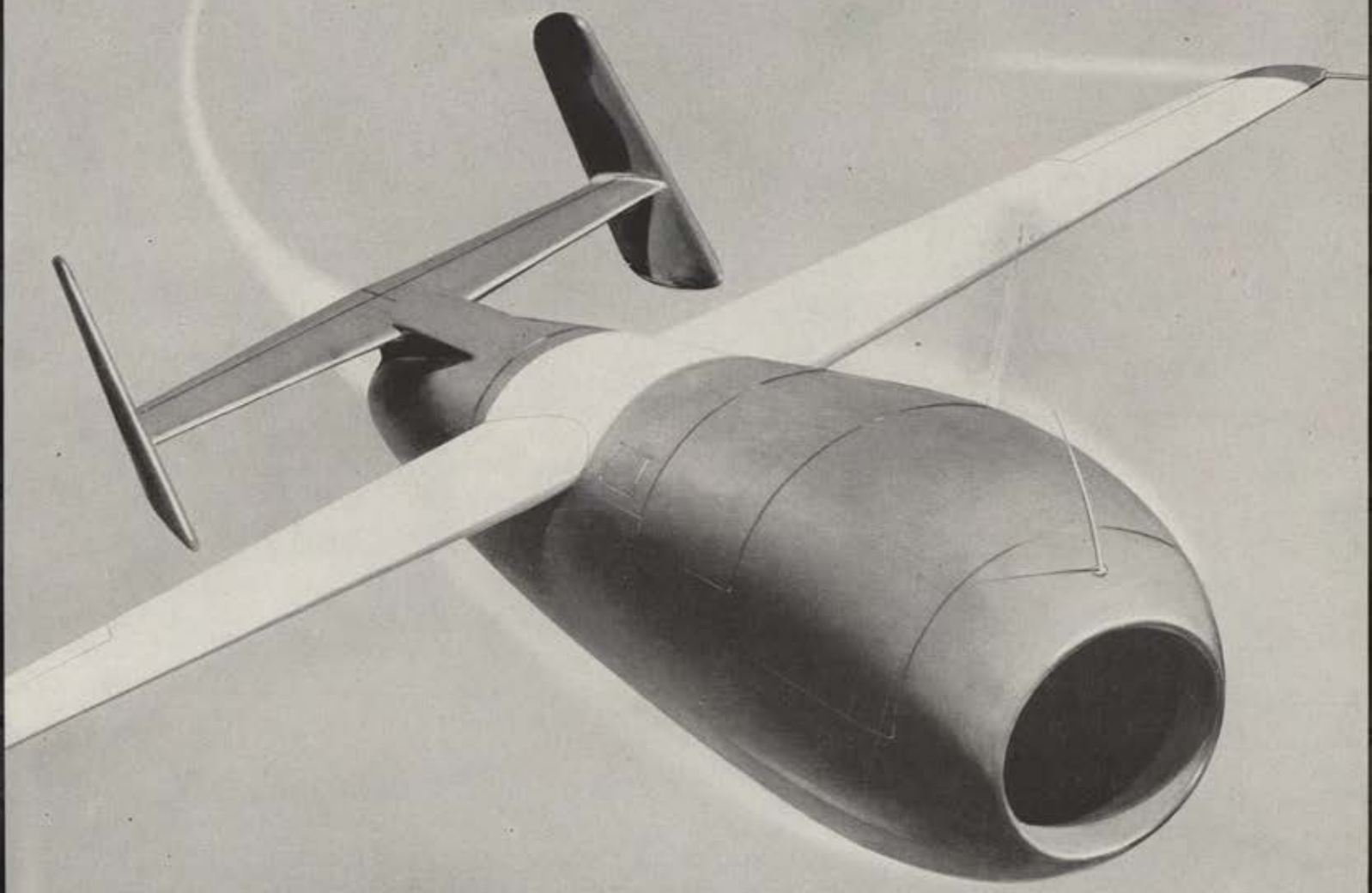
Vital Weapons

FORTY THOUSAND pilotless aircraft have been built since 1939 by Northrop Aircraft's subsidiary, the Radioplane Company. A pioneer in the field of unmanned flight, Radioplane is America's principal producer of radio controlled aerial targets. Propeller-driven drones and their new jet-powered counterparts are important members of the famed Northrop family of all-weather and pilotless aircraft. Together with Northrop's Scorpion F-89 rocket-armed interceptors, Snark B-62 long-range pilotless bombers, and many yet-to-be-disclosed developments, they are basic elements of this nation's power to deter enemy aggression.

NORTHROP

NORTHROP AIRCRAFT, INC. · HAWTHORNE, CALIFORNIA

Pioneer Builders of All Weather and Pilotless Aircraft



S-A-29

THE SLEEK NEW USAF MARTIN B-57 TACTICAL BOMBER IS EQUIPPED WITH THE ARO 5 LITER LIQUID OXYGEN CONVERTER

ARO *Vision-ering*

LEADS THE WORLD IN OXYGEN EQUIPMENT

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AIRPOWER IN THE NEWS

■ A new **nonstop record** for single engine jets—**4,840 miles**—was established recently by four Air Force pilots flying **Republic F-84 Thunderjets** (see cuts). The flight, from Yokota Air Base, Japan, to Williamstown (near Sydney), Australia, was **part of a goodwill trip** by FEAF. During the twelve-hour trip, the jets refueled in the air three times—over Guam, Manus Island, and Townsville, Australia. All four of the pilots are attached to the **Seventh Squadron of the 49th Fighter-Bomber Wing** based in Japan. The flight, dubbed "**Operation Handclasp II,**" was led by **Col. Harold M. McClelland** of Avon Park, Fla., Deputy Commander of the 49th. The others, in order of landing, were **Lt. Gerald J. Robinson,** Carbondale, Pa.; **Lt. Col. Virgil K. Meroney,** Pine Bluff, Ark., and **Lt. William E. Miller,** Columbus, Ohio. The old record was for a distance of 4,485 miles from Turner AFB, Ga., to North Africa, set in 1953 by **Col. David M. Schilling,** also in an F-84.

■ **Douglas Aircraft Company** has released some information on its projected **jet passenger transport,** the DC-8. The plane will be **ready for service by 1959** and will carry 80 to 125 passengers at **speeds up to 550 mph.** Larger than the DC-7, it will be powered by four **Pratt & Whitney J-57** jet engines and will fly regular non-stop schedules between US and European cities. Some typical flying times: New York-Paris, 6½ hours; Los Angeles-New York, 4 hours; Pacific Coast-Honolulu, 4 hours.

■ **American Airlines** has ordered thirty-five four-engine **turboprop airliners** from **Lockheed Aircraft Corp.** The new plane, named the "**Electra,**" will have a cruising speed of more than **400 mph** and a range of **2,000 miles.** The manufacturer proposes use of **Allison T-56 turboprop** engines (now certified as the Allison Model 501 at 3,750 hp—see "Tech Talk," page 94), although the purchase order for engines has not yet been released. The value of American's whopping order for the new aircraft is in the neighborhood of **$65,000,000.** Delivery is scheduled to begin **in 1958.**

Col. Harold M. McClelland, left, deputy commander of the Fifth AF 49th Fighter-Bomber Group, led a flight of four F-84s on a 4,840-mile non-stop flight from Japan to Australia. The others, from left, are: 1/Lt. Gerald J. Robinson, Carbondale, Pa.; Lt. Col. Virgil K. Meroney, Pine Bluff, Ark.; 1/Lt. William E. Miller, Columbus, O.

■ On June 1, the **Military Air Transport Service** celebrated its **seventh birthday,** and released some impressive figures on its operations during that period. According to **Lt. Gen. Joseph Smith,** MATS Commander, the command's planes have airlifted an average of **1,200 priority passengers** and patients and **200 tons of cargo every day** during the past seven years. It has also made more than **70,000 transocean flights,** an average of **one crossing every 51 minutes.** MATS planes have carried more than 3,000,000 persons over 110,000 miles of global air routes. Other services under MATS command are the **Air Rescue Service,** the **Air Weather Service,** the **Airways and Air Communications Service,** the **Air Photographic and Charting Service** and the **Flight Service.**

■ Early in June, the US filed a **claim for $1,620,295** against the Soviet Union for the loss of a B-29 bomber and its crew of eight off the coast of northern Japan near the Russian-held Kurile Islands in October 1952. The suit became known through a communique from the **World Court in The Hague, Netherlands.** The claim, communicated to the Russians, charges that the B-29 was **shot down by two Russian planes** while on a training flight. At the time, the Russians charged that the plane had violated Russian territory. The US denied the charges, claiming that the plane had been pursued over Japanese territory and then shot down off the coast.

■ The AF's three top men made speeches in different cities on Armed Forces Day. At Chicago, **AF Secretary Talbott** said that "strength is the only bargaining power that Communism can understand." But he pointed out that the problem of determining the size of our military force is a difficult one. "If our forces are too large, they could create a drain upon our economy which could in the end bring about the downfall of our own system. If they are too small, we could lose the superiority so necessary to our preservation and tempt the enemy to attack. Determining the fine balance of a proper force is a most important decision and one which we must constantly keep under review."

In Los Angeles, **AF Chief of Staff, Gen. Nathan F. Twining,** called nuclear airpower "**the vital element of modern military power.**" He said that a ban on nuclear weapons would weaken us more than it would the enemy. "We must maintain our power, particularly nuclear airpower, **in such quantity and quality** that the Communists will be unable to gain their aims by military force," he said.

In Pittsburgh, **Gen. Thomas D. White, Vice Chief of Staff of the AF,** warned against what he called "**a danger-**

(Continued on following page)

ous complacency"—the habit of thinking that we are bound to win any technological race, particularly with the Soviets. He said that "we must be careful **not to overrate ourselves and underrate our competitors.**"

■ **PERSONNEL NEWS** . . . Officers and airmen on TDY now receive **more money for per diem.** For officers on normal TDY, exclusive of periods while attending schools, the rate has been **upped from five to six dollars a day** when government quarters are available. **Airmen** furnished both quarters and meals **will receive $1.50 a day.** The rates for officers attending service schools was increased from $1.65 to $4.00. At ports of embarkation, during permanent change of station movement to or from the US, the officers' rates are now $3.00. No change for airmen.

■ Command of the **Thirteenth AF** has been transferred **from FEAF to the Pacific Air Force.** At the same time, responsibilities of the Thirteenth will be expanded from the Philippines **to include the Formosa area.**

■ **AF Secretary Talbott,** an old hand at beating the drums, successfully, for increased pay and more housing, is **sponsoring a recommendation** that dining halls, clubs, theaters

Photo by Ankers Photographers

At the Armed Forces Day dinner in Washington, D. C., from left, Navy League President Carl Stockholm; Defense Secretary Charles Wilson; AFA President John Alison; and Maj. Harry Odin, head of the Military Order of the World Wars.

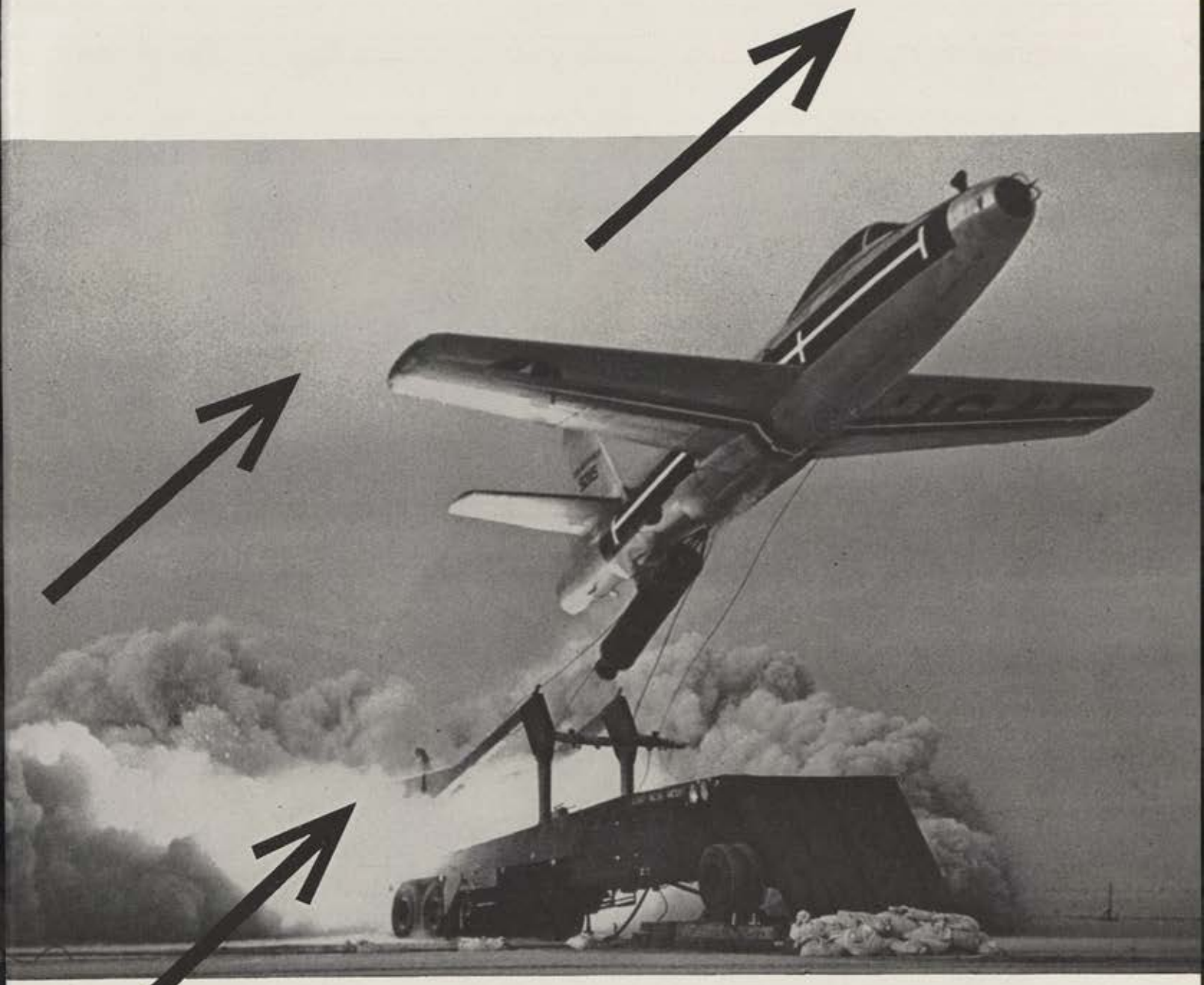
and base exchanges **be freed from the requirement to pay for utilities** from non-appropriated funds. Talbott believes that prices and dues could be reduced, and morale boosted, through the lifting of this requirement.

■ Effective this month, AF families in Lanham Act housing will **not be required to forfeit quarters allowance.** Instead, they will be charged a **monthly rent** to be established by each base commander. The units were constructed during World War II and **are now considered sub-standard** and inadequate. Some 9,000 of them are located at forty AFBs.

■ **Vance AFB** will continue to be the answer to a KPs dream through Fiscal Year 1956. A civilian firm **will continue operating the dining halls** there to give the AF Food Branch adequate time to study the relative cost of civilian versus military food service. Preliminary studies show **the project meets AF standards.**

■ **A new AF enlistment policy** allows veterans with special skills who have been **separated more than ninety days,** but not more than a year, **to return to the service** in their former grades. The enlistee's date of rank will be set at the time of his new enlistment. Other benefits: **Thirty days advance leave** as delay enroute and **some choice of assignment base.**

■ **STAFF CHANGES . . . Maj. Gen. Julius K. Lacey** has been released from duty as Assistant Chief of Staff of the Far East Command, Hq. FEAF, APO 925, San Francisco, and assigned to the 3810th USAF Hospital, Air University, Maxwell AFB, Ala. . . . On July 15, **Maj. Gen. Leland S. Stranathan** assumes duties as Assistant for Development Planning in the office of the Deputy Chief of Staff, Development. He had been Commander, Field Command, Armed Forces Special Weapons Project, Sandia Base, N. M. . . . **Maj. Gen. Byron E. Gates,** Commander of the 3345th Technical Training Wing, ATC, Chanute AFB, Ill., will retire on July 31; replacing him will be **Brig. Gen. Augustus M. Minton.** . . . On June 1, **Brig. Gen. William P. Fisher** was released from duty as Inspector General, SAC, and additional duty as Commander of the 1st Air Division (Meteorological Survey) SAC, Offutt AFB, Nebr., and assigned as Commander of the 1st Air Division. . . . On June 11, **Maj. Gen. Oliver S. Picher** was released from duty as Assistant for Programming in the Office of the Deputy Chief of Staff, Operations and assigned duty as Deputy Director for Strategic Plans, Office of the Joint Chiefs of Staff. (See page 27 for other JCS changes.) . . . **Maj. Gen. Daniel F. Callahan,** formerly Deputy Assistant for Programming, becomes Assistant for Programming. . . . On May 5, **Brig. Gen.** (soon Maj. Gen.) **Winston P. Wilson** was released from duty as Chief, Air Force Division, National Guard Bureau, and assigned as Deputy Chief, National Guard Bureau with additional duty as Chief, AF Division. . . . In June, **Brig Gen. George F. Schlatter** was assigned duty as Commander of the 2d Air Division, USAFE, APO 616, New York. He had been Deputy Chief of Staff, Operations, ATC, Scott AFB, Ill. . . . On May 29, **Lt. Gen. Laurence S. Kuter** was promoted to the rank of General. He had replaced **Gen. Earle E. Partridge** as Commander of FEAF. **Maj. Gen. Dean C. Strother** took over as Acting Commander of the Air University upon the departure of General Kuter. . . . In May, **Brig. Gen. Harold W. Grant** was released from duty as Deputy Commander, Fifth AF, FEAF, and assigned as Deputy Commander of the Formosa Liaison Center (US), APO 63, San Francisco. . . . On August 1, **Maj. Gen. Francis L. Ankenbrandt** becomes Director, Communications-Electronics, Joint Chiefs of Staff. **Maj. Gen. Dudley D. Hale** replaces him as Commander of the Airways and Air Communications Service, MATS, Andrews AFB, Washington, D. C. **Maj. Gen. Karl Truesdell** replaces General Hale as Deputy Chief of Staff, Operations, Allied Air Force, Central Europe (SHAPE). Replacing General Truesdell as Deputy US Representative, Standing Group, NATO, is **Brig. Gen. Thomas C. Musgrave. Brig. Gen. James H. Walsh** has been released as Director of Intelligence, SAC, and assigned to General Musgrave's former position as Commander of the 7th Air Division, SAC, APO 125, New York. . . . In May, **Maj. Gen. Haywood S. Hansell** retired. He had been Senior AF Member, Military Studies and Evaluation Division, Weapons Systems Evaluation Group, in the Office of the Assistant Secretary of Defense, Research and Development. . . . **Brig. Gen. Henry K. Mooney** becomes Deputy Commander of the 2d AF SAC, Barksdale AFB, La., on July 7. **Brig. Gen. Richard M. Montgomery** will replace him as Commander of the 806th Air Division, SAC, Lake Charles AFB, La. General Montgomery leaves his post as Chief of Staff, SAC, Offutt AFB, Nebr. **Brig. Gen. Jack Roberts,** Chief of Staff, Eighth AF, SAC, Carswell AFB, Tex., becomes new Chief of Staff.—END



the world's shortest runway

In the event of surprise attack with today's weapons, a single bomb could wipe out a whole area. Meanwhile, longer and heavier runways are essential to the operation of today's aircraft.

Because of this, the Air Force has long been concerned with the need for entirely new ways of getting its fighter planes into the air by means which would eliminate the concentration of aircraft in the vulnerable areas of forward bases.

Martin engineers, working with the Air Research and Development Command, were given the job of finding a solution to this important problem—and shown here is their answer.

It is the world's shortest airstrip—a mobile zero-length launcher which is transportable by air or land and which operates in a space of only ten square yards. It is shown here blasting a piloted Republic F-84 into full flight without the necessity of any take-off run.

As an outgrowth of the work of the same Martin-ARDC team which produced the TM-61 Matador pilotless bomber and zero-length launcher, this important development is another example of Martin's contribution to American airpower and security.

MARTIN

BALTIMORE · MARYLAND

NEW GIANT OF THE

INDUSTRIAL SOUTH

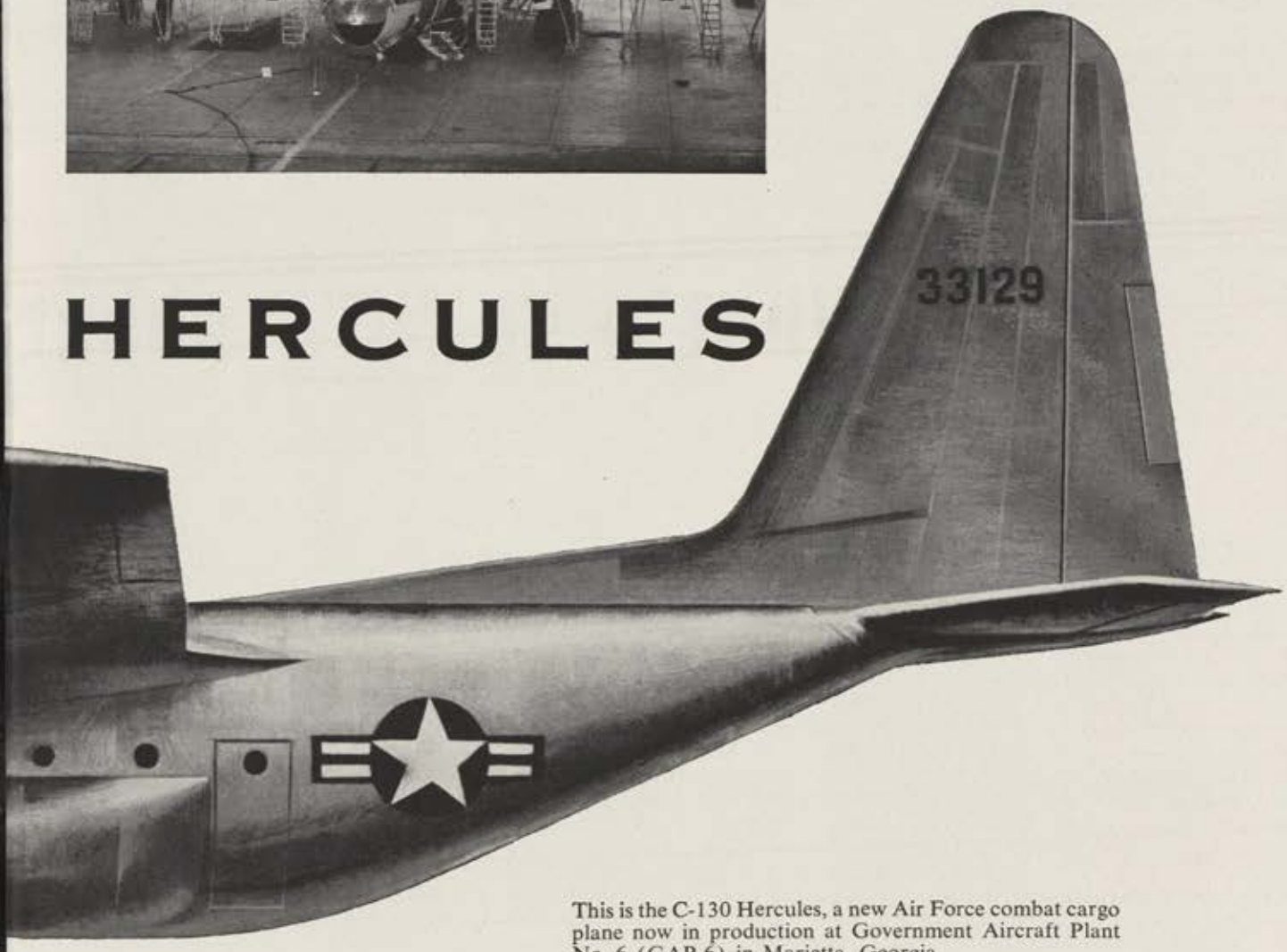
PRODUCES MIGHTY AIR

FORCE CARGO PLANE

USAF C-130

FIRST TURBO-PROP TRANSPORT FOR MILITARY AIR POWER

HERCULES



OR PEACETIME AIRLIFT

This is the C-130 Hercules, a new Air Force combat cargo plane now in production at Government Aircraft Plant No. 6 (GAP-6) in Marietta, Georgia.

You're going to hear a lot about this plane. The Hercules was designed to function in the new atomic era as a highly mobile, high-speed transport, able to rush men and materiel to vital areas *at less cost*.

The C-130 is the result of a new Air Force-Lockheed concept of tactical mobility. It was engineered specifically to solve problems of loading, unloading, on-board handling, airport limitations and operating costs.

The low fuselage floor, 41 inches off the ground, provides truck-bed loading, while the adjustable tail ramp also permits vehicles to drive directly aboard. And the unique landing gear, combined with the C-130's tremendous power, makes possible short takeoffs and landings even on improvised runways.

Developed for the Tactical Air Command, the Hercules will also drop paratroops and evacuate wounded from forward areas. And its amazingly low operating cost promises greater economy in future peacetime air freight.

LOCKHEED

AIRCRAFT CORP., GEORGIA DIVISION, MARIETTA, GEORGIA

Look to Lockheed for Leadership

What's so NEW about

THE shocking thing about the recent parade of Soviet airpower over Red Square is that it should come as a shock to anyone—even to Mr. Average Citizen, much less our national planners and policy-makers. To be sure, the flyovers of ten four-jet intercontinental bombers, of fifty supersonic day fighters and thirty all-weather fighters marked the first visual confirmation of a conclusion that our intelligence experts had arrived at some time ago by deduction and extrapolation. But the basic facts of Red capabilities in the area of aircraft technology have been a matter of record for many years. Exactly how the Russians might have intended to use this capability could not be documented until now. But we have known enough over the years that the current furor and gear-shifting of our production effort could have been avoided.

Lord knows we had plenty of warning. The Spaatzes, the Doolittles, the Vandenbergs, the Symingtons, the Finletters, the Twinings, the Talbotts, all have gone on record time after time over the years in outlining the nature of the Soviet threat. AIR FORCE Magazine has done its share. But, as a friend of ours is fond of saying, "none of this has any meaning unless it shows up somewhere in the budget."

On this point of concrete reaction to the threat, our national record is a consistent one. We have not failed to underrate Soviet technological competence on every major military development since the end of World War II. This current episode is but the latest in a long series of wishful thinking, ostrich-like planning, and downright ignoring of the facts of life. Let's take a look at this consistent record of ours.

We pooh-poohed the fact that the Soviets had obtained a B-29 and told ourselves that these technologically primitive people could not possibly duplicate it in less than six or seven years. It took them exactly two years to get a copy into the air.

Jets were quite another thing, we told ourselves. We knew the Reds were working on a copy of the British Nene engine but we predicted production problems. Yet within a year they were not only producing the Nene on their own assembly lines but had considerably improved its thrust output.

When the Mig-15 appeared in the skies over Korea we did our usual double-take. But it didn't take us long to settle back in the easy chair. After all, it wasn't as good as the F-86. Weren't we shooting them down at a ratio of fourteen to one? Those louts in the baggy pants had only succeeded in producing 13,000 first-class fighters in a few short years, hadn't they? Obviously an ox-cart economy.

We took great comfort in our post-World War II monopoly in nuclear weapons. In this field we had a six- to ten-year lead, many experts said, even if the Reds could solve the secret of atomic bomb manufacture at all. Yet the first Soviet A-bomb was exploded in 1949, just three years after they began work on it. It had taken us about the same length of time to build our first nuclear weapon.

One would think that the Red A-bomb would have shattered our complacency. It didn't. Within a comparatively short time we had retired behind the shield of the superbomb, the thermonuclear device which would catapult us back into a position of military supremacy. But in this field the Russians caught up even quicker than they did in atomic bomb production.

Ah, we said, but we have so many more bombs than they, ignoring the fact that counting stockpiles becomes merely mathematical gymnastics once the Soviets have a quantity sufficient to deal with our target system.

Even while our seismographs and other detection instruments were confirming Soviet accomplishments in the field of weapons technology we were busily erecting another straw man—not to knock down but to hide behind. What good were Red bombs if they couldn't deliver them on US targets? We had the B-36 for intercontinental delivery, the B-47 was in quantity production, and the B-52 was coming along nicely. All the USSR had was a fleet of now obsolete Tu-4s, the B-29s we said they couldn't build. Deliverability. That was a nice, mouth-filling word. You know what happened to that one.

Surely by this time the lessons are beginning to soak in. The Soviets may not be eight feet tall but they aren't all thumbs either. They are tough-minded, resourceful, industrious people who know exactly what they want to do and are doing it as fast as they can. We have been told time and again that we cannot hope to match them in numbers—either of aircraft or of men under arms. This is true. But we have also been told that we are so superior technologically that they can never match us in quality. This conclusion now proves debatable, to say the least.

There appear to be two basic reasons for our inability to face the unpalatable facts of our military position *vis-à-vis* that of Russia. The first is psychological. We are conditioned to a belief that Americans can do anything better than anybody else, especially when it comes to making things, machines in particular. We hate to admit the possibility that we can be out-produced, out-researched, or outstripped in any way—particularly by a system of government and economics that is diametrically opposed to our own.

The second reason is less complex.

We just plain don't want to spend the kind of money that it takes to stay even with the Soviet Union in an age of incredibly expensive and complex weapons. This attitude cuts across political party lines, even though the Democrats historically have been kinder budgetwise to our armed services than have been the Republicans. They have been kinder likewise to almost every facet of governmental spending and their defense budget attitude probably reflects a traditionally freer hand with the public dollar more than a deeper understanding of the issues involved.

for FY 1954 stretched the stretch-out—this time to 1956. But the new Eisenhower budget for the same period went further. It knocked the 143-wing program into a cocked hat by slicing $5 billion from the Air Force funds, set an "interim" goal of 120 wings, and told the new Joint Chiefs to take a new look at the program. Obviously acting under a combined ceiling of dollars and personnel, the new Chiefs came up with what is the current program—137 wings by June 30, 1957.

Observe what this sequence of stopping, starting, stretching out and cutting back has done to our airpower production has been stepped up some thirty-five percent. The Air Force has asked for $300 million more for this purpose. A similar speed-up in fighter production is in the mill. This will cost more money. No general acceleration in aircraft programming, which has ramifications all along the line in base construction, personnel procurement, and a hundred other items, will come cheaply.

What is more important at this juncture is what is going to happen to the budget for FY 1957. It's getting about the time of year when the important fiscal spadework is being done

the RED AIRPOWER threat?

By John F. Loosbrock

MANAGING EDITOR, AIR FORCE MAGAZINE

This dollar business has plagued our airpower buildup from the very beginning of the Air Force as a separate service. When the Finletter Commission and the Brewster-Hinshaw Committee told President Truman and the Congress, respectively, that our minimum need was for seventy wings as of 1948, their reports proved little more than a warning and a mental exercise. For the money needed to achieve this goal was never even asked for, let alone voted.

Then the combination of the Russian atomic bomb and the Korean war led to a belated re-examination of the situation. The Air Force need, as determined by the Joint Chiefs and confirmed in a National Security Council decision on October 1, 1951, was placed at 143 wings, to be achieved by June 30, 1954. The money for this program was not forthcoming. It was never requested. The fiscal year 1953 budget of the Truman Administration kept the 143-wing goal but stretched out the date of achievement to 1955.

The Truman "lame-duck" budget program. Research, development, procurement, production, manpower, base construction—all have been subjected to an accordion action that, in plain language, raises all kinds of hell in terms of efficiency, morale, and combat effectiveness.

Thus, over the years we have been consistent only in our inconsistency. We have been blind to the Russian threat and by deliberately blinding ourselves to the threat we have played fast and loose with the programs that have been designed to meet it—programs that were not lavish but which were acknowledged to be minimal and austere. We have even acted logically, it can be argued, based on the facts as officially acknowledged and presented. But the most pitiful sight in the world is a man acting coldly and logically from a false premise, especially when those actions are a matter of life and death.

What effect the new documentation of Red airpower capability will have on the FY 1956 budget are not completely clear at this writing. Our B-52 in the Pentagon caverns. And it's the worst kept secret in Washington that the Administration hopes desperately to balance the budget next year. There have been many signs of officially fostered complacency pointed in that direction.

Surely, now that the facts about Red air strength can no longer be hidden from the public there can be no more wishful thinking about balancing the budget. Certainly not with the intercontinental ballistic missile, both ours and theirs, coming into the picture more rapidly than anyone cares to think about.

The situation demands bold and forthright leadership from the top down. The Congress has a history of voting substantially the money an Administration requests for defense. And the American taxpayer has never shown an aversion to footing bills he thought were essential to his survival. We have already lost valuable time we can never buy back. However, this is no reason for compounding the error.—END

SHOOTING THE BREEZE

WITH JOHN F. LOOSBROCK, MANAGING EDITOR, AIR FORCE MAGAZINE

Every now and again we publish an article which takes issue with the status quo. When we do, our mail usually picks up considerably, with the letters falling into one of two categories. There are the "that's what I've said all along" variety, punctuated with loud cheers and huzzas. These we like to get. But there are also large numbers of protests, often from the very experts whose particular field has come under fire. We like to get these letters, too, since controversy is always good for trade in our business. But we are perturbed by an attitude which haughtily assumes (1) that the author, especially if he is on active duty, has no business disagreeing with the powers that be, and (2) that we have no business publishing his stuff.

It seems to us that the right to disagree is basic to a free society, even if you're wearing the blue suit, and that a situation that cannot withstand some constructive criticism must be in pretty bad shape to begin with. On page 70 there is an article by an outstanding officer, Col. Russell Ritchey, which we know is going to evoke some squawks. We know because there was a good deal of static connected with its clearance. We'd like to go on record here and now that, while we do not necessarily agree with every word of the piece, we think it well worth more than a cursory reading. And we'll be happy to hear from the persons on the other side of the fence.

B/G A. J. Pierce accepts a gift for Woburn, Mass. students who donated a movie projector to a Japanese school.

☆

Jimmy Doolittle has always been willing to take on almost any conceivable chore that will help airpower, the Air Force or the Air Force Association. Now he's in the recruiting business. An Associated Press dispatch from Bangor, Maine, says that Jimmy, while fishing in West Grand Lake, came across two youthful anglers. During a friendly chat he asked them what their plans were regarding military service. They said they thought they'd wait for the draft to catch up with them. Jimmy disagreed, said they should join the Air Force. And they did.

☆

We took a couple of days off in the early part of June and went up to Toronto to attend the annual convention of the Aviation Writers Association . . . To get in the Canadian mood early—and to satisfy our curiosity—we took Trans-Canada's Vickers Viscount turbo-prop airliner out of Idlewild. Very nice. Little noise, less vibration . . . Orenda Engines, Limited, a subsidiary of A. V. Roe Canada, did some discreet bragging about their new giant jet engine, called the Super Orenda or simply the "big noise." The Canadians call it the world's most powerful—25,000 pounds of thrust . . . At a briefing at the RCAF's air defense headquarters, St. Hubert, Quebec, Air Marshal C. R. Slemon, chief of the Royal Canadian Air Force, predicted the early establishment of a unified US-Canadian air defense command to guard the whole of North America. Makes sense to us . . . In a day when fly-bys have become nothing more than a whoosh and a blur, it was refreshing to watch the air show put on by DeHavilland. Their little Beaver and Otter did some low, slow flying that wrung applause from what is normally a fairly cynical crowd . . .

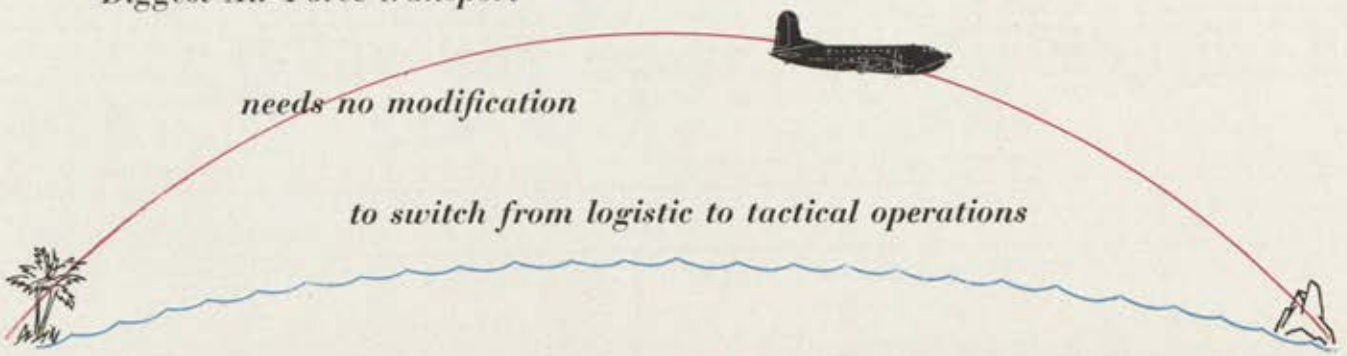
(Continued on page 27)

BREEZECAKE OF THE MONTH: And it's timely, too. The caption says "Jacqueline Criffield, Antelope Valley ballerina (sic) compares conventional Fourth of July skyrockets with one of the 104 hard-hitting rockets carried by the US Air Force's Northrop Scorpion F-89D all-weather interceptor. She visited the Northrop Palmdale facility where Scorpions are delivered to the Air Force for a few pointers from the men to fly America's most heavily armed fighter. Rod Close, Northrop test pilot, holds the 2.75-inch 'Sunday punch' Scorpion rocket." End of quote.

Biggest Air Force transport

needs no modification

to switch from logistic to tactical operations



—the Douglas Globemaster

Now entering its fifth year of service to the nation, the Douglas Globemaster has proved its worth in all climates, all types of transport operation.

Combining speed and range with the stability needed for operation under all weather conditions and from varied ground facilities, Globemaster can stow 25 tons of cargo or accommodate 200 fully armed troops. Most important, its capacious interior can accept 98% of all military equipment without disassembly —even big cranes and ready-to-fly helicopters. On *performance*, the Douglas Globemaster is known in all theaters of operation as our most versatile military cargo-transport plane.

Performance of Globemaster under all conditions indicates Douglas aviation leadership. Versatility of operation is a basic rule of Douglas design.

Enlist to fly with the U. S. Air Force

Depend on **DOUGLAS** First in Aviation

CF-100's in formation on winter patrol over Canada's Northern approaches.

. . . in England now

Three CF-100 all-weather interceptors recently flew the Atlantic and are now on evaluation tests with the R.A.F. in England.

In that swift crossing, Avro Aircraft reversed the trend of aeronautical development to place at the disposal of the R.A.F. the world's outstanding all-weather interceptor.

Additional evidence of the serviceability and performance of the CF-100 is its unanimous selection to equip by 1956, four R.C.A.F. squadrons to strengthen the all-weather defence capabilities of NATO in Western Europe.

Avro Aircraft, as one of the main industrial arms of the R.C.A.F., is constantly at work reinforcing and maintaining the air defence of the free world.

AVRO AIRCRAFT LIMITED MALTON, CANADA

A. V. ROE CANADA LTD.—MEMBER, HAWKER SIDDELEY GROUP

Three CF-100's flew the Atlantic in March and four R.C.A.F. squadrons will be on duty over Europe in 1956.

ENGINEERS NEEDED! Aeronautical, mechanical and electronic engineers are needed by Avro Aircraft Ltd. to help meet the increased demands of the Jet Age. Your training and skills can assure you of a highly paid future with Canada's expanding aeronautical leader. Write to Personnel Manager, Avro Aircraft Ltd., Malton, Canada.


