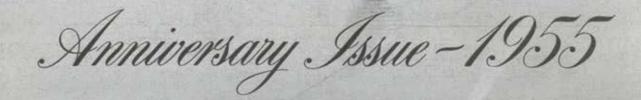


THE MAGAZINE OF AMERICAN AIRPOWER

September 1955 * 35c





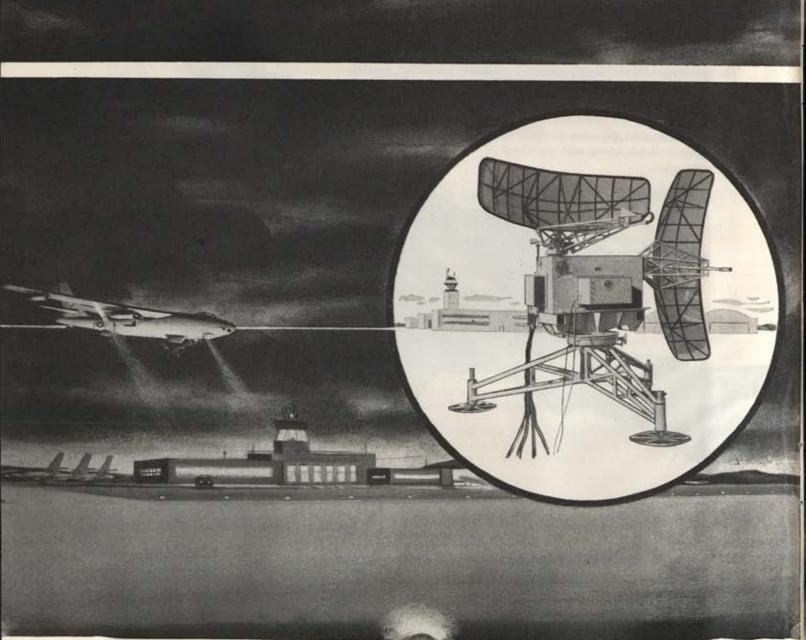








Now Star Joins Spar.





Internationally famous SPAR now has a teammate!

It's STAR—a surveillance radar system designed to guide distant aircraft swiftly and surely into SPAR's radius for a precision approach and landing. Watching the skies together, STAR and SPAR are the ingenious portable answer to the growing problems created by the rapidly increasing traffic at all airports. Amazingly light, easy to install and easy to use, STAR and SPAR are comparable if not superior to the more complex, cumbersome and expensive types of radar equipment.

Yet, their cost is about one-third as much - thus

making them available to both small and large metropolitan airports, as well as to military airstrips all over the globe.

Working as a team, STAR and SPAR reduce to a bare minimum the hazards of heavy traffic and foul weather. But they are also designed and engineered to operate independently. No wonder the Air Force, the Navy, European governments and airport managements are so vitally interested in this revolutionary concept of air safety.



STAR is a surveillance radar system, unerringly accurate in locating and tracking aircraft within a fifty-mile radius. It is designed for either permanent installation or for portable use. STAR's components are self-contained in its own trailer, and like SPAR, it can be put into operation with lightning speed.



SPAR is a simple, rugged, reliable and accurate precision approach landing system. It has already undergone exhaustive tests by both military and civilian organizations, and has won the Air Force stamp of approval. Light and compact, it's ideal for landing fields where mobility is a prime requisite.

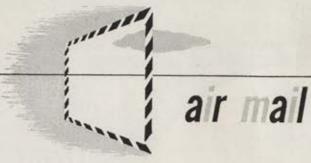
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Atomic Clouds

Gentlemen: I don't often write regarding errors in Air Force—they're too few and far between to bother with.

But in the July issue, on page 65, regarding the photographs of atomic and hydrogen explosions, somebody doesn't know his bombs.

The picture at upper left is not the Hiroshima attack; the cloud is from the bombing of Nagasaki. The Hiroshima cloud rose at a definite angle, while the Nagasaki cloud reached vertically to 60,000 feet.

Regarding the caption for the picture in the upper right corner which states "the radioactive cloud takes shape." Not so. What you see here is still the fireball which, a few seconds after detonation, has expanded out to (in this case) its unusual shape and is rising rapidly. The cloud has yet to appear,

And, lower right, the hydrogen bomb cloud. Caption states "Cloud rose to 40.000 feet." Much too low. This particular cloud rose to twenty-five miles, the succeeding bomb, of fourteen megatons, reached a total of thirty-two miles.

Enough for the first nitpicking?

Martin Caidin
New York, N. Y.

• This spread was done just at press time to replace a piece that didn't materialize and we didn't have a chance to double-check. Guess you're right on Nagasaki, but we had two identical prints, both captioned by the AEC, one identified as Hiroshima, the other as Nagasaki. We picked the wrong one.

Next question-correct, but this is nitpicking. Bet there's a radioactive cloud there, too.

Third point. We goofed and should have known it-40,000 feet referred to the height of the cloud when photographed. It rose to 25 miles a little later. Thanks for jacking us up.—The Editors.

Foundation of Leadership

Gentlemen: Faith in others and confidence in one's own capacity to adhere with determination to the importance of major objectives are prerequisites to leadership in any realm of endeavor.

Any man enmeshed in the thoughts of weaknesses, yet seeing only their presence in others, is in bondage to the powers of self-created infirmity. Only to the extent that he can, by the mental strength vested in him by his Creator, cast his man-bred problems upon the waters of ever-present oceans of infinite wisdom, can he receive release from the fetters of his own weave.

Any person, and especially one who has been assigned to monitor or command the actions of others, who constantly emphasizes the presence of error, only asks for its return—tenfold. If he only speaks to criticize, he generates in his official subordinates similar actions, erected almost instinctively as barricades for self-defense.

On the other hand, if he encourages by honest compliment, broaching error as an incidental to be repaired, he as well as his subordinates retains the objective values of that moment of experience, and both, together, generate an instantaneous determination to do better in the future.

Always command a man, And you demand a man; Suggest to a man, and, He must prove a man.

The above thoughts were occasioned by a reading of the article, "Just a Second, Lieutenant," in the June issue of Am Force Magazine.

Capt. Robert B. Hagmann, USAF Los Angeles, Calif.

Scientific Advisory Board

Gentlemen: I was very pleased to read the article by T. F. Walkowicz in the June issue of Air Force Magazine. It dealt with the functions and contributions of the Scientific Advisory Board in a most exemplary fashion. I am sure that your readers will have a much greater appreciation for the efforts of these eminent scientists who so willingly give of their time and effort to maintain USAF qualitative superiority.

Mervin J. Kelly Chairman, SAB Washington, D. C.

Dave Started It All

Gentlemen: David McCallister has a fair talent for putting words on paper and was probably a pretty good pilot, as were many of us, in his day. Was his article on page 37, July 1955 Arr Force, supposed to be about Lt. Col. Edwin L. Heller, recently repatriated from Red China or was it a plug for David McCallister?

Very poor taste.

Robert Forrest Livingston, N. J.

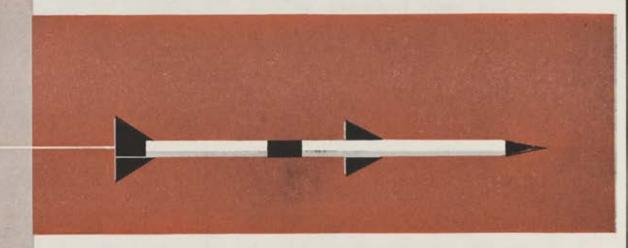
• If the piece could be construed as a plug for Dave McCallister then the plug was well-deserved. Dave never gave up hope that Colonel Heller was alive during long months when the only word from the Pentagon was "missing in action." And he kept after us until we did something about it. Heller's return could not be covered in the same manner as the other three flyers because at the time we went to press he was hospitalized in Hawaii.—The Editors.

GOC Problem

Gentlemen: As a former member of the Ground Observer Corps, with some 800 hours logged as an Observer, I can well testify to the truth of Supervisor Mueden's complaint in "Air Mail" (Continued on page 7)

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When Bell Aircraft Corporation developed its new HSL-1 helicopter for Navy anti-sub-marine detection and rescue work, it selected Western Gear to design and manufacture the airborne hoist aboard the unique twin rotor aircraft. This Western Gear hoist lifts 800 lbs. at 50' per minute. The hoist shown in inset above, weighing 28 lbs. and similar in design to that selected by Bell, can lift 400 lbs. at 100' per minute, spooling more than 100' of 3/16" cable. By modifying the gear train it can lift up to 1600 lbs. at 25' per minute. A level wind assures accurate spooling and the motor is equipped with radio noise filter to comply with AN specifications.



Western Gear's more than 40 years of experience supplying important components for aircraft of practically every description was a major factor in its selection by Bell to design and manufacture this vital hoist for airborne use. Knowledge obtained since 1888 enables Western Gear to provide a speedy, economical solution to any problem involving the mechanical transmission of motion or torque. Why not avail yourself of this experience to solve your problem? Western Gear engineers will be glad to offer their help and recommendations from your blueprints or specifications. Address General Offices, Western Gear, P.O. Box 182, Lynwood, California.

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in the July issue of AIR FORCE as to the many problems of the GOC. These problems, however, are merely symptoms. The real blame should be placed at the administrative and supervisory level, where lack of leadership and understanding has led to the present plight of the GOC.

As an example: in 1952, at the beginning of "Operation Skywatch," a leading aviation magazine suggested to GOC officials that young aeromodelers be included in the Corps, to display their models for recruiting and aircraft recognition training purposes. They were brusquely told that the idea was not wanted, and that the GOC was not primarily interested in teaching aircraft recognition. When I joined the GOC some time later, I noticed that the results of this backward thinking were quite evident, as very few people I knew could identify even the basic types of aircraft. The supervisor, who was, incidentally, the same Mr. Mueden, believed, and still does, that aircraft recognition is secondary to attendance records; which means nothing if the personnel are incompetent. The GOC is, as Supervisor Mueden says, ". . . in need of money, supplies, publicity, and personnel." I might add that it is also in need of some intelligent and progressive thinking.

Former Observer New York, N. Y.

A Profit Here!

Gentlemen: The commander has read your article entitled "We're Paid to Fight—Not to Show a Profit," in the July issue, with great interest.

It is felt that all the officers of this organization should have a copy of this particular article, or at least read it for personal and professional information.

Inquiry is made of the availability of reprints of this particular article.

1st Lt. Donald W. Norris Adjutant

93d Air Refueling Sqdn. (H) 93d Bombardment Wing (H) (SAC)

Castle AFB, Calif.

Voice of the Chaplain

Gentlemen: In a letter in AIR FORCE for June, Col. A. C. McKinley of Washington, D.C., said in part:

"The rejection of God by the leaders of the Kremlin is built on atheistic Marxism. This is their greatest weakness and our greatest strength; a strength as yet unused, a strength that can and should be built into a spiritual dam against the spreading tide of engulfment."

Here are words of wisdom worthy of the great Prophet Isaiah who served as the world's first chaplain, ministering to King Hezekiah and other kings in the ancient world.

What are we doing about the challenge which Colonel McKinley has presented? He stated that our greatest source of strength is as yet unused. The power of faith is enormous. It is encouraging to listen to an officer as he tries to augment what is said by chaplains and ministers of religion.

Our struggle is an ideological one and this will continue for a long time to come. We talk about religion but do such pitiably small acting.

What can we do to help our side? The answer is that we can strengthen religion along the home front. The other day an officer and his family left their quarters to go to chapel. A little girl in the neighborhood asked the 5½-year-old boy where he was going. When he replied that they were going to church the little girl remarked, "Oh, that isn't any fun." "Oh yes it is," the boy replied. "That chapel man is my friend. And he's my Daddy's friend, too."

Might not we begin with good breeding and religious training in our homes so that our children will speak up in defense of our faith if we neglect to do so ourselves?

Chaplain (Maj.) Norris T. Morton Hamilton AFB, Calif.

Public Apathy

Gentlemen: I agree that the AFA is doing a good job, that AIR FORCE Magazine is the spearhead of civilian support for the vital cause of US airpower, but people not interested in aviation don't read it.

I'm a P-TA (VP) this year, a safety director last year, and people are not interested in civil defense, airpower, or anything else unless it be the God Almighty buck—in their own pockets.

We had an open house at CD headquarters (Mercer County Airport) and the turn-out was lousy-publicity preceding it was good, radio, newspapers, etc., but the general mass of people aren't interested.

In my opinion not enough of the right people care—the local, county, state and federal government are too interested in their own benefits and welfare.

David Horner Trenton, N. J.

Useful Article

Gentlemen: AIR FORCE Magazine is included on the list of periodicals received by this Detachment. It is, of course, always circulated and we all try to read all of each article. But, as you well know, there is so much mate-

rial to read today that it is impossible to read it all. So, I am sorry to admit, when one of my students pointed out the article, "Just a Second, Lieutenant," in the June issue, I found I had not read it.

We have a very active chapter of the Arnold Air Society here. Most, but not all, of the senior class were members. All members are subscribers to the magazine. Many of them had read it. Then, too, we have a Cadet Lounge this magazine is available to them there. Some had read the article from that source.

The point is that when it was brought to my attention, I did read it. We made special reference to it in class. We used it as a supplement to the text. I am sure that most if not all of the seniors have read it by now.

I just want you to know that we did use it; that I think it is a very good article.

> Lt. Col. Charles W. Munsey AF-ROTC Det. 90 Colorado A. & M. College, Colo.

Navy Assist

Gentlemen: With reference to your plaintive query at the bottom of page 23 in "Shooting the Breeze" in the June '55 issue, does the enclosed clipping help clear things up?

Always glad, as a lieutenant in the very active Naval Air Reserve training program, to give an assist to our opposite numbers in the Air Force.

Bernard Goldman Long Island City, N.Y.

 Clipping identifies the firm as Aluminum Company of America, the product as a new welded aluminum tubing. Well done, Mr. Goldman.—The Editors.

Good Questions!

Gentlemen: While reading "Shooting the Breeze" in the April issue of Air Force, I discovered the paragraph on civil defense had started the usual chain of indignant thoughts. This time is different. I'm still hot under the collar and am going to talk back. So I take a shot and see whether I hit the basket or the page.

First, if we think we should have civil defense then it is worthwhile to get it. Second, civil defense should be a matter of interest and participation for the individual and every level of government. Third, there is nothing wrong with the idea that local areas should make a strong effort. Fourth, the federal government must guide all efforts because it has made itself the sole authority on atomic warfare.

(Continued on following page)



ERCO

has designed and built simulators for more different military aircraft than any other manufacturer

In today's jet age, each new plane poses unique problems for the pilot, and calls for additional training. ERCO tackles these tough assignments... by developing and producing flight simulators that simplify the pilot's job and make his training easier.

From the conventional propeller-driven plane to the latest jet, ERCO has built simulators for 17 different types of military aircraft. These all-electronic wonders are at work throughout the country . . . saving the military lives, time and dollars.

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Because it is the sole authority it has made itself totally responsible for the adequate distribution of all needed information. Fifth, active civil interest in civil defense is directly proportional to the answer to the question "What can I do about civil defense?" What plans do officials have and how far have they executed them? How many acceptable answers to the following questions could your District Civil Defense give?

 How long can a working parent expect to be separated from his family?

· How long before children at

school rejoin their families?

• Does each member of the family

 Does each member of the family know what they must do in each event?

Other nearby areas may be busy with their own problems—for perhaps a week. Railway and road transport will be damaged as well as their fueling points and fuel supplies.

 Where will the food, water and medical supplies come from and how

will they arrive?

 Will heavy equipment such as bulldozers and cranes be ready for use to insure surface transport in and out?

 Are all doctors, registered nurses, practical nurses, medical technicians, and construction equipment operators in the area known and informed of their duties?

R. G. Ream Greenville, Ohio

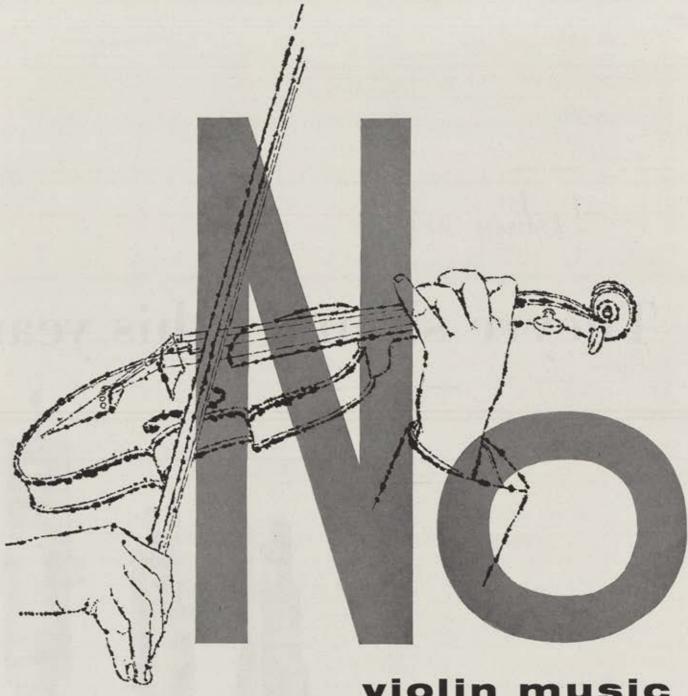
Ghost Camp

Gentlemen: I would like to invite all subscribers to AIR FORCE to visit Camp Roosevelt and Massanutten Mountain, at Edinburg, Va.