Radford


Twining


Taylor


Burke

THE NEW LINEUP IN THE JOINT CHIEFS

Two new faces and two holdovers make up the list of the Joint Chiefs appointed by President Eisenhower and unanimously approved by the Senate. Serving their second two-year terms are the chairman, Admiral Arthur W. Radford, and Air Force chief, Gen. Nathan F. Twining. New Army chief, succeeding Gen. Matthew Ridgway is Gen. Maxwell Taylor, former Far East Army commander. New Chief of Naval Operations is Admiral Arleigh Burke who, with Admiral Radford, led the fight against the B-36.

Our jaw dropped a little when, at a convention dinner, we heard Canadian Air Vice Marshal J. L. Plant suggest, even though facetiously, that the Canadian Army should be abolished and the money spent on the RCAF. There were many remarks to the effect that such a statement from an Air Force general would cause a head to roll. A few days later one did. Plant was removed from his post as air member for technical services on the Tri-Service Board and transferred to head the Canadian Air Material Command.

☆

If you've attended as many dedications of monuments, buildings, factories and supermarkets as we have you'll probably appreciate any new switch that makes the ceremony less tiring and more exciting. Hats off, then, to the unveiling of a tablet marking the production site of America's first jet engine at the Lynn, Mass., plant of General Electric. The tablet was unveiled by a device triggered electronically from a GE-powered Air Force B-45 flying overhead.

☆

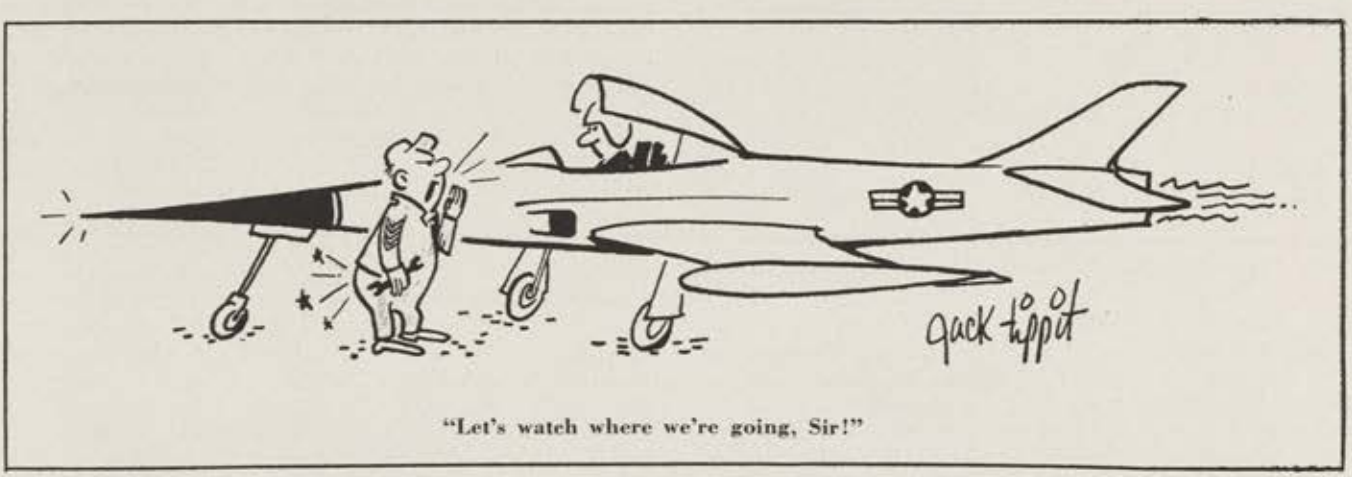
We don't know who writes the airpower editorials for *The Boston Herald* now that our friend Don Murray, Pulitzer Prize and AFA Award winner, has gone to work for *Time* magazine. But whoever he may be, he was most impressed by the Air Force's aerial firepower demonstration at Eglin AFB. He said the demonstration itself was "spectacular, but more spectacular was the months of planning that had gone to make the show a success. Power of weapons is vital, but power is nothing without plan. If the firepower demonstration . . . was an example, the Air Force has both and has them without beating down the casual American character, the prime essential."

☆

Activity on the civil defense front continued unabated during the month. The Federal Civil Defense Administration published a pamphlet on fallout, with these points:

1. Prepare a shelter area in your backyard, whether you live in the city or the country.
2. Stock your shelter with supplies for seven days.
3. Get a radio, preferably battery-charged, and keep it in a safe place. Mark the Conelrad frequencies (640 and 1240 on standard AM dials) since that is where you will get civil defense news and instructions.
4. If you think you've been exposed to fallout take off your outer clothing and wash the exposed parts of your body thoroughly.

(Continued on following page)



"Let's watch where we're going, Sir!"

A Senate subcommittee asked President Eisenhower to assume "personal responsibility" for creating an adequate civil defense program. The President told a news conference that he hoped the news of Russia's growing air strength would inspire a speedup in the average American's enthusiasm to do his part in civil defense. Mr. Average American went about his business pretty much as usual through it all, disturbed far more about cigarettes and lung cancer than about the possibility he might be making a radioactive ash of himself.

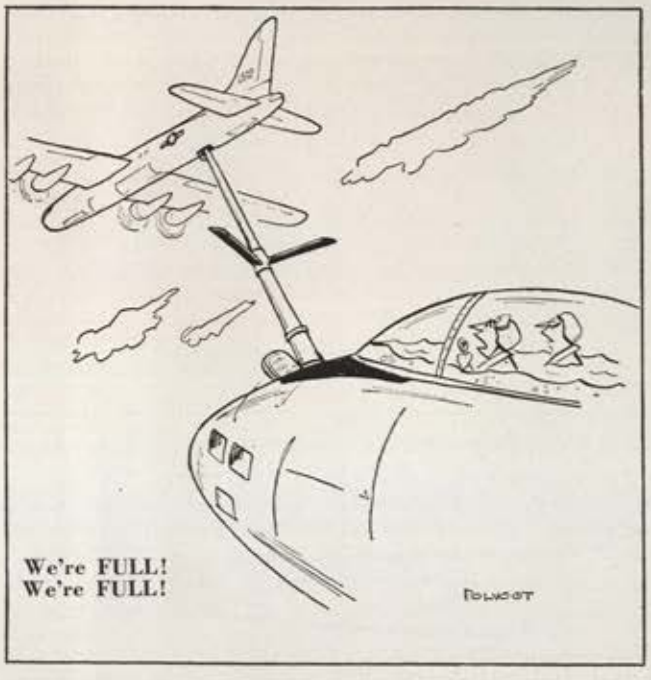
☆

We were saddened during the month by news of the death of Dan Frankforter, best known as the photographer of those wonderful aerial shots that have adorned the pages of *Pegasus*, the fine magazine Bill Key puts out for Fairchild. Dan's photography was a thing of beauty and Dan himself a swell guy. A heart attack killed him at the age of forty.

☆

To those of you who read Ted Walkowicz's article on a counter-force strategy in our February issue the following excerpt from an editorial in the Manchester (England) *Guardian* will be of interest:

The *Guardian* pointed out that in the defense debates in Parliament this spring "it was asked whether any attack in Europe, however small, would be met automatically with nuclear weapons and thus lead to Russian hydrogen bombing of Britain. That is and never was the intention of NATO's strategy. Nuclear weapons (will) be used only in the event of major war. But could the North Atlantic Council not go farther towards a clear distinction? Could it not say that the West will never be the first to bomb large cities? By doing so it would lose a little but would



gain much . . . It would gain the practical benefit . . . of being able to use tactical atomic weapons with much less risk that massive annihilation of cities would follow immediately . . . Enemy troops and enemy airfields would become the primary targets, if war were to break out . . . It (such a policy) would undercut the Communist campaign for 'banning the bomb.' Is not such a policy worth serious thought?"

Here's the new interim uniforms for Air Force Academy cadets. Basically they are standard AF officer uniforms, but with shoulder-boards and a different cap insignia.

☆

There seem to be only two points of view as regards the proposed design for the chapel at the Air Force Academy (see page 80). Either you like it or you don't. There was enough critical sentiment at the preview of the models to cause an announcement that it would be studied for a year. Snorted Frank Lloyd Wright, dean of American architecture, "They ought to study it for ten years—and then throw it away."

☆

AIRMAN'S BOOKSHELF

When we labeled this department we didn't realize that the name might tend to restrict its scope. However, we use the term "airman" in its broadest sense and feel we can mention books that deal with military flying, with flying that is not necessarily military, and with military matters that do not necessarily have an air aspect but which will enlarge your military background. That's why we have the temerity to suggest you read *Beauregard: Napoleon in Gray*, a good biography of the peppery Creole who fired on Fort Sumter to open the Civil War and came close to capturing Washington in the battle of Bull Run (Manassas if you're a Virginian). It's by T. Harry Williams, published by the University of Louisiana Press, and retails at $4.75 . . . Another good Civil War work is *The Web of Victory: Grant at Vicksburg*, by Earl Schenk Miers. It's an Alfred A. Knopf book, priced at $5.00 . . . An old hand at space writing is out with a new one. Arthur C. Clarke has authored *The Exploration of the Moon*, well illustrated by Ralph A. Smith. Harper's is the publisher, $2.50 the price.—END

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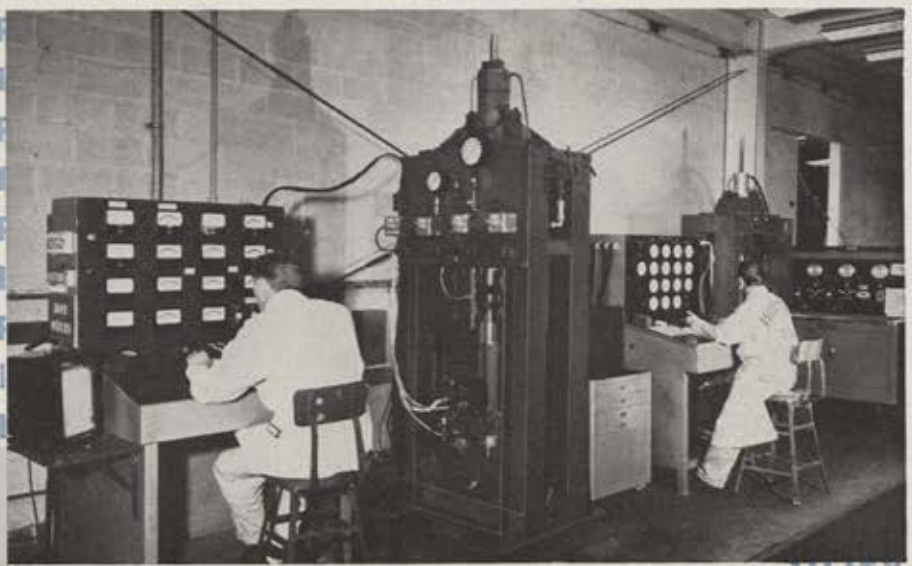

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Chief Project Pilots, Tom Lloyd and Fred Hughes, join on the ground, prior to debriefing, following an afternoon air-to-air gunnery check on a fighter armament system.

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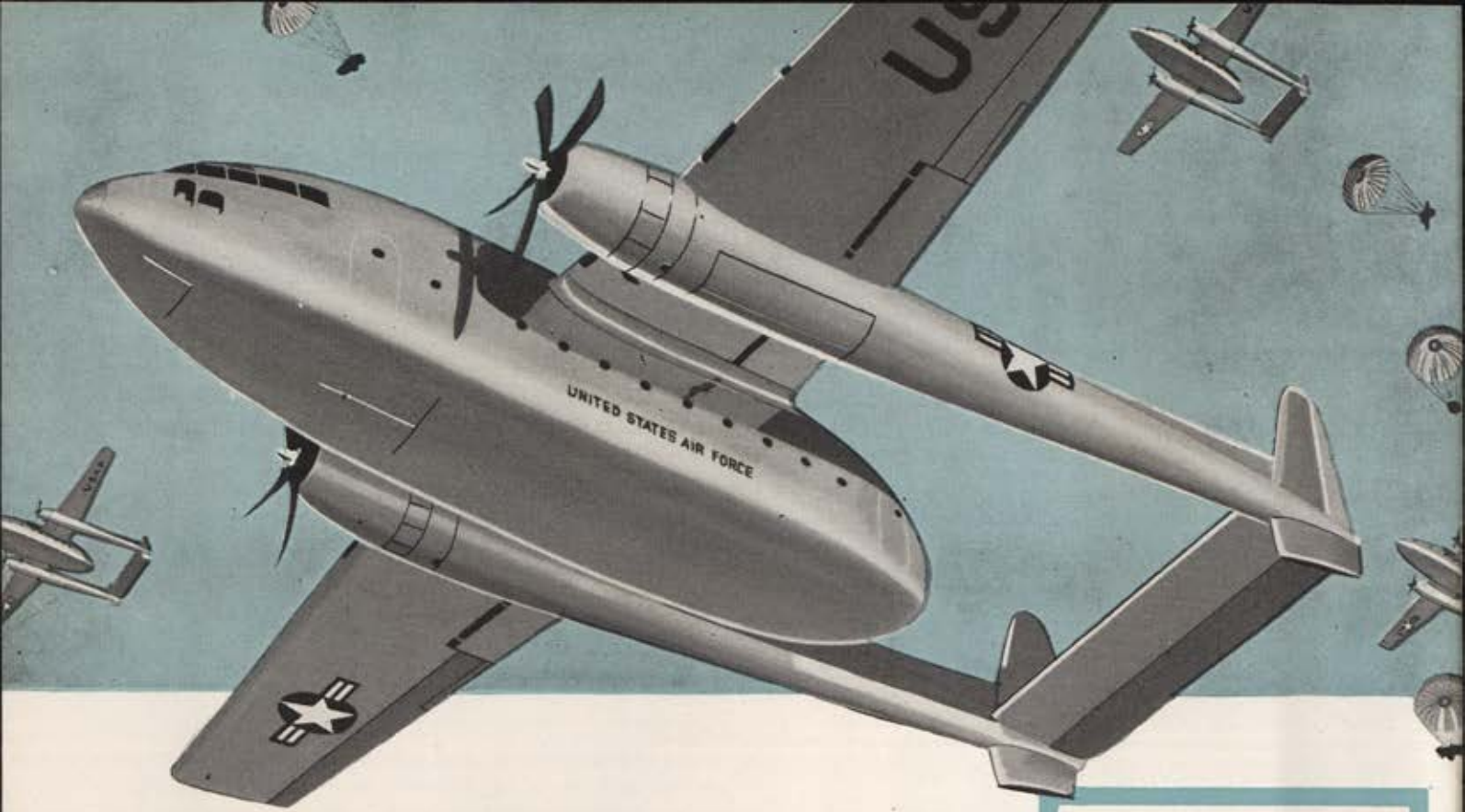

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The four hold a press conference in Honolulu. From left: Lt. Col. Heller, Capt. Fischer, Lt. Cameron, Lt. Parks.

4 Home—11 to Come

The long fight for the release of our captured airmen has been partially won. Here is a look at the four who came home and a hope that the remaining eleven will be close on their heels

IT ISN'T often that an editorial staff rejoices when it has been scooped. This is one of those rare times. Last month, copies of our June issue, with AFA President John Alison's editorial calling once more for release of our airmen in Red Chinese prisons, were still in the mails when news came that four of the captured fifteen were being released.

The four were jet pilots Lt. Col. Edward Heller, of Wynnewood, Penna.; Capt. Harold Fischer, Jr., of Swea City, Iowa; 1st Lt. Lyle W. Cameron of Lincoln, Nebr., and 1st Lt. Roland W. Parks of Omaha, Nebr. For the story of their homecomings we turned once again to the people who had helped us last year when we published the first comprehensive account of their imprisonment—their home area news men. We phoned Gordon Gammack of the Des Moines Register & Tribune, *who has covered the Fischer story from the beginning; Paul Williams of the* Omaha World-Herald *and Al Remmenga of the* Lincoln Evening Journal. *Their stories appear on the following pages.*

Ed Heller wasn't yet home at this writing. He was still in Hawaii receiving treatment for his injured leg, broken in his crash and treated by Chinese medicos. So there is no home town story for him. Instead we called on his old friend and ours, Dave McCallister, who needled us into getting into the act in the first place. He tells something of the background on page 37.

We have no way of assessing, of course, the effect of AFA's role in the release of the flyers. We are proud, though, of our part in calling attention to their plight and of stirring up public, Congressional and Executive interest. We sincerely hope that by the time you read this the other eleven will be on their way home, too.

Organizationally, as well as editorially, the Air Force Association participated in the homecoming. When we heard that the flyers' families were being flown to Honolulu to greet them we immediately contacted AFA regional vice president Roy Leffingwell in Hawaii and asked him to put the services of AFA at their disposal. He did and reported that the entire island was going all out. Neither the men nor their families could find a place in Hawaii where they could spend a nickel. Leffingwell also had words of high praise for Maj. Gen. Sory Smith, Commander of the Pacific Air Force, for his handling of the homecoming.

When the big MATS Constellation landed in Omaha with Fischer, Parks, Cameron and their families, AFA's Art Storz was on hand to greet them and extend to them an invitation to the San Francisco Convention as guests of the Association.

We're glad for the men and for their families. But into the general atmosphere of joy we can't help but feel the intrusion of a somber overtone. The men are home and that is good. But it would be folly to presume that their release is any indication of a softening of the flinty Communist heart. There can be no lowering of our guard. And above all, we must remember the words of General Sory Smith when he greeted the flyers in Hawaii:

"This is fine. We are all very happy. But let's not forget that there are eleven guys still back there."

Capt. Harold E. Fischer, Jr.

By Gordon Gammack
Des Moines Register & Tribune

The Communists never did get the best of Capt. Harold E. Fischer, Jr.

The thirty-year-old double jet ace, a soft-spoken former farm boy from the little town of Swea City, Iowa (population 800) outfought them to the very last.

It was neither fire from a Communist fighter nor enemy ground fire that crippled Fischer's plane and forced him to bail out to captivity—but debris from a flaming MIG, which he had riddled with bullets, that smashed into the nose of his Sabre and killed his engine.

Here's how Captain Fischer tells the story:

"It was late in the afternoon (April 7, 1953). Our outfit had tangled with some MIGs but we hadn't got any. We were ready to head back when I spotted another MIG and decided to bounce him. So I told my wingman to start back and I'd catch up with him. Then I went after the MIG and got him, but good. It caught fire and I saw debris coming at me. I'd been told that on other missions I'd come back with flecks of debris imbedded in the nose of my plane and that it would get me if I didn't watch out. So I tried to climb away from the debris. But I must have caught some because my engine suddenly stopped cold. There was nothing to do but bail out.

"I landed on the side of a small hill. My first thought was to try to get away—make it to the coast. Then I saw a Chinese coming toward me. I pulled out my gun but I didn't aim at him. I don't aim unless I'm going to kill.

"Then suddenly, there were Chinese all over the place and there was no way out."

After Fischer had been taken to a Chinese Communist headquarters (presumably in Manchuria although the flyer will not comment on this), he attempted a colossal bluff and almost got by with it.

He had long been satisfied that many of the MIGs were flown by Russian pilots. He reasoned that the Chinese might not be able to tell the difference between an American and a Russian; also that they wouldn't know one language from the other.

"So I tried to convince them I was a Russian MIG pilot and was outraged at being held. It was just a bluff and I didn't have much hope it would work. But it darn near did. Some of my captors wanted to turn me loose and they seemed scared about possibly offending a Russian.

"But then my plane was found and the jig was up. They took me to it and four Russians were putting the wreckage into a truck."

After Fischer's capture he was kept in solitary confinement for eleven months while the Communists repeatedly demanded a confession—a confession that he had deliberately flown into Manchuria under orders of the Fifth Air Force.

The Communists say that Fischer confessed that he carried the air war into Manchuria twelve times and did so under orders.

When asked if he signed a confession under the mental torture of solitary confinement, Fischer just says, "I believe I'll have to consult my lawyers about that question."

But there were times when Fischer thought surely the Chinese were going to kill him.

"And I found that it's not hard to die once you know that you are going to die," he says.

And he believes that physical torture is easier to resist than solitary. "You can brace yourself for physical torture," he says.

One thing helped him in solitary. He hadn't been in his isolated cell long when he felt sure he heard the voice of a friend, Squadron leader A. W. (Andy) Mackenzie of the Royal Canadian Air Force, a fellow member of the 51st Fighter Interceptor Group. They had bunked side by side at their base in Suwon, Korea.

They found they were in adjoining cells and they bribed a guard to make one exchange of notes. But then they found a better system. The Communists forced them to sweep out their own cells and, alternately, they used the same broom, handed them by a guard.

The broom had a bamboo handle and Fischer and Mackenzie found they could conceal notes inside it. Thus they maintained regular communication for months.

In discussing their prison experiences, Fischer and the other three liberated jet pilots obviously talk with the realization that other Americans are still held captive by the Communists.

But they do say that their treatment was "not too bad." It varied according to the status of relations between the

Home at last, Captain Fischer and his young son begin to make up for the years they have been separated.

Captain Fischer hugs his six-year-old son, Harold E. Fischer III. They hadn't seen each other for three years.

United States and Red China. Whenever negotiations were being held, or in prospect (such as last summer's Geneva conference), the treatment improved.

And it became extremely good after the four were moved from Mukden, Manchuria, to Peking early in April. This was typical Chinese Communist technique—to "fatten up" prisoners prior to their release to give the impression that they have been treated well.

Actually, the men were in such good general physical condition that medical officers at Tripler Army Hospital in Honolulu found they were sound enough to return almost immediately to flying status. Fischer required an extensive amount of dental work, however.

Fischer pleaded for a chance to fly a jet at Hickam Air Force Base at Honolulu and he thought he had it all fixed up to fly a T-33, with another pilot aboard, but the dental officers kept him tied up.

When President Eisenhower visited the Iowa State Fair last summer, he granted a short interview to Captain Fischer's parents, Mr. and Mrs. Harold Fischer, Sr. Afterwards the Fischers sent their son a newspaper picture of the meeting and Harold pinned it to the wall of his prison room.

The Communists didn't like this.

"They didn't tell me directly to take it down," says Fischer. "They never do anything directly. But they told me my wall was too cluttered up. I got the hint and took the picture down. They said nothing more."

Does Fischer feel bitter toward the Communists?

He answered carefully: "No, I don't think so. I don't think I hate. I have been angry many times. But I think hating is a needless waste of energy."

Fischer's personality is a striking contrast. In his relations with his family, friends and even strangers he is tender, thoughtful, courteous to the extreme, and extraordinarily soft-spoken.

But when he even talks about aerial combat, a fire seems to ignite in his eyes to lift the curtain on the Harold Fischer who has a burning desire to destroy enemies of his country. A tiger of the boldest sort.

When he showed his dad a Sabrejet and explained all its mechanisms he fondled the trigger and remarked, "Dad, this is the most important thing of all."

Fischer hasn't made up his mind definitely but it's a safe bet he will stay in the Air Force. After all, there's nothing in the world he loves more than to fly.

And if the occasion arises when it becomes the task of the United States Air Force to destroy an enemy, Captain Fischer wants to join that undertaking, too.

Lt. Roland W. Parks

By Paul Williams
Omaha World-Herald

To Roland W. (Ron) Parks, home is a rambling, one-story brick and frame house in Loveland, a comfortable suburb west of Omaha.

When Ron left there after Christmas leave in December, 1951, he was typical of the brash young second john. He had been rated a "distinguished cadet" on graduation from single-engine school at Selma, Ala. He was on his way to Nellis AFB to learn combat gunnery—and he was a cocky kid, confident he could drive a jet with the best of them.

When Ron finally came home on Tuesday, June 7, 1955, he looked a good deal the same. He had silver bars instead of gold. His weight (about 140) and his height (about five-nine) hadn't changed. He still had the infectious grin. And his parents, Mr. and Mrs. William G. Parks, earnestly hoped that he was the same. They figure they'll know for sure within a month, when Ron's leave is up.

For Ron is trying to put behind him the thirty-two months he spent in Red China's prisons. And his parents are intent on seeing that he's successful.

Lieutenant Parks, though junior in rank, was the "old

(Continued on following page)

During a big welcome to his hometown, Lt. Parks receives the key to the city from Omaha's Mayor John Rosenblatt.

man" of the four fighter pilots "deported" by the Chinese. He went down over MIG Alley in September, 1952. Lt. Lyle Cameron went down seven weeks later. Lt. Col. Edwin Heller bailed out in January, 1953, and Capt. Harold E. Fischer flamed out in April of that year.

Now they're back. How did it seem to them and to their parents, who waited, worried, petitioned and prayed?

"Wonderful," "terrific," "you can't describe it," "tremendous," were among the phrases they used when they stepped off a MATS Constellation at Offutt Air Force Base near Omaha to head for their respective homes.

"When the sun came up, it was beautiful," said Harold Fischer. He was talking about the look of the Rockies, the ranchlands and the rolling plains of Nebraska and Iowa.

Lyle Cameron, tall and lean, murmured that he was "one of the happiest guys in America." All that bothers him now, he said, was the question of what happens to the other eleven Air Force men still held—the crew of Col. John Arnold's B-29.

Lieutenant Parks' father, agent for a large appliance factory, is well-known in Omaha and much of Nebraska. He knows a lot of people, and he's won support from a lot of them in working for the flyers' release.

Among other things, he represented the other families last January in winning an audience with Secretary of State Dulles and UN Ambassador Henry Cabot Lodge. It was the day after Dag Hammarskjold got back from Peiping. Lodge had talked to him, then flew to Omaha to meet Dulles and other State Department officials who were going there for a briefing from Gen. Curtis E. LeMay and his SAC staff.

Typically, Parks recalled that General LeMay had once told him he'd do anything he could to help the parents ("Those boys are mine just as they are yours," was the way LeMay had expressed it.) So when Parks heard of the diplomats' visit, he called LeMay. The general was tied up in the briefing sessions, but before long Parks had a call telling him to go to the Offutt Officers' Club for dinner. There, he was flabbergasted to find himself drinking cocktails and having dinner with Dulles and Lodge. He got a full report, which he passed along by letter and telephone to the other parents.

Later, Parks told a reporter friend about the parents' worries. The gist of the message Hammarskjold had brought back was this: "The Reds were stunned by their defeat in the UN vote on censure for the imprisonment. They are looking for a face-saving way out, a way they can send the men home without admitting a defeat. What we are striving for at present is to keep the status quo, to avoid inflammatory statements or incidents that would make it tough for the Reds to find a way to let the boys go."

The next break came when the Reds hinted the parents might be allowed to visit the pilots. It was a tempting offer. Rolland Cameron was the first and firmest in his rejection. He said it would be playing into the hands of the Commies.

Lt. Parks is welcomed home by aunts, uncles, grandmothers, cousins and friends on his arrival at Offutt AFB, Nebr.

Later, the State Department put the kibosh on the plan.

Through these and other crises, the families had identical periods of high hopes and deep depression. Whenever the case popped up again, each family would be besieged with calls from well-wishers and neighbors. It was nerve-wracking to feel the knife turn a little more in the wound.

But it all started healing magically in the early hours of Memorial Day when the parents heard—from newspaper friends—that the flyers had crossed the bridge at Hong Kong.

And the memories of those long months were all but gone when Parks, Cameron and Fischer got home on June 7.

Parks was treated to a brass band, an official welcome in the City Council Chambers, the key to the city and a parade through town.

Lieutenant Parks expressed it pretty well when he licked his lips, gripped the microphone and spoke to the crowd at the City Hall:

"I can't tell you people how wonderful it is to get back. But I don't think I deserve all this."

And his father spoke pretty much for all the parents a moment later:

"I want to thank all those who helped us and prayed for us. They helped share our burden. They helped us carry on our hope. We thank God that our boy is back."

Lt. Lyle W. Cameron

By Al Remmenga

Lincoln Evening Journal

A 24-year-old Air Force pilot who hadn't seen his home town since July 8, 1952, returned on June 7 to find himself the toast of the town.

He was Lt. Lyle W. Cameron of Lincoln, Nebr., who had spent two-and-one-half years in a South China prison camp after his plane was shot down over North Korea on October 26, 1952.

For Lieutenant Cameron, who said he "didn't expect anything like this," his welcome included an official greeting at the Lincoln Municipal Airport, a downtown parade and a public ceremony on the City Hall steps.

Waiting to greet him at the airport when he arrived by Air Force Constellation from Omaha at 11:00 a.m. were Nebraska's Lt. Gov. Charles B. Warner, acting in the absence of Gov. Victor E. Anderson; Lincoln's Mayor Clark Jeary; Dr. A. Leland Forrest, Chancellor of

Nebraska Wesleyan University, of which Cameron was a graduate; and representatives of Lincoln's military and civic groups.

Stepping off the plane Lieutenant Cameron rushed first to embrace a sister, Mrs. Norma Jean Mecham of Decatur, Ill., here with her 2½-year-old son, Scott, whom "Uncle Lyle" hadn't seen before.

Lieutenant Cameron kissed relatives and close friends who met him at the plane, held a twenty-minute press conference in a private dining room at the airport terminal and was taken by a police-escorted auto cavalcade over the five-mile trip to Lincoln.

His first desire, he said, was "for a drink of Lincoln water." And secondly, "I want one day alone with my parents—just one day—that's all I'd like—no flash bulbs."

"There's another thing I've got to have," he said. "That's an oyster and corn casserole my mother used to make."

The only thing that keeps him from being "one of the happiest guys in the world," he said, is the knowledge that other Americans still are captives of the Chinese Reds.

Although his parents, Mr. and Mrs. Rolland G. Cameron of Lincoln, and brother Robert, had joined Lyle in Hawaii before the return to the mainland, the flyer guessed he had seen them "about four minutes in four days."

Thousands lined Lincoln's streets and waved from the windows of department stores and office buildings at Lt. Cameron's reception. They were Nebraska folk that welcomed him—laborers and farmers in overalls, mothers who stopped with their shopping chores and children too young to be in school. As the red convertible bearing the former prisoner passed by he smiled and waved to friends and neighbors he recognized.

Following the twelve-block parade, he was taken to Lincoln's City Hall where Mayor Jeary said, "We welcome you home. We thank God for your freedom."

"What can I say?" replied Cameron. "It's wonderful to be home—that's obvious. . . . Thanks a lot."

Lieutenant Cameron was presented with an admiral's commission in Nebraska's mythical Navy by Lt. Gov. Warner and Lincoln's civic organizations presented him with a 21-jewel wrist watch.

From the thirty-minute ceremony he left with relatives for his parents' Lincoln home. Concerning his future, he said he would report to the Air Force following his thirty-day leave.

"I want to go to graduate school and I want to remain in the Air Force," he said. "I have been told I can do both."

"I can't believe this is all for me," he said. "It will be nice to get back to living like a lieutenant again."

Lt. Col. Edwin L. Heller

By David McCallister

Wide World Photos Inc.

In Honolulu, shortly after the flyers were reunited with their families. From left: Harold Fischer, Sr. and Mrs. Fischer with Capt. Harold E. Fischer, Jr.; Mrs. Heller followed by Lt. Col. Edwin Heller; Mr. and Mrs. W. G. Parks and Lt. Roland Parks; Robert Cameron, Richard Parks, Mrs. Rolland Cameron, Lt. Lyle Cameron and Rolland Cameron.

Lt. Col. Ed Heller and the other freed fighter pilots had been in the Bamboo Cage for about a year when I became to get worked up about the slowness of our diplomatic efforts to gain their releases. I knew Ed Heller as a fighter pilot who volunteered to serve in Korea. And the fact that he was a World War II Eighth Air Force jockey, a Pennsylvanian, a former Air Force Advisor to an Air National Guard squadron and the father of two wonderful kids spurred me into action. I won't begin to say that I'm responsible for his release. But I will say that I did everything I could to get him sprung. And I feel that he would have done the same thing for me if I was cooling my heels in a Communist prison and eating my heart out for my wife and six kids.

Judy Heller and her two children were living in Wynnewood, Pennsylvania with her parents and my home was only a few miles away. When I offered my services and the aid of the Air Force Association they accepted it gratefully and it gave them hope that Ed's release would be hastened. Hope is an intangible difficult to define, but that's all they were living on. And they never gave up hoping either!"

My first efforts to gain backing for the flyers' release were thwarted because the Air Force was still carrying the fighter pilots as "Missing In Action." I managed to convince the Air Force Association that the boys were still alive, but they couldn't take an official stand until I produced some concrete evidence.

Well, it came through in September 1954 when Judy Heller received a letter from Ed. It cracked the thing wide open and Johnny Alison and AFA began firing loaded verbal and written missiles into every branch of our government that could help.

It wasn't long after that Dag Hammerskjold flew to Peiping and began dickering with the Chinese Reds. The whole world knows the rest of the story.—END

Highlights of the AFA-sponsored TAC Conference held in Washington on May 21 and 22 to explore the command's new global role

TACTICAL

Key men at the Conference. From left: AFA President Alison, General Timberlake, General Weyland, Jimmie Doolittle.

TACTICAL air is a complex subject. It has none of the simplicity of defensive point intercept, nor of the strategic offensive. It can mean escort or interdiction; fighter sweep or close support of infantry; airlift or evacuation.

The broad range of all elements which contrive to make tactical air an important consideration for success in any future war was explored in Washington, D. C., on May 21-22 in a two-day classified conference sponsored by the Air Force Association on the roles and mission of Tactical Air Command.

More than 600 executives of the country's leading industrial concerns were briefed on the opening day of the conference by Gen. O. P. Weyland, TAC Commander, and key officers of his command. On the final day, more than 250 Air Guard and Air Force Reserve commanders, representing units from every section of the nation, were told how they fit into TAC's peacetime and wartime planning.

General Weyland set the stage for both the industry and civilian component meetings with a discussion of the role of tactical airpower as an instrument of national strategy—in all-out war as well as periphery war and in atomic war as well as conventional war.

Maj. Gen. Edward Timberlake, Commander of Ninth Air Force, presented tactical air doctrine and discussed the mission and concept of tactical air.

Col. Avelin P. Tacon of the Directorate of Operations and Training discussed worldwide deployment of units; Maj. Gen. Earl Barnes, TAC's relations with industry; Brig. Gen. Ira Snyder, the need for reducing numbers and weight of ground-handling equipment supporting the many weapons systems of TAC; and Col. Nathan M. Abbott and Col. Robert W. Gates, TAC's air requirements.

James H. Doolittle, AFA director and one of its founders, acted as moderator for the industry day of the conference and George C. Kenney, AFA's Chairman of the Board, served in the same capacity for the Reserve and Guard portion of the program. Each of the briefing officers spoke for twenty minutes. A ten-minute question period followed, in line with procedures established for such conferences by the Association. General Weyland closed each day with a summary.

The classified nature of the conference makes it impossible to present a verbatim transcript of the proceedings. But highlights, pointing up the broad areas covered, appear on the following pages with an AIR FORCE Magazine photochart of Tactical Air Command on pages 42 and 43.

The final conference in this AFA series for the current year will be held in San Francisco on August 11th with Air Research and Development Command and Air Materiel Command on stage.

AIRPOWER—Worldwide

By General O. P. Weyland
Commander, Tactical Air Command

In the past decade, we have witnessed the evolution of a national defense philosophy which is unprecedented in the history of this democratic nation. Had anyone ventured to guess prior to World War II that our nation would be supporting the huge peacetime defense budget that it is today, he would immediately have been listed as a prospect for the nearest psychiatrist. Today, however, there is general public acceptance of the thesis that our national survival can be assured only by the maintenance of a force in being, capable of instantaneous and effective retaliation against any aggressor. It is also generally accepted that we would already have become the victim of aggression had we not maintained this capability to punish the aggressor. None of us, I believe, would argue the point that even this staggering expenditure has been a small price to pay for the preservation and continuance of the American way of life.

Now, as a military man—an air commander—I am neither qualified nor inclined to speculate on our foreign policy, or on the possibility of future war. The fact remains, however, that we are faced with a limitless period of challenge between two great powers and two irreconcilable ideologies. Realizing this, the American people have matured to the task ahead, and are unhesitatingly supporting this extremely heavy defense burden. They have a right to expect that the professional services rendered for this immense outlay will be the very best possible. The military is awakening to the fact that although it can never have all of the forces and all of the equipment it desires, it behooves us to make the most of every tax dollar. With this responsibility firmly in mind, I would like to discuss some of the plans and means by which tactical airpower will play its position on the modern military team.

In this discussion we will first consider the mission and role of tactical airpower as one of the three major combat components of the Air Force. It is especially important that the TAC mission be placed in proper perspective with relation to these other forces. For instance, the roles of the Strategic Air Command and the Air Defense Command are simple in concept and well understood. SAC is our principal instrument of retaliation —they must deliver the big punch if that is ever required. Basically, Air Defense Command must keep the enemy from doing the same thing to us. What is not so well understood is that TAC is the versatile, "jack of all trades," element of our offensive airpower. Tactical Air Forces must be prepared to do a variety of tasks that cover practically the entire scope of airpower's capabilities. We must be ready to perform these tasks at a moment's notice, anywhere in the world, with an appropriate degree of force.

As most of you know, TAC was reduced to only a small planning headquarters during the lean years prior to 1950. Since the outbreak of the Korean action and its requirement for expansion of tactical airpower, TAC has again assumed vital and far-reaching responsibilities as one of the three major combat commands of the Air Force.

TAC is now comprised of over 50,000 officers and airmen. In discussing tactical airpower, one must bear in mind that the theater air forces, such as Far East Air Forces, Air Forces in Europe, Alaska, Northeast Air Command, and including Mutual Defense Assistance Program and Military Assistance Advisory Group units worldwide, are basically tactical.

Tactical Air Command is responsible to the Chief of Staff of the Air Force for the development of Air Force policies, tactics, techniques and procedures applicable to the employment of tactical airpower worldwide, and is further responsible in the Zone of the Interior for the training and indoctrination of Air Force personnel and units in joint training with the Army and Navy. Our latest mission directive from Air Force Headquarters calls for TAC to maintain the capability for rapid deployment of mobile strike forces to any area of the world where the peace is threatened or where military aggression has been initiated. These forces will have both nuclear and nonatomic weapon delivery capability.

Following the renaissance of tactical airpower brought about by the Korean action, the tasks confronting tactical air were manifold. The chief one was the need to rebuild tactical airpower rapidly to satisfy the demands of both the Far East and the European theaters. Since June, 1950, Tactical Air Command has trained and deployed to overseas theaters a total of twenty-two wings or groups and thirty-three other smaller supporting units. This expansion

(Continued on following page)

was made possible by ordering into active military service Air National Guard and Air Reserve units. The rapid growth and improvement in effectiveness of those units was, indeed, a pleasure to behold, and the contribution they have made, and are continuing to make, is truly a stirring tribute to these minute-men of our Air Force.

As I have previously indicated, certain tasks which quite often are considered to be the exclusive responsibilities of other commands, are routinely executed by tactical airpower. For example, tactical air is the theater commander's *primary strategic* weapons system within his theater. The great mobility and operational flexibility of the tactical air weapons system permits the commander to rapidly mass the entire available weight of tactical air's enormous firepower to meet enemy air, ground or naval threats at any location within a theater of operations.

In the role of air defense, tactical air has specific responsibility for air defense within the combat zone, and usually the communications zone of the theater. In the Zone of the Interior, TAC's fighter forces are an augmentation to the Air Defense forces in defense of the US.

Another task of tactical air is its troop carrier operations, which includes not only the tactical airlift and delivery of surface forces and their equipment as required by the Army, but also a major airlift for Air Force personnel and equipment.