Today, Camp Roosevelt is only an abandoned CCC camp site. However, the site has immense historical significance, spiritual power. There are approximately three million of us, alive and deceased, who found purpose for life, purpose for good citizenship in a program born at Camp Roosevelt. We will always consider Camp Roosevelt as sacred ground.

The Civilian Conservation Corps contributed to the US Armed Forces, including the Air Force, the best-prepared fighting men this country has ever produced. The Air Force and the Air Force Association should be interested to beautify, make useful, the birthplace of the CCC. The Spirit of CCC must live forever. The Spirit of CCC is a concern to help distressed people, to help bleeding, multilated Mother Earth.

Clarence C. Case Edinburg, Va.



violin music

The demand exceeds the supply. It's that simple.

There are three engineering jobs available for every two engineers. As a result, if you are a graduate engineer, scientist or technologist, some 5,000 companies are bidding for you with offers, inducements and background music. But don't be mistaken! Most of today's opportunities are jobs, not futures.

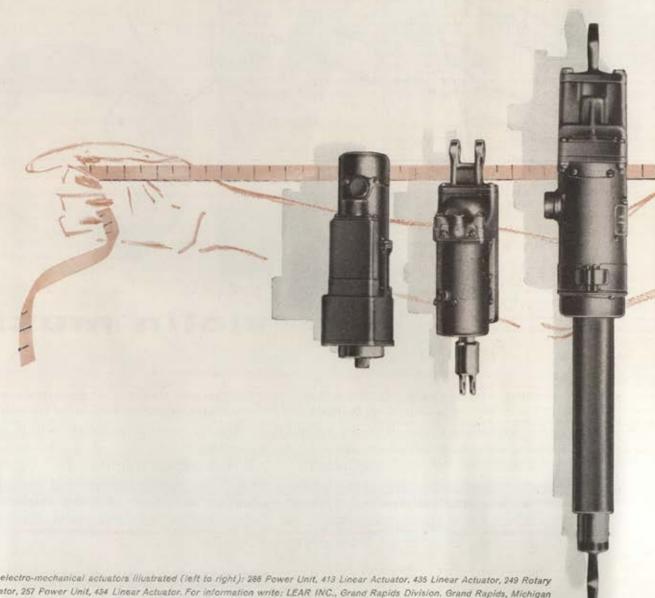
We, too, want engineers. But we're offering no violin music - only the opportunity for intelligent and careful evaluation, you of us and we of you, with the possibility of your joining one of the finest team operations in the whole new world of flight systems development.

Most of the people on that team are young and moving ahead fast, in an industry whose future is unlimited. They weren't lured here. They found out -and figured out-for themselves. We hope you will do that, too.



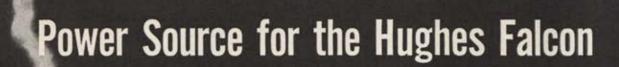
fashin note:

They're slimmer this year



Lear electro-mechanical actuators illustrated (left to right): 288 Power Unit, 413 Linear Actuator, 435 Linear Actuator, 249 Rotary Actuator, 257 Power Unit, 434 Linear Actuator. For information write; LEAR INC., Grand Rapids Division, Grand Rapids, Michigan





... a Thickol, solid propellant rocket

The Falcon, designed and built by Hughes Aircraft for the United States Air Force, is one of the smallest air-to-air guided missiles in production. It is launched from interceptor planes and is capable of pursuing and destroying enemy bombers taking evasive action.

The power required to launch and propel the Falcon from an interceptor is supplied by a "Thiokol" solid-propellant rocket motor.

Development of the Falcon motor is the result of close teamwork between Thiokol, Hughes Aircraft and the Armed Services. Thiokol is also engaged in other programs that provide our Armed Services with improved solidpropellant rockets adapted to specific operational requirements.

SOLID PROPELLANT PROPULSION AND POWER UNITS FOR:

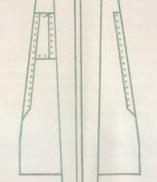
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AIR FORCE THE MAGAZINE OF AMERICAN AIRPOWER

Volume 38, No. 9 • September 1955

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FEATURES

THE COVER

This is the fifth consecutive year that we have used the USAF seal on the cover of the September issue of AIR FORCE Magazine-the issue we traditionally dedicate to the men and women of the active USAF establishment. In past years, however, our cover design hasn't included the thirteen stars that surround the seal

when it appears on the Air Force flag (from which our cover this year was made). The stars stand for the original thirteen colonies, while the eagle symbolizes both the United States and the striking power of modern airpower. The blue in the shield represents the sky, the area of the AF mission.

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	K
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MISSION: TACTICAL AIR MOBILITY. Mobility of men and materiel is a vital problem in the new atomic era. So the Air Force needs a high-speed, low-slung combat cargo plane that can use even short, improvised runways. The new C-130 Hercules with turbo-prop power (Allison T-56 engines) will do this. Now in production at Lockheed's Georgia Division, Marietta, Ga.

A Pentagon Secret

If you were in the vicinity of Alamogordo, Inyokern, Dayton, Muroc Dry Lake or Patuxent River, you would hear new sounds and see strange shapes in the skies. These and other military research centers are constantly testing the new flight forms developed jointly by industry and the military—admirals, generals and thousands of officers and enlisted men.

The unique talent of our military executives to mobilize science and industry is the Pentagon secret. In this fast-moving age, our defense needs are ever-changing. This requires new weapons, new aircraft, and whole new concepts of defense. The job of planning and developing these is now the biggest business in the world.

Each new defense device is designed to perform a special and difficult mission. And each originally presented our military executives with a major problem in planning, designing, development and production. Typical of today's defense problems and the machines designed to solve them are the products illustrated on these two pages.

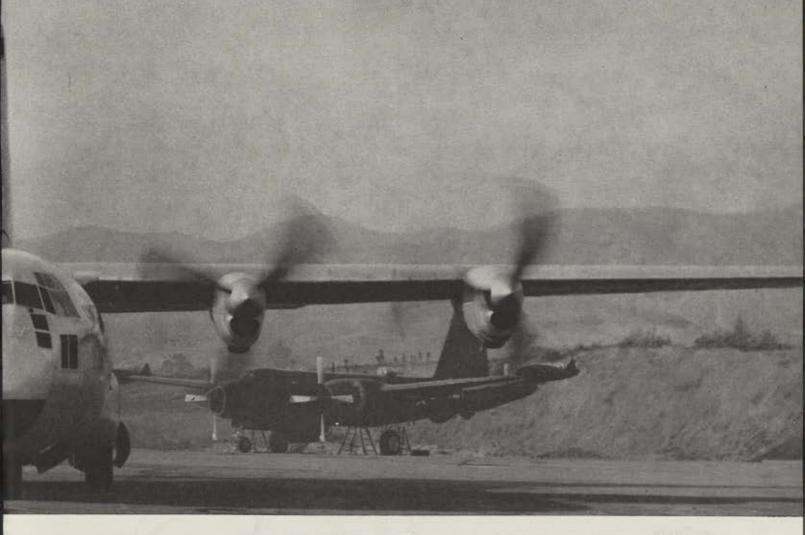
IF YOU'RE A YOUNG MAN, 17 TO 28, INVESTIGATE MILITARY AVIATION AS A CAREER

MISSION: POWER RESEARCH. To prove how even advanced turbo-prop engines could be used on existing air frames designed for piston power, the Navy and Air Force selected Super Constellations (below). Result: these Super Constellations are the world's fastest propeller-driven airplanes, and are now flying for our military. Lockheed is leading the industry in turbo-prop power. Look for the new Lockheed Electra commercial transport with this advanced power. Already ordered in quantity by American Airlines, this advanced airliner promises speeds up to 100 mph faster than commercial transports now in service, and amazing new operating economies for airlines. For travelers throughout the world, the Electra will provide quicker schedules, quieter comfort. Lockheed's vast experience in turbo-prop aircraft will make possible record production schedules.

MISSION: MISSILE SUPREMACY. Ultimate goal of the research and development at Lockheed's Missile Systems Division is a completely reliable, broadly versatile array of guided missiles. Lockheed's MSD has more than 2,000 topflight scientists, physicists, nuclear physicists, engineers and technicians covering virtually every field of science at Van Nuys, Calif., Alamogordo, N. M., and Patrick Air Force Base, Fla.







MISSION: INTERCEPTION. (Right) This condensation trail is a phenomenon caused by great speed at high altitude—symbol of the Air Force's new F-104 Fighter, the Lockheed supersonic interceptor too secret to photograph.

Lockheed

AIRCRAFT CORPORATION

California Division, Burbank, Calif. Georgia Division, Marietta, Ga. Missile Systems Division, Van Nuys, Calif. Lockheed Air Terminal, Burbank Lockheed Aircraft Service, Burbank

LOOK TO LOCKHEED FOR

MISSION: JET TRAINING. Aircraft carrier jet fighters require highly skilled pilots and, to train them, the U.S. Navy needed the world's safest jet trainer. The new T2V-1, the Navy's first carrier jet trainer (shown below), is a product of close Navy-Lockheed cooperation. Flying about 600 mph, it can land under 100. Better visibility and a raised empennage for improved control are other new features.



MISSION: EARLY ENEMY DETECTION. Like climbing a mountain for a better view, the Navy and Air Force "go upstairs" with radar stations on Super Constellations—long-range planes capable of carrying tons of 360° radar. Result: more hours of earlier warning. Below, Navy crews at Pearl Harbor pass inspection near their Early Warning Super Constellations.



MISSION: COASTAL PROTECTION. No other nation has so much coastline to protect from submarine or air attack. The Navy and Lockheed have continuously developed Neptune Patrol Bombers (P2V) for this mission. In addition to high speed and long range, this plane (below) typifies Lockheed's leadership in the application of electronics to aircraft.





A new, modern approach to Air
Force storage problems—the proper
application of Rotabins and the Rotabin
system—saved space, time and manpower
at Thule.

Three warehouses now store 35,000 different supply items in space formerly accommodating only 15,000 items. In one warehouse two men now do the work formerly requiring four.



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and know-how to
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Gallagher Mfg. Co.,
103 So. Michigan Ave.,
Wellston, Ohio





The trip from Philadelphia to Pittsburgh by stage coach in 1812 took six days and cost \$27. Today's plane ride takes one hour and thirty-three minutes and costs \$18.43.

National Airlines will rent a private airline to companies that don't want the complications of owning their own fleet. A single fee covers the cost of two pilots, a stewardess, fuel, oil maintenance, landing fees, and insurance up to \$7 million.

Employees of the Civil Aeronautics Board and the Civil Aeronautics Administration are making mass vacation flights to Europe on the Flying Tiger Line. The chartered DC-6 with 100 passengers aboard provides a round trip from Washington to Brussels for \$260 per person.

President Eisenhower's new twin-engine Aero Commander gets him from Washington to his Gettysburg farm



in twenty-two minutes compared to two hours by automobile. The Commander uses twenty-five gallons of gasoline per hour, compared to the 500 gallons per hour used by the President's Super Constellation, the Columbine.

Of the six cents paid for a domestic air mail stamp, five cents go to the Post Office Department and one cent to the airlines.

Pan American, which started transatlantic service in 1939 with flying boats, has made its 50,000th ocean crossing. The amount of passenger service provided during these sixteen years has been the equivalent of flying the entire population of Philadelphia to the moon 870 times.

The first atomic reactor in Switzerland arrived at Geneva from Knoxville, Tenn., in two planes and 100 crates. Total weight of the shipment was fifteen tons.

Completely assembled automobiles are now being flown across the Atlantic.

When 100,000 executives meet in Chicago in September to take in the Production Engineering and Machine (Continued on page 19)

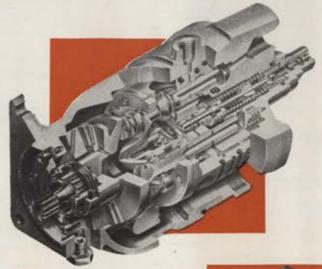


* 5TRATOPOWER

HYDRAULIC PUMPS for the AIRCRAFT INDUSTRY

SERIES 66W VARIABLE DELIVERY PRESSURE COMPENSATED TYPE REGULATOR

Designed to operate at service altitudes without reservoir pressurization. These pumps meet or surpass the requirements of Specification MIL-P-7740A. They are self-priming and accommodate inlet pressures to 80 psia. Nominal deliveries of 0.25 to 10 gpm. Speeds to 10,000 rpm on smaller sizes. Continuous pressures to 3000 psi.





SERIES 65F FIXED DISPLACEMENT

For use at higher service altitudes without reservoir pressurization. Inlet pressures to 80 psia. Nominal deliveries of 0.5, 1, 2 and 3 gpm.



SERIES 67V VARIABLE DELIVERY INLET FLOW REGULATOR

The most direct known method of integral maximum pressure regulation. Capacities range from 0.85 to 3 gpm, over two dozen different models.



VARIABLE DELIVERY DUAL PRESSURE SERVO CONTROL

Selective operation in either of two pressure ranges. Hydraulic or electrical pilot control. Adaptable to 66W or 67W Series Pumps.

CAPACITIES: Rated at 1500 rpm.

MAXIMUM CONTINUOUS SPEEDS: 3750 rpm.

MAXIMUM INTERMITTENT SPEEDS: 4500 rpm.

OPERATING PRESSURES: Continuous duty to 3000 psi.

WATERTOWN DIVISION

THE NEW YORK AIR BRAKE COMPANY

INTERNATIONAL SALES OFFICE, 90 WEST ST., NEW YORK 6, N. Y.

STARBUCK AVENUE

WATERTOWN . N. Y.

FIXED DISPLACEMENT

Over thirty models include nominal deliveries of from 0.25 to 3 gpm. Pumps of the 0.5, 1, 2 and 3 gpm sizes have AN approval under MIL-P-7850.



SERIES 67W VARIABLE DELIVERY PRESSURE COMPENSATED TYPE REGULATOR

Fluid delivery instantly varied in response to system demands. Five sizes from 2 to 10 gpm, forty different models.



SERIES 167 ELECTRIC MOTOR DRIVEN UNITS

For use in boost, utility or emergency circuits. AC or DC electric motors for both continuous and intermittent duty operation. Any combination of electric motor and STRATOPOWER Pump.

WATERTOWN DIVISION



750 Starbuck Av	enue, Watertown full particulars lic Pumps.	, New York	TRATO-
Name			
Company			-
Address			
City	Zone	State	

Tool Show, a scheduled helicopter passenger service will beat the traffic jam by shuttling businessmen from one exhibit to the other.

Since 1945 the world's airlines have flown the equivalent of five round trips to the moon every day.

Air travel credit cards honored by nearly all the airlines of the world are now held by 652,000 people. The Universal Air Travel Plan is the only world-wide industry credit plan.

The three major US helicopter lines, serving New York, Los Angeles, and Chicago, flew 1.1 million miles in 1954.

A Piasecki Workhorse of the Royal Canadian Air Force has rescued a Cessna 180 that landed on thin ice on an



unnamed lake fifty-five miles from Chibougamau. The helicopter picked up its fixed-wing friend and flew it to a landing strip eighteen miles away.

The number of fatalities per 100 million passengermiles of travel on US railroads in 1954 was 0.07. For domestic airlines the rate was 0.09. US international airlines had no fatal accidents.

The first American helicopter was flown in 1922 but it was not until 1946 that a commercial model was granted an airworthiness certificate by CAA.

A record aerial distribution of chemicals was achieved when a helicopter dusted the garbage pit of a canning company at the rate of seven and one-half tons of lime per hour.

The helicopter has also proved a success as a wrecker, pulling a two and one-half ton truck out of the sand after it had been buried to its axles.

Suburban helicopter service from Stamford, Conn., to White Plains, N. Y., takes ten minutes and costs \$5.45.

Last year the nation's 50,000 aircraft used by private individuals and corporations were involved in accidents that caused 659 pilot and passenger fatalities.

Last year ten US scheduled airlines carried more than a million passengers apiece. American led with 5.9 million customers followed by Eastern with 5.8 million, and United with 4.8 million. The other million-airs were TWA, Capital, Delta-C and S, Pan Am, Braniff, Northwest, and National.

These ten major carriers accounted for nearly thirty of the thirty-five million passengers carried by all US scheduled airlines in 1954.

at the summit



Like decisions, research and development are sought and found at the highest level. Whether it's at Geneva, Washington or Detroit, men who want results know where to go to get them. Because it is at the summit in research and development, Textron American Inc. wanted Ryan Industries Inc. to be a member of the family.

RYAN INDUSTRIES, INC.