In its theater of operations mission, tactical airpower must destroy the adjacent hostile air forces, establish control of the air, and destroy or neutralize enemy military forces in being, enroute to, or in the battle. In addition, tactical air has the vital responsibility of providing close air support for surface force operations. With regard to this close air support function, I would like to digress momentarily to touch on some of TAC's views relating to our responsibilities for air-ground operations. Generally speaking the purpose of close air support is to assist the ground forces in accomplishing their missions, either offensively or defensively. Close air support is not a cure-all for the trials and tribulations of the ground soldier. However, we in the Air Force should, can, and do create the conditions whereby our comrades on the ground can go into battle under the most favorable circumstances for success. Whereas we are the first to recognize that the ground forces must still fight, technological advances are steadily increasing the dependence upon airpower in the air-land battle. Air forces, by no stretch of the imagination, have rendered ground forces unnecessary. All fighting services are essential in a theater of operations. No one service exists solely for the support of another. Rather, each force—air, ground or sea—contribute its optimum and specialized capabilities toward achieving the over-all mission of the theater commander. We in the Air Force are just as anxious and insistent as anyone that we have adequate land and naval forces capable of fighting and of accomplishing those functions for which they are responsible.

The recognition by tactical air of its responsibility as a member of the air-ground team is stressed and manifested in the many joint training exercises with the ground forces. In addition, the doctrine, techniques and tactics for air-ground operations are daily being perpetuated at the USAF Air-Ground Operations School in Southern Pines, North Carolina. This Air-Ground School, which is jointly staffed by Army and Air Force instructors, was created shortly after the start of the Korean War, when it became apparent that much of the air-ground know-how which had been evolved through hard-won experience in World War II had been forgotten or misplaced. In its four years of operation, the Air-Ground School has graduated over 15,000 officers from all services from the rank of second lieutenant to general. We are justly proud of the job this School has done and is continuing to do, and we are equally proud of our position as the air member of the air-ground team.

Let's now take a brief look at the position of TAC in relation to other combat commands of the Air Force—SAC and ADC. While Air Defense Command, as its name implies, has the primary mission of air defense of the United States. TAC fighter and fighter-bombers have a great potential to assist in the defense of the Continental United States, and we have coordinated plans to augment ADC defenses in the event of an attack here at home. Nevertheless, the unfortunate truth remains that absolute defense against air attack is not possible now. As a deterrent, the means to hit back instantly and to give more than you receive is still the surest way to make an aggressor think twice before he attacks. We, therefore, must rely on our strategic air forces and our tactical air forces, which together comprise the offensive capability of the Air Force. Strategic air, by virtue of its characteristics and weapons, is designed primarily to operate against the enemy's war-sustaining resources and long-range striking forces. To fully understand the relationship of strategic and tactical air forces and their most effective and economical employment, I ask that you visualize the spectrum of targets against which they can operate.

At one end of the spectrum, we find the basic natural resources—mines, oil fields, and forests. Then come basic industries, such as steel mills and oil refineries, followed by production facilities to translate the basic materials into intermediate or end products, such as electronic components, aircraft and engines, trucks, armored vehicles, ships, chemicals and explosives, atomic production, or guns. Power facilities, hydroelectric or thermal, are essential to such industries and constitute a vital target complex. Then we find that finished weapons from supply centers are married up with enemy manpower at mobilization and training centers to form military forces. Then we have the transportation systems which assemble the many components and move the military forces, equipment and supplies to the battle areas—and, finally, we have military forces and equipment actually deployed and fighting.

All of these targets are vulnerable to attack from the air. Generally speaking, strategic air forces have primary responsibility for attack of the targets at one end of the spectrum, and tactical air forces have primary responsibility for attack of the targets at the other end of the spectrum. There is no sharp line of demarcation, there is a desirable area of overlap, and, by close coordination, strategic and tactical air forces can and do complement and assist each other without duplication of effort.

We all are in complete agreement on the vital necessity of maintaining a strong Strategic Air Command as the major deterrent to a major war, and as the means of destroying an enemy's war-sustaining resources should a major war occur. But we must be prepared to complement the SAC capability by provision of adequate and modern tactical air forces, capable to defeating the enemy's military forces deployed for battle.

From an honest appraisal of these relationships within our national defense structure and a candid look at what would be in store for us in any future conflict, the job which tactical airpower has to do is clearly established. We must be capable of engaging in two distinct types of combat—the all-our war, and the peripheral or "brush-fire" war, with nuclear weapons or with non-atomic weapons. Let us first consider the all-out or general war.

In a general nuclear war, the air battle becomes a

battle for survival, and the need for air superiority in a theater of operations is replaced by the need for complete mastery of the skies. Insofar as theater operations are concerned in such a war, mastery of the skies would be decisive since it would permit relatively unhindered delivery of nuclear weapons at times, in place, and in quantities necessary to assure the successful achievement of surface force objectives. However, to achieve such air mastery, the full weight of tactical airpower's day fighter, fighter-bomber, tactical bombardment and missile forces, would have to be concentrated against the enemy's air complex.

Insofar as operations in concert with surface forces are concerned, during the first few days the primary air effort would be allocated to a desperate effort to survive, and concurrently conduct a powerful counter-air offensive against the enemy's air complex. In nuclear war, until the struggle for control of the air is resolved, effective assembly, deployment and employment of surface forces will be limited. Once air mastery is gained, limitations on surface force movements would become far less severe, and they could maneuver as required to exploit the enemy's deteriorated situation. Airlift would have played a vital role in logistic support of the movement to, and conduct of, the air battle. Assault type airlift would be instrumental in reinforcing and occupying key points in both friendly and enemy territory, both before and after final capitulation.

Whether the war is wholly nuclear, or a combination of non-atomic and limited nuclear, or solely non-atomic, TAC's basic tasks and the principles involved in their achievement remain the same. It is mandatory that tactical air achieve full capability for rapid assembly and global deployment of tactical air strike forces which can cope with any military situation. Thus, if tactical airpower stationed in the Zone of the Interior is to contribute to a favorable decision, it must have the capability of committing its ZI strike forces against the enemy during the *first few days of the war*, with many of its tactical strike units delivering nuclear weapons within *hours* after hostilities open.

Jimmie Doolittle introduced General Weyland at the conference as a man who "knows as much, or more about tactical air warfare as any man alive." Born 53 years ago in Riverside, Calif., "Opie" received his BS in Mechanical Engineering from Texas A&M. During World War II he commanded the Nineteenth Tactical Air Command, the air unit famous for its classic air support of the late General Patton's Third Army in its historic dash across France in the spring of 1943. In 1945 he was Commanding General of the Ninth AF. From there he went to the Command and General Staff School as Assistant Commander. He has seen duty as the Director of Plans and Operations, Hq. USAF, and Deputy Commandant of the National War College. During the Korean War, from July 1951 until after the cease-fire, he was Commander of the Far East Air Forces. He has been Commander of TAC since April 1954.

While there is good reason to believe that the very existence of SAC's long-range retaliatory capability should continue to deter the Communists from global war, there is all the more reason to conclude that the Reds will constantly endeavor to exploit their ambitions through political, economic or psychological pressures. It is becoming increasingly apparent, therefore, that military conflict in the near foreseeable future will most likely be the periphery or "brush-fire" type of action.

We cannot expect, however, for them again to choose an area of aggression where we already have tactical air forces, as well as Army and Naval Forces, in places that are capable of immediately going into combat. Their pattern for such brush-fire operations is manifest. In short, they struck in Korea and, when rebuffed there, redoubled their offensive in Indo-China.

As it turned out, of course, the Commies made a bad estimate of our reaction to their attack across the 38th Parallel. Although weak from successive economy cuts, tactical air forcefully demonstrated its flexibility and mobility by closing with the enemy within eight hours after the President said that US forces would be committed.

Even though the air action was prescribed by political considerations, it was a dominant factor in stopping and throwing back the Communist aggression. UN air superiority which prevailed throughout the Korean War assured that the American soldier was rarely, if ever, exposed to enemy air attack—and at the same time, Communist supply buildups were effectively curtailed whenever they posed a major threat.

Largely as a result of the fast and flexible reaction, and the effectiveness of our tactical airpower, the Communists did not achieve their original objectives in Korea. This abortive aggression, however, gave clear and unmistakeable proof of the nature of Communist long-range intentions.

It is my firm opinion that in order to effectively counter these methodical schemes of aggression, we must capitalize to the utmost on our technological and industrial capability. We must not be led into warfare which matches massed manpower against manpower. When we reduce ourselves to a weapon system which depends largely on manpower, a commodity so cheap in the Communist countries, then we are giving the enemy an advantage which he should not have. We are ahead in technology. We are ahead in the nuclear race. We must see to it that we continue to maintain and, in a showdown, exploit this qualitative superiority. For your information, subsequent discussions on operational requirements will develop in some detail our plans to maintain this qualitative superiority in the field of tactical air.

Whether nuclear weapons would be used in periphery wars is not a military decision. Therefore, we must maintain a current capability and proficiency in the delivery of both non-atomic and nuclear weapons with the combat aircraft in our tactical inventory.

The Air Force is placing great emphasis on the buildup of its tactical air forces. Under the 137-wing program, tactical airpower will reach a strength of forty-nine wings in 1957. We are progressing rapidly and steadily with the activation and operational training of the new wings. With the continuing development in our combat wings of air-to-air refueling and unit air transportability, plus an efficient and reliable supply and maintenance force, TAC will be increasingly ready to cope with either major or limited war whenever and wherever it may occur. With the capability for prompt dispatch of suitably constituted tactical air forces anywhere in the world, tactical airpower is truly the white hope to deter periphery aggression.

Our eventual goal is tactical airpower which has such an enormous potential of firepower, proven global mobility —operational invulnerability—and offensive and defensive versatility—that it becomes a powerful deterrent to aggression—or a decisive force in war—thus giving strong support to the national policy of maintaining the peace.

(Continued on page 44)

The Tactical Air Command

An **AIR FORCE** Magazine photochart
(Corrected as of June 1, 1955)

Hq., TAC
Langley AFB, Va.

Commander
Gen. O. P. Weyland

Inspector General
Col. Dale D. Fisher

Chief of Staff
Brig. Gen.
Ernest K. Warburton

Deputy Commander
Maj. Gen.
Earl W. Barnes

Ass't Chief of Staff
Lt. Col. Carl M. Nelson

Information Services
Lt. Col. Frederick J. Botz

Chaplain
Col. Howell G. Guin

Surgeon
Brig. Gen.
Major S. White

Staff Judge Advocate
Col. Frank P. Corbin, Jr.

Adjutant
Col. Nelson C. Voshcl

Deputy for Comptroller
Col. Terrell E. Phillips

Deputy for Communications
Col. Robert F. Frost

Deputy for Materiel
Brig. Gen. Ira D. Snyder

Deputy for Operations
Maj. Gen.
David W. Hutchison

Deputy for Intelligence
Col. Robert G. Emmens

Deputy for Personnel
Col. William L. Kennedy

USAF Air Ground Operations School Southern Pines, N.C.
Brig. Gen.
Daniel W. Jenkins

405th Fighter-Bomber Wing Langley AFB, Va.
Brig. Gen.
Edwin S. Chickering

Commander
Maj. Gen.
Edward J. Timberlake

Sp. Ass't to the Commander and Information Services
Lt. Col. Bernard A. Katz

Deputy Commander
Brig. Gen.
James Ferguson

Chief of Staff
Col.
Stephen B. Mack

Inspector General
Col. Daniel F. Tatum

NINTH AIR FORCE
Hq., Shaw AFB, S.C.

Chaplain
Lt. Col. John F. Nolan

DCS/Comptroller
Col. John French

479th Fighter Day Wing
George AFB, Calif.
Col. Robert L. Delashaw

17th Bomb Wing (L)
Eglin Aux. Fld. #9
(Hurlbert Field), Fla.
Col. Howard F. Bronson, Jr.

Surgeon
Col. Nicholas F. Atria

DCS/Materiel
Col. Robert W. Humphreys

366th Fighter-Bomber Wing
England AFB, La.
Col. William A. Daniel

363d Tac Recon Wing
Shaw AFB, S.C.
Col. Gene H. Tibbets

DCS/Operations
Col. Joe L. Mason

Judge Advocate
Lt. Col. Sam F. Carter

312th Fighter-Bomber Wing
Clovis AFB, N. M.
Col. James B. Buck

DCS/Personnel
Lt. Col. John E. Maier

Adjutant
Col. Ben F. Mariska

461st Bomb Wing (L)
Hill AFB, Utah
Col. Thomas R. Ford

450th Fighter-Bomber Wing
Foster AFB, Tex.
Col. Frank L. Dunn

Commander
Maj. Gen.
Chester E. McCarty

EIGHTEENTH AIR FORCE
Hq., Donaldson AFB, S.C.

Inspector General
Col. William C. Bentley, Jr.

Chaplain
Lt. Col. Horace N. Cooper

DCS/Comptroller
Col. Edgar B. Stansbury

Deputy Commander
Brig. Gen. Hoyt L. Prindle

Surgeon
Col. Raymond T. Jenkins

DCS/Materiel
Col. Russell W. Gray

Chief of Staff
Col. Theodore G. Kershaw
(acting)

Judge Advocate
Lt. Col. Alfred Kandel

DCS/Operations
Col. John R. Roche

Information Services Officer
Col. Louis B. Magid, Jr.

Adjutant
Col. Harry W. Craig

DCS/Personnel
Col. Harold L. Fuller

62d Troop Carrier Wing (H)
Larson AFB, Wash.
Col. George F. McGuire

63d Troop Carrier Wing (H)
Donaldson AFB, S.C.
Col. Edgar W. Hampton

456th Troop Carrier Wing (M)
Charleston AFB, S.C.
Col. James L. Daniel, Jr.

463d Troop Carrier Wing (M)
Ardmore AFB, Okla.
Brig. Gen.
Cecil H. Childre

464th Troop Carrier Wing (M)
Pope AFB, N.C.
Col. Troy W. Crawford

314th Troop Carrier Wing (M)
Sewart AFB, Tenn.
Col. Marvin L. McNickle

Gentlemen, many of you, in the span of a few short years, have been called on to alternate between your civilian pursuits and military duty. Although my professional tenure has been strictly military, I am daily more impressed with the time, concern and emphasis which must be devoted to the dollars and cents aspects of our military operation. I believe we can all appreciate that the operation of the modern, highly specialized military organization can be compared in many ways to that of a large business or industrial concern. With this in mind, let me summarize in what may be more familiar terms by reporting to you as a representative group of stockholders and as partners in tactical airpower, just what this issue has to offer.

First, *management*—we have a large corps of professional air officers, including a high percentage of Reserve and Air National Guard personnel, who are endowed with the experience, the know-how and the zeal to create and maintain highly efficient tactical air forces.

Second, *capital*—we have a large and growing inventory of modern aircraft and weapons systems. These new aircraft and weapons multiply the effectiveness of tactical airpower many, many times. Every combat aircraft is or will be equipped to deliver a powerful atomic punch.

Third, *dividends*—a very special dividend was paid in Korea, where the availability and readiness of tactical airpower contributed immeasurably to upsetting the Communist pattern of aggression. You may expect such dividends again whenever and wherever the Communists attempt to achieve their goals by armed aggression.

And, finally, *outlook for the future*—the shares which you as taxpayers own in tactical air, along with your holdings in Strategic Air and Air Defense, are literally and figuratively your insurance for the future. In a nuclear conflict, wherein military decision might well mean national survival, you cannot afford to under-estimate the requirement to invest in airpower's capabilities.

Gentlemen, I've talked a lot about this tactical air business and you're going to see and hear a lot more. I don't want you to get the idea, however, that I or any of my gang think that we are the sole solution to the world's problems. Tactical air is one segment of airpower—and airpower as a whole is indivisible. We are a part of the Air Force and the Defense Establishment team, and when the day is over I think you'll carry my conviction that TAC Air is a damned important part of that team.

TACTICAL AIR DOCTRINE

By Maj. Gen. Edward Timberlake

Commander, Ninth Air Force, Tactical Air Command

Any plans for the employment of our Air Forces in a future war must be predicated upon two basic factors: (1) that we will be opposed by a formidable foe, and (2) that no place in the world is absolutely secure from enemy attack.

In nuclear weapons, we find firepower which, until recently, was beyond all means of comprehension. Increased speeds and aerial refueling provide Air Forces with a capability of *employing* this firepower *faster* and *further* than heretofore conceived.

In order to maximize our force security, and still retain the offensive firepower required, our concept for future operations embraces a number of versatile forces deployed in *key areas* of the world, *backed up* by highly mobile, equally capable reserve forces based in the ZI.

All of us are shareholders in this tactical air business and have a mutual interest that its resources are wisely used. So let's take a look at the three cardinal principles for the most efficient and effective employment of tactical airpower: *mobility, flexibility,* and *centralized control.* Each of these principles is of equal importance and significance. I would like first to discuss the principle of *mobility.*

In contra-distinction to strategic air forces, which normally operate from fixed, predetermined air bases, *theater* air forces must be prepared to establish and move to new bases without losing either *control* or *operational* efficiency. Although some preplanning and prepositioning of air bases can take place, *theater air forces* must be prepared to shift forward or backward as the tide of battle dictates. The effectiveness of theater air forces is related directly to their tactical mobility. The ability to move rapidly within a theater of operations is a primary requirement of tactical air forces. This rapid movement within a theater provides these air forces with the capability of: (1) *surprise,* (2) *concentration of force,* and (3) *economy of effort*—all old and proven *principles* of war.

Increased speeds and firepower have brought about a requirement for changes in operating procedures from a *reaction-time* viewpoint. Although early warning radar has increased in both range and altitude, the amount of time to react has decreased in proportion to the advances in aircraft speeds. This initial reaction time has a definite impact on the state of readiness, and the constant availability of our combat crews and support personnel. Since the United States is committed to a policy of retaliation, it is a safe assumption that the enemy, enjoying the *power* of the *initiative,* will choose a *time* and a *place* for the *initial* strike. A time and place that will put our forces at the greatest possible disadvantage in our retaliatory efforts. The capability, therefore, to move quickly with sufficient force and offensive power to oppose this threat, *any time, anywhere,* is of vital importance.

All military forces have characteristics that stem from the medium in which they operate. Aircraft are basically designed to *exploit mobility* to the fullest extent. Today, we are traveling at speeds believed unattainable only a few years ago. With the advent of *inflight refueling,* we have extended our range so that *nonstop trans-oceanic* flights are no longer a stunt but an operational reality.

As a practical demonstration that our mobility concept is not a starry-eyed vision but rather an actual capability, we recently conducted an exercise in which a fighter-

bomber group, with strictly *austere supporting elements,* was moved *entirely* by air from California to the East Coast. The fighter wing was given no previous warning of the move but within hours of notification was airborne for its destination. Shortly after the air echelon touched down on an air strip in South Carolina, the squadrons were *re-armed, refueled,* and *dispatched* on a practice combat mission. The air strip, incidentally, bare of equipment and supplies until the troop carrier aircraft, supporting the move, brought these essentials in. Every condition that was simulated throughout this entire exercise compared identically with those that may be expected in an actual operation.

In addition to such mobility exercises, we are presently rotating fighter-bomber and troop carrier squadrons to selected bases in Europe. Through these and other training exercises, TAC units are continuously undergoing mobility evaluation, and the lessons learned are reflected in revisions to appropriate operational, organizational, and supply manuals.

Through the ages in military history, the ability of a force to move rapidly and to concentrate against the enemy has been the *over-riding factor* to *success* in battle. It is no less important today. We must maintain the capability to bring the deadly products of our technological skill to bear against the enemy *whenever* and *wherever* required. Time is paramount in any future conflict. *Unless* we are able to get into the trouble area in a matter of hours, then we may find our friends overrrun and a situation impossible to cope with. Our *training,* our *plans,* and our *procurement* must be geared to the principle of mobility. Tactical airpower cannot be chained to a complex of static, cumbersome bases and equipment. If we fight tomorrow's war, we must do it with tomorrow's weapons, tactics and techniques —but we must prepare for it today.

Let us now turn to a brief consideration of the principle of *flexibility.* Of the many changes in military operations brought about by modern developments, the requirement for an ever-increasing degree of flexibility is one of the most demanding. Flexibility constitutes one of the primary elements of strength of tactical airpower. In this regard, I would like to borrow a quote from England's renowned ground soldier, Field Marshal Montgomery, who has frequently spoken on the subject of tactical air forces.

Quite early in World War II he recognized the indivisible quality of military air forces. His oft-repeated statement is: "The greatest asset of airpower is its flexibility. Whereas to shift the weight of effort on the ground from one point to another takes time, the flexibility inherent in air forces permits them, without change, to be shifted quickly from one objective to another within the theater of operations. So long as this is realized, then the whole weight of available airpower can be used in selected areas, in turn. This *concentrated* use of the air striking force is a battle-winning factor of the first importance."

The flexibility that Field Marshal Montgomery speaks of takes several forms: flexibility in *speed*; flexibility in *range*; and flexibility in the *type* of *mission* that may be performed; and flexibility in the *scale* of *effort* which may be applied to the several types of missions. This flexibility was clearly demonstrated in World War II and in Korea when we frequently shifted our effort *from* interdiction and massed it *in close air support* in *critical* situations. On interdiction operations, flexibility permitted us to shft our target areas very quckly in order to counter the enemy's movements. This flexibility may be applied in a matter of *days, hours,* or *minutes.*

In our tactical transport operations, flexibility is also the by-word. Although many responsible individuals, even in the military, visualize the role of a transport aircraft as strictly a lumbering workhorse of the air, designed to speed up the movement of personnel and supplies, this is *far* from the actual case. The tactical air, or troop carrier, transport fleet has a wide variety of missions to perform. Aside from the routine transport of vital cargo and personnel and the air evacuation of the wounded, these aircraft are used for such other important missions as *airborne operations,* the *air drop* of supplies and equipment—and this might include anything from a caterpillar tractor to a box of ammunition—the *assault* landing and *evacuation* of ground forces, the *air movement* of entire units, and many special missions including the air supply of remote communications outposts. These are but a few of the ever-increasing capabilities that indicate the true flexibility of tactical air's troop carrier forces.

Last, but not least, of the principles we will discuss is that of *centralized control.* Tactical airpower must be provided with centralized *control* and *direction* at both theater level and at tactical air force level. Its *component parts* are specifically designed to complement each other and to be mutually supporting. It cannot be effective if they are *compartmented* or *parcelled* out to many various agencies or commanders who feel that *they* have a requirement for their own piece of tactical air.

Control and direction of theater airpower must rest with a *single air commander.* Under such centralized control, its *full* weight and *striking* power can be shifted quickly from one type mission to another in order to *meet unexpected threats, exploit successes,* and to exert its tremendous influence in the furtherance of the over-all theater strategy, as well as to lend optimum support to any *global* air plans.

No one theater component is self-contained, or capable within itself, of achieving the over-all theater mission. The *air, ground,* and *sea forces* in *concert* provide the means and the working relationships to accomplish the over-all mission. Theater operations require close coordination between all component commanders, and it is the *individual responsibility* of each and every commander to assume the initiative of *coordinating* the activities of his force with other forces when matters of mutual interest and concern are involved. By this maxim the major *concern* of the theater *air* commander is the *coordination* and timely provision of *available air effort* for airpower's many theater tasks, including the close air support of surface forces.

If available air effort were to be dissipated into the required number of small parcels to satisfy each and every individual commander in a local action, the most powerful and strategic weapon available to the theater commander would be denied him at a time when *he* needed it most.

Our forces must be organized on the premise of giving authoritative direction and control to the highest commander who can effectively exercise that command so that

(Continued on following page)

Maj. Gen. Edward J. Timberlake, 45, is a native of Fort Hunt, Va. He was graduated from the US Military Academy in 1931, and went to flying school in 1932. During World War II he was primarily a bomber man with duty as Group Commander of the 93d Bomb Group and Wing Commander of the Second and Twentieth Bomb Wings of the Eighth AF. Early in the Korean War he served as Vice Commander of the Fifth Air Force, FEAF. He took over as Commander of the Ninth AF, TAC, in July 1951.

he can wield the available air forces in a theater of war as *one powerful weapon*. To do this, he must have competent and dependable subordinate commanders through whom he can decentralize execution of command. Also he must have an effective and reliable system of communications that ties together all of the functional elements of his command and that provides for immediate response by any aircraft or commander to the centrally issued directions.

We must constantly endeavor to develop and improve our communications and control facilities to insure that they are compatible with the speed and capabilities of tomorrow's weapons systems. The *combined* efforts of the *Air Force, science,* and *industry* are needed to meet this urgent requirement.

We must keep foremost in our minds that this nation and all of the nations of the free world face a *formidable* and *ever-mounting Communist* threat. No longer can we depend solely on the vast retaliatory capabilities of our strategic air forces as a deterrent to aggression. In order to by-pass the threat of retaliation by our strategic air forces, the Communists have turned to the *limited,* or "brush fire" war to achieve a step toward world domination. Tactical airpower is our nation's answer to this cancerous type of aggression.

The key to the success of tactical airpower lies in the judicious application of three basic principles of employment—*mobility, flexibility,* and *centralized control.* With mobility, our forces can move, with little notice, to bases thousands of miles away and go into operation on a self-sustained basis. This new capability opens new vistas of tactics and techniques to keep an enemy off balance.

With flexibility, the entire effort of tactical air may be employed to do a multitude of tasks using a variety of ordnance. The tactical combat aircraft has only reached the threshold of attaining its ultimate possibilities in the *scope, variety,* and *magnitude* of tasks it is able to perform.

With *centralized control,* we are assured a capability of being able to *accurately* and *quickly direct* the full power of tactical air against the most *lucrative* enemy objectives. Through this principle, the combat elements of tactical air are molded into *one mighty weapons system* that can exert the *dominant* influence on the entire theater campaign.

To fully exploit these principles of *mobility, flexibility,* and *centralized control,* our tactical forces must be equipped with faster, more powerful aircraft. In this day of sudden undeclared "brush fire" wars, these tactical air forces will be caught short if we fall behind in *research, development and production.* Our tactical units must be given the tools to do their job and they need them as expeditiously as possible.

MATERIEL PROBLEM AREAS

By Brig. Gen. Ira D. Snyder

Deputy Chief of Staff, Materiel, Tactical Air Command

One of the unalterable facts of military aviation is that the far-flying, fast-flying, hard-hitting airplane is firmly tied to some sort of air base—be it land or sea. The military airplane, or any airplane for that matter, must periodically return to the earth to be fueled and put into condition to fly again. All of us accept this fact, but how many of us have given any thought to the equipment required to service and maintain the aircraft? Unfortunately, despite the tremendous importance of ground support equipment to a modern tactical air force, almost all of our design and engineering skills have been devoted to improvement in the basic aircraft with its support equipment considered only as an afterthought. This was understandable during the early development of the airplane when actual performance was only a fraction of the potential we all felt existed, and support equipment was simple and light. Remember the days of the hand swung prop and later the hand cranked starter? Crude, perhaps, but the biggest item of equipment required for engine starting then was a man and a crank. Look at us today; we have finally reached the point where we require a jet engine to start a jet engine.

To emphasize the inter-relationship between all the elements which put a combat aircraft into the air and keep it there, the Air Force in a regulation published in 1953 formalized what is called the weapon system concept. Under this concept a weapon system is a combat aircraft with all the people, equipment, and airfield facilities required to operate it as a unit of striking power. If we follow this concept in the design of a new weapon system, we will start with the aircraft designed for a particular operational use, and concurrently with its development we will design the support equipment to be most compatible with that use. If special airfield facilities are required they will also be developed, to be available when the aircraft is, and likewise, if special personal skills are required they will be made available when the aircraft is delivered to the Air Force. If we could follow this procedure completely, with full coordination between all the agencies involved, we would have the best weapon which could be obtained during any given time period. Unfortunately, we are still designing support equipment as an afterthought and not as a vital part of the weapon system.

Let me give you a specific example of the problem we face. Let's take a look at the problems of a young fighter bomber squadron commander. He has twenty-five airplanes, thirty-one pilots, and 129 airmen in his squadron. He must train his squadron to meet certain mobility requirements; he must be able to load all of his men and equipment aboard cargo aircraft for movement anywhere in the world within twenty-four hours after receipt of the order to move. In a tactical theater he must be capable of loading all the men, tools and equipment required to support all, or any part, of his twenty-five combat aircraft within hours after receipt of orders and during this same

(Continued on page 49)

NORTH AMERICAN HAS BUILT MORE AIRPLANES THAN ANY OTHER COMPANY IN THE WORLD

WHO LEADS IN GUIDED MISSILES?

It is no accident that the United States leads the world in the vital business of building guided missiles. We lead because American industries like North American Aviation are far ahead of the world in the highly advanced scientific, engineering and technical fields needed to design and build successful missiles. One example of this leadership is North American's SM-64 Navaho, an intercontinental, surface-to-surface strategic guided missile for the U.S. Air Force.

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Maintaining its leadership in all phases of guided missile development and manufacture, North American is working on advanced new developments in the design and production of rocket engines and guidance and control mechanisms for its own and other missile programs throughout the country. Constant research and development keep North American foremost in aircraft, rocket engines, electronics and peaceful applications of atomic energy.

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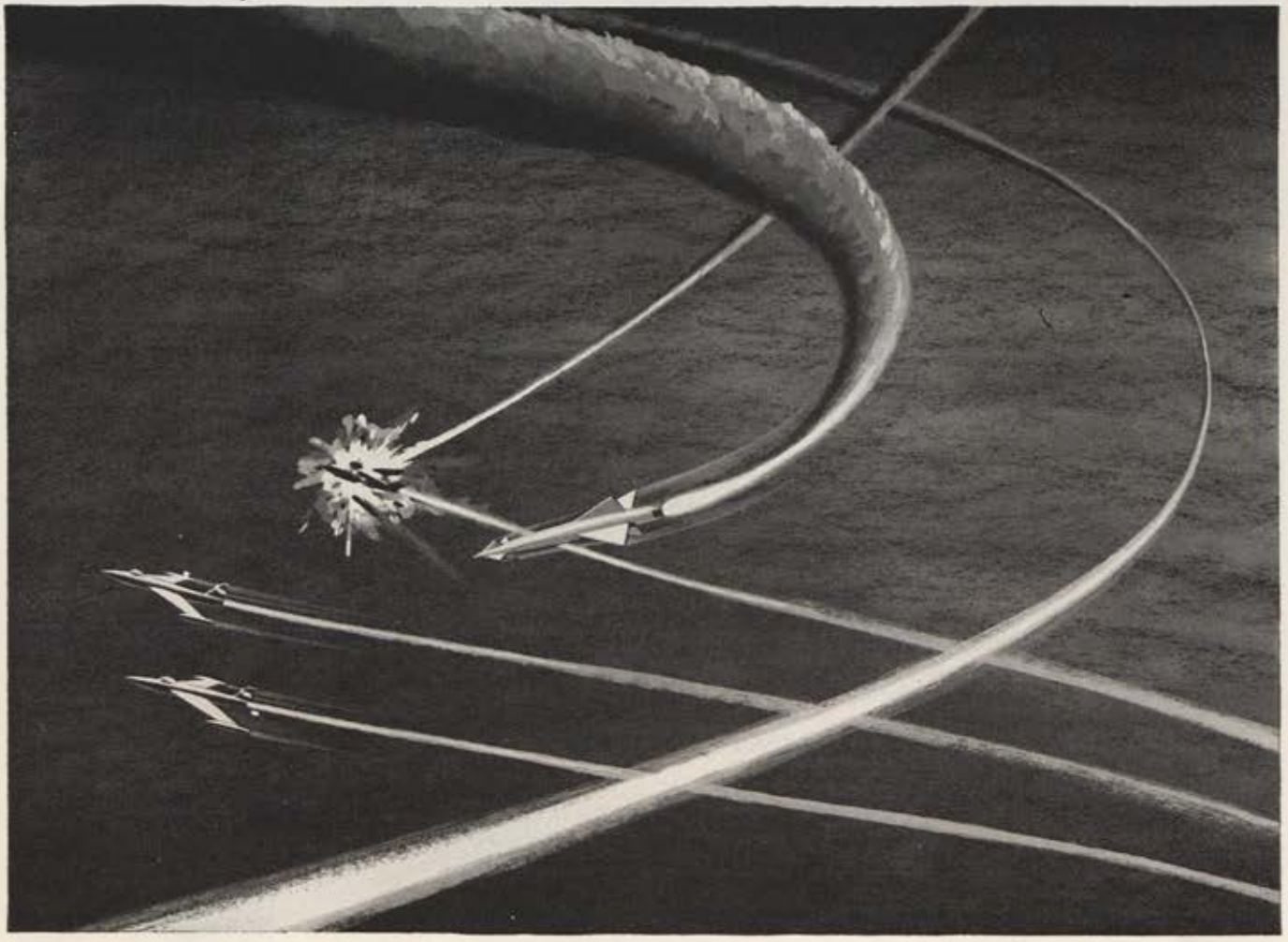

CANADAIR COUNTS — *in Guided Missiles*

Grim herald of the push-button war, the guided missile's development has become an urgent matter for all world powers. The missile itself is not enough . . . the race is now for sharper control, greater speed, higher altitudes, more sensitive response.

In the interests of national security, this program is naturally classified but we can say this much: we are working closely with Canadian government research agencies, in the advanced technological fields of design, development and construction of guided missiles. We have produced missile airframes and control equipment . . . have seen them through actual firing tests.

This is a challenging field, where Canadair engineers face and overcome new problems every day. In missile development, as in other fields of aeronautical achievement, people who know say, "you can count on Canadair."

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time period, he may be required to fly off the combat aircraft to their new base.

Let's take a look at this squadron commander's assigned equipment. First of all he has 5,783 items. This includes everything from eight multi-purpose servicing vehicles down to fourteen flashlights. He has six engine dollies, six aft section dollies, six maintenance platforms, twelve bomb trailers, four air compressors, five generators, as well as aircraft heaters and cleaners, electronic and hydraulic test equipment, and many other items. And all his aircraft maintenance people must have tools, so he has eighty-five mechanics' and specialists' tool kits and a tool crib with more than 5,000 tools in it.

Twenty-four hours to pack and load all this equipment doesn't sound like enough time, does it? Neither does a few hours sound like sufficient time to break out, say half this equipment, and pack and load it. As a matter of fact it is almost impossible with present equipment and methods of packaging. So much so that we do our best to find only young, strong-minded majors and lieutenant colonels for squadron commanders—when these officers get a little older and more experienced, they recognize an immovable object when they see one.

All joking aside, our combat commanders are burdened with a tremendous problem when they move their units—and because they are in a tactical air command they must be prepared to move at any time. We know this problem can be alleviated.

Let's start with engine dollies. We now have six engine dollies and six aft section dollies in each squadron. They are heavy, bulky items of equipment. And they can't be used to install or remove an engine. Instead a small crane must be used to properly position the engine.

We propose to replace this equipment with a standard installation and removal dolly and a standard transportation dolly with adapters for each engine and aircraft combination. The engine adapter should be capable of being indexed to the aircraft fuselage to permit engine removal or installation without a crane. The installation dolly should be capable of limited movement in all axis to permit positioning of the adapter at the index point. The adapters should be self-supporting on folding or telescoping legs and they should have a partial roll-over capability to permit engine maintenance operations. The adapters must also be designed to permit nesting for minimum bulk in shipping.

In addition to the engine adapters we need adapters for the fuselage aft section and the afterburner, where required. These adapters should be useable with the two types of dollies I have previously mentioned as well as being self-supporting and having a nesting capability. With this type of equipment we reduce the quantity of heavy dollies per combat squadron to two: one engine dolly and one transportation dolly, and add only lightweight adapters for storage or maintenance of the engine, aft fuselage section, and afterburner. In addition we have eliminated the requirement for the crane we formerly used in engine installation and removal.

The second item I want to discuss is the problem of providing the kind and quality of electrical power we require for aircraft maintenance. In the past whenever we needed a new kind of power, say 400 cycle instead of 60 cycle alternating current, or 110 volt instead of 220 volt current, we simply added another generator or alternator to the squadron's equipment. As a result we now have a large variety of small specialized pieces of electrical generating equipment which are not interchangeable and which, because of their variety, create a considerable maintenance problem.

Instead, we propose a standard multi-purpose type of power unit capable of providing all the electrical power required in a squadron maintenance area. Both AC and DC power should be provided in quantities, and of a quality, to permit its use for all types of maintenance including electronics systems. This power unit should include a compressor capable of providing compressed air for utility purposes. It should also be weather tight when closed and mounted on wheels.

There are also two aircraft design deficiencies which add greatly to our problems.

The first is the engine starting system. I mentioned the good old days a little earlier when the only support equipment we needed for starting was a man to swing the prop. Later we developed many types of starters such as the hand cranked inertia starter, the electrical starter, and the cartridge starter. The electric starter proved most successful for our reciprocating engines and for many years we have been able to start this type of engine using the aircraft batteries alone.

With the advent of the jet engine our starting problems began to grow. We continued, at first, to use the electric starter, usually a starter-generator combination but, as engines grew ever larger and starting horsepower requirements also grew, the electric starter began to be inadequate. In addition, since the aircraft battery was no longer adequate as a source of power, large DC generators came to be a necessity wherever jet aircraft were operated. Because of the limitations of the electric starter we have now developed pneumatic and fuel/air combustion starters. Each of these starting systems requires a heavy cumbersome piece of ground support equipment. For the pneumatic starter we must have a source of low pressure air in extremely large volumes. To get this airpower we use a small jet engine and, although they may be small in comparison to the aircraft engine, they are still a chore to move and are not easy to maintain.

Brig. Gen. Ira D. Snyder has been Deputy Chief of Staff for Materiel, TAC, since 1949. Born in Illinois fifty-one years ago, General Snyder was graduated from the University of Illinois in 1929. He attended the Air Corps Advanced Flying School and received his wings in 1932. He has commanded supply outfits in both Newfoundland and Iceland.

Even the fuel/air combustion starter which is supposed to be completely self-contained requires 3,500 psi compressors as support equipment. Further, this particular starting system is heavy and complex. It adds a pneumatic system to the aircraft complete with high pressure air compressor and storage bottle, a system which would not be needed except for the starter.

All we want is a truly self-contained starting system which is light in weight and capable of rapidly accelerating the engine to its idle rpm. The system must be easy to maintain and it must be reliable.

A jet engine requires large volumes of air for efficient operation and we have large openings in our aircraft to admit this air. This would be fine except for one unfortunate fact—these openings also admit stones, bolts, birds, and any other object small enough to pass through the opening. Equally unfortunate is the fact that although our better jet engines have no trouble digesting a bird, they do have considerable trouble chewing up rocks and metal-

(Continued on following page)

lic objects. Sometimes this damage is so severe as to cause engine failure in flight. After such a stoppage the pilot frequently reports an engine explosion—after he floats to earth in his parachute. This foreign object damage is the greatest single cause of engine removal in jet aircraft today. Over forty percent of the engines we remove for overhaul are removed because of foreign object damage. Air Materiel Command estimates the monetary cost to the Air Force of foreign object damage in 1954 was $80 million. All this damage could be avoided if protective screens were placed somewhere in front of the engine. This apparently simple solution is not quite so simple when it is attempted. One reason is that if the screens have sufficiently small openings, the airflow is greatly reduced with a consequent material loss of thrust. As of today we do not have satisfactory screens installed in any jet aircraft we are flying, and none appear to be available for the aircraft we will be flying tomorrow.

We do not believe, however, that it is impossible to develop a satisfactory screen for use in jet aircraft. We believe that screens can be designed, perhaps as a part of the aircraft intake duct, which will provide complete protection against foreign object damage, which will have a minimum effect on engine thrust and designed so that the objects stopped by the screens will not be dumped into the engine when the screens are retracted. These screens should be retractable and should fair smoothly into the duct so that there is no degradation of engine performance when they are retracted.