DETROIT, MICHIGAN

19159 JOHN R ST. • 7517 INTERVALE AVE.

FIREBEE-600 MPH "BULLSEYE"



Another Example of How

RYAN BUILDS BETTER

America's fastest, most elusive target—the Firebee—is an outstanding achievement in advanced design. To meet the needs of America's air defense, Ryan engineers created this new pilotless aircraft by skillfully blending their knowledge of aerodynamics, jet propulsion and electronics. For more than 32 years, in-

dustrial and military leaders have called upon Ryan to solve the increasingly complex problems of aeronautical science. Striking examples are the Firebee, Ryan's new jet VTO airplane, precision built components for jet, rocket and piston engines, and electronic devices for guidance and navigation.

Engineers looking for a challenging future will find outstanding opportunities at Ryan.



RENDEZVOUS

where the gang gets together . . .

6th COMBAT CARGO SQDN.: The 6th Combat Cargo Sqdn., 2d Combat Cargo Group, World War II, will hold its tenth anniversary reunion September 16-17, at the Congress Hotel, Chicago, Ill. Write Dryden Jones, 8725 Keller Rd., Cincinnati 27, Ohio.

FLYING SCHOOL CLASS 41-G: Date for the 5th reunion of Flying School Class 41-G, to be held at Ft. McNair Officers' Club, Washington, D.C., is September 24. Contact Lt. Col. W. M. Houston, Hq., USAF, AFOOP, The Pentagon, Washington 25, D.C.

RETREADS: Vets of both World War I and World War II are having a reunion August 28 to September 2 at the Sheraton Plaza Hotel, Boston, Mass. Chairman is Ross H. Currier, 108 Massachusetts Ave., Boston, Mass.

SONG BOOK: While I was with the 18th Fighter-Bomber Wing in Korea in early 1952, the 12th Fighter Sqdn. printed a beautiful song book. I would appreciate it, if anyone has such a song book in their possession, if they would loan it to me or possibly sell me a copy. Capt. Marcin Satenstein, 75 Varick St., New York, N. Y.

2D AIR DIVISION ASS'N: The 2d Air Division Association held its 8th annual reunion at the Sheraton Park Hotel, Washington, D.C., on August 19, 21 and 22. Former members of the 2d Air Division who are interested in receiving information about the association should write Miss Irene Noble, Secretary-Treasurer, 1536 Pleasant St., Indianapolis 3, Ind.

charles hecht: Between Nov. 23 and Dec. 1, 1943, Charles Hecht's plane, out of gas and without landing gear, came down in Baambrugge, near Amsterdam, The Netherlands. The plane was en route to England from Germany. It was most likely a Thunderbolt, with three machine guns in each wing, and a camera. Mr. Bert

Coeling, a young farmer in The Netherlands during the war and now living in this country, attempted to help him escape. The attempt was unsuc-cessful and Hecht was captured by the Germans. Hecht gave Coeling his knife and sheath that bore his name and serial number, but the number has worn off. If Hecht is living, Mr. Coeling would like to get in touch with him and has asked my help. Charles Hecht was about 5' 7", dark complexioned, and about 23 years old at the time. Does anyone know what happened to him after his capture, or where he is now? Lyle W. Ruka, Box 236, Kanawha, Iowa.

WW II FRIENDS: I was in the French Foreign Legion from 1941 to 1945 in Indo-China. In 1945 a Maj. Herzenmuller was shot down over Tong (Hanoi) and picked up by the Legion. He was imprisoned (for security from the Japs), interrogated by me the next morning, and escorted in a truck to the Chinese frontier and released. In March of the same year, we were attacked by Japs at Tong and with twelve American pilots, including a Lt. Lynch, we retreated toward the Chinese frontier, arriving on May 1 after thirty-five battles. The 14th USAAF was very good to me at Szemao meteorological station and I'd like to contact any of these officers. Edmund Murray, Special Branch, New Scotland Yard, London, S.W. 1, England.

civil Defense Jobs OPEN: The Federal Civil Defense Administration now has openings for a number of positions as Civil Defense Officers (from \$6,385 to \$7,570), located at various military air defense installations throughout the US. Applicants must pass a rigid physical examination. The duties are exacting and demand high emotional stability. Anyone interested may obtain full details from Director of Personnel, FCDA National Office, Battle Creek, Mich.

To be sure your Rendezvous item appears in a given issue, we should have your request at least six weeks in advance.—The Editors.



This G-E rocket team is developing a wide range of reliable, high performance engines

On the right, lined up on a rocket test stand, are 34 members of General Electric's rocket development team. As representatives of the Company's Aircraft Gas Turbine Development Department, they offer four reasons why G.E. has the capability to develop reliable, high performance rocket engine systems, sub-assemblies, and components of all types.

REASON NO. 1—AVERAGE OF EIGHT YEARS EXPERIENCE PER MAN. All told, this group has over 250 years of experience in high Mach powerplants. This cumulative know-how, so vital in aircraft powerplant work, is assuring faster, more efficient rocket development activity at General Electric.

REASON NO. 2—PROVED ABILITY. These same men actually helped to pioneer modern U.S. rocket engine activity, took part in over 67 German V-2 test flights after WW II. They have designed bi-liquid, liquid-solid, solid and ramjet propulsion systems. They provided the

engine for the first large rocket in the Western Hemisphere, developed another with one of the highest specific impulses ever achieved.

REASON NO. 3—ADVANCED NEW FACILITIES ARE NOW AT THEIR DISPOSAL. General Electric is carrying on a \$100 million research and development program on combustion, materials, and components of powerplants for aircraft and missiles. And the rocket engine staff now has access to development facilities such as the AGT Materials Laboratory and the AGT Component Development Laboratory at Cincinnati.

REASON NO. 4—FIRM SUPPORT OF GENERAL ELECTRIC ORGANIZATION. The entire G-E Aircraft Gas Turbine Division with its production capability and G.E.'s nationwide defense sales and service chain now support the design and development of G-E rocket engines. Add up the total. If you would like further information, contact a G-E Aircraft Specialist via your nearest G-E Apparatus Sales Office.

234-

Progress Is Our Most Important Product

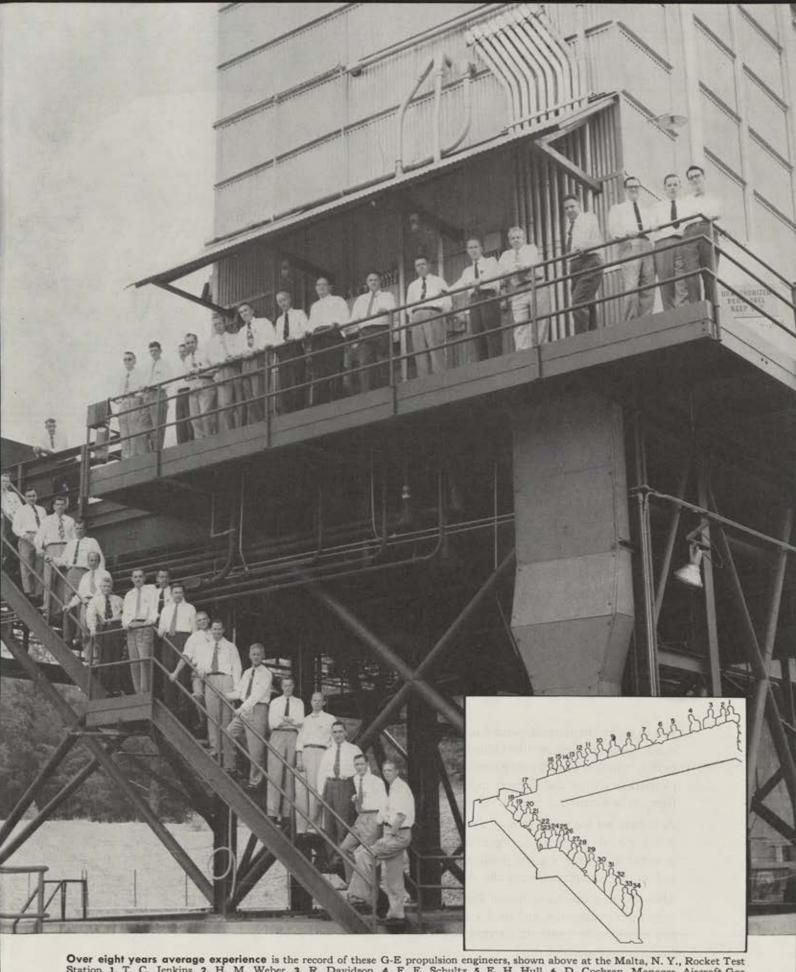
GENERAL ELECTRIC



Advanced rocket engine undergoes trial at U.S. Army's Malta Test Station. The first large rocket static test station in the U.S., Malta has highly versatile facilities. Complete instrumentation gives G-E engineers extensive information on engine performance in static tests.



"Consolidating our jet and rocket engine design, development, and production capabilities within AGT is allowing us to make rapid strides in the rocket field," according to Vice President C. W. La Pierre, shown here (left) with G-E President R. J. Cordiner.



Over eight years average experience is the record of these G-E propulsion engineers, shown above at the Malta, N. Y., Rocket Test Station. 1. T. C. Jenkins. 2. H. M. Weber. 3. R. Davidson, 4. F. E. Schultz. 5. E. H. Hull. 6. D. Cochran, Manager, Aircraft Gas Turbine Development Department. 7. T. S. Teague. 8. H. C. Aikens. 9. P. L. Duncan. 10. J. H. Burnham. 11. J. F. Whitbeck. 12. W. S. Kleczek. 13. F. J. Walker. 14. J. Annable. 15. G. S. Emmons. 16. P. Gray. 17. F. W. Crimp. 18. J. A. Cote. 19. A. J. Orsino. 20. R. J. Kazyaka. 21. G. L. McPherson. 22. R. J. Bernadine. 23. C. E. Rugh. 24. L. Cherry. 25. C. P. Beauchamp. 26. R. B. Johnson. 27. B. E. Sells. 28. C. G. Dibble. 29. B. W. Bruckman. 30. J. N. Krebs. 31. E. E. Paulson. 32. Z. O. Sheldon. 33, D. R. Messina. 34. E. I. Finger.



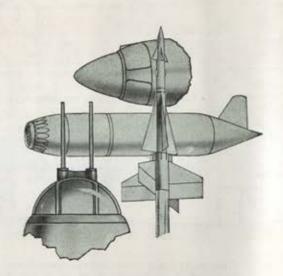
Rheem

GOVERNMENT PRODUCTS DIVISION

Just as early Americans depended on the sturdy heart and the steady hands of pioneers like Daniel Boone to lead them safely to new frontiers, so today do Americans depend on present day pioneers in science and industry to lead them safely to new frontiers of security, through progress.

At Rheem we are proud to play a part in this progress and proud, too, of the record of dependability we have established in research, engineering and production. Low per-unit cost and on-time completion schedules are routine at Rheem.

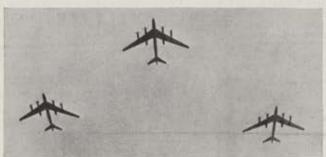
Rheem's integrated Government Products facilities are presently in quality development and production on air frames, missile and jet-engine components, airborne ordnance, electronics and ordnance materiel.



YOU CAN RELY ON RHEEM

Rheem Manufacturing Company • GOVERNMENT PRODUCTS DIVISION
DOWNEY, CALIF. • SAN PABLO, CALIF. • WASHINGTON, D.C. • PHILADELPHIA, PA. • BURLINGTON, N.J.

- Harold E. Talbott, Secretary of the AF since February 1953, resigned, effective August 13, in the aftermath of the Senate Permanent Investigations Subcommittee's scrutiny of his private business affairs. In accepting the resignation, President Eisenhower commended Talbott's accomplishments as AF Secretary and said there had been "no intimation that your official duties have not been effectively and loyally performed." The investigation into Talbott's private affairs was kicked off by publicity about his business connection with the Paul B. Mulligan Co., a New York management-engineering firm. No successor to Talbott had been named at presstime.
- Also at presstime, the Chinese Communists announced they were releasing the eleven US airmen held prisoner



These four-engined turboprop bombers made an appearance over Moscow's Tushino airport as part of the demonstra-tion staged by the Reds on Soviet Aviation Day, July 3.

since January 13, 1953-the crew of a B-29 commanded by Col. John K. Arnold of Silver Spring, Md., which was shot down in North Korea while on a weather recon flight, Three other crew members were killed. Besides Colonel Arnold, those released were: Maj. William H. Baumer, Lewisburg, Penn.; Capt. Elmer F. Llewellyn, Missoula, Mont.; Capt. Eugene J. Vaadi, Clayton, N. Y.; Lt. John W. Buck, Armathwaite, Tenn.; Lt. Wallace L. Brown, Banks, Ala.; T/Sgt. Howard W. Brown, St. Paul, Minn.; A/1C Steve E. Kiba, Akron, Ohio; A/2C Harry M. Benjamin, Jr., Worthington, Minn.; A/2C Daniel C. Schmidt, Scotia, Calif; and A/2C John W. Thompson, III, Orange, Va.

- The announcement that the US planned to launch a man-made satellite 200 to 300 miles into outer space was hailed in some quarters as historically as important as the first flight made by the Wright Brothers. The plan, made public at a White House news conference attended by prominent US scientists, calls for an unmanned objectabout the size of a basketball-to be launched into space from a multiple-stage rocket. The vehicle will circle the earth once every ninety minutes at a speed of 18,000 mph. The launching will take place in 1957 or 1958 as part of the US contribution to the International Geophysical Year, July 1957 through December 1958.
- The weightlessness that will be encountered when man ventures beyond the gravitational pull of the earth, is a condition scientists find it extremely difficult to duplicate. As a result, very little is known about its effects on the human body. According to Dr. Heinz Haber, an authority on space medicine and a physicist in UCLA's Department of Engineering, the only present tool for experimenting

with human weightlessness is a fast airplane. In a recent issue of Interavia, Dr. Haber said that "we have been able to maintain a crude approximation of the weightless state for as long as thirty-five seconds" by flying upward at a high rate of speed and then holding the plane to the arc of a parabolic path for as long as possible. One of the first to experience the phenomenon, Maj. Charles E. Yeager said he became completely disoriented and had to break away from the curve after eight seconds. According to Dr. Haber, Yeager reported that he "felt completely lost in space-as if I were sitting on a big ball and being rotated slowly."

The good doctor feels that the human body will be able to adjust to this unusual situation after researchers know enough about it to be able to find ways to acclimatize space crews. We're wondering, however, what will become of beverage service on space flights. In a weightless state, your martini-olive and all-will float right out of the glass. Maybe they will devise hinged lids for interplanetary martini glasses.

■ The AF has announced that it will produce an interceptor version of the McDonnell F-101 Voodoo, originally designed as a long-range escort fighter for SAC. In another move, apparently prompted by the show of im-



A 38th Air Rescue Squadron H-19 prepares to rescue a Japanese man from his rooftop during a recent flood on Hokkaido. He was being carried to safety seconds later.

proved Red airpower, the AF said that Lockheed's F-104 day-fighter will go into production "sooner than originally planned." The F-104 is still shrouded in secrecy, but some sources have said it will fly at twice the speed of sound.

■ Models of the buildings for the new AF Academy caused such a furor in the House Appropriations Committee that the members voted to cut off funds for them. Main complaint of the Congressmen: too much aluminum, steel and glass in the plans and not enough brick, limestone and marble. However, before the Senate Appropriations Committee acted, the AF revised the designs, (Continued on following page)

and the money was restored by that group. The AF argues that its stress on more modern materials has been partly dictated by economy reasons.

- Boeing Airplane Company has received the green light from the AF to build a commercial version of its KC-135 jet tanker. Earlier, the AF had refused the company's request to build a passenger version of the 550-mph plane, but has now decided that this production "will not interfere with nor delay scheduled delivery of military tanker-transports to the AF." Boeing immediately announced that steps would be taken to negotiate firm contracts with commercial airlines. According to William M. Allen, president of Boeing, deliveries could be made soon enough to permit start of scheduled service in early 1959. The commercial version will carry eighty to 135 passengers and will be capable of flying non-stop across the nation at 550-mph speeds.
- A total of 7,100 paratroopers were safely moved in the joint AF-Army operation "Gyroscope," the largest and

The Exceptional
Service Award, the
AF's highest
honor to civilians
went to Lawrence
D. Bell, right,
president of Bell
Aircraft Corp.
Presentation was
made by Roger
Lewis, Assistant
Secretary of the AF
for Materiel



longest troop airlift in history. In the operation, 4,000 officers and men of the 508th Airborne Regimental Combat Team were flown from Fort Campbell, Ky., to Ashiya, Japan, in huge Douglas C-124 Globemasters of the 18th AF. Some 3,100 troopers of the 187th Airborne Regimental Combat Team were returned from Japan to Fort Bragg, N.C. The flights were made with stops both ways at Travis AFB, Calif., Hickam AFB, T. H., and Wake Island. A total of 36,000,000 passenger miles were logged.

■ ARDC's Office of Scientific Research, located in Baltimore since its establishment in 1952, became a separate activity relocated in the Washington, D. C. area in August. The new office, headed by Brig. Gen. Don Flickinger, is known as the AF Office of Scientific Research and reports directly to Lt. Gen. Thomas S. Power, Commander of ARDC.

The move was made to increase emphasis on basic research and to provide closer liaison with organizations such as the National Advisory Committee for Aeronautics, Office of Naval Research, National Science Foundation, and the Air Staff and Defense Department scientific groups.

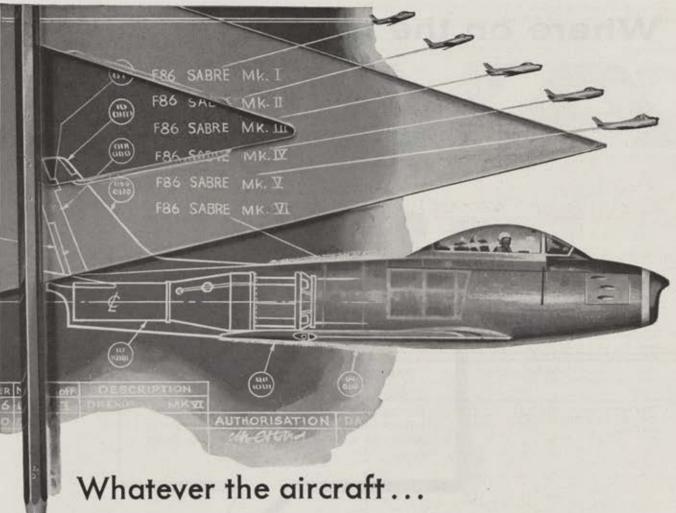
Gen. Benjamin W. Chidlaw, USAF-Ret., who returned to civilian life on May 31 after heading the Air Defense Command and the Continental Air Defense Command,

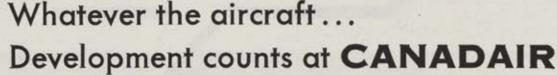


Gen. Curtis E. LeMay, SAC Commander (left) and Maj. Gen. Archie J. Old, Jr., then SAC Director of Operations are shown with the trophy to be awarded to SAC's top fighter wing each year. It was donated by Republic Aviation.

has been named a vice president and consultant on aireraft for Thompson Products, Inc., Cleveland, Ohio, aireraft equipment manufacturers.

- Dudley C. Sharp will succeed Roger Lewis as Asst. Secretary of the AF for Materiel. The fifty-year-old Republican is president of the Mission Manufacturing Co., Houston, Tex., manufacturers of oil field equipment.
- A former Assistant Secretary of Defense, Charles A. Coolidge, has been named a special assistant to Secretary of Defense Charles E. Wilson. His assignment—to review and study the recommendations for improving the business organization of the department made by the Hoover Commission on Organization of the Executive Branch of the Government. Coolidge, a Boston lawyer, had been an assistant secretary for legal and legislative affairs from 1951 to 1953.
- The highest honor given a civilian by the AF, the Exceptional Service Award, has been presented to Lawrence D. Bell, president of Bell Aircraft Corp. The citation accompanying the award called him "one of that small band of American pioneers who have conspicuously contributed to the development of airpower." It also commended the company Bell founded for producing the P-39 Airacobra, the P-59 Airacomet (America's first jet-propelled airplane), the X-1 (the first supersonic airplane), and others.
- The untimely death on July 5 of Brig, Gen. Clinton D. Vincent ended the promising career of one of the AF's younger general officers. Only forty-years-old, General Vincent had attained general rank when he was only twenty-nine and became an ace during World War II by shooting down sixteen Japanese aircraft. His death came shortly after he had been named Deputy Chief of Staff, Operations of the ConADC, Ent AFB, Colorado Springs, Colo.
- STAFF CHANGES . . . The newly created position of Deputy Commander for Weapon Systems at Hq., ARDC, will be filled by Maj. Gen. Albert Boyd. He had commanded the Wright Air Development Center at Wright-Patterson AFB. Ohio. . . . Last month, Maj. Gen. Archie (Continued on page 182)







It was recently announced that the latest Canadianbuilt F86 Sabre jet fighter can fly faster and climb higher than any other aircraft in European squadron service . . . practical evidence of Canadair's superior development and production facilities.

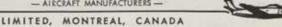
This is the sixth version of this famous fighter which has been produced continuously at Canadair without interruption of scheduled delivery dates. The outstanding record of the Orenda-powered Sabre VI can be credited to the intricate re-engineering of the airframe to take full advantage of the aircraft's new power plant — the Canadian Orenda 14.

In this job, as in the work now going on at Canadair to design and produce the CL.28, a maritime reconnaissance version of the Bristol Britannia, the RCAF depends on the imagination and "know-how" of Canadair's engineers. Like so many aviation experts around the world, they know that in every aspect of production, "You can count on Canadair".



ADA

AIRCRAFT MANUFACTURERS -



A subsidiary of GENERAL DYNAMICS CORPORATION, New York, N.Y. - Washington, D.C.

RAWING NO



Where on the map is

AND and what

Visit the Avco "Twins" at the Avco Defense and Industrial Products exhibit, Air Force Association's Airpower Panorama in the Civic Auditorium, San Francisco, August 10-14.

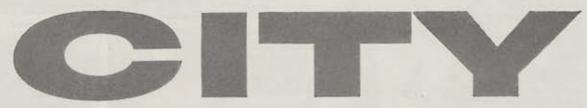
They can answer questions about Avco City. Drop in and see them!

TAKE A CLOSE LOOK AT AVCO CITY

22,000 employees, 20 plants, 8,500,000 sq. ft. of floor space. 40% engaged in defense work—the balance readily convertible in a national emergency. Among the major Avco facilities are those shown below:

FORT DODGE, IA.	A			-				0
EVERETT, MASS.	В		G	the same				
EVENDALE, O.	C		22.4	D				
CONNERSVILLE, IND.	D							
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RICHMOND, IND.	1 5	-		0		- H	14	7/11
ATLANTA, GA.	J	-	2		The state of the s			

For a vital, rewarding career, join today's Air Force



does it do for America's defense?

Avco City is actually 20 Avco installations in 16 cities in 9 states, including 14 manufacturing plants with outstanding facilities for research and development, product engineering, and manufacturing in these areas:

ELECTRONICS . POWER PLANTS . AIR-FRAME COMPONENTS . PRECISION PARTS

Approximately 40% of Avco City facilities are devoted to meeting today's defense needs in such activities as propulsion, metallurgy, aerodynamics, radar, guidance, optics, and nuclear energy.

More important—in a national emergency—the major part of the facilities are readily convertible to all-out defense production. These facilities are now devoted to such familiar products as Crosley appliances, Lycoming engines, Bendix home laundry equipment, New Idea, Horn, Ezee Flow farm equipment, and American Kitchens.

When you visit the Air Force Association's Airpower Panorama, be sure to see the defense work by Avco Defense and Industrial Products.

		К	MASON, O.
0	P	L	NASHVILLE, TENN.
		M	CARROLLTON, KY.
	0	N.	COLDWATER, O.
		0	DAYTON, O.
	E WAR	P	STRATFORD, CONN.
- W		0	WALTHAM, MASS.
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11/1/	A DR	s	CINCINNATI, O.
22000		T.	COLUMBUS, O.



POWER PLANTS . ELECTRONICS . AIR-FRAME COMPONENTS . PRECISION PARTS

DEFENSE AND INDUSTRIAL PRODUCTS

LYCOMING . AVCO ADVANCED DEVELOPMENT . CROSLEY

(DIVISIONS OF AVCO MFG. CORP.)

Torture-testing helps build safety into Boeing airplanes

The B-52 eight-jet global bomber requires half an acre of parking space. Yet tucked in a corner of Boeing's new Flight Test Center is a structural installation large enough, and advanced enough, to accommodate and load test this giant Air Force weapon.

The composite picture above shows the extremes of upward and downward deflection to which the B-52 wing was subjected in load tests. The deflection is 22 feet above and 10 feet below normal unloaded position. The loads applied far exceed those the airplane might encounter under the most severe combat conditions.

Another phase of the test program is devoted to the B-52's pressure section. In these tests the section has been subjected to twice the pressure differential it will have to withstand at high altitude. Boeing's pressure research program has been a continuing one since 1936, when this company began designing the original Stratoliner, the world's first pressurized airliner. This pioneering Boeing aircraft, in 1939, inaugurated today's era of pressurized four-engine commercial transports.

In all, more than 150 twisting, bending and shear tests will be applied to the B-52. The program will have required 14 months, and the investment of 110,000 engineering manhours, and 430,000 shop man-hours before it is completed.

Like earlier Boeing airplanes, the B-52 is proving in these tests the validity of its structural design, the integrity of its materials and construction. This is the kind of program which, along with the company's advanced research, its vast engineering and production resources, accounts for the remarkable dependability and high performance standards of aircraft designed and built by Boeing.

BOEING



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

The question of how to handle returned POWs who signed phoney confessions under pressure still plagues the services. The Army and Marine Corps cling to the "tough" policy that Communist pressure is no excuse for revealing any more than your name, rank and serial number. The Air Force policy, more enlightened, treats each case individually on its merits and restored to duty without prejudice the four flyers—Heller, Cameron, Parks, and Fischer—released not long ago by the Chinese Reds. The Navy hasn't come up against the problem, although outspoken Admiral Dan Gallery advocates a "tell 'em anything" approach. A Department of Defense study of the problem hasn't yet come up with any official answers, although there are enouraging indications that its recommendations will be closer to the Air Force way than to the Army.



The past few weeks have seen some changes in scenery for some of our older friends. Bill Key, editor of *Pegasus* and one of our early mentors in this business, is now director of public relations for Fairchild. Warren Smith,



Breezecake this month is from Janitrol Aircraft-Automotive Div. of Surface Combustion Corp., who say, "The equipment is designed specifically to meet heating needs for all aircraft types. . . . The versatile, performance-proved heater models . . . can supply the heating comfort requirements of virtually any size business aircraft."



Catholie airmen with the 16th Fighter-Interceptor Sqdn. on Formosa have no chaplain. So they hear Mass in the mission chapel of a Chinese priest, Father Francis Yung.

whom we've known equally as long, becomes director of advertising . . . Pete Schenk, formerly one of the AF's more brilliant young scientist-officers and an Air Force Magazine author, moves into GE's Light Military Electronic Department at Utica, N. Y., as manager of marketing. In so doing he cost AFA the services of capable Miss Frances Stowe, formerly administrative assistant to Jim Straubel. She now works for GE and Pete Schenk . . . While on the subject of old friends, we were pleased as Punch when the AF recognized the unique talents of Lt. Col. Vince Ford by awarding him the Legion of Merit for his work on the intercontinental ballistic missile program, with the Scientific Advisory Board, and as executive to the AF's Special Assistant for Research and Development.



The first Allison J-33-A-35 jet engine to be overhauled by Southwest Airmotive under its new AF contract was test run and accepted by the Air Force on July 23, the first of more than 1,200 J-33s scheduled to move through Southwest's Dallas plant.



Representative Robert Mollahan (Dem.-W. Va.) is disturbed about the number of former high-ranking officers, mostly Air Force, now serving in top jobs in American defense industry. Mollahan generously commented:

"I do not wish to reflect in any way upon the high qualifications and undoubted integrity of these retired officers.

"Nevertheless, I find it a too startling coincidence that so many of the corporations employing them could not find qualified civilian personnel within their organizations, or in industry generally, to fill their positions."

Representative Mollahan evidently ain't been around. The crying need in industry, if you can believe the business magazines, is for top executive talent. Companies train 'em, steal 'em, raid the competition for 'em. And they've found over the years that the same qualities which make

(Continued on following page)

for brilliant military leadership is easily translated into the kind of executive ability that industry in general is looking for. The executive's biggest job is making decisions. Top military men are used to that.



We have become quite accustomed to seeing feature articles in Air Force Magazine quoted in the press. But it made us feel real good the other day to see a *Minneapolis Star* editorial based on a brief item in our "Tech Talk" department. The editorial quoted Associate Editor Lee Klein on the complexity of the B-52 cockpit simulator and went on to say,

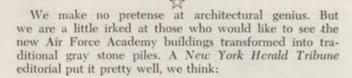
"The B-52 being our counterbalance to the Russians' own intercontinental jet bombers, we want our '52 pilots to be trained as quickly and thoroughly as possible, but . . . well, the picture does give one a sharp twinge, doesn't it, right in the location of the tax deduction."



A magazine devoted entirely to flying saucers (and which buys the theory that they come from outer space) is now being published in England.



A few months ago we noted that the first operational B-52s were slated for the 93d Bomb Wing of SAC's 15th Air Force, at Castle AFB. Calif. One of our staffers, a former bomber man himself, recalls Christmas Eve 1944, when the 8th Air Force put up 2,000 heavies to help turn back the Germans in the Battle of the Bulge. Leading those bombers that day was Brig. Gen. Fred Castle. On the way back to England General Castle took over the controls of his flaming B-17 so the crew could parachute to safety while he crashed to his death. Now one B-52 can carry more destruction than the 2,000 B-17s and B-24s that General Castle led the day he earned the Congressional Medal of Honor.





"The great cathedrals were modern; they were even "modernistic" (if there existed such a misbegotten word) when they were built; and those whose construction bridged successive generations carved on their face the changing ideas of man. In England today the great cathedral at Coventry, destroyed by bombs in one of the first raids of World War II, is being recreated in a style and in materials wholly of the present. If this is true of structures which embody so much of ancient wisdom and tradition, how much more should it be so of one, like the Air Force Academy, which is born of new skills and looks to mankind's future."



When Soviet big-wigs Bulganin, Krushchev, and Zhukov journeyed to the summit conference at Geneva, an AF captain, Clifford McConnicl, got them there. Since the Russians claim they have no navigators familiar with (Continued on page 37)

Air Rescue Rescues a Rescuer

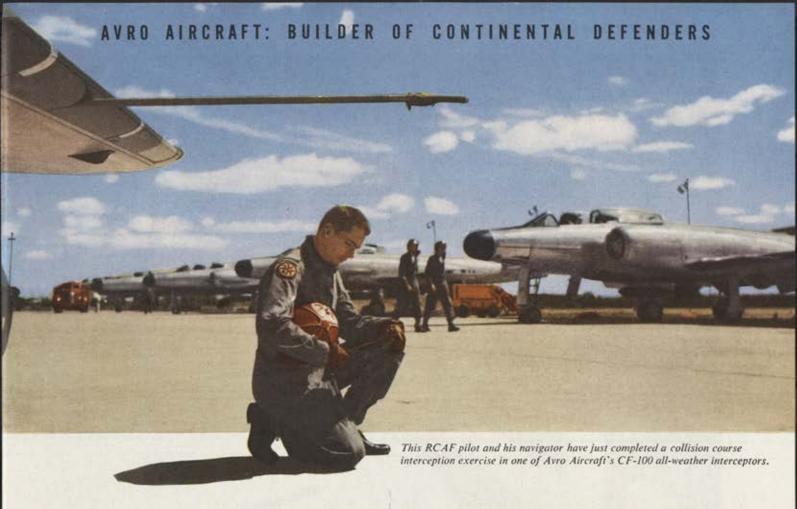
At our Washington Convention in 1953, AFA's Flight Award went to the 3d Air Rescue Squadron. At the Convention as an honored guest was T/Sgt. Edward H. Boggs, an air medical technician who had made 130 helicopter trips behind enemy lines in Korea on dangerous rescue missions. Now Sergeant Boggs is with the 42d Air Rescue Squadron, March AFB, Calif. Not long ago he and his wife discovered that their eight-year-old daughter, Mickey, had a brain tumor that required immediate surgery. Nearest AF hospital with necessary facilities was at Parks AFB, Calif., 300 miles away. Air Rescue stepped in, took the Boggses and the little girl in a Grumman SA-16 to Travis AFB (no landing field at Parks), and an ARS Sikorsky H-19 helicopter lifted mother and daughter into Parks and the hospital. The operation was successful. For another example of how the AF "takes care of its own," see page 115.



(Left) Sergeant Boggs watches anxiously as his stricken daughter is carefully transferred from the SA-16 Albatross to an H-19 helicopter for the trip from Travis to Parks, (Right) Mrs. Boggs and medical technican A/1C Lyle Heim watch over eight-year-old Mickey during the helicopter flight to Parks.



AIR FORCE Magazine . September 1955



FLIGHT LEADER CHECKS HIS LOG

In the deadly serious business of guarding the northern approaches to Canada and the Western Hemisphere against enemy air attack, RCAF pilots and navigators function as a perfectly coordinated team. On that team, too, are the operation's officer, navigation chief, armament officer, radio control officer and ground crew. Backing up this team are the men at Avro Aircraft. For it is their job to design and build planes capable of meeting and repelling attack, if attack should come. This constantly expanding objective is being met by Avro Aircraft's extensive engineering division led by the most outstanding research, design and development engineers in the aeronautical industry. Powered by twin Orendas, no other all-weather interceptor in service today can equal the CF-100 for power and range.



In England, CF-100s are undergoing evaluation tests with the RAF. RCAF squadrons of CF-100s will begin duty with NATO forces in Europe by 1956.





To the Man in the Secret Drafting Room

who is designing tomorrow's planes—or any of a host of new products!

Maybe the project upon which you are working won't be ready for actual production until 1958 or '59.

Undoubtedly you are faced with searching problems that always haunt designers in the throes of conceiving radically new and better things.

Your assignment may be so secret as to make it impossible for you to discuss these problems. <u>But</u> perhaps we can be of help:

For we, too, have been pioneering.