Such screens, although feasible, will not be available tomorrow since they will have to be designed into the aircraft from the outset, so we must attack the foreign object problem from some other approach.

Our next best approach, if we can't have good aircraft screens, would be to insure that our airfield runways, taxiways and ramps are kept as clean as possible. TAC has emphasized the importance of maintaining these areas in a clean condition since we first began to receive jet aircraft. Unfortunately we just don't have sweeping equipment which can adequately perform this task. The sweepers take far too long to clean a given area, and they will not remove debris from cracks or open expansion joints. Oddly enough, objects in cracks, holes and expansion joints seem to be more dangerous than those resting on a flat surface. Tests by the NACA have shown that the vortex of air which swirls from the surface to the intake of the aircraft when the engine is operating at high power settings, will pick up stones and other objects only when they are confined, as in a crack or hole in the pavement. During these tests the NACA demonstrated that objects can be drawn into an engine intake mounted eight feet from the surface.

After some research we feel that a vacuumatic sweeper is the best answer.

Our conception of this type of sweeper is propelled by a gasoline engine. The source of power is a centrifugal flow jet engine such as the Allison J-33. The exhaust gases from the jet engine are directed through the hollow arms you see projecting diagonally outward and to the front of the vehicle. These arms contain vents which direct the gases inward and to the rear toward the center of the sweeper. At the rear center of the sweeper is the vacuum pickup area. All debris is swept up by the air blast from the arms until drawn into the vacuum intake where it is directed into a large hopper.

There is yet another area where we sorely need some assistance if we are ever to attain real mobility. When I used the F-84F squadron to illustrate the problem which our unit commanders fact, I mentioned the many tools that must be moved when the aircraft move.

We can't seem to reduce the quantity of tools; in fact the requirements seem to increase year by year, but we can, perhaps, devise a better system of storing and moving them. Our proposal is to develop what we call "portable maintenance capabilities," each contained in a combination cabinet work bench mounted on wheels.

To fully understand our requirement for the portable maintenance capability, we should have a general understanding of the maintenance system used by TAC. Although we use what is called, for lack of a better term, the crew chief system of maintenance, the maintenance organization of each tactical squadron includes certain specialist shops which are required to accomplish maintenance at the squadron or organizational level. The field maintenance squadron, which is a part of each combat wing, has the skills and equipment to accomplish a higher level of maintenance in support of the three tactical squadrons. The specialist shops of both the tactical and field maintenance squadrons include the electrical, hydraulic, sheetmetal, electronic fire control systems, and communications shops to mention only a few. Naturally there are far fewer shops in the tactical squadron than in the maintenance squadron because of the difference in level of maintenance.

Each of these shops must include certain tools and test equipment. Today the tools are kept in the squadron tool crib or in individual mechanic kits, and the test equipment is either an individual item of equipment kept in the tool crib or bench mounted in the shop in a system mock-up.

We propose to put all the tools and test equipment required for a particular specialist shop in a portable work bench-cabinet combination. This cabinet should be easily moved over rough surfaces; it should be weather tight when closed; and tools and test equipment should be readily secured so the cabinet can be moved by any available method of transportation. The cabinets for the armament and communications shops should include the system mock-ups required in that type of maintenance. Any special power requirements should be met by the use of transformers or converters, mounted in the cabinet, which will convert the AC or DC power available from our standard maintenance power unit to the special power required. Storage space for small spare parts should also be provided in the cabinet. The exact dimensions of each work cabinet will be determined by the number of tools it must contain, the size and quantity of the required test equipment, and the number of specialists supported by the cabinet.

Two of these cabinets, or portable maintenance capabilities, should be provided for each specialist shop in the combat squadron and three for each specialist shop in the maintenance squadron. This will permit the combat squadron commander to disperse his squadron to two separate airfields and still readily provide organizational maintenance to both elements. The maintenance squadron will be able to provide field level specialist maintenance support to the combat units at three separate bases.

Maintenance capabilities of this kind provide real mobility to the combat squadron. In a squadron so equipped, the packing of tools and specialist shop equipment involves only the closing and securing of the work cabinets. Because the cabinets are on wheels they can be easily loaded aboard cargo aircraft. Outdoor maintenance becomes a reality with these work cabinets and, because they are weather tight when secured, valuable equipment is readily protected when not in use. The benefits which will result to combat units from the use of these portable maintenance capabilities are so great as to make their early development and delivery to TAC units an urgent necessity. We must have them if we are ever to become truly mobile.

(Continued on page 76)

More Air Force for America's Dollars with SIMULATORS

Air Force—Curtiss-Wright teamwork strengthens our defenses, cuts costs by millions. Officially reported in AMERICAN AVIATION Daily:

January 21, 1955 **American Aviation DAILY** Page 128

MATS REPORTS SUBSTANTIAL SAVINGS FROM USE OF SIMULATORS

West Palm Beach AFB, Fla. -- The Military Air Transport Service is saving more than $4,000,000 per year in pilot training costs at its training center here through the use of five Curtiss-Wright flight simulators, MATS officials have disclosed. The simulators involved include three of the Boeing C-97 type and two Douglas C-124 type units, each costing about $800,000.

MATS officials said that these five simulators represent the largest single concentration of multi-engine flight simulators in existence. Although the USAF has taken delivery of 115 of 174 electronic simulators ordered to date, a large percentage of these have been single-engine aircraft simulators.

The first simulator to be installed at the MATS base, which was reactivated in 1951, was a C-97 unit delivered in November 1952. Since then, MATS has accumulated more than 20,000 hours of training time on the C-W simulators and trained more than 1000 crews. During the entire period total down time due to maintenance, during which training could not be made or completed, was only 138 hours 5 mimutes. Average training time per day for the five simulators has ranged from 10 hours on the lowest time C-97 simulator to 13 hours on the highest time C-124 unit.

Comparison Values Being Developed

For general comparison purposes, MATS considers that it costs $30 per hour to operate a four-engine aircraft simulator compared with $350-$400 per hour for the aircraft. As yet it has not been possible to say that a given number of flight simulator hours are the equivalent of so much actual flight time but some specific values are expected to be developed by next summer. At present MATS is using several different ratios to gain practical experience on relative merits of the two types of training. In these tests simulator time ranges from one hour per hour of actual flight time, to 20 hours aircraft time to 30 hours simulator time, to 15 hours aircraft time to 38 hours simulator time.

Curtiss-Wright is expected to deliver the first C-118 (Douglas DC-6A) simulator to MATS this summer. It is one of five types of simulators now making up approximately $8 million dollars in simulator backlog at C-W. The other types include simulators for the Lockheed C-121 (Super Constellations), Lockheed C-130, Convair's C-131 (240) and the Boeing RB-52.

* * *

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The problems of an ADC Division Commander are many: Housing, jet noise, civilian apathy, reenlistment. But his overriding worry is the enemy. Will he strike? When? From where? They could come riding in from left field, says one general. His advice: Keep a careful watch for . . .

Red Stars on the

In time of danger, ADC can also call out SAC fighters, such as these new Republic F-84Fs based at Tinker AFB, Okla.

DEEP inside a windowless building standing on a red clay Oklahoma hillside a little drama was being enacted.

"Right now you are standing in a brain," said a tape-recorded voice. The stark white finger of a spotlight split the darkness, catching and holding for a second a scattering of odd, seemingly senseless, but somehow dramatic names. . . .

Sonnyboy . . . Postcard . . . Educate . . . Butterfly . . . Tiger . . . Knuckleball . . . Roxanna . . . Farmboy . . . Crocodile . . .

"In Aircraft Control and Warning, the radars are the eyes, the telephone lines the nerves, the fighter units the fists—and right now you are standing in the brain," the monotone on tape continued, building up a tension in the handful of watching civilians.

Occasionally one of the audience turned to another to make sure that this was real, not some occult science-fiction dream. Or was it? Outside, a few feet from the tomb-like building, a structure that looked like a great white puff of bubblegum thrusts its round head into the sky. What had they called it? Oh yes—a "radome." They said they'd explain what it was later.

The spotlight had picked out a man now. He was listening intently to a telephone:

"Diploma, this is Utah."

"Go ahead, Utah."

"I have an initial plot. . . . Unknown . . . Fox Dog one-zero-zero-zero, going northeast, Oboe three-one; time, on the hour; two A/C; 400 knots, thirty-five angels, over. . . ."

° ° °

In a glassed-in room high above the knot of confused civilians, an Air Force colonel with the wreathed wings of a command pilot on his khaki shirt watched the drama. The presentation was a shocker, but it was a calculated shock—shock with a purpose. The civilians, members of the legislature of a nearby state, were slowly learning the facts of atom-age life. They were learning how an Air Defense Control Center works.

The colonel turned to an aide.

"When the tape's over ask them to come up to the intelligence room," he said.

The walls were curtained in soft, loosely-woven drapes. The ash trays on the large mahogany-finished table were big as dinner plates, dark amber, and translucent. Air conditioning purred in the background. In front of each man around the conference table was a white scratch pad and a slender yellow pencil. No one touched them.

The general was standing at a mahogany-colored podium in one corner, facing the legislators. He was a tall man with a cultured, booming voice that issued from a truculent jaw which appeared to harbor a polite chunk of tobacco.

The general selected three facsimile weather maps, looked at his audience, and hit them between the eyes.

"For too long," he said, "the people of the deep South and South Central states have believed that an airborne A-bomb or H-bomb attack on the US would hit the major cities on the two coasts and the Canadian border . . .

By Ed Mack Miller

Jet Stream

Brig. Gen. William P. Nuckols stands by at his Combat Operations battle station. During an air alert, operations would be controlled from this station.

★ ★

and would completely miss this area."

He picked up one of the weather maps and traced along a line drawn down from the North Pacific paralleling the west coast of America.

"Have you ever heard of a jet stream?" he asked. Several of the legislators fidgeted.

"A jet stream is a wind of high intensity that often spirals out of the Aleutian chain until it hits about here. . . ." The general pointed out into the Pacific ocean opposite San Francisco. "Then, occasionally, it will curve this way. . . ." He pulled his finger downward across lower California and northeastward toward Washington, D. C.

"It presents almost a tailor-made course for the enemy if he wanted to employ it to attack the US through the soft underbelly. Here . . . Lower California, virtually uninhabited; Mexico, sparsely inhabited; and across the Rio Grande, where there is relatively little air defense.

"This map," said the general, "is one actually plotted on the 11th of January of this year. At 39,000 feet over Del Rio, Texas, the wind was blowing nearly 350 miles an hour. It blows that hard at high altitude many times each year. It has been doing that for thousands of years, maybe millions. But only recently have men been able to build airplanes that will go high enough to catch this wind.

"The enemy has this weather information too. He can ride this wind with varying degrees of advantage into our area in about eight hours and forty minutes from a Siberian base, going the long way around, as opposed to ten hours and twenty minutes to come out of European Russia and hit New York. . . .

"Distance," said the general, "no longer means anything. Time is the only valid measurement. Every person in America is now on the front lines."

* * *

Brig. Gen. William P. Nuckols, USAF, is neither an actor nor a producer of fictional dramas. He is an Air Force officer who talks like a graduate

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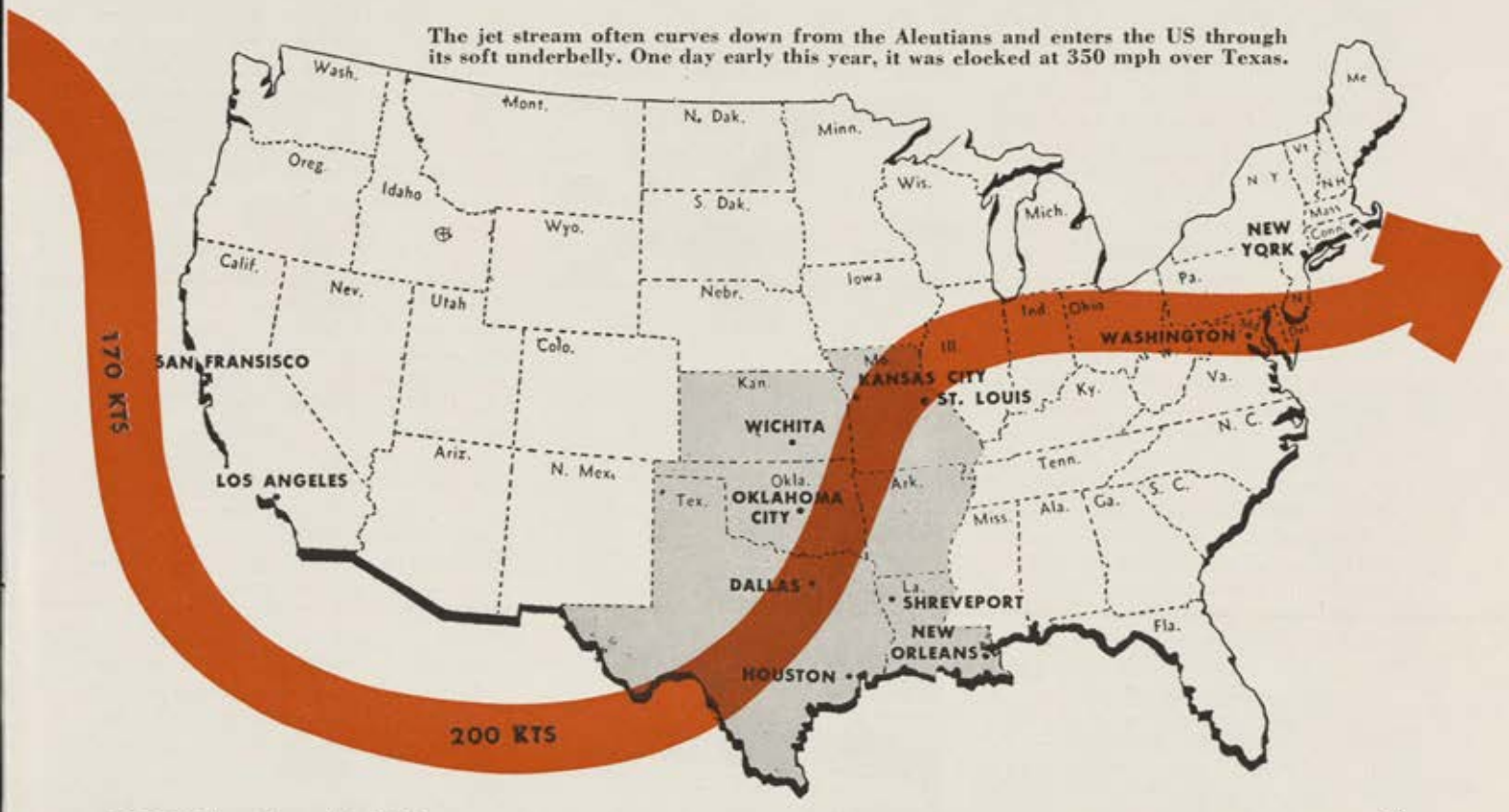


The jet stream often curves down from the Aleutians and enters the US through its soft underbelly. One day early this year, it was clocked at 350 mph over Texas.

lawyer (almost 2½ years at the University of Virginia Law School) and a highly educated writer (he attended Swarthmore College and has long been one of the top public information specialists in the Air Force).

This is General Nuckols's first operational assignment in a number of years. It took a bit of getting used to. And it's a tough assignment, condusive to ulcers, because as commander of the Air Defense Command's 33d Air Division, he has one over-riding concern—the protection of a big hunk of America (Kansas, Missouri, Oklahoma, most of Texas, a little of Illinois, Arkansas, and all of Louisiana) from enemy air attack.

* * *

The problems of an air division in ADC today are manifold and complex, the primary one being the terrible responsibility of being prepared at any time to conduct an effective air defense of the assigned area. ("It's very much like going from the practice field into the stadium to play the big Thanksgiving day game without any warning and without any preliminary games," says General Nuckols. "We have to do our job perfectly the first time."

The key members of General Nuckols's staff are Col. Carl T. Goldenberg, vice commander of the 33d; Col. Robert C. Brown, deputy for operations; Col. Nester E. Cole, director, combat operations; and Col. Lewis G. Young, director of communications and electronics. This battle staff has more than 600,000 square miles and more than 18 million people to protect with just two squadrons of F-86 "Dog" fighters ("We are radar rich and power poor until we get more fighters," General Nuckols says.) In addition to the constantly alert Sabre squadrons (which are identified on the status board by code names like "Sawband" and "Hometown" and are stationed at Grandview AFB near Kansas City and at Scott AFB near St. Louis), the division has augmentation fighters in the Texas Air National Guard standing daylight alert at Hensley Field in Dallas. In the event of certain attack the 33d can also command for defense purposes all fighters, including Navy types, located in its jurisdiction.

Theoretically an air division's responsibility for warning the public of an impending attack does not go beyond the boundaries of the Air Defense Control Center. There, working with the division battle staff, is stationed a civilian member of the Federal Civil Defense Administration, who is given the word when a white, yellow, or red alert is flashed across the nation. The air division's responsibility ends when the civilian attack officer is alerted. It is his job then to notify state Civil Defense officials of the danger.

But, because they want to do everything they can to help protect the civilian population, division commanders and their aides make many personal sacrifices in an effort to help perfect the Civil Defense setup. It is an added responsibility the already overburdened officers shoulder in an attempt to get an apathetic public to realize they must cooperate to defend themselves. For it is a sad fact that the planning and the implementation of the Civil Defense program is months if not years behind the smoothly operating Air Defense system.

On a recent West Coast alert, which for many minutes seemed to be the real thing, Oklahoma City, home of the 33d Air Division, was typical of many communities. The 33d got the warning and was prepared to "scramble" fighters in time to intercept the bombers if they proved to be unfriendly. But, although Oklahoma City radio and TV stations immediately went to CONELRAD frequencies (used to keep enemy bombers from using a single station as a direction finder), city officials themselves had no air raid warning system to alert the populace. For the state Civil Defense budget had been cut severely only a few months previously.

Two partners in our air defense—radar detection and fighter interception.

Fortunately for the United States, the "enemy" bombers proved to be a flight of Air Force B-47 jets approaching over the Pacific in an exercise of the Strategic Air Command. Because of a communications delay within the ADC system, western centers failed to receive a notification of the B-47s' approach in time to avoid calling an alert.

Civilian officials, still shaky from the scare, started calling meetings the next day. They had to, for the people were demanding it.

* * *

Men of the 33d spend many hours each week proving to civil officials that all civilians are now on the front lines. Local leaders from every state in the division have been invited to the 33d's headquarters, and General Nuckols was recently invited to address a joint session of the Arkansas legislature.

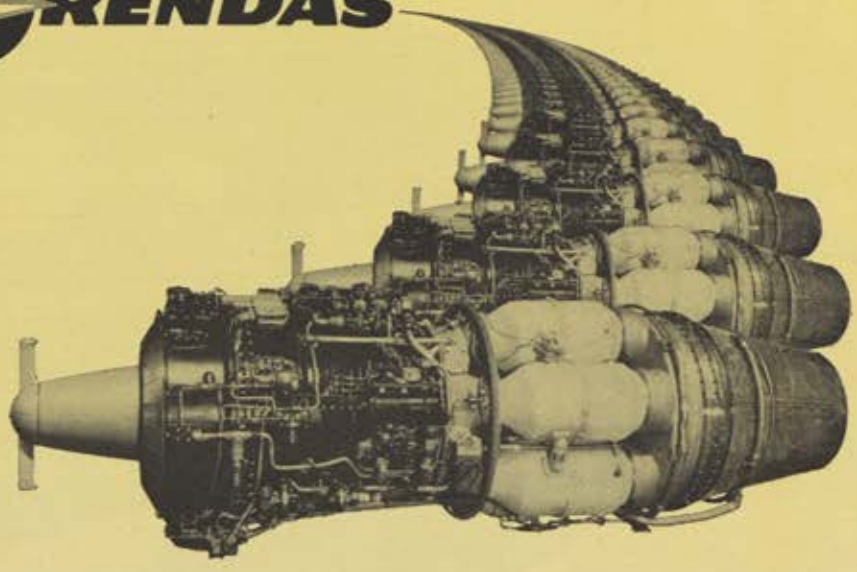
In an effort to help visiting officials understand the electronic jungle that is an air defense control center—and hence with a better comprehension of their place in the great job of defending the nation—the staff of the 33d has prepared the dramatic yet lucid "You-are-standing-in-a-brain" presentation that takes a civilian observer through the control center's operations as a hypothetical enemy approaches the border. The script, ably written by Capt. Allan F. Livers, is performed by the key members of the center in Orson Welles fashion, with the building's interior blacked out and a spotlight used to highlight the person or operation being described.

The intrigued spectators are taken through the first phases of the warning, then the "scramble," the "tally-ho" when the "bogey" is sighted, the "lock-in," and finally brought back to "pancake" (land) with the fighters. For the first time, the complicated but colorful vernacular of the jet pilot is made clear to the ground-bound civilian. No person who experiences this remarkable production is ever quite as complacent after he leaves the control center "tomb."

An indication of the success of General Nuckols's civilian orientation program was evidenced in a resolution taken by a group of Associated Press editors he addressed recently. Hardly a group given to sophomoric overstatement, the veteran newsmen resolved: "We are deeply grateful to Brig. Gen. William P. Nuckols for his enlightening talk on the Air Defense

(Continued on page 57)

ORENDAS



up in front with the RCAF

Top-performance fighter and interceptor aircraft of the Royal Canadian Air Force, the Avro CF-100 and the Canadair Sabre get their added service superiority with Orenda power.

Serving with the RCAF in the critical zones of Western Europe with the NATO Defence Forces, and in the extreme cold of Northern Canada, Orendas daily demonstrate their superiority.

Through constant development, the Orenda has increased in power, efficiency and reliability. But development never rests. The team which gave the free world this outstanding jet engine works unceasingly to break new frontiers in the gas turbine industry—to provide yet more power and efficiency for the planes of tomorrow.

ORENDAS power the high performance Canadair Sabre 5 & 6 over Europe.

Squadrons of these all-weather interceptor Avro CF-100's will soon be in service in Europe.

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program, particularly as it affects the Southwest and which made all of us keenly aware of the necessity to recognize our critical situation and not underestimate the strength and resourcefulness of the enemy."

• • •

In addition to the two big jobs of the division—being prepared at any moment to defend the six-state area and aiding to build civilian comprehension of the air defense mission—there are many other nagging housekeeping problems that nibble at a commander's peace of mind.

One of the most niggling worries is the problem of remote area housing. In World War II every air base and camp site had its housing problem. But now there are additional problems. Many air bases have a fair amount of housing available, but now, tied in with the fighter squadrons, air defense divisions have Aircraft Control and Warning radar stations located throughout their areas. The 33d will have fourteen of these radar sites in operation by this fall. In order to get 100 percent scan of the air, the sites have to be located equidistant from each other. This means that the radar outfits have to be plunked down often in the middle of nowhere, and a housing problem follows, especially when there is usually given only a handful of on-base quarters to take care of some 150 to 200 officers and airmen and their families.

General Nuckols uses a recent weather map to explain his jet stream theory.

At this point another problem enters—that of turnover of personnel. A high degree of personal sacrifice is tied up in ADC work. At an AC&W station there will be almost as many people at work at 4 a.m. as at 4 p.m. There will be the same number of pilots at the fighter bases on alert at 4 a.m. as there are in the middle of the afternoon. The air division must be fully operational twenty-four hours a day, seven days a week, 365 days a year. There is little glamor, lots of boredom, and plenty of tension—plus an ulcer-breeding responsibility.

Fast becoming a familiar sight at ADC bases—an intereceptor barrelling out of a hangar ready to take off. Here, a North American F-86 "Dog" taxies out.

There are other concerns, too. A commander would feel more at ease if the experience level of his regular pilots were on a par, say, with that of the citizen-soldier Air National Guard pilots in his augmentation units. In the Regular fighter squadrons the experience level of the ordinary pilot is only about two years. A saving factor, of course, is the fact that most flight line supervisory personnel are World War II and Korean veterans.

Another air base problem is the big one of jet noise. Civilians complain when their sleep each night is fractured by the ripping, tearing wail of an F-86 taking off low over the house, afterburner shrieking. And if a jet flames out on take-off and rips into a helpless community, the problem of civilian antagonism takes a quantum jump. The facts of life in a cold war are brutal, and America is only lately coming to realize them.

A big thorn in the side of division commanders is getting and keeping AC&W radar controllers. They are now "spread awfully thin," and many a gray hair is being sprouted by top ADC brass in trying to figure out this wrinkle.

The Ground Observer Corps, too, is a big concern of a division commander. Radar can give almost full coverage at altitude, but it is spotty for low-level surveillance. The enemy knows this and conceivably could fly high until close to the US and then duck down below 5,000 feet to get below radar scan.

So, to insure continuous tracking, we need a ground observer post every eight miles because, under ordinary conditions, an observer can only see a plane four miles away. In portions of Texas and Oklahoma the problem is particularly acute because "cows can't report aircraft." In fact, in widespread areas in the 33d Division, there aren't even any telephone lines.

Consequently, only about half of the 33d's ground observer posts will be on "sky watch" twenty-four hours a day. The others will be on standby.

True, the task of setting up the Ground Observer Corps does not lie entirely on the doorstep of the Air Force, but the latter is charged with establishing the G/O posts, providing buildings, and paying for the filter center, where the Air Force furnishes a cadre. The Air Force also must train the observers who are recruited by state and Civil Defense officials.

In the 33d, filter centers for the handling of ground observer reports have been located at twelve sites that roughly correspond in location to the AC&W sites, and the 33d has lieutenant colonels in each state as liaison men in the Civil Defense headquarters.

• • •

The tape was running out now. And the next group of civilians to see the 33d's "Orson Welles production" was beginning to relax.

"This time," said the monotonous voice, "they were B-47s. This time they were friendly, but the point is this: If the time comes when they're IL-28s or TU-4s, if the time comes when those bomb bay doors are open and they're headed for Oklahoma City . . . then we have a system. A highly complex but highly integrated system . . . air division commanders all over the nation will be able to strike back quickly . . ."

The tape could have added, "We hope," for we still are far from having all we need to cope with the Russian threat.

(Continued on following page)

JETSTREAM——CONTINUED

The jet stream is a one-way speedway leading from the enemy to us. And we don't want any Red Stars in our milky way.—END

Ed Miller first wrote for us two months ago. Miller, a captain in Colorado's ANG, is one of that rare breed—the full-time free lancer. More of his work on page 80.

Painting by Chesley Bonestell from the book *The Conquest of Space*, by Willy Ley and Chesley Bonestell, published by the Viking Press. © C.B.

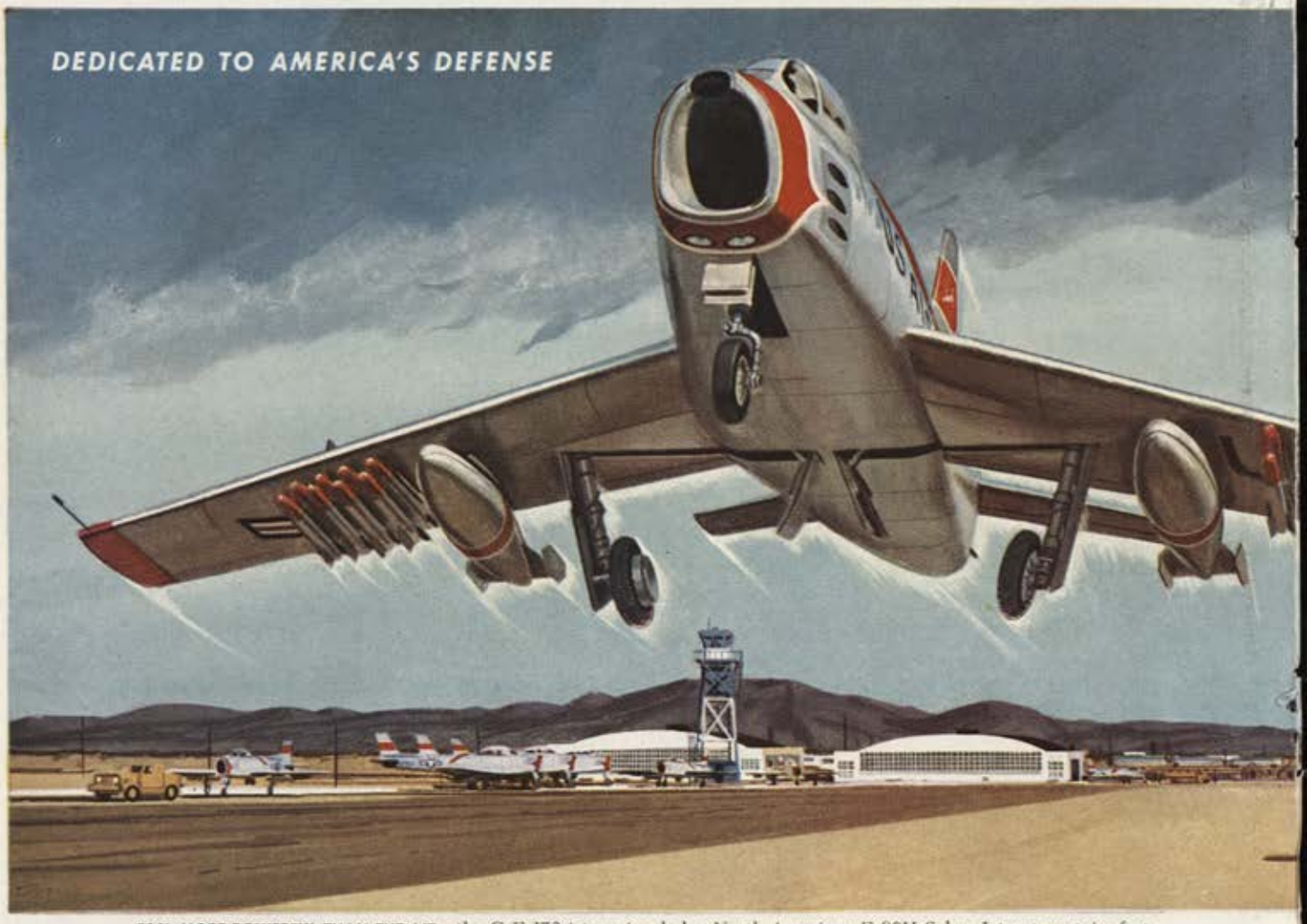
Fenwal will be aboard

For years Fenwal has pioneered in the design, development and manufacture of precision temperature control and detection devices. Among these are various types of units which are now in widespread use in every type of aircraft, and which have contributed greatly to the safety and efficiency of modern air travel.

Today, Fenwal keeps pace with ever-increasing demands for *new* devices to handle *new* variables under *new* conditions — by extending its activities far beyond the field of temperature control in which it originally specialized. And those who know the standards of Fenwal engineering also know that when equipment is finally developed to carry man through outer space, "Fenwal will be aboard."

Perhaps this progressive engineering can be of benefit to you. Why not put your problems involving the control and detection of variables up to Fenwal engineers? Aviation Products Division, Fenwal Incorporated, Ashland, Massachusetts.

Fenwal *Precision control and detection devices*



50% MORE POWERFUL THAN THE J47—the G-E J73 jet engine helps North American F-86H Sabre Jet get upstairs fast.

READY FOR ACTION—

FROM TREE-TOP LEVEL TO 45,000 FEET!

Tactical Air Command "Sabres," powered by G-E jet engines, have new techniques, new weapons to bolster U. S. air power

Each day, at training bases across the United States, fast sleek jets of the Air Force's Tactical Air Command are dropping bombs, and firing machine guns and rockets at dummy targets from tree-top level to 45,000 feet.

A new type of striking force is being trained by TAC. Even as you read this, squadrons of jet fighters and bombers, as well as tactical missiles—all with atomic capability—are being readied for duty. The jobs they will perform should an aggressor strike: 1) drive his aircraft from the skies; 2) deny him reinforcements and supply; and 3) give close air support to friendly land and sea forces.

Tactical Air Command's jet fighter mainstay is today the Sabre Jet—the famous series of North American Aviation F-86's. Two years ago, the F-86 set a 14 to 1 "kill ratio" over the MIG-15 in Korea using General Electric J47 engines. Now the more powerful F-86H (see above) with G.E.'s new J73 engine promises still better flight performance—more speed, heavier loads, still greater maneuverability.

Newer G-E engines on the way. Right now G.E.'s jet specialists are developing powerplants that may push jet aircraft of the future at speeds twice those of today. National defense is a long-range proposition. And through constant research, careful planning, and close cooperation with the Armed Forces and industry, General Electric continues to play a vital role. *General Electric Company, Schenectady 5, N. Y.* 232-11

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Daily Training Missions Point Up TACTICAL AIR COMMAND'S JOBS, including—

1 **TO WIN AND HOLD AIR SUPERIORITY**—On target! Night bore sighting exercises make sure planes are ready for gunnery. TAC aircraft can also deliver air-to-air rockets, powerful A-weapons.

2 **TO DENY AN ENEMY REINFORCEMENTS & SUPPLY**—"Bombs away," and a practice load drops toward mock enemy supply dump, thousands of feet below. Rigorous training schedules keep all TAC units razor sharp.

ACCELERATED TESTS on new General Electric J73 jet engines show promise of high reliability, low maintenance equal to G.E.'s famous J47. Seven out of 10 USAF tactical day-fighter and fighter-bomber jet aircraft are today powered by G-E engines.

3 **TO PROVIDE CLOSE SUPPORT FOR LAND-SEA FORCES**—"Keep the turns tight and release napalm tanks at 500 feet." Squadron commander briefs pilots before napalm drop on dummy tank concentration.

GLOBAL FIREMEN!

GEN. OTTO P. WEYLAND
Commander
USAF Tactical Air Command

"With new, speedier and more powerful aircraft plus their atomic capability, our tactical air forces pack devastating power. Combining this power with an ever-mounting capability for global mobility and greater ranges through inflight refueling, this versatile striking force has become the principal deterrent to hot or cold periphery aggressive actions by being able to deal with them quickly and decisively wherever and whenever they may occur." ➤ ➤ TAC's mission is to organize combat ready, tactical air forces for world-wide use, develop doctrines, weapon systems and techniques... to coordinate with Army and Naval forces and support the Air Defense Command at home in the event of enemy attack... AND SUPPORT THIS NATION AND ITS ALLIES IN OUR DESIRE TO KEEP THE WORLD AT PEACE.

***CEILING UNLIMITED** for the young ambitious man . . . new vistas of education, travel and security . . . all these are available to career airmen in the USAF. Every day you're in brings you greater satisfaction in the knowledge that yours is a vital and rewarding service to your country . . . to yourself.*

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Designers and Builders of the Incomparable **THUNDER-CRAFT**

A Dedication

In Memory of Richard I. Bong

A memorial in his home town honors the name of our greatest ace

THE sign on the road reads:

POPLAR
Population 489

It is a typical rural community in northern Wisconsin. Few people had heard of it before a young fighter pilot put it on the map.

Richard Ira Bong became America's greatest ace during World War II, and General MacArthur personally pinned the Medal of Honor on him. When he had knocked down his fortieth official Jap airplane, his boss, Gen. George C. Kenney, sent him home.

When Dick Bong was killed in an aircraft accident shortly after his return to the US, the Poplar Memorial Foundation Committee began to collect funds for a memorial.

On May 23, after funds had been raised by the committee, the Wisconsin Veterans of Foreign Wars, and the local school board, the dream was realized. On that day, General Kenney, Chairman of the Board of AFA, delivered the dedication address at the $115,000 addition to the school where Bong received his primary education. Present were Major Bong's parents, Mr. and Mrs. Carl Bong; Sen. Alexander Wiley (R-Wis.), and Representative Alvin O'Konski (R-Wis.).

A P-38, donated by the USAF, stands near the new addition to the school.

A Tribute

'We not only loved him, we boasted about him, we were proud of him.'—Gen. George C. Kenney at the dedication, May 23.

IT WAS August 6, 1945. I was on my way to the strip on Okinawa to take off for General Headquarters Southwest Pacific area in Manila, when a radio which had been relayed from there was handed me by my signal officer. I stopped thinking about the atomic bomb which that morning had wiped out Hiroshima; stopped speculating about the effect of the coming entry of Russia into the Pacific war; even stopped thinking of the capitulation of Japan which we all knew was about to take place in a few days. Wherever I landed, I found that the whole Fifth Air Force felt the same way. We had lost someone we loved, someone we had been glad to see out of combat and on his way home, eight months before.

Major Richard Ira Bong of Poplar, Wisconsin, was dead. That was the message that had taken our minds off the war, the Japs, the A-bomb.

Major Richard Ira Bong, who had ruled the air from New Guinea to the Philippines; hero and victor in a hundred encounters; officially credited with the destruction in air combat of forty enemy aircraft and unofficially with at least as many more, and decorated with every medal for valor that his country could give him. He had met the best the Japanese Air Force could send against him, and had won. The kids used to say, "There isn't a Nip in the empire who can get Dick Bong in his sights."

You see we not only loved him, we boasted about him, we were proud of him. That was why each of us got a little lump in our throat when we read that telegram.

Major Richard Ira Bong, ace of American aces in all of our wars, who is destined to hold that title for all time. With the weapons that man possesses today, no war of the future will last long enough for any pilot to run up a score of forty victories again. His country and the Air Force must never forget their number one fighter pilot, who will inspire other fighter pilots and countless thousands of youngsters who will want to follow in his footsteps every time that any nation or coalition of nations dares to challenge our right to think, speak and live as a free people.

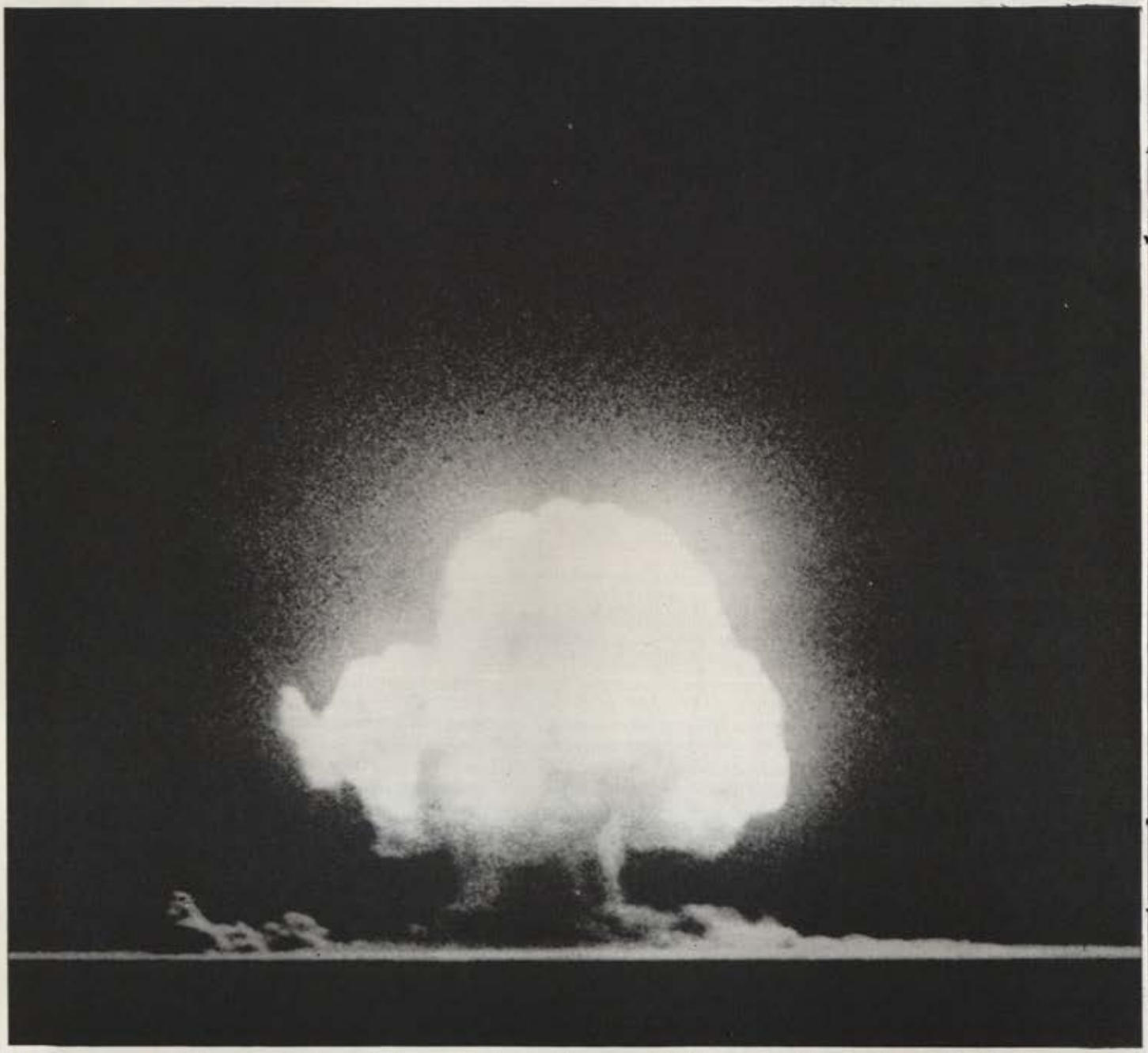
May this memorial building, donated by the Veterans of Foreign Wars and citizens of this community, serve as a shrine at which we may constantly resolve to see to it that we preserve our country, our ideals and our freedom. May it also constantly remind us of our debt to our youth which has always been willing to make any sacrifice to insure that the rest of us can keep and inherit this freedom. We owe a lot to our youth—youth typified by Dick Bong.