As a result, Goodyear has come up with certain revolutionary new materials and methods which might prove vital to you.

For example:

Can you use a fabric which can "break" and still retain its rated strength? We call it "Double Break" fabric, a unique new rubberized material which contains "shock threads" which snap upon absorbing a predetermined load—arresting damage—leaving the base fabric unruptured and unimpaired. Ideal for absorbing energy and shock, increasing safety factor.

Can you use a fabric that can withstand a ton per inch? We have developed a new high-tensile fabric which can withstand more than 2,000 pounds' tension per inch. It can be coated with any desired material. Do you need a flexible material of extreme strength?

Can you use shock cushioning — a new inflatable material that can "make like a beam"? Capable of containing high pressures, this Flat Air Mat has double walls of a new rubber-coated Nylon fabric connected by thousands of tiny Nylon "hairs." Lightweight, collapsible—excellent thermo- and vibration-insulating qualities—can be

used for complete, inflatable structures, including beams believed to be of highest strength-to-weight ratio known.

Planning on utilizing new propellants? Then let us tell you this: Goodyear has almost unrivaled experience in building fuel cells and systems for actuating today's most fantastic and "flighty" fuels. Working closely with our customers, we have licked complex problems involving monopropellants and fuel- and oxidizer-systems—found ways to safeguard these fuels from catalytic decomposition—produced containers, diaphragms and expeller bags which withstand corrosion and high temperatures—and "fuelproof" cells for virtually every type of aircraft.

Can you use foolproof, fully automatic de-icing? If altitude, weather and operational area for your ship suggest ice hazards to the airfoils and engine intakes, then you will want information on new electrothermal Iceguards by Goodyear—the world's first fully automatic system of ice-protection for aircraft!

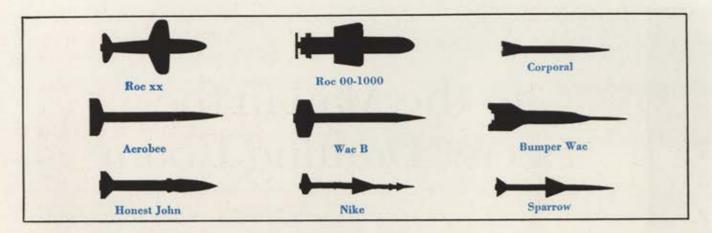
How about brakes and landing gear? Are you faced with problems of space—high speeds—torque—weight? There are many new advancements in the famed Goodyear Disc-Type Brakes. (Note: these compact, high-powered airplane brakes have many industrial applications too.) New Goodyear forged magnesium wheels have record-breaking roll mileage, greatest load-capacity per pound of metal. And new Goodyear Tubeless airplane tires offer valuable weight-savings.

The benefits of these, and many other new Goodycar developments, are yours for the asking. Why not contact Goodyear, Aviation Products Division, Akron 16, Ohio, for details?

Iceguard-T. M. The Goodyear Tire & Robber Company, Akron, Ohio



AVIATION PRODUCTS



Missiles by **DOUGLAS**

A box score of 15 years' continuous participation in designing and building guided missiles for the Air Force, Army and Navy

Already key cities have the protection of a guided missile which can destroy the swiftest stratospheric bombers. This is Nike, operational result of long and versatile missile experience.

Douglas association with rockets and guided missiles has seen this company at work with other industrial leaders and our Armed Forces—to move missile development from a dream of pushbutton warfare to a solid reality. You saw it in the Bumper Wac research rocket, world altitude champion, in Honest John—field artillery rocket with high explosive or atomic wallopin missiles of every type . . . air to air . . . air to ground . . . ground to ground . . . ground to air.

Douglas leadership in rocket airframe design has helped give us operational missiles in a relatively short span of time. Security cloaks even greater advances which are now on the way.



Depend on DOUGLAS



First in Aviation



Judo instructors who are training FEAF Air Police had their work cut out for them when kingsized A/1C Clarence Fliney weighed in at 360 pounds. He's six feet, seven inches tall, to boot.

the Berlin-Geneva route, the Air Force loaned them Captain McConnicl to guide the plush twin-engined Ilyushin 12 that carried the Red dignitaries. For his trouble, Mc-Connicl got two bottles of Armenian cognac, a bottle of Georgian wine, and a huge breakfast-caviar, cold cuts, oranges, cookies, candy and tea.



We were looking through a recent issue of The Army Combat Forces Journal the other day and ran across an intriguing item in the "Letters to the Editor" department. An Army captain, no less, proposed the following (we quote only in part):

"At the risk of being ostracized by the Army, I should like to offer a solution [to the air defense problem]: make the anti-aircraft artillery part of the Air Force. There are many advantages to such a merger, but the biggest is that we would then have unity of command and a greater degree of simplicity plus economy of forces. . . .

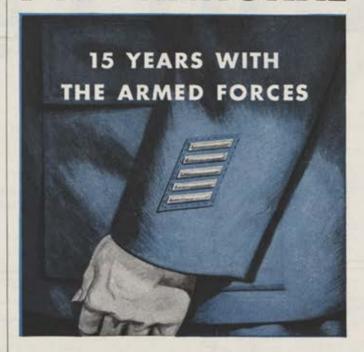
The captain went on to say, "Some anti-aircraft artillery officers are of the opinion that the surface-to-air missile of the future will enable the army commander to gain air superiority over his army's area, even if we do not have tactical aircraft available. This might be fallacious reasoning; if we have air superiority we may not need the army-controlled missiles. If we do not have it, then no amount of missiles will help the situation very much. The enemy air force would merely start its own isolation of the battlefield, and we would soon lack the means to maintain large-scale operations."

We don't begin to think that this thesis represents any sizeable cross-section of Army thinking. But it is interesting to couple it with another thesis, which has captured the Army imagination, and come up with an anomalous situation that might find the Army battling for its own air forces while simultaneously attempting to bequeath a sizeable portion of its artillery to the Air Force!



W. Barton Leach, whose second consecutive appearance in AIR FORCE Magazine begins on page 55, descended on us the other day with a couple of justifiable complaints. In our author's note about him in last month's issue we managed, with extraordinary finesse, to overlook two typographical errors in seven short lines. Professor Leach has been at Harvard since 1931, not 1951. And he did not head AFA's Operations Analysis Division during WW II. Should have read AAF. Also, he's married (not single as we reported on page 90, July issue).-END

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AIR FORCE

MAGAZINE

PROUDLY PRESENTS ITS ANNUAL

Anniversary Issue

DEDICATED TO

THE MEN AND WOMEN

OF THE UNITED STATES

AIR FORCE



CAN WE AFFORD

A Second-

AR BEGUN without good provision of money beforehand for going through with it is but as a breathing of strength and blast that will quickly pass away. Coin is the sinews of war."

This particular quotation is from François Rabelais. It was written in the Sixteenth Century. The gist of it has often been said, before and since, but it has never been more true through the centuries than at present. Rabelais knew nothing of guided missiles, nuclear explosives, electronics, or the other incredibly complicated and expensive trappings of modern conflict. But he was a shrewd observer of human nature, and time has only made his comment even more apropos than at the time of its utterance.

I would like to make it clear at this point that the views I am about to present are my own. A great many persons will disagree with them, I am sure, both in the Air Force and in the Air Force Association. But I sincerely believe these things need saying at this time.

As this is being written Congress is still in session, rushing toward adjournment. The bulk of the Air Force appropriations for Fiscal Year 1956 have been enacted into legislation. There are a few important loose ends still to be wrapped up—items like exactly how many millions will be spent on base construction and a determination of how many thousands of needed housing units will not be built.

Last year at this time Congress had gone home and we published an article on the budget called "Why Is Everybody So Happy?" The title is still valid this year. In fact, it is a temptation to jack it up, run some new figures under it, and call it a day. Most everybody is still officially happy, although with even less reason than last year.

An analysis of the figures shows that the Air Force will receive approximately half of the total defense appropriations. This is a trend that will continue—in fact, the Air Force's proportionate share will probably increase. As Department of Defense officials like to say, the Air Force is now getting "the lion's share" of the money. These same people use the figures to document their boast that our program clearly reflects a new emphasis on airpower as the backbone of our military strength.

There is another cliche in common circulation which says, "We now have the largest military force in the nation's peacetime history." This is as true as it is shallow and meaningless. It is like the advertising slogans that urge

us to try the cigarette which tastes better, the car that is bigger. Better than what? Bigger than what?

In the case of our military establishment, the figures of the budget and the force levels of the services must be weighed, not against each other, or against past years, but against the armed strength of Communism. Unfortunately, the latter is becoming overwhelming in quantity and continually improving in quality.

Viewed against the force it would have to lick should the need arise, our Air Force and its programmed 137 wings by July 1, 1957, is beginning to look somewhat like a top-notch light-heavyweight, with a good sharp right and a fair left, but who is a little shy on the weight, reach, and stamina needed to go the fifteen championship rounds in the heavyweight division. "A good big man can beat a good little man" may not always hold true, but a Ruby Bob Fitzsimmons is still the exception, not the rule.

The trouble with our light-heavyweight is his handlers. His training camp is a little rundown and ramshackle around the edges and he's living on hamburger rather than on thick steaks. He's carrying no excess fat and his skeletal structure is that of a potential heavyweight. But he just isn't putting on muscle fast enough, or in the right places.

In a situation like the present, where there is little wrong with the Air Force that more money in the right places couldn't correct, it has normally been a conditioned reflex to blame things on a "penny-pinching Congress." Historically this isn't so. In the last five years our legislators have lopped off a mere three percent, on an average, from the defense money requested by the Administration.

The obvious question at this point is, "Why doesn't the Air Force, or the Army, or the Navy, for that matter, ask Congress for the money they believe they need?" The answer is not as obvious as the question. It is simply that the services are not allowed to. The budget requests for the individual services reflect what the Department of Defense and the Administration believe they should be. And here is where we run into trouble.

The present Administration is dedicated to economy, efficiency, and the pursuit of a balanced budget. It has not achieved the latter as yet, but this does not mean that it has given up the pursuit. Next year is the hoped-for target date, and the axes are even now being sharpened in the

Best Air Force?

By John F. Loosbrock
MANAGING EDITOR, AIR FORCE MAGAZINE

Treasury Department and delivered to the Pentagon.

Our current government policy shows precise consistency in its quest for the balanced budget. Whenever there is a conflict between fiscal considerations and defense needs, the fiscal policy usually emerges triumphant. Service needs take second billing. No matter what the services may tab as essential, when the bill is added up and it bumps against the predetermined ceiling, the order comes back, "cut it."

The continued prospect of fiscal domination of our military force levels is a nagging worry for the military man. His responsibility is not lessened a whit by the fact that he may not have the tools to do his job. His military commitments are stamped "Made in Moscow," his ability to

carry them out is determined in Washington.

There is little indication that force goals, the growing Soviet threat, and the overriding need to stay ahead of the Communists have any meaning to the budget workers in the Department of Defense. They know that a balanced budget hasn't been tossed into the wastebasket. At this very moment they are whacking away, not only at next year's estimates now taking shape, but on funds already made available by Congress for this fiscal year. While the legislators were busy reviewing, debating, and approving the Fiscal Year 1956 funds, Defense Department moneymen were busily slashing the planned expenditures of these self-same funds in order to make sure that the year's spending didn't exceed the ceiling and that there was no spending started that would have to be carried on into Fiscal Year 1957—the year the budget must be balanced.

The fiscal surgeons know that they must reduce spending, not merely appropriations, in order to balance the books without a cut too large for the Congress and the public to swallow. Cutting a billion in expenditures this year, and two billion in appropriations next year (with a corresponding decrease in expenditures) looks much more palatable than a three-billion-dollar slash all in one bundle.

The numbers game is being played to the hilt. The force goals already established will be met—numbers-wise. Count the wings on July 1, 1957, and they will add up to 137, all right. But they will be undermanned, inadequately based, and uncomfortably unready for the combat that may be the Free World's last hope of survival. The façade will glitter like an East Berlin shop window. But the goods will not be there.

BOX SCORE ON THE AF BUDGET

\$6,306,000,000
349,862,600
3,597,496,570
3,680,650,000
570,000,000
43,563,000
192,191,000
\$14,739,763,170

The very fact that the Air Force is destined to receive the "lion's share" over the next several years actually works against it. For the Air Force undoubtedly will suffer the greatest reductions when the expenditure limitations are finally laid down. Yet the fiscal planners in the Pentagon cannot understand why this should be cause for alarm.

They frankly, although privately, admit that we will never be able to replace our B-47s, in numbers of planes or in numbers of wings, under our current money policies. They admit that we will never have enough money to really maintain a combat-ready 137-wing force. Yet they see no inconsistency in the view that the force goal must be met at all costs, regardless of whether or not that force is ready to fight. "Everyone has to cut corners," they say.

There is little on paper to document these conclusions. The words "ceilings" and "limitations" are carefully avoided in official directives. Yet the actions and decisions of these men indicate clearly that there are fixed dollar limitations on both appropriations and expenditures. The parameters have been set, and the programmed force levels must be attained within them.

How have these actions affected the Air Force? One area is bases. The base program has been undermined by repeated reviews and unwieldly administrative procedures

(Continued on following page)

that amount to a stretch-out. Unfortunately, this comes at a time when the Soviet capability is continually increasing, when the ability of our Air Force to survive the first blow becomes more important with each day that goes by. At a time when dispersion means salvation we are planning to put even more aircraft on overcrowded bases.

Two years ago, when a dying General Vandenberg fought against the \$5 billion cut that rang the death knell for the old 143-wing program, he was criticized because the Air Force had activated "paper" wings, before the aircraft were available to equip them. Now we are conceivably facing an anomalous situation whereby we are building the planes for 137 wings without programming the people to man them or the bases from which they can operate. A situation which, incidentally, General Vandenberg predicted would come about under the then "New Look." Paper wings, indeed!

Vital research and development funds also are limited by a ceiling of which every informed person in the Pentagon is aware. It is a safe bet that R&D funds available to all services over the next several years will not exceed \$1.2 billion annually, about a third of this ticketed for the Air Force. This ceiling has ostensibly been imposed in the interests of efficiency, to force management control on the

As this issue went to press we learned that approximately forty F-100s at George AFB, Calif.—half a wing of our newest operational interceptor—are not being flown because of a shortage of trained maintenance personnel.

services, but the result is a decrease in new projects and skimping on projects already underway. No one knows, of course, how many rubles go into Soviet research and development. But it is no secret that we are spending, proportionately, less than half what the British are spending, and no one suggests that the RAF's goal is to keep abreast of the Soviets.

Certainly there hasn't been enough money in the research and development program to insure victory in the race for the intercontinental ballistic missile.

The Air Force procurement belt is also being pulled in, regardless of the headlines about step-ups in bomber and fighter production. Programmed expenditures are barely enough to keep the force "modern," even under a definition that has acquired a good deal of elasticity lately. In fact, at present rates we will be lucky to meet attrition, much less the obsolescence forced on us by the continual improvement evidenced in the Soviet Union.

Up to now the Air Force has been getting the bulk of its aircraft from money appropriated in Fiscal Years 1952 and 1953. FY 1952 funds procured 7,800 aircraft; FY 1953, 4,800; FY 1954 and FY 1955, only 1,400 each year; and FY 1956 funds are slated to procure only 2,500 aircraft. To meet attrition alone, the Air Force needs a minimum of 2,000 aircraft annually. To meet attrition and obsolescence, about 4,000 aircraft must be procured annually, and the money for them just isn't there.

The paring knife of economy is also busy in maintenance and operating funds. Year by year the flying hours that can be programmed, within the dollar ceiling set, are dropping farther and farther below the requirements needed to keep the force trained and ready.

For example, in the FY 1955 budget, maintenance and operating funds totalled \$3.659 billion to run 121 wings. For FY 1956 with ten new wings scheduled to be added to the force, maintenance and operating money adds up

to only \$3.766 billion. Surely the decision as to how much flying the Air Force must do to stay combat-ready should be a professional, military judgment, not a fiscal one.

Nowhere in the program is a basic and inevitable fact recognized—that a constant ceiling on either manpower or dollars does not make a program steady. It drives it downhill. Here's an example. There has been no directive that the Air Force cut its civilian personnel. But there are instructions not to hire any more. When a civilian employee dies, retires, or takes a job in private industry, he can't be replaced.

This situation occurs at a time when the services are knee-deep in a program to substitute civilians for men in uniform, so that the military manpower ceiling won't be disturbed. A stroke of management genius, it was called. But the services sacrificed a degree of combat readiness by putting civilians in certain jobs in the first place and now the reductions in civilian personnel have the same effect as lowering the military manpower ceiling. If it was once questionable whether the Air Force could man 137 wings with 975,000 men, how much more so under present Department of Defense personnel policies.

There are plenty of areas, of course, where the economy boys could operate, with one eye on the ceiling and the other on the combat capability of the total force as balanced against the threat. One of the more obvious of these is in the sacrosanct realm of roles and missions. A realistic reappraisal of what each service is likely to be called upon to do, on an honest-to-Pete "first-things-first" basis, could immeasurably increase our combat capability without upsetting the fiscal applecart. This nettle has been partially grasped, as indicated by the way the money is being split among the services, but not as firmly as it should be. A great deal of the Air Force's "lion's share" is devoted to catching up with the other, older, services.