Today, tomorrow and for all time, we salute you, Dick—gallant gentleman—hero—ace of aces.—END

We live in an age of peril

The Bombs —A to H

Civilization can live—or die



The first atomic explosion created by man lights up the desert. The time—5:30 in the morning; the date—July 16, 1945.

Ten years have passed since the first A-Bomb was exploded. In these photos is proof that death and destruction now comes in varying sizes and shapes.

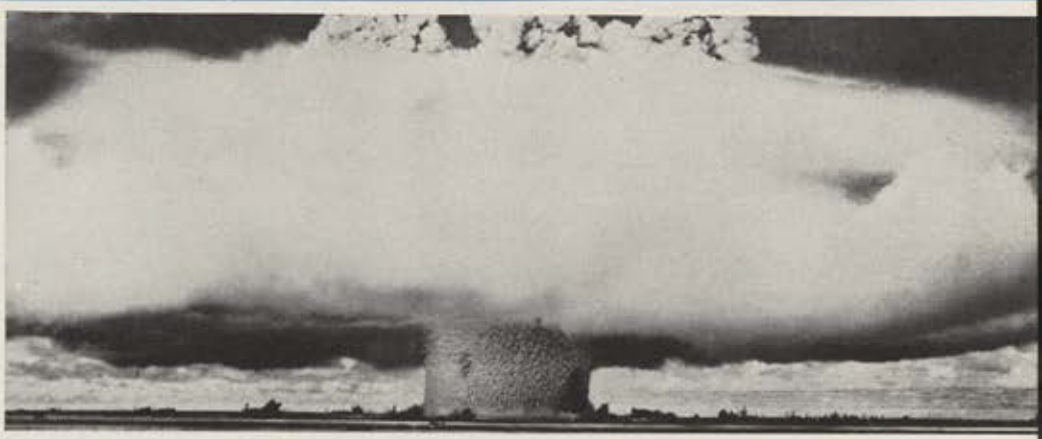
Like a deadly blossom on a fragile stem, the radioactive cloud takes shape.

The familiar mushroom cloud billows up over Hiroshima, left, after bombing.

TEN years ago this month an awesome explosion shattered the early darkness at Alamogordo, New Mexico, and the age of "The Bomb" had arrived. Twenty thousand tons of energy were released in a dress rehearsal for the destruction of Hiroshima and Nagasaki. Man had unlocked a secret that Albert Einstein had suggested as basic in 1905; that scientists had forecast on December 2, 1942, under the stands of Chicago University's Stagg Field when Geiger counters clicked to signal the first controlled chain reaction.

In the decade since, the Nuclear Age has given birth to the Hydrogen Age. Kilotons have become megatons. The increase in destructive force has been accompanied by a corresponding decrease in the size of the package and an unbelievable rise in the ability to deliver it swiftly and silently through the air.

This month we observe the tenth anniversary of the day man proved he can destroy his civilization. There will be no flags, no parades as on Independence Day. But we might reflect that we live in a time when the choice is to survive or to perish. —END



Part of an ocean is hurled skyward in first underwater detonation at Bikini.

First H-bomb blast from fifty miles away. Cloud rose to 40,000 feet.

Even when it dissipates, an atomic cloud has a frightening look unlike any other. This was during the Nevada test series in the Fall of 1951.

LET'S HAVE YOUR JET BLAST

In "Jet Blasts" you can sound off on any subject you want. We'll pay a minimum of $10 for each "Jet Blast" used. All letters must be signed but we'll withhold names on request. Keep letters under 500 words.

Reign of the Hangar Queen

A Hangar Queen is an airplane which spends most of its life on the ground, being maintained. In the past, this situation was caused by one "bug" after another on one airplane. Today, the Hangar Queen still reigns, but with a new look—outmoded maintenance procedures.

The reason is the growing complexity of aircraft maintenance requirements. The P-51, for example, had 1,500 feet of electrical wiring. The F-86D has *four and one-half miles* of wiring. The modern air weapon has developed into the most complicated machine in the world. It will take an advanced maintenance concept to keep these weapons in the air. This new concept is *systems maintenance.*

The current idea of specialized maintenance uses a hydraulic specialist to maintain only the hydraulic units, an electrical specialist only the electrical units, etc. This is an improvement over the custom of a Crew Chief supported by a few specialists. But it is not adequate to maintain an integrated system on a jet airplane.

Here is why. No one airplane system is confined to one specialty. Take the flight control system, for example. It includes the specialties of hydraulics, electrical, mechanical, and electronics. When a malfunction occurs in the flight control system, under a current procedure a hydraulic specialist checks the hydraulic portion of the system, an electrician checks the electrical portion, a mechanic checks the mechanical portion, and an electronics man checks out the little black boxes. This same array of specialists would be called upon to go about their duties in the same manner on all the remaining systems in the airplane. We have a roster of specialists, none of whom knows the complete operation of any one airplane system.

A better answer to efficient airplane maintenance, therefore, would be a program in which a specialist would maintain one complete system. If this man were trained to maintain the flight control system, he would know the hydraulic, electrical, and mechanical portions of the system, and know enough about the electronic control boxes in the flight control system to determine if they are malfunctioning. In this manner, a systems mechanic can maintain his system quickly and efficiently without the aid of four or five specialists.

Results of an Air Force Service Test, now in progress at Tyndall AFB, show great improvements when an airplane is maintained by *systems maintenance.* The quality of maintenance has been steadily increasing since the service test has been implemented. The aircraft are being returned to service more rapidly, and fewer rejects are coming back with the trouble uncorrected. This service test will end December 1955. Final results of this test should, it is hoped, result in its adoption as standard procedure in the Air Force.

Some people think that systems maintenance would hurt morale because there will be no crew chief. Actually, the systems maintenance concept boosts morale, because it allows technicians to be responsible for one complete system. In place of the Crew Chief we have a General Airplane Mechanic. He is responsible for calling the proper systems mechanic, and serves in a capacity similar to the current airplane Crew Chief.

The advantages of systems maintenance are numerous. Not only will it make our Air Force more effective because we can fly our airplanes more often, but it will reduce the $2,000,000,000 loss the Air Force suffers each year retraining and replacing personnel. When airmen are trained in system mechanics, their initial training time is reduced considerably. When a system mechanic is transferred from one model airplane to another, his transition training time is much less than the time currently required. If a system mechanic on a particular airplane model is transferred to another model, he is already skilled as a system mechanic. All that would be required to make him equally efficient on the new model would be for him to learn location of the units in his system and any peculiarities the new system may have. This means that more of the time an airman remains in the Air Force is spent doing his job on the airplane instead of having his time consumed by training.

Supersonic airplanes are only useful when they are in the air. A factor just as important as the speed an airplane can fly is the amount of time the airplane is available to fly. Hangar Queens cripple airpower.

Anthony W. Beron
Torrance, Calif.

This year, the Air Force let its first contract for the overhaul of jet engines by a civilian firm. The $3,000,000 contract, awarded to Southwest Airmotive Company of Dallas, Tex., calls for the overhaul of more than a thousand Allison J-33-A35 turbojet powerplants. With more maintenance of aircraft, engines and equipment than it can handle in its own facilities, the AF is asking for a record $264 million for Fiscal Year 1956 to farm out this work to commercial firms. This represents an increase of 15 percent over this year's appropriation and a 35 percent increase over last year's. The Southwest contract enables the Middletown (Penna.) Air Materiel Area to phase out the J-33 overhaul there and make room for maintenance of other jet types.

A Decade Later

During World War II, I was a woman pilot for the Air Force. Flicking the proper switch or accurately reading a dial was a matter of life or death, and yet I never felt a qualm. But now, a decade later, I think I'm cracking up. Being a housewife in this modern age is largely responsible.

Before take-off I always felt confi-

(Continued on page 69)

How Lewyt engineering licked a 10,000 rpm stumbling block to mass-produce radar test equipment!

Before the TS-452 Signal Generator existed, technicians had to check the frequency response of radar system networks with a point-by-point plot of frequency amplitude curves.

Each plot took as much as 30 minutes. Checking and readjustment were long, tedious jobs.

To overcome these problems, specifications were drawn up for a Sweep Signal Generator that would permit an instantaneous check of frequency response. However, two major problems presented themselves:

1. A motor-driven variable capacitor had to be designed that would rotate up to 10,000 rpm. The best obtainable could operate at only 500 rpm. Some flew apart in minutes, some in a few hours.
2. A highly accurate push-button RF attenuator was also required. It had to be of such range and accuracy that the specification requirements could not be met by existing measurement techniques.

At this point, Lewyt engineering went to work. The resulting TS-452 C/U has since become a "must" for maintenance of all Armed Forces radar installations. With it, technicians can make and observe corrections in split seconds!

LEWYT

To make this possible, Lewyt designed a motor-driven variable capacitor that rotated at 10,000 rpm for several hundred hours without a quiver—maintaining its electrical calibration at all speeds. *It is probably the world's fastest rotating variable capacitor!*

Lewyt also developed a high precision attenuator with an accuracy over the frequency range not attained before. *New techniques and standards for testing it had to be devised by the Bureau of Standards!*

In addition, Lewyt engineering designed the unit with functional sub-assemblies, simplified circuitry and controls, a minimum of components—all making for easier maintenance and trouble-free performance.

Another challenging job successfully completed—one of many in Lewyt's 66 years of engineering and manufacturing for Government and Industry.

LEWYT... *Manufacturer of Electronic and Electro-Mechanical Equipment Since 1888*

LEWYT MANUFACTURING CORPORATION, BROOKLYN 11, NEW YORK

Artillery Spotting

Communications

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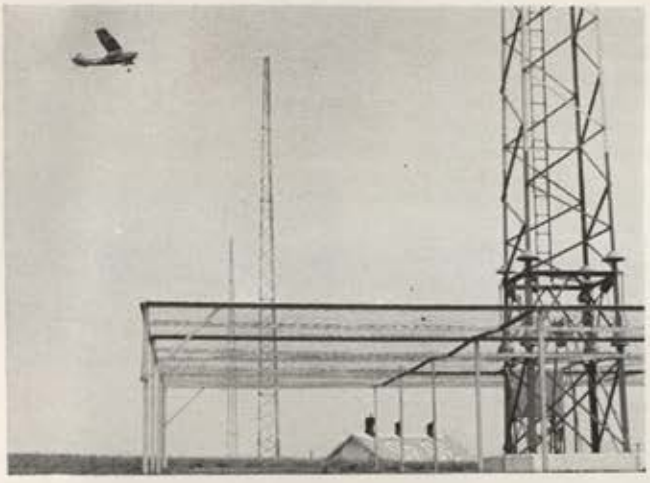
Supply Drops

Army Cessnas=Successful Missions!

Instrument Trainer



Shown here are just five of the tough military jobs assigned to hard-flying Army aviators in Cessna L-19s. Other jobs: control of military highway traffic, fast transportation for field commanders, evacuating wounded, pilot training, courier work, flare dropping, airborne radio relay, even insect spraying. During civil emergencies, L-19s are also used by Army National Guard units.

How can *one* airplane do so many jobs successfully? L-19s are designed to be versatile! These rugged all-metal airplanes offer 213 h.p. performance, high-wing visibility, short take-offs and landings, outstanding load-carrying and slow-flight characteristics and require less maintenance than any other Army airplane! Cessna has delivered every L-19 to U. S. Armed Forces on schedule since 1951!

Cessna®

CESSNA AIRCRAFT COMPANY, WICHITA, KANSAS

dent of my pre-flight on a plane. Now I'm not even sure of the automatic coffee maker. Sometimes I put in the coffee and forget the water; other times the water and no coffee; and then again I forget to switch it on.

I always remembered to use heat to prevent carburetor icing. But now, when I turn the refrigerator dial to "Coldest," I forget to turn it back. It

isn't easy to pour that frozen milk or crack a solid egg.

I didn't have any trouble passing a flying physical, so I know that I'm not color blind. But one dark blue sock always gets in the washing machine with the white clothes. And although I found weather easy, I can never predict a sunny day for the laundry.

I watched the oil and cylinder head temperature gauges closely and never let an engine over-heat—but that electric iron!

I remembered the wing de-icer boots in time, but I always forget to take the chicken out of the freezer until I'm ready to fry it.

And navigation. I can get lost between home and the market.

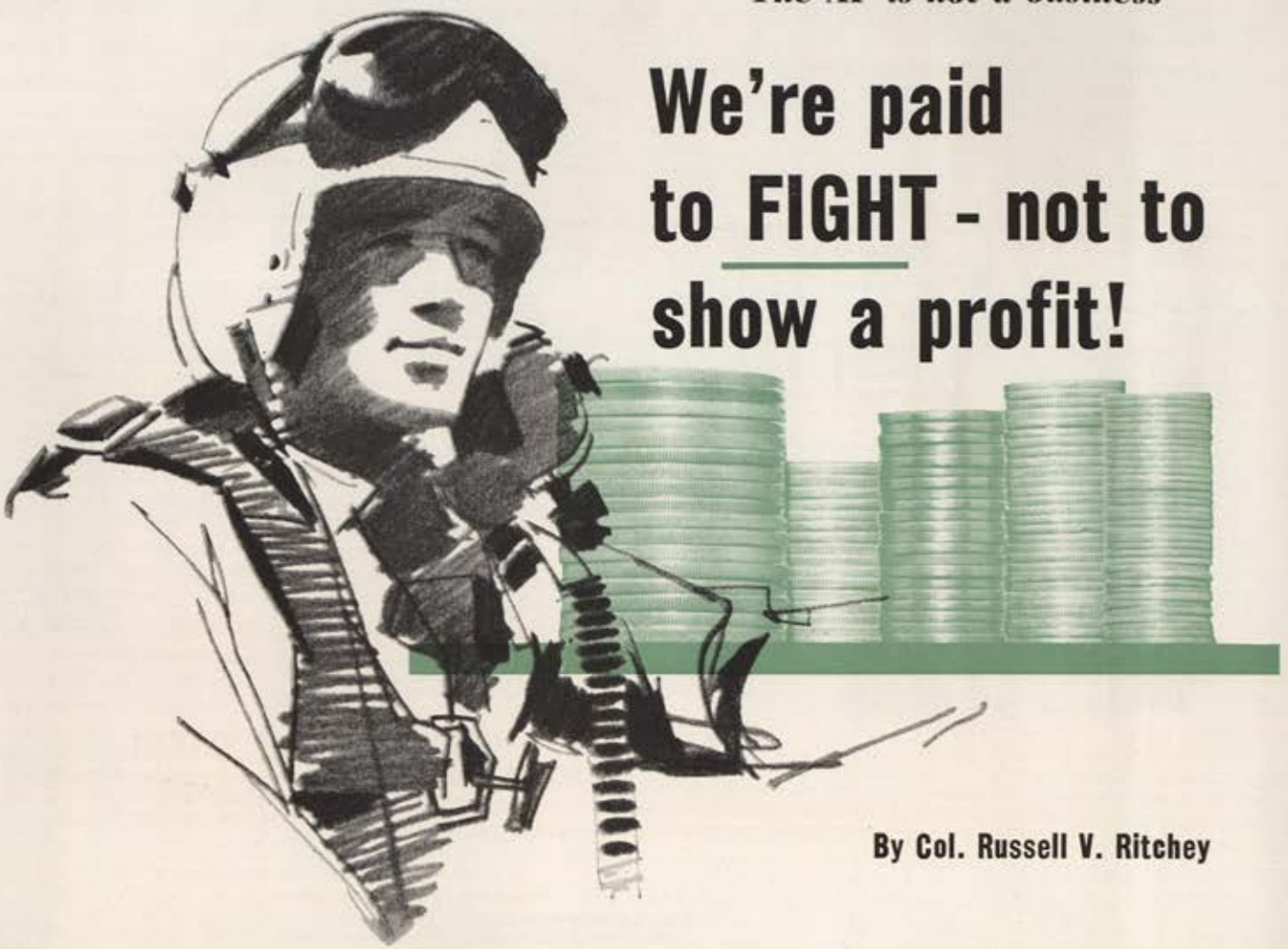
A male pilot I once knew was rolling down the runway after a landing. He flipped the wrong control and retracted his landing gear instead of his flaps. I never did anything like that, but Left Rear and Right Front, Right Rear and Left Front on our electric stove confuse me. I've burned more pots that way.

My husband felt sorry for me because I seemed depressed, so a few weeks ago he bought another machine to cheer me up. It's an automatic dishwasher, but I haven't used it yet. I've lost my nerve.

Mrs. Kit Magid
Donaldson AFB, S. C.

The AF is not a business

We're paid to FIGHT - not to show a profit!



By Col. Russell V. Ritchey

"WE PROCEED unhampered by tradition" is a layman's translation of the Air University motto. This is a refreshing and healthy attitude for any young or new activity. Furthermore, the Air University's application of its motto reflects an understanding of the dangers of tradition in the conduct of war combined with a proper respect for tradition and custom. There is, however, a feeling too evident in our Air Force that we must proceed unhampered by *any* tradition, a philosophy which can be destructive to military esprit.

Any indifference by our officer corps to the very heart and soul of military organizational pride and integrity can destroy us as an effective fighting force as quickly as can the destruction of our bases. If pride of unit and service is not present, if the will to fight and the spirit of sacrifice is not present, the best units will be only examples of an impotent race of mechanical geniuses.

Tradition and customs of the service for many years have been the human relations procedures through which commanders have built morale and "esprit de corps." Strangely enough, customs and traditions have varied from unit to unit, and they are more effective when practiced within subordinate units of wing or regiment rather than within a service as a whole. They flourish where personal example and leadership can be seen and experienced.

Traditions and customs have been with us since the beginning of military organizations. Where they have been absent, there has usually been a lack of discipline, morale, and fighting spirit, and an over-emphasis of individual welfare and security. I am not saying that welfare and security don't belong in the service; they do. I am saying that they can become such a major concern at high command levels that they reach the units as an impersonal and over-emphasized "Do-Good" program that negates the influence of the commander. A unit commander needs more say in the welfare activities of his organization, for he is on the spot and can judge more ably the degree, type, time or need for such programs.

Why this discussion of traditions and customs? It is because they affect every phase of Air Force activities involving personnel—command, recruiting, reenlistment, promotion, organization, NCO prestige, officer prestige, professional and physical fitness—all of which have an undeniable impact upon operational effectiveness.

How did we get this way? Is it because we carried the philosophy "proceed unhampered by tradition" into areas it was never intended to reach?

Let's go back and have a look. In the infancy of our Air Force, it was manned by great individualists, strongly dedicated to an idea and ready to stake life and career on proving it.

Alone, and with little organized support, these men fought for recognition of the Air Corps as a third major service. It is certainly understandable then that they

would, without realizing it, associate many military customs and traditions with the opposition to airpower and play down or disregard them.

This attitude could not help but infect the subordinates of these young revolutionaries. But many subordinates lacked the traditional military background of their predecessors and accepted the attitudes without the accompanying self-discipline and inner respect for tradition. This condition continued throughout World War II. Traditions and customs were curtailed or discontinued. The *Army* Air Force did not exactly exist without a substitute for customs and traditions, however. The excitement and adventure of the war, together with the competition between units and individuals for recognition, provided a temporary substitute. What we did, though, was to expand and fight a war with almost a hundred percent inexperienced personnel, inexperienced both in war and in command.

It seems only fair to recognize that the Air Force had no precedent. The US Army was patterned after the British Army and inherited its centuries of experience. Our Navy was ably assisted by European tradition.

The Air Force, however, wasn't an Army or a Navy. It was an Air Force and intended to prove it. Two basic fallacies helped to create our problems of today. First, everything possible that had anything to do with the Army was rejected; second, in the Air Force's eagerness to gain true autonomy, changes were sometimes hurried through without proper coordination. Only about ten percent of the officer corps were pre-war officers. The rest had served through the war in units with little or no tradition or background. They were unable to retain or build that which they didn't have or didn't know.

It is my purpose here to look at what we of the officer corps have done to injure our prestige and to create many of the problems now confronting us. These problems are not entirely of our own making or misjudgment. But our aim now should be to isolate the basic causes and then get busy and correct them. The technological development of airpower has not been accompanied by equal progress in command ability, human relations, esprit, morale, and judgment, or improvement in resistance to fear, error, or fatigue. We are prone to forget that the true profession of arms is unchanged. Our basic purpose is to fight. Fighting makes demands upon the individual and his organizations which cannot be dismissed or replaced by machines. So long as our country needs to be defended, then we who are paid to defend it must not allow our ability to do so be overshadowed by efforts to convert a fighting service into a model business, rather than a fighting group.

Unit Designation

It is easier to criticize than to offer sound suggestions for improvement. Still we must identify our problems in order to solve them.

Unit designation is a case in point. The "high-number" designations make it difficult to identify a particular unit. They add little to esprit. And the gradual disappearance of group and wing insignia has made it even more difficult for an individual to manifest pride in his unit. As a sergeant in a SAC NCO Academy put it, "Used to be that you could look at a man and tell what unit he belonged to. Furthermore you knew what the unit was. Now if a fellow asks you, 'What outfit, buddy?', by the time you've finished reciting your unit serial number, he's walking away in disgust." Some get around the situation by referring to the 7854th as the "54th." This is as confusing as it is inaccurate.

We must find a way to perpetuate the unit designation of our fighting units. A number that defines an organization famous for battle heroism is no small asset when a commander is trying to build up esprit and fighting attitude. Our country's honor, its glory, its heroes, and its battles won should be emblazoned on the records of its fighting units. The need to belong demands an accompanying knowledge of what one belongs to. Units, like families, need roots; their members need homes. Without them, the family and the unit may produce delinquents.

Instability of assignment is another contributing cause of low unit esprit. The major causes of individual instability lie outside the control of the Air Force. For worsening international conditions will require increased armed forces which must be formed from cadres of experienced personnel. These cadres must in turn provide personnel for other cadres. Expansion prevents the stability which commanders want and need.

Command Responsibility

The thrill of a lifetime for a commander comes when he has the opportunity to activate and train his own unit. The next is to rejoin a former outfit and see old comrades with whom he has served and whose capabilities and loyalties he knows. Commanders like subordinates whose capabilities and limitations are personally known to them. That is why commanders often bring staff officers with them from their previous organizations.

When a unit changes commanders too frequently, subordinates become names and numbers, interest in personal problems and unit strengths and weaknesses are neglected and the commander merely marks time. Frequent changes have other negative values. Under AFSC career program commanders are developing through ever narrowing channels. For many, wing command is their first real command. In such cases the commander tends to take an interest in his own field and neglects those with which he is unfamiliar. That is the price of specialization.

The habit of command has difficulty settling on an itinerant commander. Inspirational leadership, understanding, guidance, and example go by the board. Industrialization is fostered by the improper application of management principles which have led us down the road to bargain-basement economy and the subversion of the commander and the military profession. I am not attacking the principles of management. However, the attempt to apply it by many who did not understand it has it led into areas not originally intended, *i.e.*, the combat units.

(Continued on following page)

About the Author

Col. Russell V. Ritchey does not deny that business methods and business management can be helpful to the services. However, he feels there is a danger of the fighting ability of the services becoming overshadowed by efforts to convert them into model businesses. Colonel Ritchey knows his subject—he is a career officer with many and varied years of service.

He was born in Rensselaer, Ind., in 1910, and first entered the armed services as a member of the National Guard in 1926. He has served as both an enlisted man and an officer in the Reserve, the National Guard, and the Regulars, and his service includes duty in the Infantry, Cavalry, Medical Corps, General Staff, Armor, and the AF.

He went to England in 1948 as USAF instructor at the RAF Staff College at Bracknell. During this tour, he studied military education and training in seven European countries. He has served as Commandant of the Air Tactical School, Tyndall AFB, Fla., and he is the founder of the Squadron Officers Course at the Air University, Maxwell AFB, Ala. At present, Colonel Ritchey is Special Assistant to the Deputy Inspector General.

The Contribution of Organization

There is a weakness in our organizational structure that removes the impact, directness, and promptness resulting from command decisions. In certain instances it creates confusion and frustrates lower echelon commanders. The crux of the problem seems to lie some place in our air and our ground support structure—the combat mission of one and the support of the other.

For example, the Air Force wing commander is the lowest echelon commander who can be said to have command responsibility for feeding, housing, clothing, rewarding, and disciplining his men. Below that level, unless he commands a separate and isolated unit, a commander has only a share of this responsibility. He is not a commander in the truest sense of the term.

In an air crew, one man is aircraft commander, one is engineer, one is navigator, one is gunner—they are not all commanders. The same is true of a wing, but we have not recognized it. The Air Police Squadron handles discipline, Food Service Squadron the feeding, Supply Squadron supplies, and so on. No one squadron commander in the wing really commands. In some cases the commander is responsible for minor discipline, housing, and records, but his men work for someone else. In this type of organization it is next to impossible to foster unit pride.

One Air Force

A man is proud of his association with a group. First, it is the family unit, then his school, his club, or his team or his class. Competition is the key to all of it.

In the Air Force the same competitive spirit must be encouraged. It's good for the Air Force, for the Air Force is only as good as its parts. Competition creates standards and standards create goals. It is no disgrace to the Air Force for the 7th Squadron to be better than the 5th Squadron, except that the commander and the men of the 5th dislike being beaten.

The Air Force is too big for us to expect anyone to get full satisfaction out of just being a member of it.

The Air Force Unit in Recruiting

The need for greater emphasis on unit tradition, custom, and integrity is illustrated in our recruiting problems. We're getting plenty of men, because of selective service, but what are we selling them? Are they more interested in "getting it over with" than in service to their country?

It seems to me that we have emphasized two things—the airplane, and the opportunity to learn a trade. But a military man doesn't remember the airplane or the trade he learned. A recruit isn't moved by the skill he will learn so much as by the fame and pride of the outfit he belongs to. Men don't mind if the aircraft changes. They don't mind new missions or retraining. They do like an outfit that's been around for a while.

Drive is one tradition that the old Air Corps had. Our founders, from Mitchell to our World War II leaders, possessed a strength of conviction; when they felt they were right they had the courage to state their beliefs and stand by them. They were farsighted and dedicated men.

There is evidence today that we have lost much of that strength of conviction. I am not attempting to analyze the causes but my guess is that it is the need for security and the continuous financial obligation that causes a man to "go along" rather than speak up. This same fear will sometimes cause a commander to retaliate against a subordinate who is willing to stick his neck out, because it threatens the commander's own security. This difference may be the real one between the professional military man and the job holder.

The unit mission of a combat or combat support unit must always come before consideration for the individual. Training a unit to accomplish a mission may cause casualties. To the uninformed these casualties may seem pointless and unwarranted. But they are hard to avoid and are small compared to the havoc that inadequate training can wreak. Casualties in any case are regrettable, but a commander must not be crucified or necessary training curtailed because of them. Realistic training is vital, both for preservation of *many* individuals and for esprit and success. The closer to the real thing the training is, the better the unit, the higher the esprit, the fewer the combat casualties, the better the chance of success.

We as officers must know first what we must prepare our troops for. Then prepare them. The American people understand when the need is explained, but to soften training practice because of uninformed criticism makes all other activities suspect. Our men and our units must be tough and trained.

Physical Fitness

There has been much concern recently about the physical fitness of American youth. We in the Air Force should do something about it. We know that the Air Force will carry the major load in the opening phases of any war. We know we are alarmingly outnumbered by our potential enemies. We do not know to what extreme we will have to go to win. War is a physical thing; survival or death is its ultimate result.

Some say that physical fitness programs and competitive games are a waste of time; that they hurt the mission; that injuries cost man-hours. I can only answer that these people have lost sight of the fighting mission.

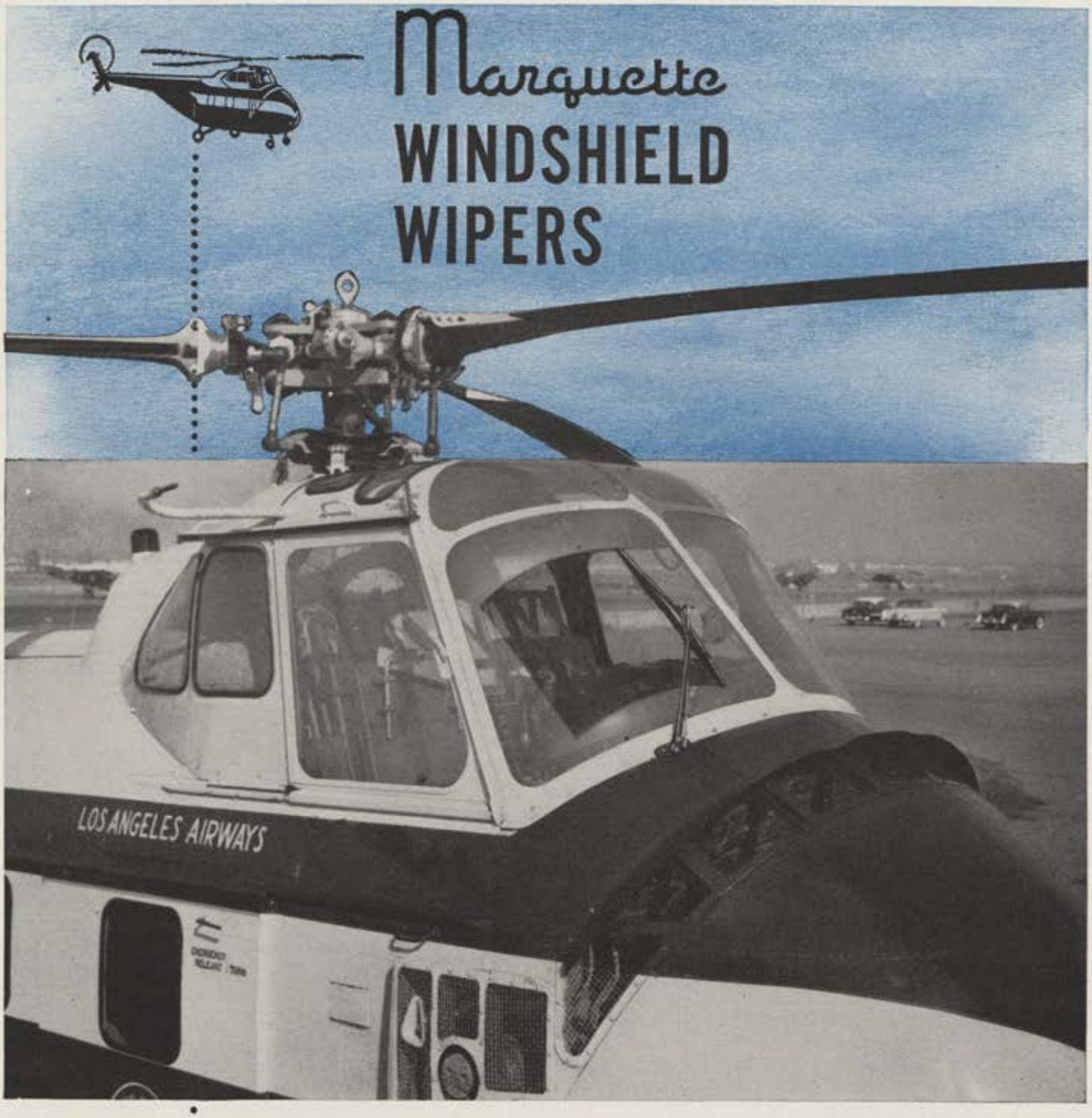
Athletic competition creates aggressiveness and pride, while teaching men to work as a team. Yet who has prescribed team competition as a cure for low morale? More often we open a new ice cream bar or lunch counter, a new day room or service club to make the boys happy. This trend is the saddest of all and needs some good honest-to-God work to get the airmen's heads out of the TV and the snack bar and into the field.

Job-Management Has Confused the Issue

The application of management practices to all walks of Air Force operation always reminds me of the young soldier who was suffering from a minor illness. The doctor gave him a bottle of medicine with instructions to take one teaspoonful per day for fifteen days. The soldier reasoned that if a teaspoonful a day would cure him in fifteen days, then the whole bottle would cure him in one day. He drained the bottle and became deathly ill. Many practitioners of management principles have fallen into the same trap.

Management is a good thing, but it must be strictly con-

(Continued on page 75)



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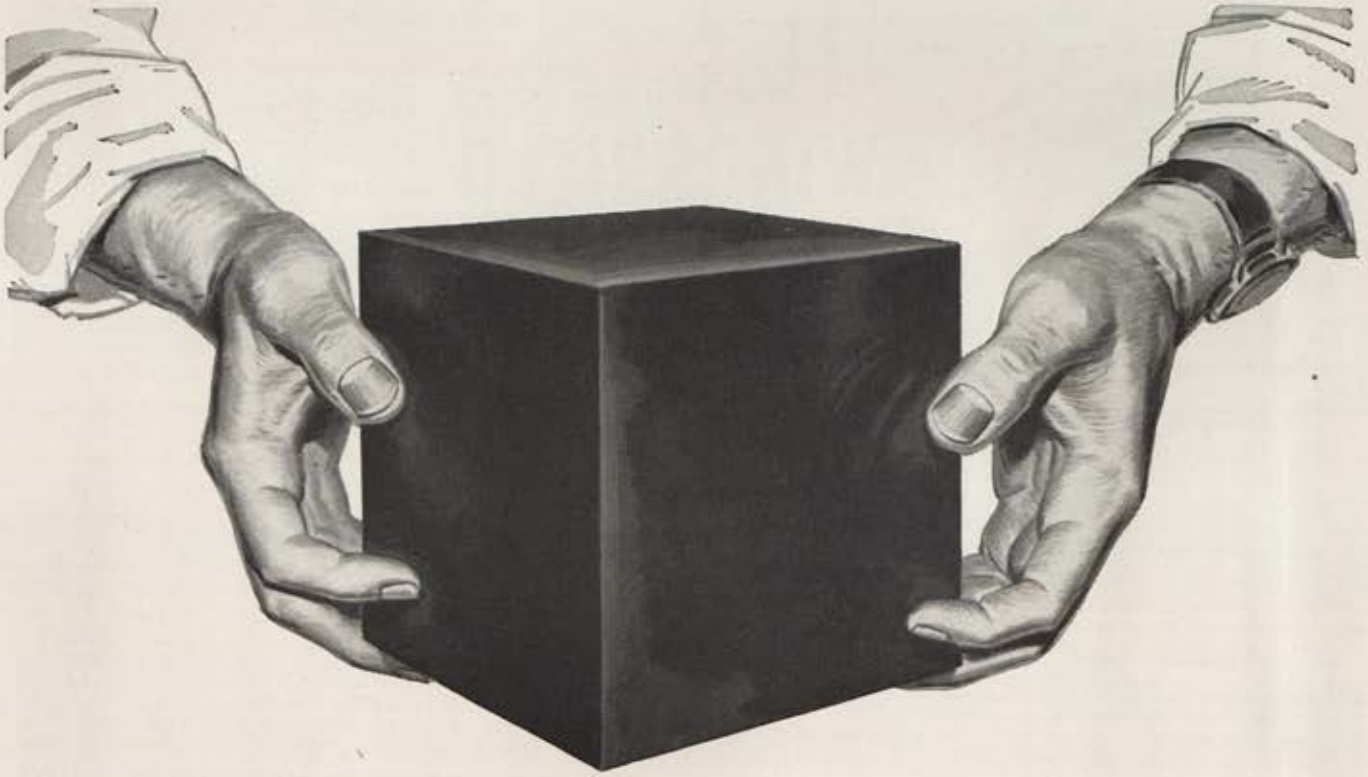

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Thus "TRANSAC" becomes one more example of the teamwork of Research, Engineering, and Application that has made "Philco" synonymous with "leadership" in Electronics.

*"TRANSAC"—*Trademark of Philco Corporation for Transistor Automatic Computer*

ANOTHER FIRST FROM THE PHILCO LABORATORIES

trolled and understood in combat units or its methods and standards, so practical in industry, can restrict the flexibility of the commander and his unit. I am advocating neither feast nor famine, just a square meal seasoned with judgment.

Actually, management has helped us in such quasi-civilian activities as AMC, ARDC, and others. But in some instances it has got out of control and eaten its way into those unmeasurable military areas of command training, esprit, morale, tradition, customs, etc., to the point that personnel of many combat units and combat support units feel that they are nothing more than civilians in uniform. *In advising and teaching management in the Air Force we must not sell management as a cure-all.* In my opinion, our failure to emphasize the limitations of management in the military service has already done some significant damage. I suggest that it has for many:

- Made a job out of a career.
- Increased emphasis on specialization instead of command and leadership.
- Replaced the commander and the NCO with the executive and the supervisor.
- Given the program to develop *commanders* a major set-back.

Perhaps I am wrong, but I believe that those things which make units fight and win cannot be measured in dollars-and-cents. To neglect them because they aren't needed at the moment is to take a terrible risk.

A new move was made a few years ago which increased the management tempo—management improvement.

Management improvement inferred that people were not always trying to do better and, through a series of periodic reports, required commanders to search frantically for things upon which to show savings and improvements. Naturally the first thing to go were those which could not show a dollar profit.

Why can't we solve this problem by letting the commanders find the people who are creating the errors in judgment upon which the management improvement program feeds? The dollar cost itself is impressive when one considers the management schools, the man-hours spent at each base to instill each non-com with managerial zeal, the staff sections, the books and pamphlets all unwittingly aiding in the conversion of a struggling young fighter service into a business. Maybe it's all right, but if it isn't, there won't be any chance to start over.

Confusion in the Military Profession

The misuse of management has, in my opinion, created confusion in the minds of young officers and airmen as to just what the military profession is.

This confusion manifests itself in many ways. Here are some of them. Individually they are not significant, but collectively they are cause for concern.