We are also spending large amounts of money that do not buy combat-ready forces. We are stockpiling items for a "long war," spending to prepare for post-D-day mobilization, with money that will have little effect upon the decision in modern war. Our top planners agree that we will win or lose with the forces that exist when the battle commences. But the fiscal experts seem reluctant to swing the ax against the stockpiles with the same fervor that they attack forces and supporting elements already in existence.

Money is a nasty word. It is the "root of all evil." As lucre, it is "filthy." Lack of it breaks up more homes than any single cause. Too much of it corrupts. Too little of it leads to malnutrition. But it remains about the most necessary evil that a free economy possesses. And the fate of millions of souls may well depend on the willingness of the richest nation in the history of the world to spend enough of it to insure its own survival.

As of the moment we are not so willing. Individually, yes. The American taxpayer has never proved niggardly when the chips are down. But collectively, as a government, we are trimming while the enemy is expanding his efforts.

What it boils down to, from this corner, is that we are not going to even try to build an Air Force capable of whipping Russia's one, two, or five years from now. The Air Force used to be criticized because it made a sacred cow of the 143-wing force. Now no one dares suggest that 137 wings in 1957 might not be enough. How sacred can you get? The die has been cast. We are planning on a second-best Air Force and gambling that it will never have to be used. If the gamble pays off we will have saved a great deal of money. If it fails we will have lost everything.—End



The Pacific War started disastrously. This is Wheeler Field, Hawaii, after the Japanese had finished with it.

This was the war that led to . . .

V-J DAY

The Pacific War in pictures, plus the story of how it all ended ten years ago

By Staff Correspondents of the wartime AIR FORCE Magazine



A B-25 of Jimmy Doolittle's famous Tokyo raiders leaves the deck of the USS Hornet early on April 18, 1942.

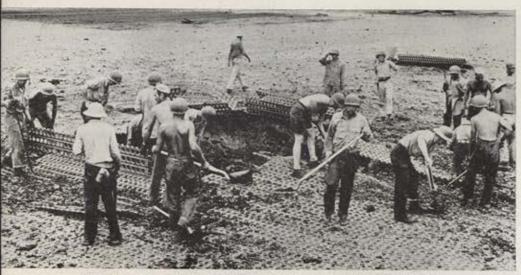
Battle of Midway, June 1942, when AAF and Navy planes turned back a Japanese invasion fleet. A B-17 Flying Fortress girds for the coming combat.

When Editor Jim Straubel read the galley proofs on this one he returned them with the comment "excellent writing, especially the stuff from the guy on Okinawa." The "guy on Okinawa." of course, was Straubel himself, wartime editor of Air Force Magazine from which the article has been reprinted. And in the foreword to the same piece in Air Force Diary Straubel wrote, "The story needs to be told and retold, lest

in years to come complacency and inertia once more rob us of our strength. It does not require any special selling. The record speaks for itself; the facts are more than sufficient." Complacency and inertia are still with us. The record has spoken, but to deaf ears. The facts have not proved sufficient to keep us strong. We hope this re-telling will evoke some memories, and some resolutions.—The Editors.

HE Red alert sounded on Okinawa Shima at approximately 2200 hours on August 10—the same wailing call that had been warning AAF men to hit the dirt all along the line for more than three and a half years, from Moresby and Saipan to Dutch Harbor and Henyang and Leyte.

But this time the big searchlights were dark and the heavy ack-ack guns failed to pound out their usual welcome. Only the smaller guns were firing, and their crackle sounded like (Continued on following page)



Guadalcanal wasn't all Marines and infantry. Henderson Field became the center of our air effort in the Solomons, the campaign which saved Australia.



New Guinea was George Kenney's show. His B-25s hit an air base near Wewak.



Mission accomplished. A Seventh AF B-25 has just dropped its load on Wotje Island, in the Marshalls.



Snow in the Pacific? Sure, if you fought your war in the Aleutians. These B-24 Liberators have just landed after a raid.

V-J DAY_

a Fourth of July gone mad. The night sky was alive with bright-orange tracer streaks and star-shell flares and puffs of light flak.

No enemy aircraft were over Okinawa this night. The enemy was washed up-beaten before the final round. The radio had announced the Japs' offer to surrender, and while it wasn't official yet, the suddenness of the announcement had touched off a wild celebration that had the whole island in an uproar. Officers and enlisted men fired .45s and carbines into the sky. AA men pressed the triggers of their 40-mms, and held them until the gun barrels were red hot. It was mad hilarity that took the lives of six men and wounded at least thirty before it ended.

But the celebration was premature. Radio announcements had clearly stated that the war was not yet over, and that the Jap surrender proposals had a string attached to them. Yet to the men on Okinawa the string didn't seem very strong, and pulling strings was someone else's job. The Nip was through and the whole business was going to be over, and the mileage across the Pacific from Okinawa to the Golden Gate had suddenly shrunk to ferryboat size.

The climax was unprecedented. For the first time in history a major power had fallen without the traditional storming of his citadel by land or sea. Japan had decided to call it quits before being invaded. Undoubtedly the threat of impending invasion and the Allied amphibious advances of the past year had contributed greatly to the enemy's decision. But in the final analysis it was land-based airpower that had been the driving force throughout the Pacific war, and it was the atomic bomb dropped by the AAF that had provided the coup de grâce. The men of Okinawa knew this, and everyone felt proud inside.

Some of the men on the island who were cut off from outside communications took the alert and shooting for what they appeared to be. They concluded that the Japs had landed paratroops or airborne infantry on the Okinawa airstrips, as they had done a couple of months before. Only two nights before, the Nips had been over the island on recco and to drop some bombs. The stage appeared set for a major effort to interfere with the vast military program on Okinawa, where bulldozers and trucks and steam shovels were putting the finishing touches on the world's largest air base and where the AAF was bringing together its units from all over the world for the final push. But finally all the men learned that the last round had been called off and that the fight was over. To all intents and purposes, the war ended for the men on Okinawa on the night of August 10.

It was virtually the same story that night wherever AAF personnel were stationed throughout the Pacific; the first rumors of a Jap surrender offer



Smoke screen in the Southwest Pacific shields troops from prying eyes.



Not all the close shaves were in the air. This one's on Funafuti Island.



Yes, the Navy was there too. These are dive bombers over Bougainville,



Mechanics in the Marianas rob old P-47s for parts in airplane graveyard.



Chennault's Flying Tigers made history over China in their P-40s. Here's a dash from the briefing room to waiting aircraft and another jab at the Japanese.

CONTINUED

touched off spontaneous celebrations that flared up quickest and loudest from those who were closest to the fighting. On Guam the news was greeted with an unrestrained nightlong demonstration of joy. Air crews of the B-29s shouted and pounded each other on the back; WACs wept with happiness; bottles of hoarded whisky suddenly materialized from nowhere and added to the jubilation. Few AAF men doubted that the United States would accept Japan's offer. "Thank God, there'll be no more bombing missions" was the general feeling.

In Chungking, the first premature flash set scores of firecrackers popping in the narrow streets, their explosive rattle mingling with shouts of "Ding hao!" as grinning Chinese saluted AAF personnel celebrating what looked like the end of the war. To China it meant the finish of a fourteen-year struggle. To GIs it meant just one thing—home.

When the first unofficial bulletins

hit Manila, guys just sat around and stared at each other with a feeling of frustration. For lack of a better way to blow off steam, officers gathered at the Officers' Club, drank Filipino gin, and got noisy. Night clubs in Manila filled up. Soldiers went up and down the streets, shouting, singing, and laughing; every now and then someone would fire a .45 into the air as if to get something out of his system. But most of the men sweated it out by the radio, waiting for official word.

Gen. George C. Kenney, commanding general of the Far East Air Forces, tried hard that night to get some definite word on the surrender. After sitting up most of the evening trying the radio, he is said to have called his Intelligence Office in the early morning hours. They didn't have a thing. He called Operations. Nothing there. In desperation he flashed the operator, "Give me a cook; maybe he'll know something."

"Yes, sir," replied the astonished

phone operator. "What cook, sir?"
"Any damned cook!" the general stormed.

The whole thing was fantastic. No one had expected the Japs to give up so quickly, certainly not without some retaliation for the atomic bomb. On Okinawa, only a few nights before, all AAF personnel had been called out for gas drill; gas masks, protective covering, and ointments were carefully checked. It had been a week of news and rumor. Biggest sensation, of course, had been "the bomb." Mess halls, latrines, jeeps, and airstrips buzzed with gossip about the atomic job the B-29s from the Marianas had let loose. Early reluctance to believe in its reported make-up changed to frank amazement as confirming reports piled in. Air crews returned to Okinawa from missions over Japan with tales of seeing a smoke column whirling 40,000 feet into the air above Hiroshima, "Most amazing thing we

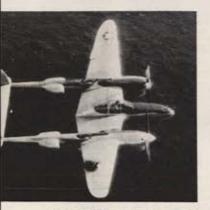
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Japanese shipping in Rabaul Harbor takes a beating from B-25s. White plume in center foreground is water spout from bomb bursts outside focus of camera.



The secret weapon of the war hacks away at jungle growth for airstrip.



This P-38, badly damaged, limps home from Iwo Jima.



By stretching the rules a little you could call Alaska part of the Pacific War, This is Ladd Field.



Paratroopers from the 503d Parachute Infantry drop on Noemfoor Island.

ever saw," said the air crews, and ground men were convinced.

Then Russia entered the war, and they knew it was clear now that the Nip was on the ropes. Next came rumors of peace feelers—through Russia, through Switzerland, through every place from the White House to the local latrine; still few people actually expected that the Japs would toss in the imperial towel just two days later.

It was still unofficial, however; the enemy had only offered us a conditional surrender, and the war went on while the diplomats dickered. Saturday, August 11, was just another day of work. In Manila, it was business as usual. Okinawa kept up its air offensive against shipping. Only Guam declared a truce and held its B-29s idle for further word. At 0100 Sunday morning Manila time, Secretary of State Byrnes announced Allied acceptance of the Japanese offer provided the Emperor would be subject to our orders. Most of the world settled back to wait for the Jap reply, but to the war-weary AAF men in the Philippines, this was it. Boat whistles moaned in Manila Harbor; searchlight beams stabbed the sky; from the tent area at the Fort McKinley headquarters of the Far East Air Forces came the throaty roar of massed men's voices.

But once again the celebration was premature, and the war dragged on in a spluttering uncertain fashion like a damp string of firecrackers. While the wheels of international protocol ground on, flyers took off from Okinawa on missions against a foe who might have surrendered by the time they reached his shores. On August 12, when diplomatic negotiations for peace were at their height, a Jap plane scored a direct hit on the battleship Pennsylvania, off Okinawa, with an aerial torpedo and killed twenty of her crew. The next day twenty enemy fighters came up to attack a flight of P-47s on a sweep over Korea; eighteen of the Nips returned to the ground -in flames; one was shot up on the ground, and the twentieth was listed as a "probable."

On Guam, where an unofficial truce had been declared, the hours ticked by into days. An ominous feeling of tension spread over the island like a thunderhead. B-29 crews staved by radios, their ships grounded until Washington and Tokyo made up their minds. Even the garrulous Domei Radio had been silent for over twentyfour hours. It began to look as if the Jap was up to one of his old tricks, stalling for time. On the morning of August 14, word went around that if no answer had come in by 1730, operational missions were to be resumed. It looked as if the war was on again.

At 1420 Col. Carl R. Storrie, CO of the 314th Bombardment Wing, called in his men for briefing. He told them their target for the night: Kumagaya, a small industrial city of 49,000. No one showed the slightest signs of enthusiasm; it was like telling the winning team to go out and play the last

(Continued on page 49)



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The 8th AF had done its job in Europe. Its commander, Lt. Gen. Doolittle, greets crewmen of his first B-29 to arrive on Okinawa near war's end.



Maj. Dick Bong, whose 38 victories made him top American ace, gets Medal of Honor on an airstrip on Leyte in the Philippines from the boss of the Pacific show, Douglas MacArthur.

game over again to prove the point. The planes remained on the ground

until the last possible minute, waiting for the word that never came. Finally, they took off at 1807 and headed into the dark skies. Radio operators maintained a constant alert for the code message "Utah, Utah," which would mean that it was all over. It never came, and 0132 hours on Wednesday morning, August 15, one more Jap city took a beating.

Sgt. Herbert C. Verry, radio operator on the last Superfortress believed to have dropped bombs on Japan,



Gens. Arnold and LeMay get the lowdown from a B-29 crew chief on Guam.



Brig. Gen. Dean Strother pins DFC and Silver Star on Capt. Tom Lanphier.

commented: "I think all the radio operators were more intent on this mission than on any other. They told us a code message might be coming over, and I was on the receiver until the last moment, even while we were over the target.'

By the time the planes had returned, the war was over.

AAF personnel in the States got the big news shortly after 1900, Washington time, on the fourteenth when President Truman announced to the world that Japan had agreed to accept the Allied surrender terms. From

Times Square to the Golden Gate, Air Force men joined in celebrations.

In London, cheering GIs and girls paraded around Piccadilly Circus carrying American flags. AAF personnel in Paris got the news at midnight, and within a few minutes soldiers and WACs in one billeting area poured onto the parade grounds and began snake-dancing around a huge bonfire that was being fed with signs reading "Officers Only," "WAC Area," and "Males Keep Out." A motorized cavalcade of WACs and enlisted men took over the city's main boulevards, six vehicles abreast, and the strains of "Pack Up Your Troubles in Your Old Kit Bag" echoed through the streets. The driver of one jeep, on which twenty-seven men and girls were counted, kept shouting, "There's always room for one more!" And in the camps and hospitals of the AAF the world over, wounded men cheered, embraced their nurses, and wept for

But despite the hilarity, many a soldier paused in contemplation, sobered by the memory of the many thousands of Americans who fell along

the long road to victory.

"The first thing I thought of was my two brothers," said one member of a fighter group still in Europe. "One of them was wounded in Okinawa. The other is a Marine. Now both of them will be coming homesafe."

Chaplains led prayers of thanksgiving, In Chungking, Chaplain John S. Kelley prayed for the deceased members of the Fourteenth Air Force, and expressed the hope "that they will not have died in vain." Maj. Gen. Charles B. Stone III, commanding general of the Fourteenth Air Force, called the men to attention while an officer struggled with a wheezy old pump organ to render "The Star-Spangled Ban-

Once the first blush of the great news had worn off, AAF men everywhere began to talk about point totals, going home, and eventual discharge. "Sure, we're happy about this news from the Pacific," said a sergeant of the 9th Aviation Engineers, "but we're more interested now in finishing up this job so we can start packing for the last time. It ought to speed up our return to the States." His unit was still building airfields in France.

By a strange quirk, peace, when it finally arrived, came gently to the battle-scarred islands of the Pacific where the war had raged fiercest. On Guam, for example, August 15 brought

(Continued on following page)



Two of these ended the show, nearly four years after the first Japanese bomb hit Pearl Harbor. Peace was near.



Even before the atom bomb wreaked its havoe, Japan had been battered and burned from above. This is Osaka after the fourth visit from 20th AF's B-29's, Japan's second largest city was seventy-five percent destroyed by fire raids.

no snowstorms of ticker tape, no wild firing of ack-ack guns, no torchlight parades and drums. The whole island seemed to breathe an audible sigh of relief at the long-awaited news.

Most of the AAF men on Pacific islands had been out there since the beginning. Many wore the Europeantheater ribbon. All of them had been surrounded by war so long that the sudden ending left them a little dazed and uncomprehending as to what peace really meant.

"It will seem incredible to have the B-29s idle on the field," muttered a medic on Guam. "So many nights we have waited for their return, watching them drop flares for emergency landings, or to show that there were wounded aboard. There hasn't been much use in dreaming before now, but at last we can think of what the most beautiful girl in the world—American—looks like in a bathing suit."

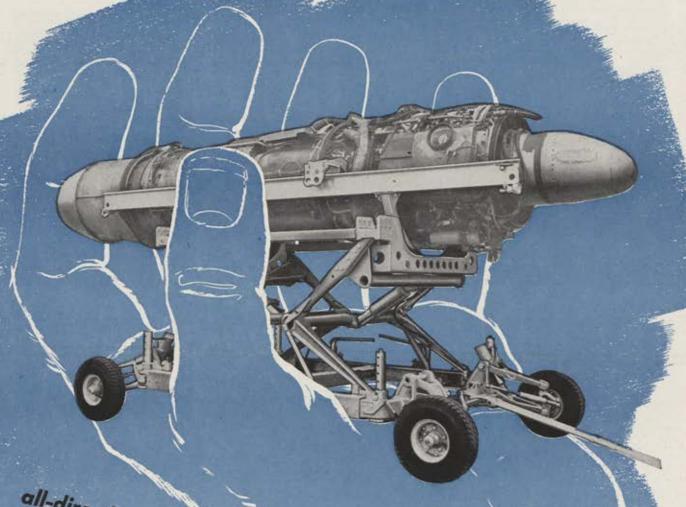
It was apparent to all that for many the trip home would be made via Tokyo. Emotions on this subject were mixed; many men wanted to get a good look at the empire they had been working to destroy. But for the most part everyone wanted to get home, and fast.—End



End of the long road to Tokyo. Three of the architects of victory arrive in Japan. The names? Spaatz, Carl A.; Kenney, George C.; MacArthur, Douglas.