- Military activities boasting of achievement in civilian fields.
- Civilian caterers in food services.
- Combat training a specialty instead of a common requirement for all service men.
- Discontinuance in some places of reveille and retreat formation.
- Reduction in field exercises and training.
- Emphasis of forty-hour week and eight-to-five day.
- Reduction in military ceremonies and parades.
- Increased specialization in civilian areas of endeavor.
- De-emphasis of the military unit or unit integrity.
- Organization of the wing-base and subordination of the *combat* group to the level of the non-combat support groups.
- Big business slang, "buy" and "sell" ideas, "shops" instead of headquarters, "salesmen" instead of recruiters.
- Shortage of base housing.
- Use of fatigue clothes on hangar line, base, or in town.
- Award of NCO rank to specialists.
- No dress uniform.
- Discontinuance of corporal and buck sergeant rating.
- Confusion as to specific duties of officer and NCO.
- Direct commissions without previous military training.

These things add up to confusion in the minds of officers and men alike when they try to identify their profession. The trend toward civilianization of the military career increases when some men seeking recognition unwittingly find it—by emphasizing the civilian areas rather than military because their efforts are more readily recognized by the public and consequently more readily rewarded. Others see the military service as a twenty-year trip to security, and the fulfillment of their ambition occurs after twenty years rather than during their service.

One might say that we have a civilian career within the military career, and one who practices both hesitates to be aggressive on the military side for fear of jeopardizing his civilian career.

The officer should be basically a leader of men. It would seem to me that an activity which has no direct fighting purpose or is not in direct support of a fighting activity should be thoroughly examined to see if it is a proper duty for military people.

I am not denying that the myriad services now abounding in the Air Force are necessary, but sometimes the enthusiasm for an activity may cause its development to

go behind Air Force needs, to the point that the Air Force as a whole becomes a slave to the activity rather than it being a service to the Air Force.

I hope that I have listed most of the problems that act as obstacles to high esprit and unit integrity. These areas must be attacked by all of us in the Air Force. My words are weak compared to the threat these things pose to our effectiveness as a fighting force. Anyone with a glass in his hand can be a "tiger," but the road is a long hard one if we are to carry out the real meaning of the word "tiger." I say in all sincerity that the time will come when we must live up to our vaunted efficiency and combat spirit. There will be no more talking then; only performance.

We will not manage ourselves out of that situation, nor "control" it, nor public-relations it. We will have to fight it and win. There will be no dollars-and-cents price on courage, stamina, and aggressiveness. Only the best will survive, and only the brave win. Then we will realize the true value of what we are neglecting in the name of economy.

These things are talked about throughout our service. Everyone from airmen to generals is concerned. I have brought out some of the problems; but the solution rests with all of us.—END

TAC RELATIONS WITH INDUSTRY

By Maj. Gen. Earl W. Barnes

Deputy Commander, Tactical Air Command

It is obvious that the equipment necessary to accomplish TAC's job is extensive and varied. In fact, it encompasses many of the requirements of all other major commands, plus a few extra that are inherent solely to Tactical Air Command. For instance, the bombing systems of tactical bombers are generally the same as those of SAC, but TAC bombers must also have the capability of attacking targets in close coordination with surface forces. The fire control systems for air-to-air combat have the same problems, whether they are installed in ADC or TAC fighters, yet the capacity to attack ground targets is foreign to ADC. The transport necessary to carry cargo over long distances can be generally the same, whether they are in MATS, AMC, or TAC; however, the requirement of TAC for transport of combat troops into and in a theater brings up a family of transports which cannot be considered as economical for scheduled passenger or cargo transport. The aircraft early warning and control systems of ADC and TAC could be the same. If TAC had only to defend from fixed bases in the ZI, but TAC must be able to move quickly and easily to remote parts of the world in climates ranging from frigid to tropical, with the probable expectation of little or no indigenous communication system. Thus, we have requirements of system components and capacity that are quite different from those of ADC.

The mobility required of TAC units poses manning and equipment methods that are peculiar to TAC alone. If we are to achieve the unit mobility required, we must have housekeeping and maintenance support equipment designed so that it can be packed quickly and transported readily by air transport and be adequate for immediate support of vigorous air combat operations at the terminal.

The many varied requirements of TAC for hardware to successfully perform its mission generate a wide association with the whole aircraft industry with its associated component manufacturers, plus a good share of the electronic industry. This association is carried on through the vigorous support of TAC by Headquarters USAF, AMC, and ARDC. It is only through this association that TAC can establish a superiority of quality of end items that will enable TAC to be successful in the accomplishment of its mission. There can be no question that success will only be achieved through quality rather than quantity.

The growth of Tactical Air Command has been more or less an afterthought, brought about in the rush of world events. This has resulted in limited coordinated planning for long term end items, aggravated by the great advances made in the past few years in technology in the areas of weapons and aeronautics. This has caused a chain reaction to a topsy-turvy world situation that could not be perceived as late as five years ago. With lead times of development of six or eight years for operational combat aircraft, we in TAC have been faced with the unhappy situation of combat with fighter-bombers that have been designed for the primary mission of fighters. The net result has been that we used aircraft in this role that have marginal performance for the fighter-bomber mission. The same is true with the tactical bomber and reconnaissance. At the present time the mission of TAC is more clear-cut so that we have been able to establish requirements in an orderly fashion for equipment that is tailored to do our job.

We want the time cycle of production of equipment for combat units cut to the bare minimum, but we realize that haste makes waste and that to achieve qualitative superiority requires more time than if an inferior article is produced. So we are torn between two alternatives that give us a good deal of mental anguish, but we have remained firm in our goal to achieve a superior qualitative force that will be able to adequately cope with the greater numbers of the Communists. You may be sure that we have some sleepless nights thinking about some of our units equipped with aircraft, such as the B-26, that is inferior by present day standards.

How can we improve this situation: We believe industry can help, primarily by candid, realistic appraisal of its capabilities and capacities. Too often we have our hopes raised by the "brochure treatment," both as to performance and time schedule, only to have them lowered again by an obvious snag that lowers confidence in the entire proposal. This does not mean that we should subordinate progress to certainty of accomplishments; it does mean, however, that uncertainties of proposals should be thought out carefully and presented in a straightforward fashion. This creates confidence, and a consequent reduction in the time involved in appraisal of proposals.

Another way to help the system is a thorough job of engineering and production which does not stop with aircraft delivery, but encompasses the useful life of the article in a combat unit. This has direct relation to the time lost in combat units to comply with changes in the form of technical orders from AMC and the overall utilization rate of the component. With the complexities of modern equipment, the expansion of our forces, and the lower experience level of our maintenance personnel, we have difficulty keeping our head above water, and our good nature is not improved when we are confronted with failure of equipment through an obvious mistake in good engineering judgment, which is apparent to even us dumb operators.

Much has been said and a good deal accomplished in the field of the Weapons System Concept. We are enthusiastic as to its capabilities and enjoin the support of industry as a whole. The success of the system will be proportionate to the intimacy of industry and TAC as a whole to appreciate each other's problems. No matter how carefully we may write a requirement, we cannot cover with written words the expanse of detail that is attained by a working relationship between the producer

(Continued on page 79)

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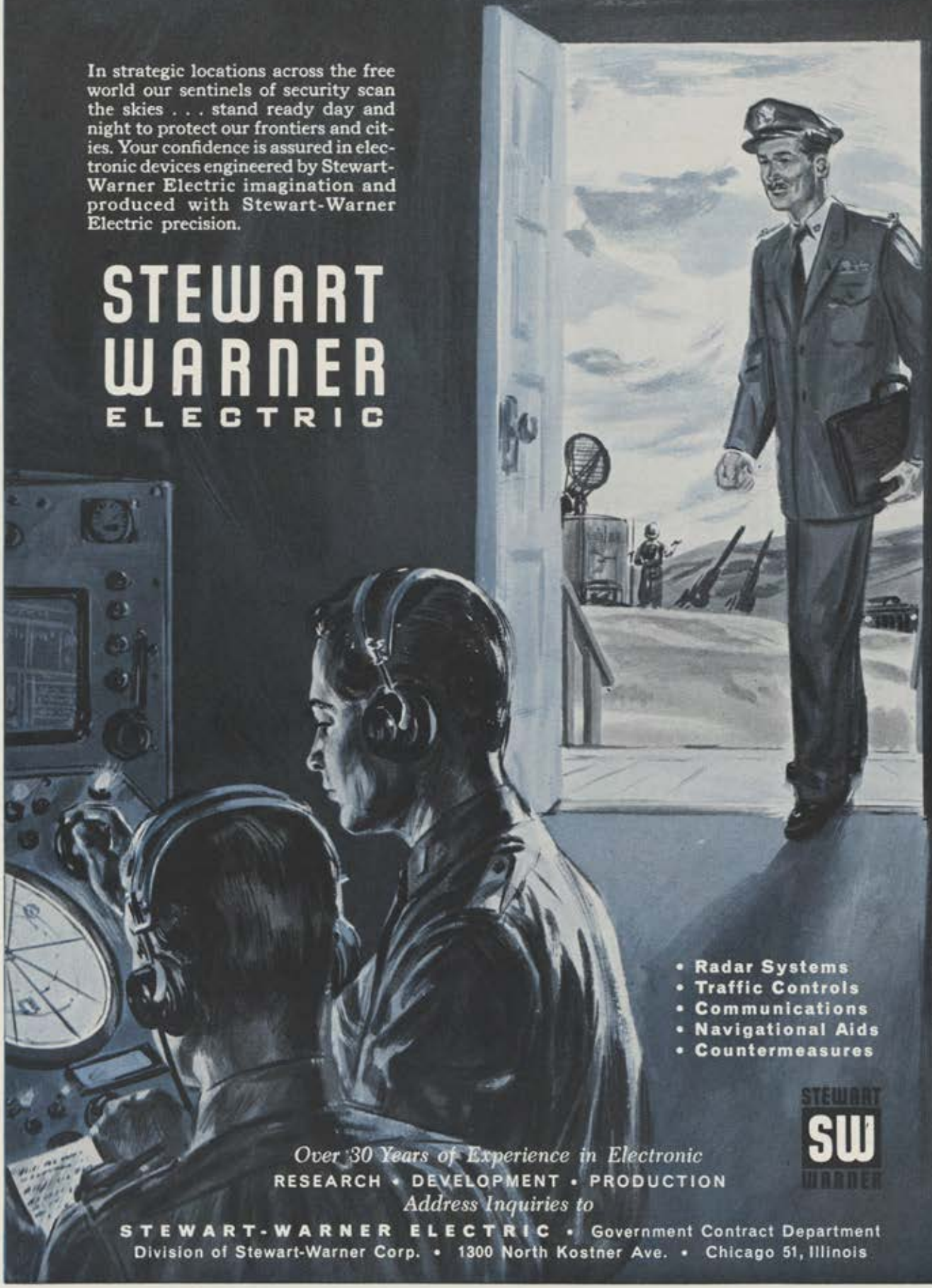

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and the user. We welcome and encourage visits to TAC Headquarters. We feel that this gives an opportunity to bridge the gaps that are impossible to cover by writing. Probably the most lucrative field of liaison is with the combat units themselves. There have been many instances of executive and supervisory personnel of industry and research observing our units in the field, both in combat and peace, which have paid big returns in improving our capabilities. The assistance we have had from industry working with our units has proved to be a big factor in their successful employment and we are truly grateful for it. Your field representative can give you the low-down on the good and bad points of equipment that is in service, and in addition can point the way for new ideas for weapons systems of the future.

There have been some factors affecting time of delivery of modern equipment that we realize have been beyond the realm of accurate prediction by all concerned. I refer primarily to design and control problems that have been generated by transonic and supersonic flight. We have all had rather a rough time, but I am sure you will agree that we are in a far better position today by reason of having had some of our tougher experiences. Our force will be better tomorrow as a result of them.—END

Maj. Gen. Earl W. Barnes was born in 1902 in Alliance, Nebr., and was graduated from the US Military Academy in 1925. He attended the Air Corps flying schools and received his wings after he left West Point. During World War II he commanded the Thirteenth AF Fighter Command and in 1945 he was Commander of the Thirteenth AF. He has been Commandant of the Air Command and Staff School, and Air Force representative of the Department of Defense Weapons System Evaluation Group. He has been Deputy Commander of the Tactical Air Command since 1953.

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Make sure you don't miss a single copy of AIR FORCE. Fill out this form and send it to us today. Enclose your old address label.

NAME .....

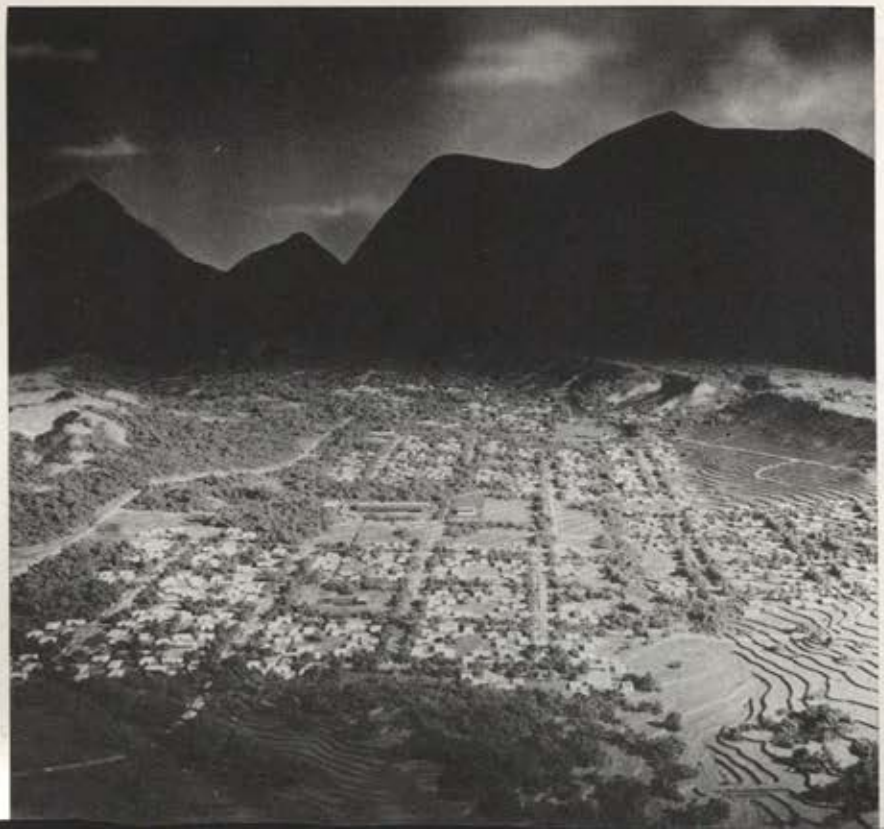
NEW ADDRESS .....

CITY ..... STATE .....

Court of Honor is dominated by chapel in the background. Social center is at left, administration building at right.

AF Academy plans—modern as a missile

Author Ed Miller was in Colorado Springs when the AF unveiled the plans for its Academy. Here's what he saw.



WE WERE pleased to cover for AIR FORCE Magazine the affair tossed May 13 and 14 in Colorado Springs by the Air Force Academy people to unveil plans and models for their $126,000,000 academic layout.

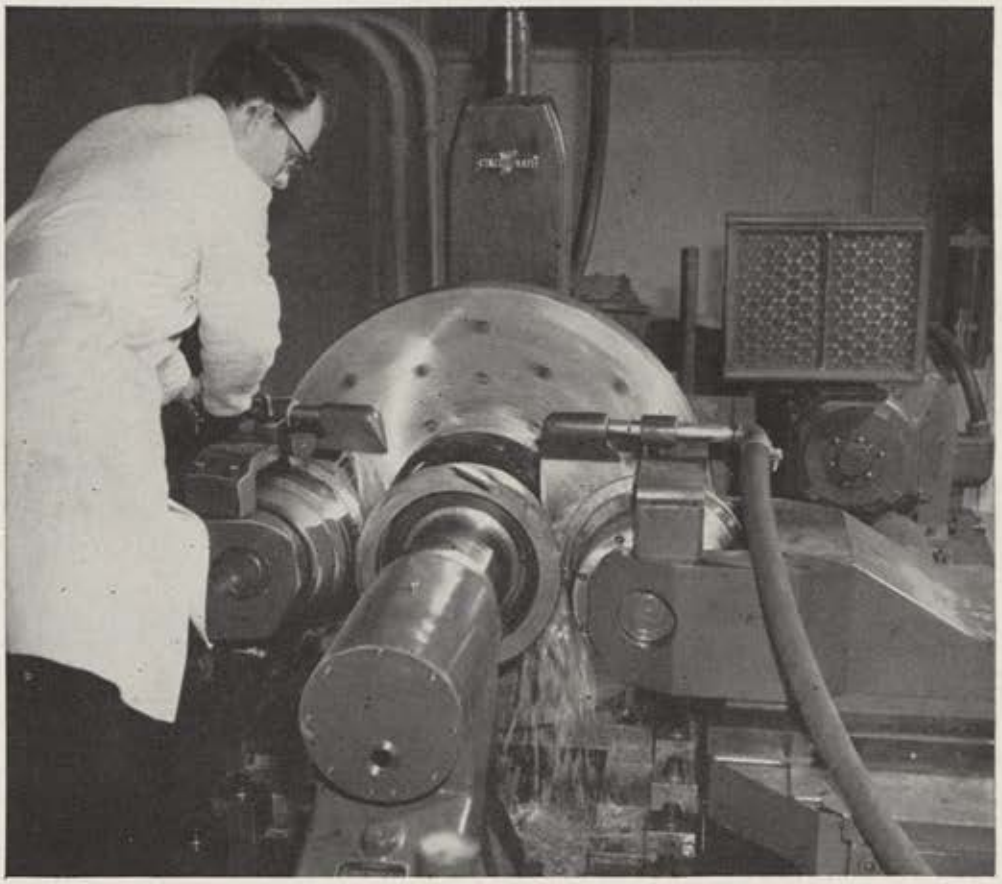
The exhibition involved numerous table models and paintings of the proposed academy, plus charts, graphs, and tables showing the work that went into the planning, including water-availability studies, temperature and humidity charts, terrain and soil drainage studies, and population, zoning, and traffic prognostications.

° ° °

A friend of ours noted that this is probably the first time in history a complete university with accompanying town and airfield will have been built in one whack.

(Continued on page 83)

Aerial view of model showing staff and support personnel housing area.



Opposed heavy-duty steel rollers cold-flow tough materials onto a spinning mandrel

New Solar spinning technique cuts costs!

Hydrospin turned out the cone with integral flange from the simple disc at left

THE FIRST HYDROSPIN machine in the United States is now in use at Solar. Built for the company by Cincinnati Milling Machine Co., this remarkable new production tool easily squeezes cold alloy steels into hard-to-form shapes. Even better news is this: the Hydrospin can cut production costs in half on many aircraft and industrial components!

Semi-automatic in operation, the Hyrdospin takes a blank metal disc and applies the pressure of heavy-duty rollers. As the rollers advance, the material is smoothly forced onto a rotating mandrel. Difficult contours in cones and cylinders are easily obtained with the Hydrospin. Parts containing elements of varying thickness, such as walls, flanges and support areas, can be made in a single operation. Both material and labor costs are sharply reduced by this advanced metal-working technique.

This new machine typifies a basic Solar principle—use of the best and latest processes and equipment to turn out top quality metal products. And every Solar customer receives still another "plus"—the *integrity factor* inherent in all of Solar's work. Why not find out more, today, about the Solar skills that can help your business?

SOLAR AIRCRAFT COMPANY — SAN DIEGO, DES MOINES

DESIGNERS, DEVELOPERS AND MANUFACTURERS OF METAL ALLOY PRODUCTS

This is What Solar Offers You

When heat, corrosion or difficult specifications are problems, Solar can help you solve them. Solar specializes in the manufacture of precision products from alloys and special metals for severe service. Solar's experience since 1927 is unduplicated in this field.

SPECIAL PRODUCTS

Gas Turbines. *Solar "Mars" 50 hp engines for auxiliary generator sets, ground carts, portable fire pumps; Solar "Jupiter" 500 hp engines in variable and constant speed models.*

Bellows. *"Sola-Flex"® bellows and expansion joints in many designs from ½ in up to the world's largest, 28 ft in diameter.*

Controls. *Complete control systems utilizing the new Solar "Microjet"® principle for control of gas turbines, jet engines and pneumatic devices.*

CONTRACT PRODUCTION

Current orders include aircraft engine and airframe parts, pneumatic ducting, atomic energy components. Customers include the finest aircraft and industrial companies in the U.S. and Europe.

Plants. *In San Diego (photograph above) and Des Moines. A total of 1,400,000 sq ft of floor space. Approximately 5,000 employees. Annual sales over $65,000,000.*

Services. *Research, design, development and production engineering staffs. Experienced with all alloy steels, stainless alloys, super alloys, and titanium and its alloys.*

Facilities . . . *for all types of metal fabrication—forming, machining, welding, brazing, casting, coating. Equipped for prototype, limited or mass production. Extensive laboratories. Complete quality control.*

INFORMATION

For more information regarding any Solar product or service listed above, write Solar Aircraft Company Department B-30 San Diego 12, California

ROR bonus boost for helicopters

Reaction Motors' new Rotor Rocket system of auxiliary power for helicopters is another important milestone in a list of impressive firsts in rocket engine design and performance. This lightweight system, originally developed for the U.S. Navy Bureau of Aeronautics, was recently demonstrated in a Sikorsky HRS-2 Marine Corps helicopter. When installed in the HRS-2 helicopter the ROR auxiliary power enabled the copter to lift more weight at take-off, provided more power for climb, greatly increased gliding range and hovering ceiling.

ROR systems and other RMI power applications can be adapted to many types of existing helicopters with very little modification, resulting in an increase in their tactical value under critical performance conditions.

ROR steps up performance 4 ways:

1. . . . Lifts more weight at take-off
2. . . . Increases rate of climb
3. . . . Increases hovering ceiling
4. . . . Extends glide range

Spearheading Progress through Research

rmi

Career opportunities available for experienced mechanical, aeronautical, electrical and chemical engineers, physicists, chemists. Send complete resume to employment manager.

REACTION MOTORS, INC.
Denville, New Jersey
Affiliated with OLIN MATHIESON CHEMICAL CORP.

A fact sheet put out by the Office of Information Services contained a stern injunction that "the official name is the *United States Air Force Academy.*

"Of permissible use," it continued, "is the shortened *Air Force Academy.* Do not," poker-faced the fact sheet, "call it the *Air Academy.*"

° ° °

We were intrigued with certain facilities the academy will have, such as closed circuit television, a tree nursery, a high altitude training unit, a natatorium (swimming pool, that is), and a printing plant.

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The academy airfield's runway will be designated 14-32, will be 8,800 feet long, and the elevation will be 6,570 feet. The single runway will have thousand-foot overruns and will be expanded if necessary to 14,000 feet. An instrument approach will be pretty hairy because of the rocky Rampart Range escarpment about five seconds away jetwise. In soupy weather all green and white carders will be diverted to Peterson AFB. The main plane on the ramp will be Convair's T-29 navigation trainer.

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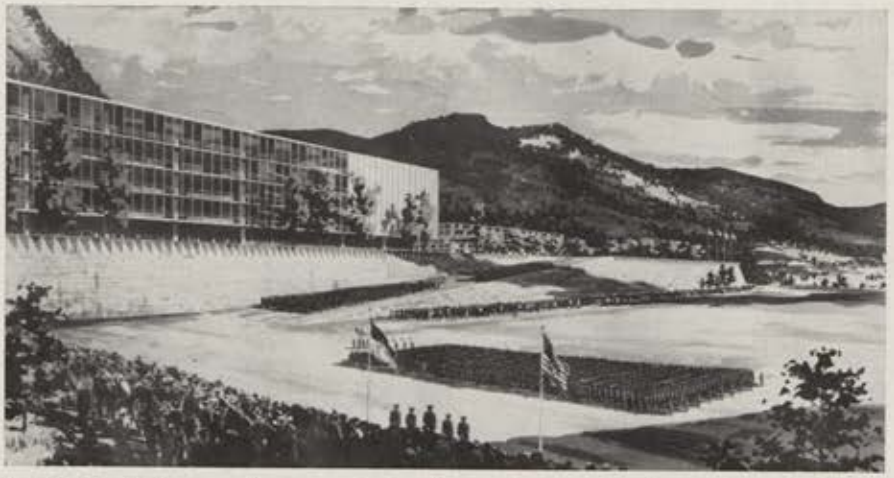
The faculty housing area, in a lovely valley between two mesa fingers, will have ranch-style homes, all of which will look out on what the experts call "outdoor living space."

° ° °

One of the gracious hosts to the visitors during the day and a half in Colorado Springs was AFA's own Thayer Tutt, working boss of the Broadmoor Hotel.—END



A sketch of the parade ground, showing cadets passing in review. At left is the academic building housing classrooms, laboratories, library and offices.

Clockwise from the chapel, upper left, are: the administration building, cadet social center, cadet quarters, academic buildings and dining hall.

Aerial view of academic area. Academy superintendent will occupy quarters at left foreground.

Another view of the chapel. The architectural concepts, by Skidmore, Owings and Merrill, were shown in Colorado Springs.

The READY ROOM

RESERVE AND AIR GUARD NEWS

The Administration's biggest gun of all, **President Eisenhower** himself, has been trained on Congress in an effort to effect a successful breakthrough for the controversial **National Reserve Plan.**

The plan was **sent back to the House Armed Services Committee** last month after three days of debate on the floor of the House of Representatives. New York's **Rep. Adam Clayton Powell** succeeded in tacking on **anti-segregation amendments** to the legislation, making the bill unpalatable to the Southern congressional bloc and thus paving the way for its return to committee.

Competent observers are of the opinion that the proposal is dead in this session of Congress but NRP supporters are not giving up easily. A series of conferences have been held among proponents of the legislation, **aimed at working out a compromise.** But the segregation issue thus far has proved insurmountable.

President Eisenhower used a press conference as the medium to throw his personal weight into a **move to get the legislation out of the pigeonhole.**

The President told newsmen that Congress should throw out the antisegregation amendments which Powell has said were **aimed at "Jim Crowism"** in Southern Guard and Reserve units.

Mr. Eisenhower said he believed his Administration has a good record in carrying out its pledges in the field of segregation. But, he added, it is **wrong to get legislation of this character by tacking it on to something he believes is vital** to the security of the country.

The President's plea **for passage of the National Reserve Plan** was patently the strongest he has made for any legislation since assuming office. Mr. Powell read the newspapers and next day announced flatly that he would not retreat from his position.

There is reason to believe that a **majority of the Senate would go along** with NRP, or some version of compulsory Reserve service. But even if such a bill does get by the Senate, it still **must go back to the house.** And there even the strongest NRP supporters are **convinced the House will reject** any plan which will deny to Southern states the right to adhere to their traditional policy of segregated units.

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The **Reserve Council** of the **Air Force Association** met last month in Shreveport in connection with the **annual convention of the Louisiana Wing of AFA** and recommended that the position of the Assistant Chief of Staff for Reserve Forces be re-established at three-star level.

The office, presently held by **Maj. Gen. William E. Hall,** was created originally at three-star rank but no person of this rank has filled it since **Lt. Gen. Elwood R. Quesada's tenure.**

The Reserve Council further proposed **that three-star rank be awarded** to the office-holder at the time of assignment to the position.

Forty-five Air Force Reserve units, totaling **more than 17,500 officers and airmen,** will undergo **two weeks of active training** this year, according to Continental Air Command.

Twenty-six of the units are **combat wings.** The remaining nineteen are **replacement training squadrons, aerial port operations squadrons** and **airway and air communications units.**

Fifteen units will train in the East, under First Air Force, at bases in New Hampshire, Massachusetts, New York, Delaware, Ohio, South Carolina and Georgia.

Another fifteen units will train **in the South and Southeast,** under command of Fourteenth Air Force, at bases in Tennessee, Georgia, Texas and Oklahoma.

Nine Midwest units, under Tenth Air Force, will train at bases in Indiana, Illinois, Michigan and Minnesota.

Six Western units, under Fourth Air Force, will train at bases in Oklahoma and California.

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A **Squadron Officer Orientation Course** is scheduled for the first twelve days of August at Air University and is **open to 500 Air Force Reserve lieutenants and captains.**

First Air Force has been allocated 135 spaces; **Fourth Air Force,** 105; **Tenth Air Force,** 120; and **Fourteenth,** 140.

Interested officers **may apply at their local Reserve units.** Applicants must complete AF Form 12-89, **"Application for Active Duty."**

A 15-day tour brought Capt. Ralph W. Goetting, left, to active duty at Selfridge AFB with twin Maj. Raymond J. Goetting for the first time in their 15 years of service.

The Air Force **has approved a plan** under which Reservists may be **trained locally by overseas commands** to fill replacement and augmentation M-Day spaces. Mobilization assignee and designee programs are being authorized, **based upon command needs** for individuals.

° ° °

Five Air National Guard officers and a like number of Air Force Reserve officers have been **nominated for promotion to major general.**

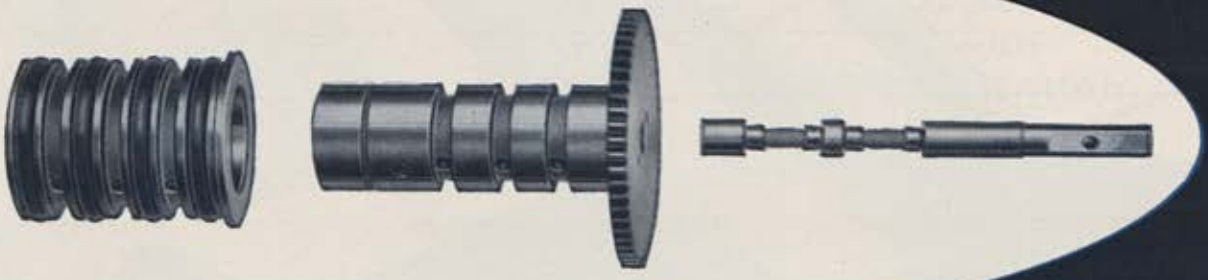
Headed by **Winston P. Wilson,** deputy chief of the National Guard Bureau, the **ANG list of nominees** for two-star rank includes:

John M. Donaldson, chief of staff of the Alabama Air Guard; **Fred C. Tandy,** adjutant general of Iowa; **William D. Partlow,** adjutant general of Alabama; and **Sherman T. Clinger,** adjutant general of Arkansas.

The **Reserve nominees** for major general include **Robert E. Condon,** recently named director of civil defense for New York City; **John M. Bennett, Lawrence G. Fritz** and **Pierpont M. Hamilton,** who have mobilization assignments to Hq. USAF; and **Henry C. Kristofferson,** who has a mobilization assignment as director of operations for MATS.

Six Air Guardsmen were **nominated for the rank of brigadier general.** These include **Royal Hatch, Jr.,** currently on active duty as deputy for ANG affairs of ConAC;

(Continued on page 87)



precision

IN VITAL SERVOMECHANISMS

Superiority may *start* with improved design, but it *stops* dead without the ability to produce component parts with extreme accuracy.

This pilot valve, for example, started as an improved design, part of the servomechanisms used in CECO Turbojet Control and Regulation Systems. And in actual production, tolerances between critical mating parts are held to .00008"!

This coordination of theoretical requirement and practical achievement at Chandler-Evans is the result of creative engineering integrated with complete precision manufacturing facilities and know-how . . . a combination that can help win the race for supremacy in the air.

CHANDLER-EVANS

DIVISION NILES-BEMENT-POND COMPANY

WEST HARTFORD 1, CONN., U.S.A.

PIONEER PRODUCERS OF

JET ENGINE FUEL CONTROLS • AFTERBURNER CONTROLS

PUMPS • SERVOMECHANISMS • CARBURETORS • PROTEK PLUGS

Jean Raeburn, N. Y.

GILL ROBB WILSON

JOHN R. ALISON

AFA Nominees for 1956

Committee Proposes Gill Robb Wilson for Office of President; Alison Picked to Succeed George C. Kenney as Board Chairman

GILL ROBB WILSON, one of the nation's foremost aviation authorities for more than 35 years, and currently editor and publisher of *Flying Magazine*, has been selected by AFA's Nominating Committee to head the Association during 1955-56. At the same time, the Nominating Committee, meeting in Washington, D. C., on May 22, proposed President John R. Alison for the office of Chairman of the Board to succeed retired four-star Gen. George C. Kenney.

A long-time director of the Air Force Association, Gill Robb Wilson's aviation history dates back to World War I when he served as a combat pilot with the French and US Air Services. In the years intervening he has devoted his life to the development of aviation.

Gill Robb, as he is known throughout the aviation world, has, at one time or another, been director of New Jersey's Aviation Department, president of the National Aeronautics Association, aviation columnist for the *New York Herald Tribune*, member of the Congressional Aviation Policy Board, president of the National Association of State Aviation Officials, co-founder and director of the Aircraft Owners and Pilots Association, consultant to the Department of Commerce, and member of the Board of Visitors of Air University. In addition, he created the plan of the Civil Air Patrol, organized it nationally, and established CAP's first anti-submarine patrol units.

Johnny Alison, native of Florida, now makes his home in Southern California where, in civil life, he is vice president of Northrop Aircraft and, in military status, commands a Reserve fighter wing at Long Beach.

Mr. Alison started out in World War II as a fighter pilot, later went to Russia on a special mission. Eventually he wound up in Burma with Phil Cochran. As a team, the two wrote a new chapter in Air Commando operations. Before joining Northrop after the war, he served for a time as Assistant Secretary of Commerce for Air and as president of the Transit Van Corporation of California.

In his year as president of AFA, Mr. Alison has traveled thousands of miles throughout the country, spreading the airpower message and placing particular emphasis on strengthening the Association's squadron organization.

Nominated to the Board for the first time were retired Maj. Gens. Frederick L. Anderson of Palo Alto, and Alfred A. Kessler, Jr., of San Rafael, Calif.; and Peter J. Schenk of Fayetteville, N. Y.

A complete list of nominees begins on the next page. Nominations must be confirmed by delegates to the Ninth Annual Convention in San Francisco, August 10-14.

AFA Nominating Committee's Slate for 1956

PRESIDENT
GILL ROBB WILSON
New York, N. Y.

Editor, Publisher; age 61; married. AFA record: Charter Life Member; Director; Sqdn. Cmdr. Military rank: Lt. Col.

SECRETARY
JULIAN B. ROSENTHAL
New York, N. Y.

Lawyer; age 46; married. AFA record: Life Member; Assistant Secretary; National Secretary; National Constitution Committee Chairman. Military rank: PFC.

CHAIRMAN OF THE BOARD
JOHN R. ALISON
Hawthorne, Calif.

Vice President, Northrop Aircraft; age 42; married. AFA record: Life Member; Director; National President. Military rank: Col.

TREASURER
SAMUEL M. HECHT
Baltimore, Md.

Department store executive; age 47; married. AFA record: Charter Member; Squadron Treasurer; National Treasurer; 1953 National Convention co-chairman. Military rank: Capt.

REGIONAL VICE PRESIDENTS

NEW ENGLAND REGION
(Me., N. H., Vt., Mass., Conn., R. I.)
THOMAS C. STEBBINS
Worcester, Mass.

Textile worker; age 43; married. AFA record: Member 5 years; Squadron Wing Commander; Regional V-P. Military rank: S/Sgt.

NORTHEAST REGION
(N. Y., N. J., Penna.)
RANDALL LEOPOLD
Lewistown, Penna.

Age 52; married. AFA record: Life Member; Squadron, Wing Commander; Regional V-P; National Wing Advisory Council Chairman; National Committee member. Military rank: Maj.

CENTRAL EAST REGION
(Md., D. C., Va., W. Va., Ky., Del.)
CHARLES W. PURCELL
Baltimore, Md.

Broadcaster; age 44; unmarried. AFA record: Charter Member; Squadron, Wing Commander; Director. Military rank: Capt.

SOUTHEAST REGION
(Fla., Ga., N. C., S. C.)
ALEX G. MORPHONIOS
Miami, Fla.

Age 34; married. AFA record: member 5 years; Squadron, Wing Commander. Military rank: S/Sgt.

GREAT LAKES REGION
(Ohio, Ill., Wisc., Ind., Mich.)
GLENN D. SANDERSON
Battle Creek, Mich.

Appliance dealer; age 39; married. AFA record: member 7 years; Squadron, Wing Commander; Regional V-P. Military rank: Sgt.

NORTH CENTRAL REGION
(Minn., S. Dak., N. Dak.)
EDWIN A. KUBE
Minneapolis, Minn.

Steamfitter; age 36; married. AFA record: member 8 years; Squadron, Wing Commander; Regional V-P. Military rank: T/Sgt.

SOUTH CENTRAL REGION
(Tenn., Ark., Ala., La., Miss.)
FRANK T. McCOY, JR.
Nashville, Tenn.

Corporation officer; age 43; married. AFA record: member 6 years; Regional V-P; National Committee member; National Air Reserve Council Chairman. Military rank: Brig. Gen.

MIDWEST REGION
(Mo., Kans., Nebr., Iowa)
J. CHESLEY STEWART
St. Louis, Mo.

Airline executive; age 50; married. AFA record: member 8 years; Squadron Commander; Regional V-P. Military rank: Col.

SOUTHWEST REGION
(Tex., N. Mex., Okla.)
CLEMENTS McMULLEN
San Antonio, Tex.

Chamber of Commerce Aviation Committee; age 63; married. AFA record: member 8 years; Director; Regional V-P. Military rank: Maj. Gen.

ROCKY MOUNTAIN REGION
(Colo., Wyo., Utah)
W. THAYER TUTT
Colorado Springs, Colo.

Hotel and corporation executive; age 43; married. AFA record: member 5 years; Regional V-P; National Committee member; Military rank: Col.

NORTHWEST REGION
(Wash., Mont., Idaho, Ore.)
WINFIELD G. YOUNG
Seattle, Wash.

Aeronautical engineer; age 38; married. AFA record: member 8 years; Squadron, Wing Commander; Regional V-P. Military rank: M/Sgt.

FAR WEST REGION
(Calif., Nev., Ariz.)
FRANCIS J. DOLIN
Fresno, Calif.

Motel manager; age 42; married. AFA record: member 8 years; Squadron, Group Commander. Military rank: Maj.

PACIFIC OCEAN AREA REGION
(Areas in or bordered by Pacific Ocean)
ROY J. LEFFINGWELL
Honolulu, T. H.

Public relations director; age 47; married. AFA record: member 8 years; Squadron, Wing Commander; Regional V-P; National Committee member. Military rank: Col.

NATIONAL DIRECTORS

GEORGE A. ANDERL Oak Park, Ill. Sales manager; age 37; unmarried. AFA record: member 8 years; Squadron, Wing Commander; Director; Regional V-P; National Wing Advisory Council Chairman; National Ladies' Auxiliary Council Chairman. Military rank: Sgt.

FREDERICK L. ANDERSON Palo Alto, Calif. USAF retired; age 49; married. AFA record: Life Member. Military rank: Maj. Gen.

WALTER T. BONNEY Washington, D. C. Government aviation executive; age 46; married. AFA record: member 5 years; Director. Military rank: S/Sgt.

THOMAS D. CAMPBELL Albuquerque, N. Mex. Farming corporation president; age 73; married. AFA record: Life Mem-

(Continued on following page)

ber; Wing Commander; Regional V-P; Director. Military rank: Brig. Gen.

JOHN J. CURRIE Paterson, N. J. Trucking company owner; age 30; married. AFA record: member 9 years; Squadron, Wing Commander; Director. Military rank: Flight Officer.

MERLE S. ELSE Minneapolis, Minn. Sales manager; age 37; married. AFA record: member 9 years; Squadron, Wing Commander; Regional V-P; Director. Military rank: Lt. Col.