The unconditional surrender. Gen. Yoshira Umeza signs for Japan in ceremonies on deek of USS Missouri in Tokyo Bay, on August 31, 1945.





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NUMBER ONE MAN

in the AIR FORCE

By Flint O. DuPre



HE AIRMAN-all of him-is the Number One Man in the Air Force for some very solid reasons.

He is the key that turns the lock to open the arsenal of American airpower. He is the central figure in the Air Force's build-up to unsurpassed strength to enforce the peace which most of the world seeks. He is the man who must answer the call if war becomes the undesired alternative.

The airman—the Number One Man in the Air Force—was never more important to his nation's security than he is today, or is likely to be in the future. Unlike airplanes and bombs and supplies and equipment, he is irreplaceable because his experience and his indomitable courage are intangibles unassociated with material things. Without him the airplane won't fly and the bomb won't fall, either in practice or in retaliation.

The Air Force recognizes the airman—each officer and each enlisted man—as being the Number One Man. But there is more to it than simply impressing each individual with his importance. The Air Force knows that unless its Number One Man is satisfied with his job and wants to be in the Air Force, he won't be at peak effectiveness.

Ineffective personnel in the ranks means a less effective fighting force. Secretary of the Air Force Harold E. Talbott and other AF leaders have stated continually, for our own preservation the US Air Force must be second to none.

This kind of thinking puts it right up to the Number One Man. He's it, first-rate, the top, the best in his field. The Air Force wants him to know it. But even more, the Air Force is doing everything it can to put its Number One Man up on the pedestal where he belongs. Things are being done to improve his welfare and to encourage him to make the Air Force his career.

The Number One Man has gained many deserving privileges for himself and his family through the dogged determination of Secretary Talbott, General Twining, and other Air Force leaders to recognize his importance through improvements in his service life.

He has gained not only benefits but prestige, in belated

recognition of his indefatigable loyalty.

The Number One Man now has a higher pay check to meet some of the high costs of living. The increased pay scale is also reflected in the all-important retirement fund he is building for the future, and boosts his new reenlistment bonus rate substantially.

The Number One Man now gets a dislocation allowance equivalent to a month's quarters allowance to help pay expenses while moving to a new assignment. If he lives in a trailer—as do thousands because the family housing situation for the military is still critical—the Air Force now gives him a mileage allowance to cover this expense.

The Number One Man now gets at least sixty days notice before reassignment, a welcome change for the family man from the old days when orders frequently allowed no time for the airman to look after his family. The Air Force now tries to keep the Number One Man and his family together as much as possible, including a plan for concurrent travel to overseas assignments. An assignment in the Air Force should be more than just a job; it's a way of life, flavored by a strong family spirit.

The Number One Man now has more favorable assignment policies working for him than ever before in history. In many cases he can name his next base. He can stay overseas for an extended, or second tour, if he desires. He can increase his skill level and advance in grade. He can enter NCO Academies, or even the Air Force Academy if he has post in a philipathics.

if he has certain qualifications.

There is much to be done, of course. Adequate family housing is of continuing priority. Thousands of family quarters are still needed. The Congress is now considering survivor benefits legislation which would be of tremendous assistance to the military man and his family. Other programs, both legislative and personnel actions being taken within the Air Force, are being developed.

Secretary Talbott puts it this way, "We've made a lot of progress—but you can be sure we're going to make a lot more. That's why I have been fighting for—and will continue to fight for—all the things that will make our Air Force the most prized and sought-after career possible."

The Secretary has designated September as the month for the Air Force to tell its Number One Man just why he is important and vital to the Air Force's assigned mission.

The Secretary will lead off with a filmed message to be seen by every man in the Air Force no matter where he is on duty. The Office of Information Services will use all the tools it has in order to let the Number One Man know just where he stands in the growing Air Force. He will be told through internal information media, such as Secretary Talbott's film, special pamphlets and posters, news and feature stories in AF base newspapers, exhibits, the Information Services Letter which goes to major air commanders, and other information services.

During September, the public also will hear about the AF's Number One Man through news and feature stories, radio and TV spots, and photographic outlets. Industry—so closely allied with the Air Force's growth to unexcelled

strength-will salute the Number One Man.

The Number One Man will be a big man during September. But not just September. It doesn't end there. As long as there is an Air Force the individual—the aircraft mechanic at below-freezing Thule in Greenland, the first sergeant on duty in Germany or French Morocco, the cook or baker at an air base in the United States, the aircraft plotter at an isolated AC&W site in Japan, or the thousands of counterparts of these airmen in their hundreds of essential assignments—each will be the Number One Man from month to month and year to year.—End



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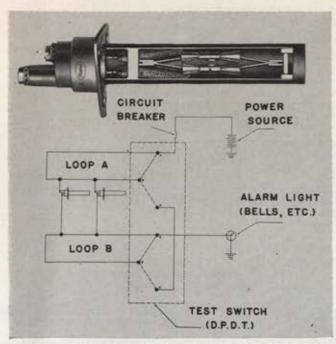
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By W. Barton Leach

NINE REASONS WHY

IRPOWER is the dominant factor in modern war"—
this is the common currency of strategic discussion.
But in this second decade of the atomic age, five years
after the first Soviet nuclear explosion, the theoretical
dominance of airpower has not been realized in American
force in being. We should examine the pressures that have
repeatedly reduced and delayed the realization.

Actually the above quotation is incomplete. In its usual form there is an additional word: but. The but may appear in the same sentence, the following paragraph, three pages later, or next week's press conference. Yet appear it will. "Airpower is the dominant factor in modern war . . . but we also need a navy second to none and an army adequate to fight all kinds of war, large and small; . . . but since there is no single year of crisis we must build in an orderly way for the long haul; . . . but the aircraft we buy must be the ones we need, not those that will be obsolete before we get them; . . . but in building our military power we must not undermine our economy and thus allow Communism to achieve its greatest triumph without firing a shot; . . . but, and so forth."

These but clauses are always unimpeachable verities.

These but clauses are always unimpeachable verities. And each in its own way is a factor retarding the growth of national airpower. Thus far the but clauses have had far too much success. Land power and seapower, at least since 1951, have had forces in being at the levels approved as the nation's strategic need. This has never been true of airpower since V-J Day. Instead the country has been assured that "new emphasis is being placed on airpower" and "our airpower is greater than ever before in peacetime history." But the standard of evaluation must

Our Airpower Is Lagging

- The AF has never achieved its planned strength
- Airpower is expensive
- Airpower is the victim of a cultural lag
- Military commentators were brought up in the older services
- The AF lacks representation in the Office of the Secretary of Defense
- The AF's Congressional relations are inferior to those of the other services
- The AF is really the silent service
- The AF has been a victim of stop-and-start planning
- The AF appears reluctant to state its full case

be the strategic requirement of the present, not the gross inadequacies of the past,

In this article United States airpower is defined as the United States Air Force—not because of its name or any theoretical concept that airpower must be unitary but because of the military tasks that have been assigned to the Air Force, which it is organized and prepared (given the means) to perform, and which will not be performed at any significant level of effort except by the USAF. To avoid oversimplification some discussion of the definition now follows.

Broader terms have recently come into fashion in defining airpower. National airpower, it is said, is not only the Air Force but also the air elements of the Army, Navy, Marines, and Coast Guard, our civilian airlines, and our incomparable aircraft industry.

Such a definition can be of some occasional use in pointing out the multiple uses of the air space in modern war. But it blurs the focus. It can lead the unthinking to equate the organizations listed in the definition and conclude that a deficiency in the Air Force is cured by abundance elsewhere. It offers an anodyne for the agony of decision—the hard task of putting first things first, second things determinedly second, and third things out the window. It lets one say, "Of course, we all agree that airpower is the dominant factor in modern war. But all these things are airpower. So we can give something to everybody—they are all so sincere and persuasive—and let each build airpower in his own way." This is surely the pathway to self-delusion, perhaps to disaster.

(Continued on following page)

If we are to surmount the perils that face us we must sharpen the focus of our definition as follows: United States airpower is military airpower in being to (1) deliver massive attack upon any enemy anywhere as ordered, (2) defend the United States against enemy air attack, (3) provide tactical airpower, the air component of the ground-air fighting team, and (4) provide global airlift of men and materiel for all military purposes.

These four military tasks are primary missions of the United States Air Force. With regard to each of them certain plus values may be contributed by others, but it is well that these should be precisely understood to avoid false inferences that if the Air Force is not given the means

to do these jobs someone else will do them.

The massive attack capability-the deterrent to big war and a major war-winning factor if big war comes-is the job of Strategic Air Command. This does not mean that SAC hugs a monopoly to its bosom. It does mean that no other military force has the capability of delivering massive attack at the required level of intensity and con-

About the Author

This is the second time in a row that the byline, "W. Barton Leach," has appeared in AIR FORCE Magazine. Last month we published his "Pentagon Prep School," which described Harvard University's graduate seminar in Defense Policy and Administration. Professor Leach conducts the seminar and also is a professor at the Harvard Law School and the Harvard Graduate School of Public Administration. During World War II he served in the AAF as Chief of the Operations Analysis Division and now holds a brigadier general's commission in the Air Force Reserve. He served on the War Department task force that presented the case for unification of the services in 1945-47 and was director-coordinator of the Air Force presentations during the 1949 "B-36 hearings." He is a member of the National Board of Directors of the Air Force Association.

tinuity. Further, no other military force has indicated any willingness to accept firm responsibility for any de-

fined part of the job.

This, too, includes carrier-based aircraft, which must be considered a plus value available fortuitously if at all. As Thomas K. Finletter has pointed out, the difficulty is not that carrier participation in the air-atomic offensive has been wrongly decided; "no decision at all has been made."

The air defense of the United States is the job of Air Defense Command insofar as fighter aircraft and early warning systems on land are concerned. The Army contributes anti-aircraft fire, especially ground-to-air missiles such as Nike. The Navy contributes seaward extension of the radar early-warning lines. Possible contributions of fighter aircraft by the Navy and Marines must be considered indeterminate plus values, unlikely to materialize owing to the necessity of building an air defense system around firm commitments, assigned responsibilities, and integrated training. If ADC does not have the means to provide fighter defense of the United States, this country has no fighter defense.

Tactical air support of ground troops-protection against enemy air attack, interruption of the flow of enemy supply and reinforcement, attack upon battlefield targetsis in a somewhat different category. Basically it is the job of Tactical Air Command and the overseas tactical air forces. But the three Marine Air Wings (equivalent in total to about nine TAC wings) do much the same kind of job, tending to specialize in attacks upon battlefield targets. Marine Air and TAC units are usable together, the presence of the former reducing plane-forplane the requirement for the latter, as in Korea. In some circumstances-notably, as in Korea, where the battlefield was near a coastline and the enemy did not employ submarines and attack aircraft-carrier-based aircraft may fill a need for tactical air forces. But this plus value is limited in quantity and, more important, in continuity. Nothing approaching a plane-for-plane reduction in landbased air requirement is produced by the carriers. Under the best circumstances the air complement of a carrier replaces less than half its number of land-based aircraft (Marine or USAF). Field Marshal Montgomery, lecturing to the Royal United Services Institution, has made it clear that tactical use of carrier-based aircraft has no significant part in North Atlantic Treaty Organization plans.

The air logistics mission is basically the job of Military Air Transport Service (a joint command operating USAF and USN aircraft, the former in much greater quantity than the latter), and the troop-carrier units of TAC. There are supplementary sources of airlift, notably the Fleet Logistic Air Wings, the civilian airlines, and private transport aircraft. However, it is well to note that in a general crisis-as contrasted with such local crises as the Berlin blockade and the Korean war-there will be multiple demands for airlift, and a transport unit that is itself overtaxed will not have resources to send to the

aid of its equally overtaxed neighbor.

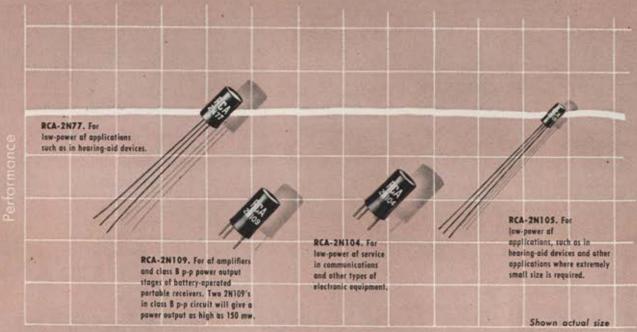
To summarize: As to massive attack capability and continental air defense against enemy attack, American airpower is for practical purposes synonymous with the United States Air Force. As to tactical support of United States ground troops American airpower is synonymous with the United States Air Force to about the same degree that American land power is synonymous with the United States Army-the Marines add air wings and divisions to each. On each of these three missions carrierbased aircraft may provide plus values when the fighting starts, but do not reduce by as much as a single wing the USAF requirement. As to military airlift the picture is more complex, but the USAF must carry the major burden.

Thus, obstacles to the growth of the United States Air Force are obstacles to the growth of American airpower in a straight-line relationship. Put it this way: If obstacles to the development of the United States Air Force are removed, the nation will have the airpower it needs.

Otherwise not.

Prior to 1951 the national need in airpower had never been determined, much less programmed, by the Department of Defense. The Finletter Commission and the Brewster-Hinshaw Committee, reporting respectively to the President and Congress, had stated a peacetime requirement of seventy wings as of 1948. But the Joint Chiefs of Staff had annually been restricted to the exercise of dividing among their services a progressively reduced total defense budget-\$15 billion, then \$14, \$13, and \$12. This, in the days of Secretary of Defense Louis Johnson, was known as "cutting fat without cutting muscle." It is useless to bemoan the inadequacy of the resulting forces and the invitation to trouble they presented; the Korean war is its own best witness. But it is worthwhile to point out the folly of starting with a dollar sign and restricting our military professionals to the job





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	RCA-2N77	RCA-2N104	RCA-2H105	RCA-2N109
MAX, RATINGS	111 - 51 - 5		200	
(Absolute Values):		1000		1000
Collector Volts	-25	-30	-25	-20
Collector Mo.	-15	-50	-15	-50
Collector Dissip. (mw)	35	up to 150*	35	50
Operating Temperature (°C)	50	70	50	50
TYPICAL OPERATION:		In the	10000	1000
Collector Volts	-4	6	-4	-4.5
Collector Mg.	-0.7	-1	-0.7	-13
Alpha (Collector-			- 24/5/20	100000
te-base connection)	55	44	55	701
Power Gain (db)	41	41	42	30**
Power Output (mw) approx.	10-16	-		75**
Source Imped. (ohms)	2450	1400	2300	375 per basi
The state of the s		200	-	connection
Load Imped. (ohms)	20,000	20,000	20,000	100 per
The second second		1000000	2000000	collector
Noise Factor (db)	6.5 av.	12 max.	4.5 av.	1 12
Cutoff Freq. (kc)	700	700	750	-
Figure of Merit for		11	-	7
High Frequency		200	77 000	-
Performance (Mc)	1.7	1.6	2.6	24

- Depends on temperature and circuit parameters ++ Large-Signal
- * In common-emitter circuit at 25°C, ambient temp.
- ** For 2 transistors in class 8 of circuit, and maximum distortion at 10 percent

of dividing the pot. This could happen again, and it could have the same result.

In 1950-51 this country was apprehensive, and rightly so. In September 1949 we detected the first nuclear explosion in the Soviet Union. And in June 1950 the Korean war showed us what happens when we drop our guard. So, for the first time since V-J Day, the Chiefs of Staff were directed to state what forces the country neededall forces, land, sea, and air. The process was started in January 1950 and completed in a National Security Council decision on October 1, 1951. The agreed and approved requirement was twenty-one divisions for the Army, 409 major combat ships for the Navy, three divisions and three air wings for the Marines, and-here mark well-143 wings for the Air Force to be achieved by June 30, 1954, and to be manned by 1,200,000 military personnel. These forces represented relatively small percentage increases for the Army, Navy, and Marines, but more than a doubling of the Air Force. For the first time military and civilian planners, accorded full opportunity to state the military need, had given real substance to the precept that "airpower is the dominant factor in modern war."

As all know, 143 wings never materialized, and 1954 disappeared as a target date. The hard facts of the Fiscal Year 1953 budget produced a stretch-out to 1955. Then in the "Truman" budget for FY 1954 another stretch-out to 1956 was programmed. The "Eisenhower" budget for FY 1954-the only one that really counted for that year-cut \$5 billion out of the Air Force, adopted an "interim" 120-wing program, and left the whole thing to a reexamination by the new Chiefs of Staff, all of whom were to be changed in the summer of 1953. The new Chiefs, operating with a problematical freedom of action, found that security airwise could be attained with 137 wings to be achieved by 1957 and to be manned by 975,000 military personnel. Quantity of airpower is usually stated in numbers of wings, but this can be delusive unless other factors are taken into account. Principal among these are personnel, appropriations, and base structure. A reduction from 143 wings to 137 is a matter of four percent; but if, concurrently, planned military personnel are reduced from 1,200,000 to 975,000 (19 percent), the annual rate of appropriations is reduced from about \$16 billion to about \$12 billion (25 percent), and if a plan for dispersal over a larger number of bases is discarded, the reduction in national airpower is much greater than four percent. Managerial improvements may occasionally reduce manpower and money without reduction in strength; but experience suggests that such harmless reductions are likely to be in very small percentage figures. The manpower figures are striking: someone discovered that with "better utilization of manpower" the Air Force could get:

in 1955 120 wings with 970,000 men in 1956

127 wings with 975,000 men in 1957 137 wings with 975,000 men (sic).