GEORGE D. HARDY Hyattsville, Md. Sales director; age 31; married. AFA record: member 8 years; Squadron, Wing Commander; Regional V-P; Director; 1953 National Convention co-chairman. Military rank: Sgt.

JOHN P. HENEBRY Park Ridge, Ill. Aviation corporation president; age 37; married. AFA record: member 9 years; Director. Military rank: Brig. Gen.

ALFRED A. KESSLER, JR. San Rafael, Calif. USAF retired; age 56; married. AFA record: member 8 years. Military rank: Maj. Gen.

W. BARTON LEACH Cambridge, Mass. Professor; age 55; unmarried. AFA record: member 8 years; Director. Military rank: Brig. Gen.

CARL J. LONG Pittsburgh, Penna. Electrical engineer; age 46; married. AFA record: member 8 years; Squadron, Wing Commander; Director. Military rank: Maj.

JEROME H. MEYER Dayton, Ohio. Surgeon; age 44; married. AFA record: member 9 years; Squadron, Group Commander; Director. Military rank: Maj.

WILLIAM F. MULLALLY St. Louis, Mo. Pastor; age 65; unmarried. AFA record: member 6 years; Squadron officer; Division Commander; Director. Military rank: Col.

MARY GILL RICE San Francisco, Calif. Housewife; married. AFA record: Charter Member; Squadron, Wing Commander; Director; National Committee member. Military rank: WOJG.

PETER J. SCHENK Fayetteville, N. Y. Electronics management; age 34; married. AFA record: member 4 years; Squadron officer. Military rank: Lt. Col.

THOMAS F. STACK San Francisco, Calif. Lawyer; age 35; unmarried. AFA record: member 9 years; Squadron, Wing Commander; Regional V-P; Director; National Committee member. Military rank: Lt.

T. F. WALKOWICZ New York, N. Y. Engineer; age 35; married. AFA record: Charter Life Member; Director. Military rank: Lt. Col.

MORRY WORSHILL Chicago, Ill. Pharmacist; age 42; unmarried. AFA record: member 9 years; Squadron officer, Wing Commander; Director; Regional V-P; National Wing Advisory Council Chairman. Military rank: Sgt.

NOTE: The following are permanent Directors of AFA, because of previous service as National President or Chairman of the Board of Directors. They are "automatic" members and need not be renominated or reelected:

JOHN R. ALISON
EDWARD P. CURTIS
JAMES H. DOOLITTLE
ROBERT S. JOHNSON
ARTHUR F. KELLY
GEORGE C. KENNEY
THOMAS G. LANPHIER, JR.
C. R. SMITH
CARL A. SPAATZ
HAROLD C. STUART

1955 Convention Hotel Reservations

BY THE time this notice appears, room and suite accommodations at three of AFA's twelve convention hotels—Fairmont, Mark Hopkins, and Huntington—will be "sold out." This is an indication of the advance interest in the 1955 AFA Convention. Nearly 500 rooms and 100 suites have been confirmed at just three convention hotels—an unprecedented situation. If, upon reading this, you still feel like taking a chance on getting a canceled room at the Fairmont or Mark Hopkins, be sure to list a second choice of hotels. Cancellations will be scarce. Send all requests to: AFA Housing Bureau, 61 Grove Street, San Francisco. Include a $10 deposit per room.

AFA HOTELS AND ROOM RATES

HOTEL	SINGLE	DOUBLE	TWIN
Fairmont	SOLD OUT	SOLD OUT	SOLD OUT
Mark Hopkins	SOLD OUT	SOLD OUT	SOLD OUT
Huntington	SOLD OUT	SOLD OUT	SOLD OUT
Sheraton-Palace	$8.00-13.00	$10.00-15.00	$12.00-17.00
Sir Francis Drake	9.50-13.50	11.50-15.50	13.00-19.50
St. Francis	8.00-18.00	10.00-15.00	13.00-20.00
Clift	8.00-12.00	10.00-15.00	10.00-18.00
Chancellor	5.50	7.50	8.50
Plaza	5.00- 7.00	7.00- 8.50	8.00-10.00
Stewart	4.50- 7.00	6.00- 8.00	7.00-12.00
Richelieu	4.50- 6.00		8.00- 9.00
Whitcomb	5.00- 9.00	7.00-12.00	8.00-12.00

FILL IN, CLIP, AND MAIL TODAY!

TO: AFA Housing Bureau
Room 300, 61 Grove Street
San Francisco 2, Calif.

NAME _____

ADDRESS _____

CITY & STATE _____

HOTEL _____ _____
FIRST CHOICE SECOND CHOICE

_____ _____
TYPE ROOM DESIRED RATE

SHARING ROOM _____

ARRIVAL DATE & HOUR _____

DEPARTURE DATE _____

( ) Room deposit of $_____ is attached.

AFA's Convention Air

SAN FRANCISCO ★

Fabulous San Francisco, city of cable cars. You will pass Chinatown as you ride the cable cars up California Street to Convention headquarters high atop Nob Hill.

Here's a view of world-famous Fisherman's Wharf —a spot you won't want to miss while in Frisco.

The 1955 Convention will be the biggest and best the Air Force Association has held since it was formed in 1946. The Convention has grown from a two-day meeting in Columbus, Ohio, in 1947 to this year's six-day event in San Francisco. Twelve banquets, luncheons and receptions will separate five AFA business meetings, a Reserve Forces Clinic, an Air Research and Development Command Forum, an Airpower Symposium, an Air Materiel Command Forum, and a tenth anniversary V-J Day Memorial Service, plus the Airpower Panorama. The program committee still has left time open for conventioneers to visit Fisherman's Wharf, Top O' the Mark, the Golden Gate, Chinatown, and to ride the cable cars up and down Nob Hill. All sorts of door prizes will be given out, one of which will be a round trip for two to Hawaii via Transocean Air Lines. Watches, radios and a few automobiles will also be prizes. Tom Stack, General Chairman of the Convention, and his committee members are determined to make this a memorable Convention.

CONVENTION

TUESDAY—AUGUST 9		
AFA Golf Tournament	Olympic C/Club	9:00 AM
WEDNESDAY—AUGUST 10		
AFA Directors Meeting	Fairmont	8:00 PM
THURSDAY—AUGUST 11		
Reserve Forces Clinic	Fairmont	9:00 AM
AFA Leaders Meeting	Fairmont	9:30 AM
ARDC-Industry Forum	Mark Hopkins	9:30 AM
AFA-Reserve Luncheon	Fairmont	12:30 PM
USAF-Industry Luncheon	Mark Hopkins	12:30 PM
First AFA Bus. Session	Fairmont	2:00 PM
AMC-Industry Forum	Mark Hopkins	2:30 PM
Auxiliary Board Meeting	Mark Hopkins	3:00 PM
Panorama Preview-Reception	Civic Audit'm	7:00 PM
FRIDAY—AUGUST 12		
First Aux. Bus. Session	Mark Hopkins	9:00 AM
Annual Airpower Symposium	Fairmont	9:30 AM
Airpower Panorama Opens	Civic Audit'm	10:00 AM
Ladies Fashion Tour	Downtown	10:00 AM
Ladies Fashion Luncheon	Mark Hopkins	12:30 PM
Symposium Luncheon	Fairmont	1:00 PM
Second AFA Bus. Session	Fairmont	3:00 PM
Second Aux. Bus. Session	Mark Hopkins	3:00 PM

1955 power Panorama

Headquarters **FAIRMONT HOTEL**
MARK HOPKINS HOTEL

"There I was, flat on my back at 40,000" will ring from Fisherman's Wharf to the Top O' the Mark as combat units get together at the AFA Convention in San Francisco. Each year scores of outfits use AFA's Convention as a rendezvous where they re-fight the war and bend an elbow. The three groups listed below have made plans to meet in San Francisco with AFA. A note to the contact will bring full details. Any other groups that are interested in holding a reunion should drop a note to AFA, 313 Mills Building, Washington, D. C., giving their plans.

NIGHT FIGHTERS: Gil Nettleton
1001 East Broadway, Hawthorne, Calif.

14TH FTR. GP.: Marvel Taylor, Esq.
300 Montgomery St., San Francisco

91ST BOMB GP. (H): Brig. Gen. Stanley T. Wray
Robins Air Force Base, Ga.

PROGRAM

Unit Reunion Parties	Hotels	6:00 PM
Wing Ding Ball	Fairmont	9:00 PM
SATURDAY—AUGUST 13		
Third AFA Bus. Session	Fairmont	9:00 AM
Final Aux. Bus. Session	Mark Hopkins	9:00 AM
Airpower Panorama Opens	Civic Audit'm	10:00 AM
Unit Reunion Luncheons	Hotels	12:00 N
Final AFA Bus. Session	Fairmont	2:00 PM
Annual Airpower Banquet	Palace	7:30 PM
SUNDAY—AUGUST 14		
V-J Day Memorial Service	Gold. Gate Cem.	9:00 AM
Annual Airpower Brunch	Fairmont	10:30 AM
Installation & Awards	Fairmont	11:30 AM

REGISTRATION FEES

MEMBERS (Active-Service-Associate)	$20.00
LADIES (AFA Auxiliary & Visitors)	$20.00
NON-MEMBERS (Male)	$35.00
INDUSTRIAL	$35.00

Fees include: Admission to Panorama and Preview Reception, Wing Ding Ball, Airpower Banquet, Brunch and Memorial Service. Plus, Fashion Luncheon for the ladies, and ARDC-AMC Forums and luncheon for Industrial Registrants.

AFA CHAMPIONSHIP Golf Tournament OPENS CONVENTION

Early arrivals at AFA's 1955 Convention will take to the air—not in a plane or flying saucer—but on the golf course, at beautiful Olympic Golf & Country Club, Lakeside, site of the 1955 United States National Open. A sixth day, Tuesday, August 9, has been added to the Convention schedule for the early arrivals who prefer the open fairways to the smoke-filled rooms.

The tournament will feature 120 golfers, thirty foursomes, allocated as follows: US Air Force, 30; Air Force Reserve and Air National Guard, 30; AFA Industrial Associate companies, 30; and AFA units and members, 30. Each foursome will consist of one player each from the Air Force, Reserve and Guard, industry, and AFA.

There is no doubt but what more than 120 golfers will want to play in the tournament; therefore, the participants will be selected on a lot basis—the first 120 names drawn from the applicants on the deadline date. Deadline for applying to play in the tournament is July 20. On that date, 120 players will be selected and notified. After July 20, additional players will be selected only if there are cancellations.

Golfers interested should send the following information to the address below: Name; address; current golf handicap; and name of the company, Air Force unit, Reserve or Guard unit, or AFA unit. Each player must bring his own equipment. Entry fee of $10.00 covers green and caddie fees, and a cocktail party.

Charles O. Morgan, Chairman
AFA Golf Tournament
822 Mills Building, San Francisco

This is San Francisco's Civic Center, headquarters for AFA's 1955 Airpower Panorama. The block-square Civic Auditorium will be filled with ultra-modern displays of the very latest in airpower weapons and equipment.

Tech Talk

By Lee Klein

At the **high operating altitudes** of modern jet aircraft, the **air is like a good martini**—extremely cold but very dry. Planes face the danger of icing only when they are climbing or descending through the lower, moisture-laden layers of air. Since these planes are **relatively free of icing problems** at operating altitude, and require anti-icing and de-icing equipment only for short periods of time, engineers believe that it **may be possible to design smaller and simpler equipment** than the systems now in use. To study icing conditions in a controlled situation, **Boeing Airplane Co.** engineers have designed an icing tunnel. Models or sections of airfoils can be **exposed to maximum icing** in the test section while being viewed through windows. To form the ice, a fine spray of water is mixed into 30-degree-below-zero air moving at speeds up to 250 mph. By studying the ice formations, the engineers hope to determine both **how much and how little anti-icing equipment is needed** on modern jets.

A research mechanic peers through a window at an ice build-up on a model airfoil section during a test in a new icing tunnel at Boeing's Seattle plant. Facility permits study of airplane icing conditions under controlled situation.

The **first certificate** awarded by the Civil Aeronautics Administration for commercial operation of a **turboprop engine** was issued to the **Allison Model 501** in May. Approval of the engine was based on **successful completion of a 150-hour USAF qualification test** by the Allison T-56, military version of the 501. According to Allison officials, the **engine will be available** for commercial delivery by **March 1957.**

A simulator of the **Boeing B-52 cockpit,** designed by the **Electronics Division of the Curtiss-Wright Corporation,** will be delivered to the Air Force this summer. Among its features will be **man-made lightning,** a **complete oxygen system** including face masks, and **sound effects** based on recordings made in flight by Boeing engineers. The unit will measure 30 by 27 feet and **will contain about 400 miles of wiring,** 1,200 vacuum tubes, and 150 servomechanisms.

A new **photoelectric sextant** developed by the **Kollsman Instrument Corp.** automatically sights and tracks the sun during the day, and stars and planets at night (see cut). The unit incorporates **a remote control panel** from which the navigator can operate the sextant without leaving his position. To operate the equipment, the navigator presets the estimated position of a star on the control panel. **The sextant tracking device,** which has a photosensitive telescope, **searches for the desired star,** and then tracks it. Tests conducted by the company indicate that a position **accurate within two miles** can be obtained with the sextant.

A double-barreled telescope, powerful enough to record the flight of a golf ball eight miles away, will be used by the Air Force **to observe missiles in flight.** More accurate than the best radar, the **Recording Optical Tracking Instrument** has a wide-field telescope for observing launchings, and a long range one for watching the missile in flight or on impact. The device makes it possible to take **both color and black-and-white movies** of the missiles' flight. The first ROTI will be installed at **Holloman AFB, N. M.**

Planes leaving **New York's LaGuardia Airport** are now directed over sparsely settled areas by a powerful beacon of light. Developed by **Westinghouse** and operated by the **Civil Aeronautics Administration,** the searchlight produces a **300 million beam candlepower** shaft of light—equivalent to the light produced by about 10,000 automobile headlights. The searchlight is installed about three miles from LaGuardia and planes taking off fly directly toward the beam. This takes them **down Flushing Meadow and away from residential areas. The National Air Transport Coordinating Committee,** headed by **Eddie Rickenbacker,** purchased and installed the light as part of **an aircraft noise abatement program** in the vicinity of major New York airports.

Link Aviation, Inc., in cooperation with **ARDC,** has developed a simulator for the **Convair F-102A** supersonic fighter. It will be used to train pilots at Tyndall AFB, Fla. The simulator's

(Continued on page 97)

The automatic tracking device of a new sextant developed by Kollsman.

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USAF MA-1

GROUND SUPPORT !

To meet the vital jet age needs of ground support, Consolidated has devoted its fullest resources developing both single and multi-purpose units . . . proven efficient . . . and now in active service. Typical of these units is the Consolidated Model 2001 (U.S.A.F. MA-1). This highly compact self-propelled vehicle combines in a single unit all requirements for towing, testing, servicing and starting jet aircraft.

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- **TOWING . . . All-wheel drive vehicle with mechanical or torque converter transmission, as desired.**

IN ACTIVE USE WITH U.S. AIR FORCE, NAVY AND MARINE UNITS . . . Other models of single and multi-purpose ground support equipment are available with any combinations of . . . AC and DC power . . . high pressure air, hydraulics, and low pressure air . . . refrigeration and heating.

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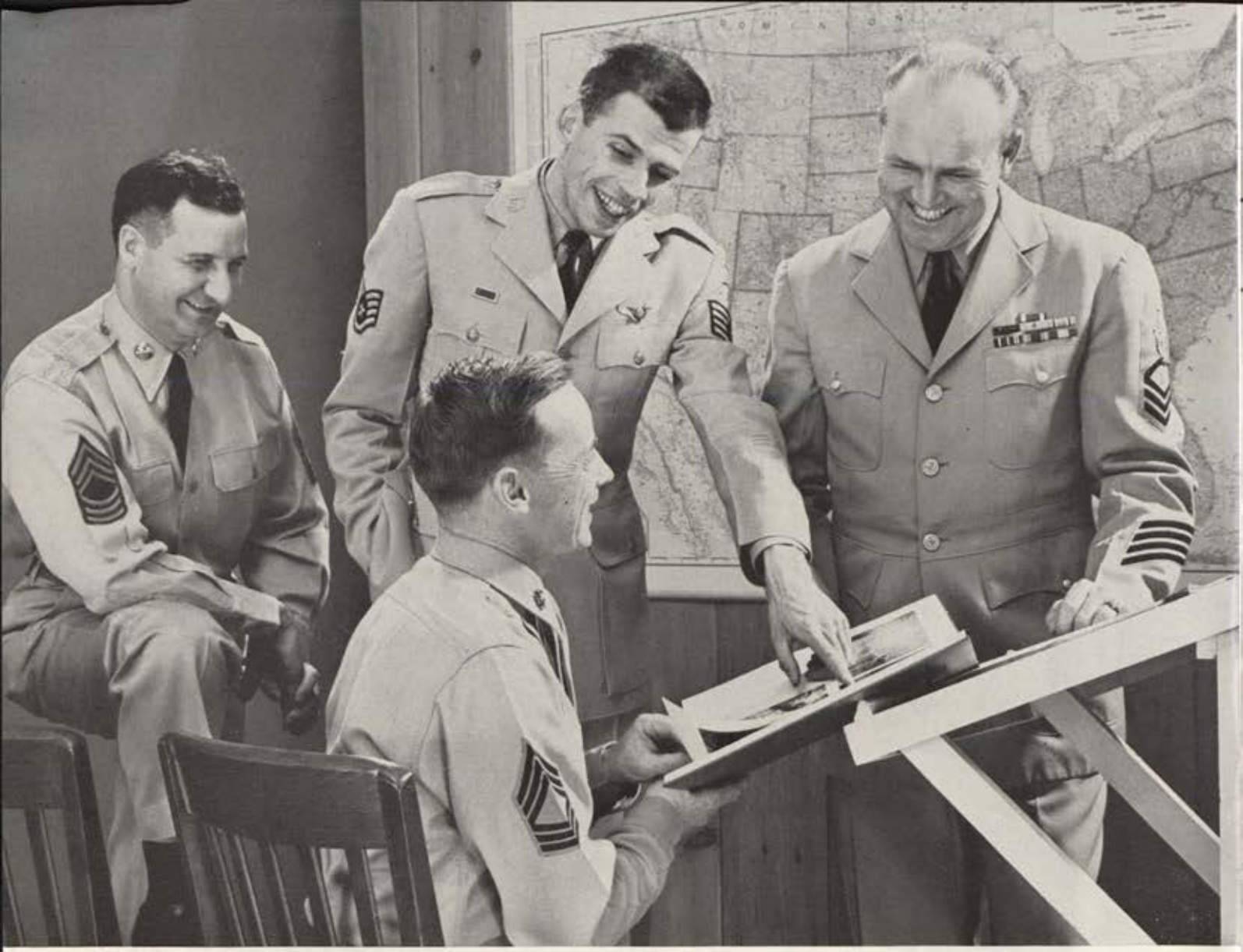

By Unanimous Agreement

These men, representing the armed services, discuss, debate—and finally agree upon a course of action. By so doing, they demonstrate a fact that is basic in the thinking of RCA: no matter what the equipment may be—atomic, electronic, chemical or structural—it takes *a man* to run it! There is no substitute for the human brain. The man always far outvalues the equipment he uses. Without him, it is meaningless.

With *him* in mind, RCA has gathered one of the world's greatest scientific teams and put it to the task of providing electronic equipment that includes the latest and most advanced thinking, engineering and designing.

Today, the RCA trademark on a thousand different electronic products is friendly assurance of the highest quality, the greatest dependability. It simply means the best possible.

RCA ENGINEERS HAVE FREEDOM TO CREATE!

They rank among the world's best and are leading the way toward new electronic products for our national defense as well as for better living for all. What they have produced thus far—wonderful as it is—is but a token of what they will accomplish in the months and years ahead. Because of its freedom to create, RCA is attracting to its staff engineers with the training, skill and courage to explore the fascinating regions of the unknown, and to create new and better things for the benefit of mankind.

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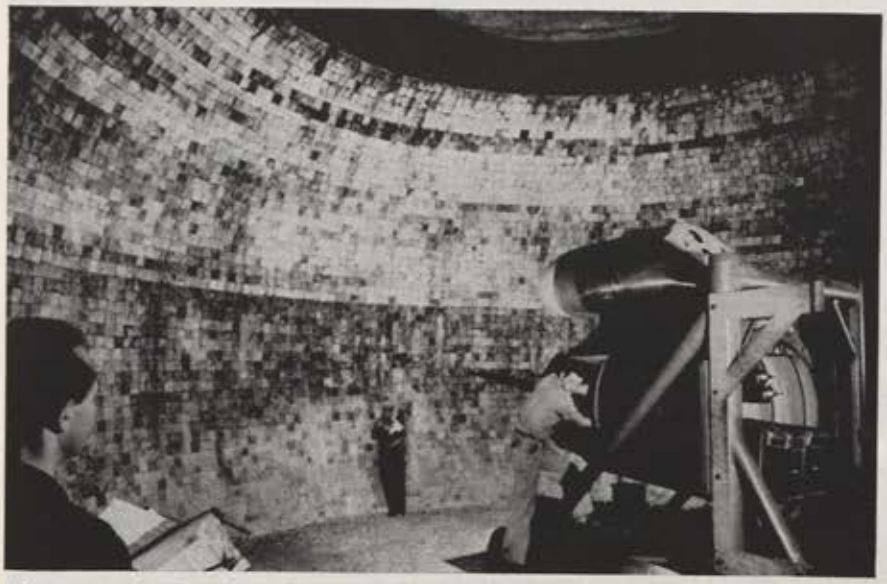


Those aren't tiles, but the ends of eight-foot timbers—over 8,000 of them. Neatly stacked, they form the inner lining of a new all-angle firing range now installed at the Evendale, Ohio, plant of the Avco Manufacturing Corp.

cockpit and operator's panel are **completely enclosed and air-conditioned,** and three persons are required in the enclosure to conduct a normal training flight. The pilot-trainee "flies" the simulator, the instructor observes from a jump seat just outside the cockpit, and an operator controls the flight by monitoring his duplicate instruments, setting up communications and navigational problems, introducing emergency conditions and operating three automatic recorders.

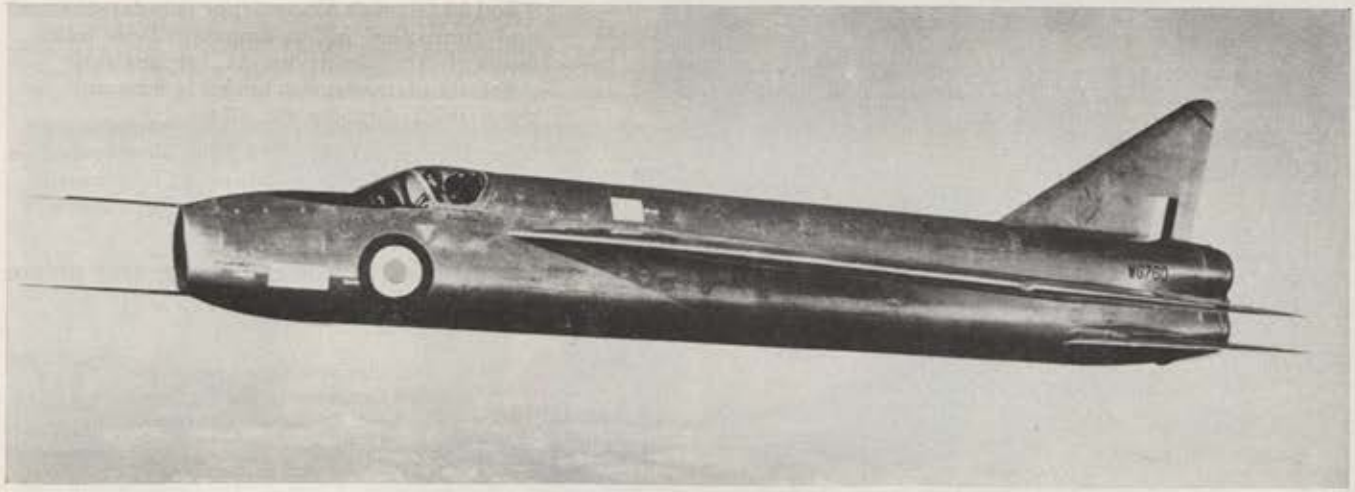
The **AiResearch Division** of the **Garrett Corporation** has started a new service it calls the **"Speed-Range" department.** The department will specialize in contouring aircraft wings with a special process to increase the speed and range of aircraft. Officials believe that the **minor flaws** in mass-produced wings **affect flight performance** enough to warrant correction in many cases. AiResearch has already "smoothed" the wings on two aircraft and reports that it resulted in "a considerable improvement over previous performance." Plans have been made to service large transport planes in the near future.

The Navy recently changed the designation of its **Grumman F9F-9 Tiger** supersonic fighter. It will now be known as the **F11F.** This should end some of the confusion arising from the fact that the Tiger bears very little resemblance to earlier Grumman F9F models.

War surplus **anti-aircraft searchlights** have been converted into **efficient solar furnaces** at the **Convair Division of General Dynamics Corporation** (see cut). The 60-inch searchlights are being used for **high-temperature testing** of metals, plastics, ceramics, and other materials used in aircraft and missiles. The rays of the sun are **concentrated into a spot smaller than a dime** by the polished metal surfaces of the searchlight mirrors. At this point, the temperatures can go **higher than 7,000 degrees** F. Under ideal atmospheric conditions, and with a perfect parabolic mirror, solar furnaces can produce temperatures of 8,500 degrees F.—**85 percent of the sun's surface temperature.** Specimens about the size and shape of a cigarette are held at the focal point by a special drill chuck. The heat quickly melts most common materials.—END

A war surplus anti-aircraft searchlight, converted into a solar furnace by Convair, is focused by an engineer.

Test specimen glows as it is moved into the focal point of the furnace.



The sleek English Electric P-1 interceptor fighter—first British plane to top the speed of sound in level flight.

Ute Squadron officers approve part of the plans for the first Utah Wing Convention. Fred Tollestrup, Treasurer, and Keith Nichols, Vice Commander, are standing. Seated are Don Redd, Secretary, and Don Hartley, Sqdn. Commander.

Members from the **Ohio Wing** gathered for a convention in **Toledo** on May 7-8th. The members listened to an address by **AFA President John R. Alison,** and approved a program promoting airpower programs throughout the coming year. **Mary Gill Rice,** an old hand at arranging conventions, and a Director of the Association, was convention chairman, ably assisted by her husband, **Stewart Rice,** who also is well known in AFA.

A Statement of Policy, calling for each state member to help promote a better understanding of the problems involved in obtaining adequate air defense; more aviation education for the youth of the state; and a better civil aviation program in all of the state's airport operations, was adopted by the delegates.

Fred Goulston, Dayton, was re-elected Wing Commander. In addition to President Alison, the honored guests included **Toledo Mayor Ollie Czelusta, Colonel Francis S. Gabreski,** who flew up from Maxwell AFB for the occasion; National Directors **George Anderl, Morry Worshill, Carl Long, Jerome Meyer, Glenn Sanderson,** and **Mrs. Rice. Mrs. Beulah Carr,** Regional Auxiliary V-P, was also present, along with two visiting Wing Commanders, **Bob Emerson of Michigan,** and **Leonard Work of Pennsylvania.**

The **Toledo Squadron,** headed by **Commander Jack Sperling,** was host to the meeting.

The **Wisconsin Convention** was held in **Milwaukee on Armed Forces Day, May 21.** Highlight of the program was the Wing's annual banquet, held at the Wisconsin Hotel. **Dr. John F. Victory,** Executive Secretary, NACA, Washington, D. C., addressed the 200 delegates and guests.

Leonard Dereszynski, past Com-

(Continued on page 103)

Presiding over the first Louisiana Wing convention were: Fred Rudesill, Commander, Clyde Hailes, Secretary, and Vincent Caruso, Treasurer. (From left.)

Two Aerojet-General high-thrust, short-duration solid propellant rocket powerplants boost the Navy's famed REGULUS missile off on its mission.

Built by Chance-Vought, the REGULUS is one of a growing number of available missiles for defensive or offensive applications.

This booster was tailor-made for REGULUS. Proven reliability, producibility and low cost make it another example of Aerojet-General's unparalleled experience in development and production of rocket powerplants.

Aerojet-General supplies liquid and solid propellant rocket powerplants, auxiliary power units, gas generators, or other associated equipment to a major part of America's missile program.

Since the first JATO was produced by Aerojet-General in 1942, the company has delivered over 350,000 JATOs and boosters ranging in thrust from 250 pounds to 100,000 pounds.

• Solid- and Liquid-Propellant Rocket Powerplants for Missile and Aircraft Applications • AeroBRAKE Thrust Reversers (SNECMA) • Auxiliary Power Units and Gas Generators • Electronics and Guidance • Ordnance Rockets • Explosive Ordnance and Warheads • Underwater Propulsion Devices • Architect-Engineer Services for Test Facilities

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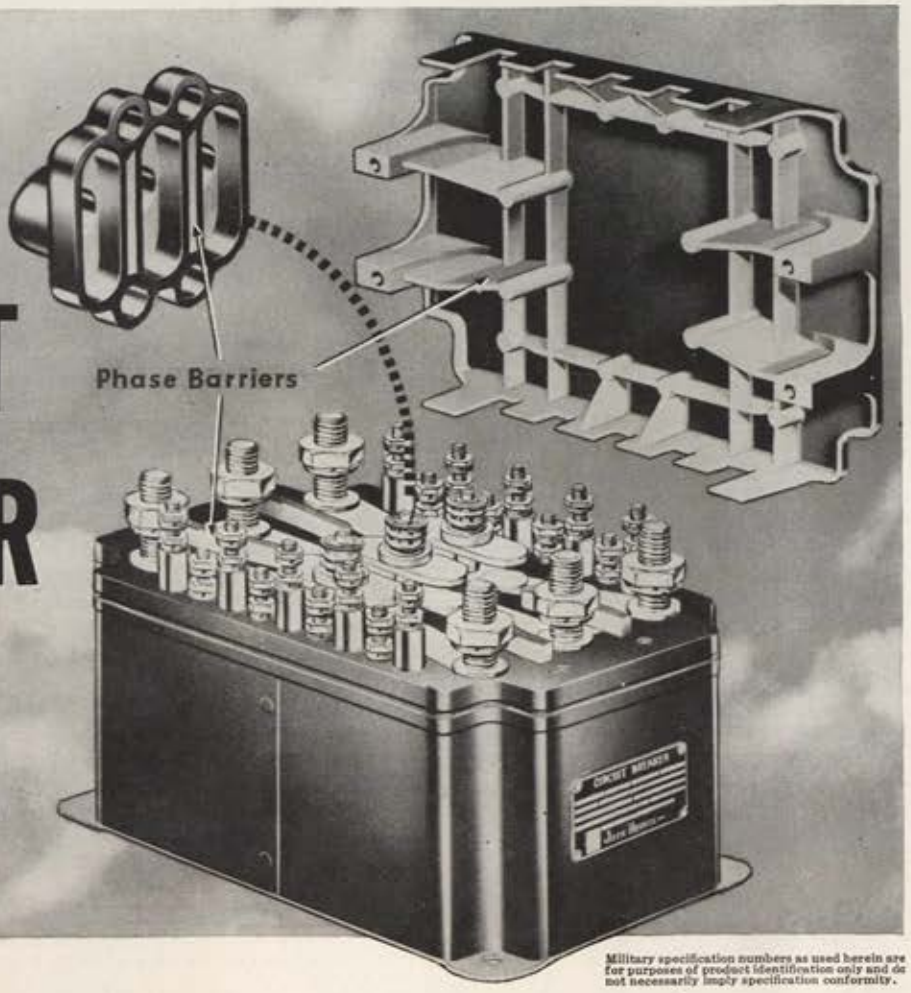
NEW CIRCUIT BREAKER FOR A-C SYSTEMS



Military specification numbers as used herein are for purposes of product identification only and do not necessarily imply specification conformity.

Design features provide exceptional safety and ease of maintenance

This new Jack & Heintz Model 50086 Circuit Breaker is designed to meet MIL-C-8379A (ASG) . . . provides a continuous rating of 175 amperes (60 kva) . . . weighs but 4¾ pounds! Although an important part of the complete Jack & Heintz a-c system "package", it can be supplied as an individual unit if desired.

In addition to its main features described at right, this new breaker has many others that assure positive, trouble-free functioning under extreme environmental conditions. Here is another example of how Jack & Heintz continues to provide you with advanced electric systems and components through integrated engineering and manufacturing. For complete information write to Jack & Heintz, Inc., 17640 Broadway, Cleveland 1, Ohio. Export Department: 13 E. 40th St., New York 16, N.Y.

SAFETY FEATURES

- **Solid Copper Bus Bars**
  All bus bars are of solid copper. No flexible copper braids used!
- **Mechanical Phase Isolation**
  Straight-through path design of main conductors together with phase barriers permits complete mechanical phase isolation of all main conductors and contacts.

MAINTENANCE FEATURES

- **Easy Contact Inspection**
  As shown above, the special construction allows inspection of main contacts without disassembly.
- **Nylon Terminal Cover**
  Molded of high impact nylon, this cover can be removed easily by loosening four screws.
- **Accessible Auxiliary Contacts**
  All three connections for each auxiliary contact have been brought out to the terminal posts for ease of hookup.

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JACK & HEINTZ *Rotomotive* **AIRCRAFT EQUIPMENT**

mander of the **Milwaukee Squadron,** served as Convention Chairman. He was elected to the top spot in the Wing, succeeding **Gerald Hayes, Jr.,** last year's Wing Commander.

A newcomer to the ranks of Wings holding state conventions is **Louisiana,** which met this year at **Barksdale AFB.** Outstanding support was rendered by **Lt. Col. John P. Spaulding,** 2d AF Chief of Information Services; **Lt. Col. Claude Evans,** and **Louis Gregory,** Commander of the **Shreveport-Bossier Squadron. Maj. Gen. Frank A. Armstrong, Jr.,** Second Air Force Commander, served as military host.

The principal speaker at the banquet that highlighted the two-day meeting was **Maj. Gen. George Finch,** Commander of the Fourteenth Air Force. The Wing presented awards to the three-man crew of a B-47 bomber which recently flew non-stop from California to Barksdale at an average speed of 641 mph.

Also featured were the premiere of a new film depicting the activity of the Second Air Force **Non-Commissioned Officers Academy,** located at Barksdale, and a luncheon at the Academy for some sixty honored guests. **Maj. Gen. Charles I. Carpenter,** Chief of Air Force Chaplains, attended the premiere and luncheon.

Fred O. Rudesill, New Orleans, was re-elected as Commander of the Wing.

In addition to the above conventions, two other Wings—**New York and Utah**—held their annual meetings in May. As this issue went to press, we had not received the details.

In a special ceremony on May 29 all deceased airmen were honored with a **memorial service** conducted at the graves of **Gen. H. H. "Hap" Arnold** and **Gen. Hoyt S. Vandenberg,** in **Arlington National Cemetery.** While F-86s of the **113th Fighter Bomber Wing, D. C. Air National Guard** dipped their wings in salute, **Chaplain (Brig. Gen.) Terence P. Finegan,** Deputy Chief of AF Chaplains, delivered the Invocation and Memorial Prayer. AFA leaders **George Hardy, William Kraemer, Donald Steele** and **Jerry Russell** placed wreaths on the two graves.

Lt. Gen. Charles B. Stone, III, USAF Comptroller, delivered the Memorial Message. The Color Guard and Ceremonial Troops of the **1100th Security Squadron, Bolling AFB,** and the **Bolling Choir** also participated.

Mrs. Hoyt S. Vandenberg and **Mrs. Muir Fairchild** were honored guests at the service. The F-86 flight was led by **Capt. Henry Combs, DCANG.**—END

A story of survival in a Korean wilderness—part two

Hell is a cold place

By Clay Blair, Jr.

Two airmen, downed in Red territory, fight to stay alive in the bitter Korean winter

This incredible tale of survival behind enemy lines in Korea is one of the four stories in Clay Blair's new book Beyond Courage, *published May 16 by David McKay Co., Inc. In the first installment last month, Air Force Lt. Clinton D. (Clem) Summersill and his Army observer, Capt. Wayne Sawyer, crashed while on a close support mission in their T-6. They escaped from their burning plane and successfully evaded the Communist troops who came looking for them. That night, they decided to circle to the northeast, deeper into Red territory, and then cut back south where Red lines were weakest. As they started up a snow covered, 5,000 foot mountain in the darkness, a blizzard struck. "Gloveless, bent against the driving cold, the two men moved slowly up the mountainside. . . ."*

AN HOUR later, they stopped to rest.

Summersill looked at Sawyer, who had been leading. His face and flying helmet were a mass of frozen ice and snow. Icicles hung from his nose. His eyes were glassy.

"Wayne, can we go on like this?" Summersill asked. He was unable to talk clearly. The sounds that came from his lips were mumbles. His face was half-frozen.

"Laddie, we can't stop. If we turn back, the Communists will get us for sure. If we stop here, we will freeze to death in two hours. It must be twenty or thirty degrees below zero right now. We have to keep going."

To maintain the discipline of the march, the two men drew up a "track" plan. Under the plan, a standard infantry procedure, one man would "lead" the other. The leader would set the pace, encouraging and urging on the other man when necessary. Under the plan, each man would lead for half an hour. The shifting of position would break the monotony of the steady dragging through the snow. It would give each man something to look forward to.

They marched off. About ten o'clock that night, eight hours after the crash, Summersill began to feel very gloomy. The trouble started in his feet. For hours, he had been plugging along in his paratrooper boots, plunging down in the white mass, which often came up to his waist. Snow had caught in his trousers leg, melted, and run down into the inside of his boots, where it froze. His feet had been numb all along, but now there was no feeling at all. He was unable to move his toes. He could just barely bend his ankles.

Finally he called through the darkness. "Wayne. Wayne. I think my feet are completely frozen." Sawyer stopped and waited for Summersill to catch up. "My feet," he repeated, "I think they're frozen."

Sawyer said, "What do you think we ought to do, Clem? There is no shelter around here. There is nothing we can build a fire with, even if we could get one started in this blizzard."

"There's nothing to do but push on," Summersill said. "But let me try to get something to put on my feet. Maybe I can make a pair of snowshoes from the branches of a tree."

Summersill pushed through the deep snow to a nearby tree. He cracked a few branches from the trunk. Even in the high wind, the sound of the brittle wood snapping was like the report of a rifle. Sawyer became worried. He hurried through the snow to the tree.

"Clem. Clem. Watch the noise. There may be Communists within a hundred feet of us. Don't break the limbs. Use your knife."

Summersill took a six-inch folding knife out of his emergency vest. One long blade was jagged, with full teeth, something like a saw blade. He drew the teeth back and forth across a frozen limb.

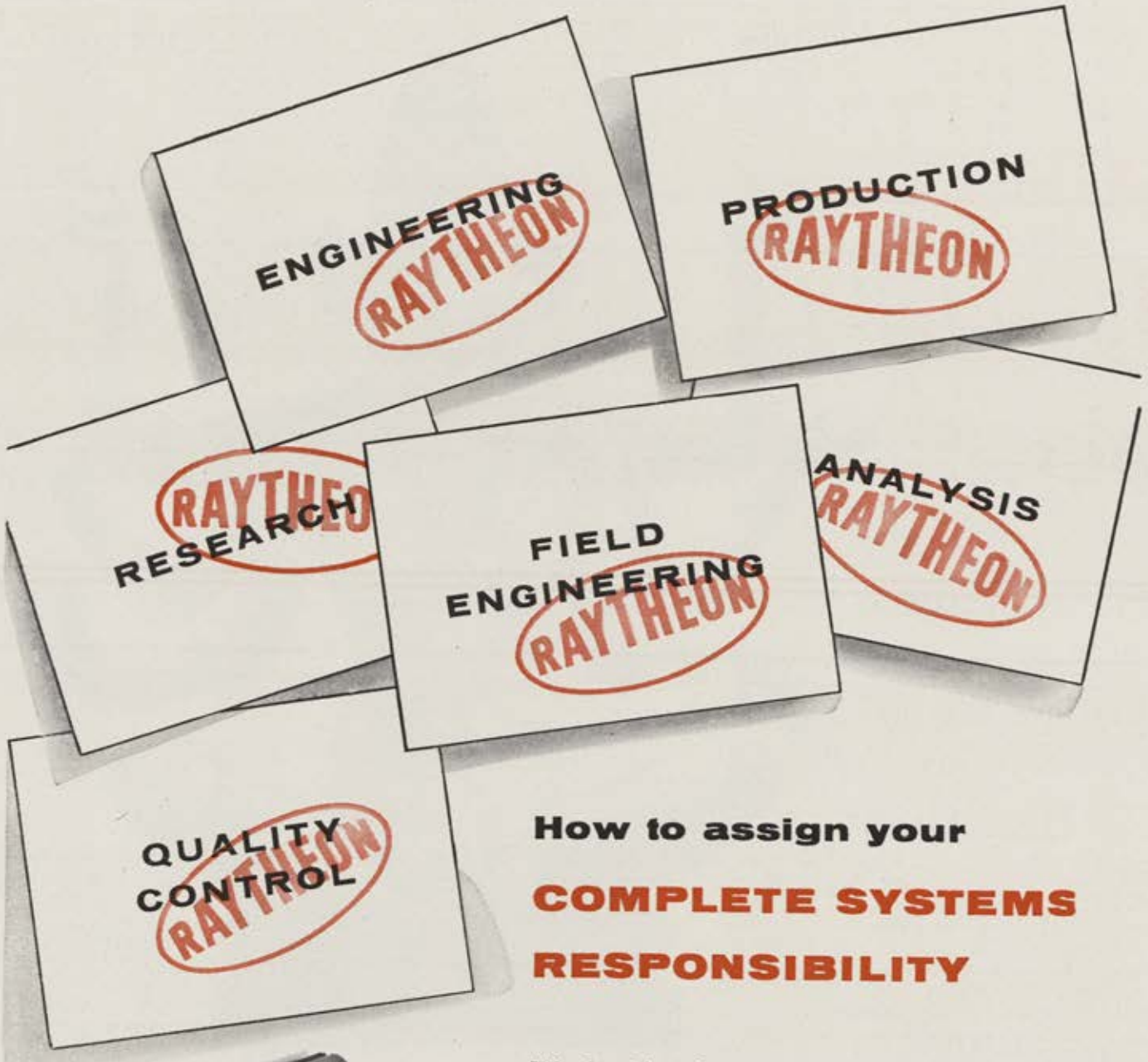
"How'll you attach the sticks to your boots?" Sawyer asked. "What'll you use for string?"

"I'll cut off a piece of the emergency vest. Or, maybe I can use the mosquito netting. We won't need that here."

Summersill hacked away at the brittle limb. After a few seconds, he lost all feeling in his hand. He put his hand and the knife inside his jacket to warm. He did not want to fumble and drop the knife in the snow because he knew he would never find it again. But his hand did not thaw. Soon it became obvious to Summersill that his task was, under the circumstances, far too formidable. At length, he put the knife away, and the pair set off up the mountainside again, Summersill leading.

Not long afterward, Sawyer sensed that they had been

(Continued on page 107)



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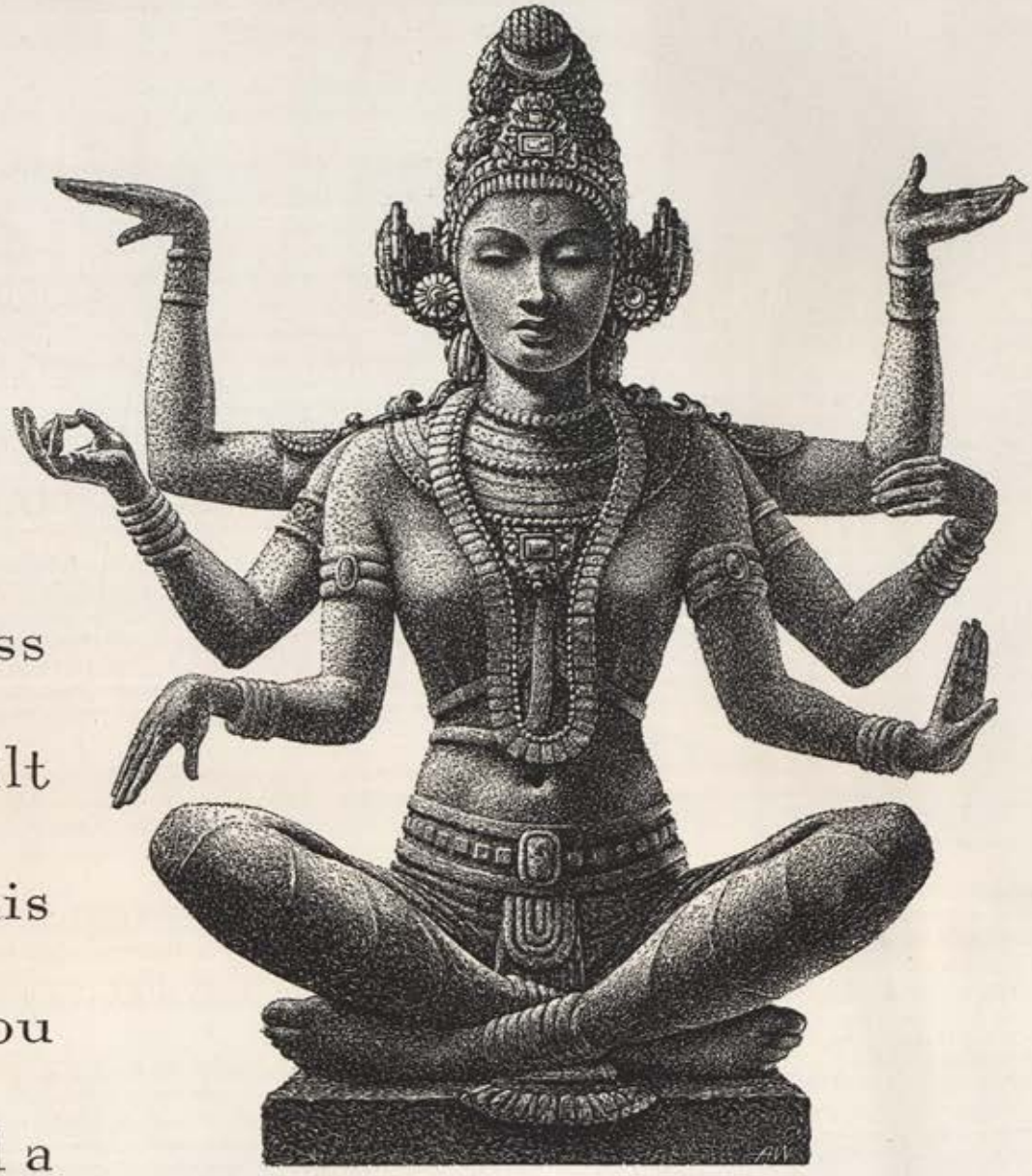

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LP-6

HELL IS A COLD PLACE — CONTINUED

going in circles. He had no proof, just the instinctive feeling of an infantryman. He took out his small flat compass and checked the direction. Sure enough, they were headed in almost the opposite direction that they intended, south—toward the Communists!

"Hey, Clem," Sawyer shouted through the wind. Clem stopped. Sawyer walked up.

"You're going in the wrong direction," he said.

For no good reason, the remark made Summersill angry. It happened that he was holding his compass in his hand the moment Sawyer came up. He had just checked his bearings. He looked at it again and saw that the needle pointed to NE, the same direction it had indicated all evening. Summersill spun around and jabbed the compass toward Sawyer's face.

"No, we're not," he said, "take a look at this." Then he noticed that as he turned, the compass needle did not swing. It remained steadily on NE, even though Summersill turned completely around.

Sawyer looked and shook his head. "The damned thing is frozen," he said.

"I believe you're right, Wayne," Clem said. He felt sheepish.

"But this is kerosene in here. It isn't supposed to freeze unless the temperature is forty degrees below zero."

"Well, it must be forty below because it sure is frozen," Sawyer replied. "We had better keep one compass thawing inside our jacket at all times."

Summersill looked at Sawyer. He tried to laugh but the skin on his cheeks was too numb. "This is fantastic," he said.

Sawyer nodded.

The men continued. The slope became steeper. Two hours later, they came to a stand of small trees. They chose the spot to stop and rest because they could wedge their feet against the tree trunks and avoid slipping back down the mountainside. The wind was blowing at about forty miles per hour. It whipped the stinging snow into their faces. Summersill was in very low spirits. He was exhausted, and his feet were heavy and stiff. He told Sawyer he did not think he could go any farther.

Sawyer felt unaccountably good at the moment.

"Why don't we eat?" he said. Summersill perked up. "Fine. Good idea. The last thing I had was that chicken lunch, and that was twelve hours ago."

A quick search of their emergency vests disclosed that they had between them two cans of compressed beef—each can designed to provide one man with one meal—a few pieces of candy, cheese, and a few bouillon cubes. They had powdered tea, coffee, milk, and cream, but no means of making hot water because the flints that were supposed to be used to ignite the two emergency sterno cans were soaked in oil and useless. In order to stretch the rations as far as possible, they settled on opening one can of compressed beef and dividing it. Summersill took the first bite.

"This doesn't taste like home-cooked food but I guess we better eat it." He could hardly get the food to his half-frozen mouth. He handed the can to Sawyer, who ate stiffly.

Numb fingers probed around in the emergency vest. Sawyer pulled out a piece of cheese. He took a bite, then handed it to Summersill.

(Continued on following page)

"Here have some of this. It's good."

"Be careful of the bouillon cubes," Summersill remarked. "They're wrapped in tin foil. The 'Charm' candy is wrapped in cellophane."

After eating the compressed beef, Summersill became thirsty. He reached down and scooped up a handful of snow. He was about to put it in his mouth when Sawyer slapped his hand, the snow spilling in all directions.

"Don't eat that," Sawyer shouted against the wind. "It'll dry the mucous membrane in your throat. You might get pneumonia. If you want water, take out the plastic water bottle and fill it with snow and then let it melt inside your jacket."

Summersill packed the plastic canteen with snow and shoved it inside his jacket. It was not very warm inside. Five hours passed before the snow melted.

The men pushed off once more into the blizzard. Sawyer led, and then Summersill. Most of the time, the men literally swam along in snow, often armpit deep. Conversation was impossible except for the occasional "Come on, Clem," "Come on, Wayne," or "Are you there?" "How're you doing?" "Come along now," from the leader. They constantly had to wipe icicles and matted snow from their faces and eyebrows. Every half hour they stopped to clean the snow from their trousers. All the while, they steadfastly followed a northeast course, moving ahead slowly, afraid to stop for long lest they freeze in their tracks on the mountainside.

About four o'clock in the morning, Sawyer, who was leading, noticed that the ground seemed to be leveling. The snow was not as deep, and there appeared to be a hard crust of ice underfoot. He turned and waited for Summersill to come along side.

"Clem. Clem," he whispered, "I believe we have come to the top."

Summersill crunched wearily through the snow to Sawyer and stopped. His face was a cobweb of frozen ice and snow. He stared dully at Sawyer. The wind blew steadily out of the northeast. They turned their backs to it as they stopped to talk.

"The top, laddie!" Sawyer insisted. "I think we've come to the top."

Summersill was too weak to rejoice. "How do you know?" he asked.

"The ground has leveled. Look, the snow is shallow, and there is a hard crust of ice underneath. This must be the top. The crust was formed when the sun melted the snow and then it froze again."

Summersill looked at Sawyer, and then he stared blankly into the black void around them. He could not see more than a few inches through the slanting sleet and snow. "O.K.," he said, "O.K."

"The going will be much easier," Sawyer said.

He was mistaken. The wind came steadily out of the northeast. In the open, on top of the mountain, it blew with twice its former force. The noise alone was maddening; the sting of snow and sleet was almost unbearable. Like two forlorn cutters sailing into the wind, the men tacked back and forth across the mountain top, heading first due east and then northwest, in an effort to achieve a northeast course. They became so cold and exhausted that they could walk only with great difficulty in any direction. Summersill's frozen feet clumped against the hard frozen crust like two brittle stilts.

At length, Summersill, who was leading, fell into the snow. Sawyer came alongside and sat down.

"I can't go any farther," Summersill said.

Sawyer nodded. Then, the two men sat in the snow, heads bowed. Suddenly, as if possessed by some superhuman force, Sawyer jumped up and violently beat his arms around his body. He shook Summersill.

"Get up, Clem. Get up. We'll freeze to death if we sit here. Get up."

Summersill jumped up. He looked at his watch. The crystal was clogged with ice and snow. "How long have we been here?"

"Two or three minutes," Sawyer replied.

"How about crawling?" Summersill asked. "That'll keep us going in the wind and probably keep us from freezing to death." He wanted to avoid walking on the hard crust.

"O.K., let's go," Sawyer said, "and watch out that you don't bump into any Communists."

They crawled off into the wind, heads down. Summersill remained in the lead. Every ten minutes he turned and shouted, "You O.K., Wayne?" Sawyer replied each time in the affirmative, but sometimes with only a grunt and a vigorous shake of the head.

Summersill realized that his mind had ceased to function in the normal fashion. It had focused on an imaginary point in the snow about six inches out from his nose. He could think of nothing except that in order to go on living, he had to get one numb hand out to that spot, pull himself along, then put the other numb hand in the same spot, and then drag two frozen legs behind him. He managed to pull himself along for more than an hour. Then he lost all consciousness and fell face down in the snow.

Sawyer was struggling along in like manner only a few feet behind. He saw Summersill collapse, and then he stopped crawling. He realized that he had neither the will nor the strength to awaken Summersill or crawl around him. He got up on all fours, fighting to keep awake. But then, his strength drifted away, and, like Summersill, he fell face into the snow. The wind moaned across the white mountaintop, drifting snow against the two dark shapes.

Sawyer awoke first. He lifted his face off the ice and shook snow from his body. He noticed that the snow and wind had stopped and it was getting light. Even though a heavy fog hung over the mountaintop, the visibility had improved considerably. He wiped a mat of snow from his face and glanced at Summersill. He was little more than a white hump. Sawyer crawled over and fell against him pawing at the huddled form with numb hands.

"Come on, laddie," he said. "Come on. We have to get out of here."

Summersill awoke with a start. He jumped up. Then, like a crazed animal, he walked round and round in circles. He tried to clear his head of sleep. Sawyer sat on the ice shaking his head violently. He watched absently as Summersill walked off in the direction in which they had been crawling earlier. Summersill had gone but ten steps when he became wide awake. He stopped and stared dumbly ahead.

"Wayne!" he shouted. His voice was hoarse and raspy.

Half crawling, half running, Sawyer floundered through the snow until he reached Summersill's side.

"Look at that," Summersill said. Directly ahead, not more than five feet, the mountainside dropped away for several hundred feet, a sheer cliff. Sawyer stared down into the icy chasm.

"If we had crawled another fifteen feet—" Sawyer said.

Summersill nodded his head vigorously. "It looks like somebody has been watching out for us, buddy," he said.

"It sure does look like it," Sawyer said.

Summersill was profoundly impressed by the narrow escape. He began to think back over the events of the last fourteen hours. He remembered his prayers in the cave. Then he prayed again.

Dawn was not far off. Once they had fully regained their senses, the two men turned their thoughts to the matter of

(Continued on page 111)

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finding a suitable place in which to hide out for the day. It would be dangerous to move about enemy territory in the daytime. They took stock: Summersill's feet were completely frozen. Sawyer's left foot, which had broken through the ice into the puddle when he leaped from the burning airplane, was beginning to freeze, even though he had changed his socks. They were almost out of food.

While they discussed the dismal situation, they scanned the mountainside as far as they could through the fog. Once Sawyer thought he saw a small house. He walked a few feet in its direction, then shook his head. He said to Summersill, "I am seeing snow mirages, if there are such things."

"We better try to find a house someplace, because my feet are really in bad shape," Summersill said. "Maybe we can find some farmer who has a fire and will let us thaw our feet. We can hit him up for some chow, too."

Sawyer was looking at the map again. He was trying to ascertain their position. "I believe we're right here," he said to Summersill.

"You mean we've only come twenty miles?" Summersill asked, looking over Sawyer's shoulder at the map. Summersill grunted. He was discouraged. They were not even halfway to their objective. "We're averaging just a little better than a mile an hour."

"We better turn east now," Sawyer said, "I believe we are around the Commie flank now."

"O.K., Wayne, but let's look for a house and get our feet warm."

They set off in an easterly direction along the mountaintop. But they saw no houses along the ridges or the slopes below. Sawyer looked again at the map, trying to fix their exact position. Finally, he said to Summersill:

"Laddie, I don't think there is a house around here anywhere. This is desolate country."

"Well, let's don't just stand here," Summersill said.

While searching for a suitable hiding place, the men came upon a large evergreen tree. Thinking it might offer protection, they crawled under it. "Just like home," Summersill said, burrowing his way under the limbs.

"Let's try to build a fire," Sawyer said. They took out their cigarette lighters. Both were soaked and would not work, so they began a careful search for matches. Summersill pulled out a package of cigarettes. "Getting warm," he said. The remark struck both men as hilarious, and they laughed loudly. But they could find no matches.

They had no sooner settled themselves under the tree than the snow fell from it with an earth-shaking thump. Both men were buried. They clawed their way into the open. Then, as they shook the snow from their jackets and trousers, Summersill asked, "Any more bright ideas?"

As they walked farther along the mountaintop, it became light, even though the heavy fog still clung to the ground like a low-hanging cloud. After a while, Summersill said:

"Wayne, what do you say we push on and not hide during the day today?"

The thought had not even crossed Sawyer's mind. All his Escape and Evasion training had stressed that under no circumstances should an attempt be made to move through enemy territory in daylight. It was basic. Summersill broke in on his thoughts:

"The fog seems to be holding. It will afford cover and concealment. I think we ought to push on. If we try to hole up in this snow with no fire, we'll surely freeze to death before nightfall. I'm afraid I don't have a choice." Summersill was thinking of his feet.

Sawyer knew that Summersill was right. The latter had no choice. If he remained in the snow, without moving and without fire, he would die. The chances were also good that his own leg would get worse. He would not even consider splitting up.

"O.K.," he said, "let's go on."

He looked at the map again. "Look," he said. "We'll keep going east, and move down into this area. The map shows that a number of creeks originate here in this watershed. The creeks run east through the mountains and into the flatlands, and right into friendly lines. If we can pick up a creek and follow it out, we won't have to crawl up and down these mountains."

It was something to contemplate. Summersill looked at the map.

"You mean one of these creeks?" he asked. His numb

(Continued on following page)

Capt. Wayne Sawyer receives the Distinguished Flying Cross and the Air Medal with four clusters from Col. Loren Ayres in a retreat ceremony at the Oakland Army Base.

forefinger mashed clumsily against the map.

"Yes," Sawyer said. "I believe it is all downhill to the source of these creeks, too. Walking ought not to be as tough today as it has been. We can stay right on the mountaintop, too—to hell with walking along the slopes. It we run into any Communists, we will fight it out."

"O.K., Wayne. But if we run into any Commies, we will fight it out. Nobody captured, right?"

"Right," Sawyer replied.

They were hungry. They discussed eating but ruled against it, deciding to look for food during the day and save the rations. Breakfast consisted of a long swig on the canteen of melted snow. Then they were off, walking along the top of the mountain. A few miles later, Sawyer, who was leading, stopped. He checked the map again.

"I think we ought to start down here," he said. "There should be a little basin—a sort of canyon down there where one of these creeks starts. We'll go down and try to pick it up and follow it out of the mountains. By then, we ought to be near the front and I believe we can slip through O.K."

They started down the steep face of the mountain. Walking was impossible. Sawyer sat down in the snow and slid for about one hundred yards. Summersill watched, and then slid down behind him. They got up, and slid another hundred yards.

"Great stuff, eh?" Sawyer said. "The mountain climbers call this glissading."

"Beats the hell out of walking," Summersill replied.

On the next slide, Sawyer unavoidably built up a large ball of snow in front of his feet. The ball picked up speed, and then went crashing down the mountainside. Both men stopped and dug into the snow, trying to be as inconspicuous as possible, in case the thundering snowball had alerted the enemy. They lay still in the snow for almost an hour. Finally, when there was no sign of activity. Sawyer waved his hand, and they slid farther on.

The whole day was consumed descending the mountain. Much of the time they glissaded. It was not easy. Moreover, it was dangerous. Once they almost slid into a deep crevasse. Their lives were in peril for an hour, as they clawed their way back up through the snow to safety. But most of the slow descent was made on foot, traversing slopes, cutting across ridges, walking along ice or snow through the incredibly desolate country.

By early afternoon, both men had reached a physical breaking point. Neither had ever walked so long, in so short a time, through such difficult and treacherous terrain. The lack of rest, the absence of food, the numbing cold, the frozen feet, the almost psychopathic fear of being captured —all these factors began to exert a paralyzing grip on their senses. They blacked out for brief periods, or else their minds went off on sudden flights of fancy.

Summersill was the first to become delirious. It happened late in the afternoon. They were glissading down a steep slope, Summersill leading. Sawyer unavoidably cascaded another snowball from behind. It bore down upon Summersill, and reached him just as he slid under a log. The snowball smashed to pieces on the log. Summersill came out, safe and unhurt on the other side.

He heard Sawyer hurrying down, calling, "Clem. Clem. Where are you?" Sawyer had not seen the log and did not realize that Summersill was lying safely in the snow on the other side. Sawyer clawed into the snow, yelling: "Clem. Clem. Can you hear me? This is Wayne. Clem. Clem." He believed that Summersill had been buried under the snowball.

Summersill knew that Sawyer was digging for him in the snow, but for some inexplicable reason, he lay there without answering. Sawyer dug for more than fifteen minutes before he uncovered the log and then found Summersill on the other side, resting comfortably, laughing.

Sawyer became very angry when he saw Summersill. "What the hell are you doing? I thought you had been buried. Why are you pulling a dirty trick like this?"

Summersill rolled on his side, shaking with spasms of laughter.

Sawyer screamed, "What are you laughing at, you idiot?" Then he caught himself. He sat down alongside Summersill and began laughing too. It was obviously time for a rest.

Soon they were off again. Within an hour, they could see, lying below them, the small snow-blanketed basin they had been seeking. It was very small, hardly more than three hundred yards wide. They could see that a double row of bushes twisted out of the basin in an easterly direction. They guessed that the creek, frozen over and covered with several feet of snow, lay between the rows of shrubs. At any rate, it tallied with the direction of the creek as indicated on the map. They started down the steep side of the basin toward the bottom.

Except for the crunch, crunch of their frozen boots in the snow, there was not a sound as they dropped down into the basin. Summersill was leading. Suddenly he stopped and raised his right hand in warning. He waited for Sawyer to catch up. He whispered:

"There's a soldier up there along that little ridge. I just saw him adjust his rifle."

Sawyer shoved Summersill down, then he dropped to his knees. "Keep low," he whispered. The two men pulled out their .45-caliber pistols and lay, face against the snow, holding their breath, to keep the condensation clouds from giving away their position. After a few quiet minutes, Sawyer said:

"Are you sure you saw a soldier?"

"Positive," Summersill replied.

"Well," Sawyer said, "we can't lie here all day. Let's go get him. Show the way."

The two men crawled through the snow. It took them more than an hour to circle around and come up through a group of shrubs to the back of the ridge. They inched to within twenty feet of the place where Summersill said he had seen the soldier.

The ridge was bare.

"He's gone," Summersill said.

Sawyer believed Summersill was delirious again. But he said nothing. He was not sure of his ability to judge.

It was beginning to get dark when the two men headed back down into the basin once more. They had almost reached the row of shrubs that lined the snow-covered creek, when they spotted the tracks of a rabbit.

"Look at that," Summersill said. He was very hungry. During the day, they had chewed on a few twigs and had even tried without success to rip bark from a tree trunk, but this was the first sign of palatable food they had encountered. The trouble was that the rabbit was nowhere to be seen.

"We better not go look for it," Sawyer said. "We might get lost, and we don't have the strength to get lost."

They sat down, and in place of a rabbit for supper, they took a drink from the canteen. The sun was setting, casting a weird light through the fog. It played eerie shadows into the basin. In the last light, they surveyed the path of the stream and discussed new "track" procedures. The discussion turned around whether or not they should stay in the bottom of the canyon and walk along the creek bed, get up on top of the ridges, or walk along the side of the ridges as was the standard evasion procedure.

Summersill was very tired. The second wind that had

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carried him through the late afternoon was gone. His eyes ached. His back and legs were stiff. His mind kept wandering off, as though detached from his body. He said to Sawyer:

"Where do you think the Commies will be? On top of the ridge? Or along the canyon bed?"

"I think they will probably be on top of the ridges or along the creek bed. But, those ridge slopes are so steep, I don't think we can walk along them." They were whispering.

"I don't think I can even get up there, much less walk along in all that deep snow."

"Well, let's walk along the creek here until we bump into something."

"O.K., buddy," Summersill said. "Take off. I'm right behind you."

Even though the creek was covered over by a deep blanket of snow, it was easy to follow in the growing darkness. The twin row of shrubs delineated its course like two hedges alongside a sidewalk. Moreover, about half an hour after dark, the clouds suddenly lifted. The sky became clear, the visibility extraordinary. The two men looked up in wonderment at the profusion of stars shining brightly overhead. On signal from Sawyer, they stopped.

"Look at that," he said. "We certainly have been having the breaks on the weather. It's overcast in the daytime when we need to hide, and clear at night when we need to see."

"Almost miraculous," Summersill said.

For the first time, the two men were able to get a good look at the surrounding countryside. As far as they could see, it was a mass of snow-covered mountains, peaks, ridges, and canyons. The creek alongside which they had stopped lay in the bottom of a canyon about three hundred yards wide and five hundred feet deep. The walls were steep, almost vertical in places, and covered by deep snowdrifts.

The stream itself, no more than ten feet wide, carved a course down through the middle of the canyon floor. It twisted and turned, snaking its way eastward down through the mountains. As it progressed farther from its source, it sunk deeper and deeper into the floor, widening slightly, until it formed a sort of shallow canyon within a canyon.

"Just like a deep highway cut through the mountains, eh, buddy?" Sawyer asked.

"Well, I've seen better highways than this," said Summersill.

They looked at the stars for a moment.

"There's the North Star up there," Sawyer said, pointing.

"Right. I see it," Summersill said.

"We ought to keep an eye on it from time to time," Sawyer said, "to make sure we are approximately on course."

They walked on.

Not long afterward, Summersill suddenly began to cry. He did not know why, but he sobbed uncontrollably. Then he began to shout, "Wayne. Get me out of this snow. Get me out of this snow." He heard himself shouting insanely. He knew that snow covered everything for miles and that Sawyer was powerless to help. Yet he could not stop sobbing and yelling.

Sawyer tried to quiet him. "Clem. Be quiet. Be quiet. There might be Communists all around here. They'll kill us on sight if they get us. Do you hear? Shut up. You have to shut up." He wrapped an arm around Summersill. The two sat down in the snow. Then, as suddenly as he had lost senses, Summersill regained them. To help restore his confidence, Sawyer said, "Why don't you lead for a while?"

Summersill took off down the stream, clomping through the deep snow. All at once, he stopped still. He blinked his eyes; then shook his head. He could not believe what he saw—two small mud huts. He stared at one of the huts for a moment, to make sure it was not a mirage.

Lt. Clinton D. Summersill

Smoke, and an occasional spark, puffed out into the night from a small chimney sticking out of the top of the hut. Summersill looked at the other hut. It did not go away. It was obvious that both were real and both were occupied. Summerstill turned slowly and walked back toward Sawyer, who had also seen the huts and was standing still. But Sawyer motioned for Summersill to turn around and keep going as before.

Summersill pulled out his .45 and walked back between the two mud huts. He moved very slowly, carefully placing each foot in the snow, digging in the toe and heel. Sawyer also had his pistol drawn. He crept along behind. When they had moved about fifty yards past the huts, they stopped to whisper.

"What the hell was all that?" Summersill asked.

"Chinese one-man huts. They're like pup tents. It must have been a guard post. There must be a bivouac of some kind back over there." He swept his hand in the direction of the huts.

"I'll have to be more alert than that," Summersill said.

"Roger, laddie," Sawyer replied.

They pushed on through the snow. With the sighting of the mud huts, tension mounted; it was plain that they were now in an area occupied—and guarded—by Chinese troops. Tempers become short. They argued about the most inconsequential things—whether to stop and take leaves off a tree or whether to look through pebbles for worms and bugs. They fought over directions. Once, while Summersill was leading, he came upon a large boulder blocking the way. He started around the rock to the right.

"Don't go that way," Sawyer whispered.

"Why not?" Summersill asked.

"Because you'll fall into the creek."

(Continued on following page)

"No, I won't."

"Yes, you will. Let's go around this way."

"Listen, I am leading, and I say let's go this way."

It seemed absurd. The rock was not large. Either way would have quickly led them around it. But the question of the routing had become a matter of principle. The two men argued for more than ten minutes. They had almost come to blows when Summersill finally gave in.

"O.K., you're senior officer. We go where you want to go. But I won't forget this."

They passed around the rock to the left, Sawyer leading. They were obviously on the verge of breakdown.

At midnight, the two men stopped by a rock to rest. Tempers were still short. A question of whether or not they should eat again was debated. It had been twenty-four hours since they had the first can of rations. They wanted, if possible, to save the little remaining food for emergency. But after a quick search of nearby bushes failed to produce even dead leaves, they agreed to eat the rations. Each insisted that the other have the larger share.

"Here, Wayne," Summersill said, "you need this. Eat it."

Sawyer was equally insistent: "No, Clem. *You* eat it."

After they had finished the can of food, divided about equally between them, Summersill decided that he would have dessert. He took a small square from the emergency vest, and thinking it was a "Charm" candy, pulled the wrapping off and took a big bite. He swallowed the bite before he realized that the square was not a "Charm" candy but a bouillon cube. The cube was very bitter and extremely salty. Summersill immediately became nauseated. He was worried that he would get sick and lose the food he had just eaten.

He got sick, but he did not lose the food; at least, not all of it. When he threw it up, he caught it in his hand and then swallowed it again. In a few minutes it came up again. Once more, he caught it and pushed it down. He did not want to lose the food. He knew he needed every scrap of energy he could get.

When they set off again, Sawyer lead. Summersill trailed, alternately throwing up his food and swallowing it every few minutes. His stomach ached, his throat was raw. He did not complain to Sawyer because he did not want to become a burden.

The sickness soon absorbed the tiny remaining pocket of strength in Summersill's body. He felt he could no longer go on. But he somehow managed to, stumbling along blindly, following Sawyer. Vaguely, as though his voice were coming from millions of miles away, Summersill could hear Sawyer whispering words of encouragement: "Come on, Clem. That's the boy! Just one more step. Come on, boy."

From time to time, he blacked out entirely. When he awoke, he would look back along the path they had traveled, and try, without success, to recall having walked it. Once he went to sleep on his feet, standing erect in the middle of the snow. Sawyer walked a long way before he realized Summersill was not behind him. When he tried to wake him, the two men fell into the snow.

Summersill sighed. "Wayne, is it really worth getting up and going on?"

Sawyer replied, "I don't give a damn if I ever move again. I just want to sleep." They lay in the snow for several minutes.

Then, as he had done on many occasions before, Sawyer jumped up, stomping his feet, shaking his head, and slapping his arms around his body. He shook Summersill violently. "Get up, Clem. Get up. We've got to get out of here."

Summersill got to his feet. He was amazed to discover that his head had cleared and his stomach had stopped aching. He got out a piece of candy and put it in his mouth. Then he picked up a handful of snow and took a bite. He held the snow, along with the candy, in his mouth. The snow seemed to melt faster when mixed with the candy. He swallowed the mixture. "How good that feels on my raw throat," he said aloud.

They pushed on down the creekside, Summersill leading. Suddenly, the barking of a dog broke the silence of the night. Summersill stopped, his heart beating wildly. Both men looked around. It was difficult to determine the direction from which the barking came because it echoed through the canyon. Summersill looked at a patch of trees on the top of the right wall of the canyon, then he said to Sawyer:

"There they are, Wayne! See the flashlights up there?"

"Yes," he whispered, "I see them bouncing through the trees. They have dogs with them. They are after us."

"They must have spotted our trail back there in the bivouac. Let's get moving," Summersill said.

From some source, the two men obtained additional energy, which enabled them to run headlong in the snow. As they raced along, every fifteen or twenty seconds they looked back over their shoulders toward the forest on top of the hillside. They could see that the flashlights were still bouncing through the woods, seemingly coming in their direction. They had gone about half a mile when Summersill looked around and stopped.

"Hey," he whispered, "look at that. Those damned flashlights have wandered off into space."

Sawyer looked around. It was true. The "flashlights"—in reality stars—were now clearly visible in the sky. From where they stood, they could see that the hillside sloped down slightly, "lifting" the stars out of the wood. Summersill could not believe it at first. He walked back some distance until the stars were "back" in the trees again. As before, they seemed to bounce and scurry through the forest. "I'll be damned," he said to Sawyer.

The "flashlights" were not the last objects that the two men conjured up in their imagination. Indeed, the remainder of the night was a nightmare of imagined objects: bridges, houses, enemy soldiers, flashlights, wild animals. The power of suggestion played a big role; every time one man spotted a bridge or tank, the other man instantly confirmed it. Many times they left the trail to clamber up the hillside to inspect a cave only to have it disappear into thin air.

About three hours past midnight, the men rounded a turn in the trail and come upon a deep gorge. Two eight-inch logs covered with snow and ice formed a bridge spanning the dark chasm. Sawyer looked at the bridge and asked:

"Is it real!"

Summersill kicked one end of the logs with his frozen foot.

"Yep. She is a real one this time."

"Well, I don't think we ought to cross it."

"Well, what do you want to do, buddy? Sit here until daylight?" Summersill was getting angry again.

"Well, I guess you're right. I'll go over first," Sawyer said. He got up and started to walk across the logs.

"Wait," Summersill shouted. He pulled Sawyer off the log. "Let me go over first. I'm leading."

Summersill put his knees in the "V" between the two logs and inched along. Halfway across, he looked down. He could not see the bottom of the gorge. He shuddered. If one of them fell, he thought, what would happen? Suppose one broke a leg? Then what? Would both men stay together, or would one man go on? Summersill was greatly relieved when he reached the opposite bank.

"Come on across, Wayne. But be careful. It's very slippery and the gorge is very deep. Come on now. That's right.

(Continued on page 119)

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One knee in front of the other. Easy does it."

With only a foot to go, Sawyer stood up to walk off the end of the log. He slipped and fell. At the last instant, he blindly groped with numb hands for the side of the bank. Somehow, he found a handhold and stopped his fall. Quickly Summersill reached down and grabbed his clothing. As he did so, the .45 slipped from his jacket, struck Sawyer a glancing blow on the head, then clattered down—seemingly forever—into the icy gorge below.

Summersill braced a frozen leg against one of the logs, and pulled Sawyer up on the bank. The two men lay on the ground for some minutes, breathing heavily. Finally, Summersill spoke.

"Wayne, what if you had fallen in the gorge and broken your leg?"

"That would have been very bad. I guess I would have been left behind, huh?" he said.

"No. I would have stayed with you," Summersill said.

"It that the way it will be?" Sawyer asked.

"Yes," Summersill said, "it is the only way."

"O.K., so be it."

They pushed on, Summersill leading. By now, the creek had broadened considerably. Its banks, cut into the canyon floor, were steep and deep. Here and there, the ice coat had been broken, and water rushed against the rocks and boulders that littered the bottom. The men walked along a natural path that followed the lip of the bank. After a while, they came upon a boulder that lay across the path. The only way around it appeared to be a tiny ledge between the rock and the steep creek bank. Summersill was about to climb out onto the ledge when he noticed a black shape, seemingly crouched, on top of the rock.

"A mountain cat!" he said to himself. It seemed to be ready to leap. Summersill backed slowly until be bumped into Sawyer.

"Look, Wayne, a big cat!" he whispered.

"I see it," Sawyer said. His eyes were glued to the top of the rock.

"Give me your forty-five, and I'll shoot it," Summersill said.

Sawyer did not like that idea. The shot would alert every Communist for miles. "No," he said.

"Why not?"

"Because I want to keep it. You lost your gun. I want to keep mine."

"All right, then," Summersill said, "keep it."

He thought for a minute. "O.K.," he said. "I have an idea. I'll walk up to the rock. Just as the cat springs, I'll drop into the snow. Then, you kill the cat."

Sawyer did not like that idea either.

"No," he said, "I have a better idea. You just walk by like nothing happened, and maybe the cat won't notice you,"

Summersill thought to himself: this guy is completely nuts. Here is a big cat blocking the trail, and he doesn't want to kill it.

"Very well," he said. "If it jumps, I'll kill it myself." He took out his knife and flicked open the cutting blade. Then, with his weapon held at the ready, he walked boldly toward the rock.

Suddenly, the "cat" vanished. When Summersill got close, he found in place of the cat, a big bush growing on top of the rock. He looked at it skeptically. Sure enough, the bush seemed to be in a "crouching" position. Sheepishly, Summersill put away the knife.

They trudged, stumbled, and crawled for another hour, always whispering encouragement to each other. Then, through watery, half-closed eyes, they noticed that a faint light was beginning to glow in the east. Dawn! There was not a cloud in the sky. The day would be bright and sunny. They were sure the Communist soldiers would spot them if they remained on the open floor of the canyon. Once again, they began the search for a safe place to spend the day.

About ten minutes later, they came to a Korean house jammed in between the creek and canyon wall. The house did not disappear within a few seconds as all the others had. It was real. A light shone in the front window. Should they approach it? They stopped and held a whispered conference. The decision: to take a chance and try to make contact with the Koreans who presumably occupied the house. If, by chance, the Koreans were not sympathetic, perhaps they could buy protection. Since he had lost his pistol, Summersill was selected to walk ahead and make the contact. Sawyer would cover him from the brush.

Summersill walked straight up to the door of the house. He raised his hand to knock. Something—he did not know what—caused him to stop his fist in mid-air and back away from the door. He was suspicious. He crept to the window, stood back slightly, and looked in through the unfrosted pane. In one quick look, he counted six Chinese soldiers.

Though he ducked away into the darkness immediately, the scene inside the room remained vividly implanted in his mind. One Chinese soldier was sitting on a chair drinking a cup of tea. His head was bowed, his hands were wrapped around the cup. Another soldier was standing, smoking a badly rolled cigarette. He was talking to two other soldiers who were sitting on the floor. A fifth Chinese was sitting alone at a crude table playing cards. A sixth was lying on the floor asleep. There might have been others.

Summersill backed hurriedly toward the spot where he knew Sawyer was hiding. But Sawyer was gone.

(Continued next month)

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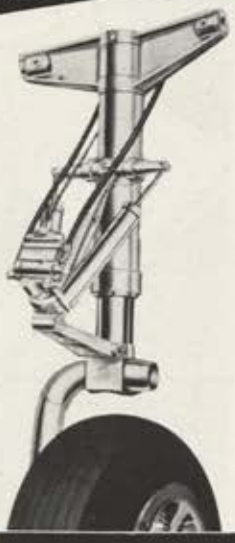

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