That is where matters stand today. What happens now will depend upon how insuperable the obstacles, herein described, prove to be.

 Obstacle One: The Air Force is in process of growth, having never achieved its planned strength. When a policy maker wants to reduce total Defense money and manpower-and that is a constant state of mind-it is far easier to cut back planned future force than to disband existing military units, scrap existing weapons, and discharge personnel already on the job. The fact that the planned future force is indispensable and the existing present force dispensable is not always a sufficient reason for building

the former at the expense of the latter. The reluctance of Secretaries of Defense to accept split papers from the Joint Chiefs of Staff and to insist on ICS "agreement" loads the dice in favor of the status quo; if unanimity for change is unobtainable the situation tends to remain unchanged -existing forces stay; new forces are reduced, delayed or both.

- Obstacle Two: Airpower is expensive. Aircraft cost lot and become obsolete fast. Take for example the B-36, the ten-engine intercontinental bomber. It cost \$3 to \$5 million a copy, and it will probably pass into the junk pile before it ever sees action. Many find it difficult really to accept the principle that the B-36 has performed its mission-and can only perform its mission-if it never has to drop a bomb. Sir Winston Churchill can say, "It is certain that Europe would have been communized and London under bombardment some time ago but for the deterrent of the atomic bomb in the hands of the United States." But this concept of an international revolver-inthe-cop's-holster is elusive. A battleship or a carrier is different. You can see it, even visit it on the Fourth of July. A division is different too; it marches-with guns. But a B-36 flies above sight, nobody is permitted to board it, and its crew is unimpressive in a parade.
- Obstacle Three: Airpower is the victim of a cultural lag. The end of the last paragraph could be the beginning of this, for they are related. Anyone will find ways to afford expensive things if he understands them well enough to be convinced of the need. Men now of mature age were boys when military force meant soldiers and sailors, ships and guns; these early impressions leave their mark-"the anachronistic power of saber and broadside." Few have ever operated an aircraft; fewer still have flown in combat. Fortunately at the time but with unfortunate consequences now, Americans have never had the experience of living or fighting under skies controlled by an enemy. In the Great Debate of 1951, the subject was "troops to Europe." Discussions on rearming Germany deal with "twelve divisions." If airpower is mentioned at all in these contexts it is in the second or third paragraph, and perhaps between parentheses. This is not ignorance; when reminded, all acknowledge that we must have airpower-too. Rather it is a lack of instinctive understanding, that quality of the recesses of the mind that goes deeper than knowledge. Why does this lack of understanding persist? That leads to . . .
- Obstacle Four: The military commentators were brought up in the older services. Compile a list of writers and broadcasters on military affairs arranged in the order of their influence on national thinking. Then see how far down the list comes the first who can wear silver wings on his chest. Wings on the chest are not requisite to a realistic belief in airpower; both in this country and in England some of the firmest supporters of the Air Force have never flown a plane, and this includes some writers of national reputation. But too often the military writer, long familiar with the problems and command personnel of the older services, speaks in understanding, vivid terms of big ships and infantry tactics, reserving the but clauses and the confidence-sapping doubts for air operations.

Some readers of this article may be surprised that the present writer voices dissatisfaction with the development of United States airpower. Readers of the daily press could easily get the impression that current policies lavishly nourish the Air Force while starving the other services.

(Continued on following page)

Some military critics feel a poignant sympathy for the 'squeeze" upon the Army, Navy, and Marines produced by lowered budgets and manpower levels. But as to the Air Force they tend to focus on the single fact that Air Force manpower and money are programmed at slightly increasing figures, ignoring the "squeeze" implicit in a directive to increase wing strength from 120 to 137 (14 percent) with a manpower increase from 970,000 to 975,-000 (one half of one percent). All forces are squeezed by current policies-the surface forces by being directed to operate existing (or slightly lower) forces with men and money lower than existing levels, the Air Force by being directed to operate much larger forces with men and money increased only slightly. If a military writer recognizes the squeeze in the former case and not in the latter, his readers (who may well include key members of Congress) are to that extent given an unbalanced analysis.

 Obstacle Five: The Air Force lacks representation in the Office of the Secretary of Defense. The key civilians in OSD are the Secretary, Deputy Secretary, and nine Assistant Secretaries. None of the men now holding these positions has any Air Force background—and this has been true, with a single exception, since the first Secretary of Defense took office in 1947. The Army is only a little better off. Men with an orientation toward the Navy have consistently held most of the important posts, a legacy from the days when Secretary of Defense Forrestal simply imported his staff from the Navy Department. The allimportant office of the Comptroller of the Department of Defense is essentially a Navy office containing no responsible personnel with Air Force background. These civilian officials are not prejudiced against the Air Force, nor are they unwilling to learn. But an instinctive understanding of Air Force problems is not in their blood; they do not naturally seek the association of Air Force people; and when the chips are down it too often happens that the Air Force gets the short end of those very important decisions that are controlled by the staff of the Secretary of Defense. Attention has been repeatedly called to this imbalance of personnel, but appointments continue to be made which perpetuate it.

The single exception above referred to was Robert A. Lovett, Deputy Secretary, then Secretary of Defense from late 1950 to January 1953. Mr. Lovett, a naval aviator in World War I, served as Assistant Secretary of War for Air in World War II. It was during his regime in the Department of Defense that the 143-wing Air Force was authorized and the precept of equal division of money between the services temporarily discarded. But Mr. Lovett had not been out of office three months before the Office of the Secretary of Defense had shelved the 143-wing Air Force and cut \$5 billion from the Air Force share in the FY 1954 budget-all without consulting the Joint Chiefs of Staff, the statutory "principal military advisers" of the President, the National Security Council, and the Secretary of Defense. It is unlikely that this could have happened if men with Air Force background had been included in OSD personnel, particularly in the Comptroller's office.

For the most part OSD has been staffed with able men. But ability is not enough. A Supreme Court comprising the nine ablest lawyers in the country would not be acceptable if it turned out that all nine came from the Wall Street firms. Nor can any President choose a Cabinet without reference to geographical distribution and diversification of career background. Those who are led, governed, or judged must have confidence that all aspects of a matter

under decision are understood and objectively evaluated.

- Obstacle Six: The Congressional relations of the Air Force are inferior to those of the other services. In Great Britain the military services have no such relationships with Parliament as are commonplace between United States services and the Congress, and as an abstract proposition much can be said for the British practice. However, any such reduction of military-legislative contacts must take place across the board. If the Corps of Engineers, the Marines, the Reserve Officers Association, and the Navy have the number of watchful supporters in Congress they now enjoy, another service lacking such supporters will surely not be treated as "the dominant factor in modern The record of the Air Force in this matter is spotty. There have been periods when staunch support came from both parties in both Houses of Congress-for example, when in 1951 a greatly expanded Air Force was jointly sponsored by Senator Henry Cabot Lodge, Jr., and Representative Carl Vinson. There have been other periods, notably in the budget proceedings of early 1953, when Air Force support came from a few Democrats alone. More than a score of Air Force veterans were then in Congress; yet during this 1953 episode when General Vandenberg was subjected to a bullyragging never before inflicted upon a senior general officer and when \$5 billion were being cut out of the Air Force budget, no Republican veteran of the Air Force came to its support and some delivered denunciatory speeches on the floor. At the present time any observer of the Hill can identify Democrats who, with a firm understanding of airpower, have backed the Air Force against all comers including a Democratic President and Secretary of Defense. But among the Republicans it is difficult to find those who can be counted Air Force supporters in the same sense that a dozen in the House of Representatives and a half dozen in the Senate can be counted Navy-Marine supporters.
- · Obstacle Seven: The Air Force is really the silent service. Its senior commanders do not write books and articles. As to the war in Europe there are books by Eisenhower, Bradley, Montgomery, Patton, and a host of junior commanders, but none by Spaatz, Doolittle, Vandenberg, Eaker, Twining, Norstad, Weyland, Anderson, or Ouesada -and as a result, ten years after, several of these names are not even remembered by the public. No Air Force officer has recounted the strategic bombing effort that brought Japan to its knees-the first time in history when airpower was a principal factor in causing a nation to surrender before its homeland was invaded and while its armed forces were intact. The same pattern appeared in the Korean war-some ten books about the Army, five about the Navy, four about the Marines, and one about a single squadron of the Royal Australian Air Force. But not one book about the United States Air Force, Four Air Force generals (Arnold, Kenney, Chennault, and Brereton) wrote World War II memoirs. General Spaatz has written occasionally in Newsweek since his retirement. Very recently, Brig, Gen. Dale O. Smith has published his US Military Doctrine, plaintively noting that it took him longer to get it cleared than to write. But that's all. Those responsible for the development of national airpower have not made use of the basic instrumentalities of information and enlightenment to get the public behind them.
- Obstacle Eight: The Air Force has been the most serious victim of stop-and-start planning. Air Force wings have been successively programed at 66, 55, 48, 42, 95, 143, 120 and 137—all in a period of about six years. No

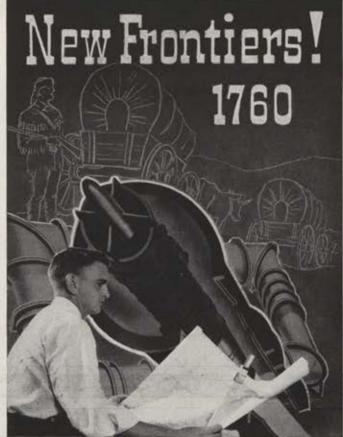
business in the world could operate under these conditions, nor can any government department. Dislocations are frequent, and when they appear, those who have been responsible for the forced re-programming often take the lead in oriticizing the Air Force for the difficulties caused by the re-programming itself. Base construction has first been held up and then ordered forward on a crash basis. Everyone knows that money and time cannot be saved concurrently. Yet when the waste appears, the flood of criticism breaks forth. Sooner or later someone says, "If the Air Force can't use money any better than this, then we should cut their appropriations"—as if the money were going to the generals for their personal use.

· Obstacle Nine: The Air Force appears reluctant to state its full case. The overriding national priority of the air-atomic power of Strategic Air Command has survived for a long time as these things go. But it has been under steady attack, and the integrity of SAC has not always been assured. Under these conditions the Air Force is understandably hesitant to make claims for additional force that might have to be satisfied out of SAC planes, money, and men. Let us suppose for the moment that, as serious commentators have suggested, the difference between adequate and less-than-adequate strength in the Continental Air Defense Command represents an additional \$3 billion a year for five years. The Air Force in deciding whether to request such a sum must ask itself where the money will come from. Certainly not from an addition to the total Defense budget; Secretary of the Treasury Humphrey is much too influential to permit any such dislocation of plans for a balanced budget and a 1956 reduction in taxes. Certainly not from the Navy, which is much too firmly entrenched in positions of power in the Department of Defense. How about the Army? The Army has already been programmed for a cut of some 300,000 men; and serious resistance in Congress and in the press has appeared. A further Army out would not seem likely. So it appears that the funds would have to come from the Air Force. A cut in Tactical Air Command would be resisted by the Army, which could logically point out that a smaller army will need greater supporting airpower to make up for its own reduced firepower. So, by a process of elimination, one suspects that the cut would come out of Strategic Air Command. Still fresh is the memory of that episode in 1948-49 when the Air Force, having performed the incredible feat of airlifting all supplies for Berlin through an entire winter, was congratulated -and told to pay most of the bill out of its own pocket. Some of that money came from SAC, and the same thing could happen again if big additional investment was required in Continental Air Defense Command, SAC is no "mania" of the bomber generals"; but SAC's ability to fight -and deter-is their responsibility, and they cannot look with indifference on a threat to its integrity.

Obstacles are things to be overcome, or to be proffered

The obstacles here listed pose problems of leadership—some at the national level to be met by the President and Congress, some at Departmental level to be met by the Secretary of Defense, and some at Air Force level to be met by its civilian and military leaders. All of them put heavy demands upon determination and courage. Persuasive reasons for inaction or delay sprout in every file cabinet and blossom in every staff conference.

But airpower is an instrumentality to be entrusted to men of war-leader stature with a wartime sense of responsibility and urgency. Under these conditions each of these obstacles, and all of them together, can be overcome.—End



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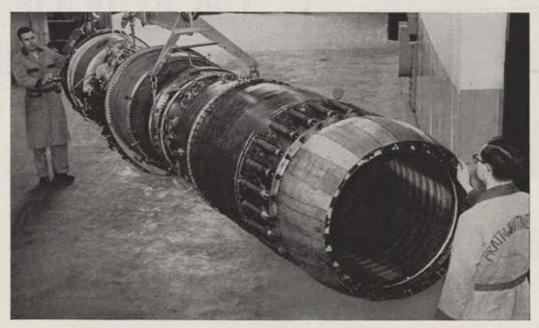
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A new supersonic jet fighter, the sleek Chance Vought XF8U-1, is now being test flown for the Navy. Like four other Navy and Air Force fighters, all faster than sound, it is powered by Pratt & Whitney Aircraft's big J-57 turbojet engine.

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The new Chance Vought aircraft is designed as a carrier-based day fighter, to control the air in areas of sea operations. Again, in this important addition to the Navy's air strength, the Pratt & Whitney Aircraft J-57 turbojet engine continues to make its vital contribution to American Air Power.



AN EFFICIENT J-57 with afterburner, like that above, develops well over 10,000 pounds of thrust for Chance Vought Aircraft's new XF8U-1. In a trim, lightweight aircraft, this proved, high-thrust engine provides power to meet specifications for high rate of climb, exceptional combat ceiling, and supersonic speed.

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The US Military Academy's Honor Guard took part in the dedication,



At the dedication, from left: Maj. Gen. Charles I. Carpenter, Chief of AF Chaplains; Chief of Staff, Gen. Nathan F. Twining; AF Secretary Harold E. Talbott; and Lt. Gen. Hubert R. Harmon, Superintendent of the Air Force Academy.

New AF Academy dedicated

The BLUE Line Forms on the Right

By Ed Mack Miller

T ISN'T often that we get to sit in on history in the making, so it was with some relish that we followed our press pass into Lowry Air Force Base on Monday, July 11, to take silent part in the dedication of the nation's third service academy.

Following a luncheon at Lowry's Officers' Club for VIPs, relatives of cadets, and press, some four thousand people swarmed to the flight line for the rites dedicating the interim Air Force Academy.

The Annapolis and West Point Honor Guards saluted (Continued on page 67)

Also on hand for the July 11 ceremony was the Honor Guard from the US Naval Academy.



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North American Relies on Small, Aggressive Suppliers. A company like North American operates best when its many suppliers are all "on the ball." Because small businesses are constantly increasing their efficiency, North American and the aircraft industry look to them as important additional sources . . . but before North American can add a new firm to its list of sub-contractors, the company must first survey the prospective sub-contractor and determine if the firm has the necessary machinery, personnel, production know-how and financial ability to deliver the goods.



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quality of the finished product. A special group from North American's Manufacturing and Quality Control Departments travels thousands of miles a month to check, coach and assist sub-contractors.

The fact that small suppliers received 55% of all North American purchases . . . proves that small business is assisting in delivery of high quality goods and services, at competitive prices . . . on time.

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What a difference a day makes



Turning their backs on civilian life, the cadets march into another world.



Still in civilian clothes, but they are beginning to look like cadets. Group in background is waiting for haircuts.

Just another one of the many details involved in starting life as a cadet. By now, the cadets had been in many lines.



Almost unrecognizable as the group that reported in a few hours earlier, the cadets give a salute. In front is the Director of Military Training, Col. Benjamin B. Cassiday, Jr.

the new AF cadets, but the AF cadets stole the show themselves by marching like a crack drill team. They'd had only two hours of practice.

Sitting inconspicuously in the stands were retired Gen. Carl A. "Tooey" Spaatz, first Chief of Staff of the Air Force; Gen. Curtis LeMay, commander of SAC; Mrs. H. H. Arnold, widow of World War II's AAF chief; Allen Dulles, director of the Central Intelligence Agency and brother of the Secretary of State; John R. Alison, President of AFA; AFA Regional Veep Thayer Tutt; Vice Adm.

H. M. Martin, commander of the Pacific Fleet air force; Rear Adm. A. K. Morehouse of the Continental Air Defense Command; and retired Gen. Benjamin W. Chidlaw, who was wearing civvies. Air attachés of some forty-five nations showed up.

Among the cadets were Gregory Boyington, Jr., son of World War II's Marine ace and Congressional Medal of Honor winner, "Pappy" Boyington; and Bradley C. Hosmer, son of Col. and Mrs. Clark L. Hosmer of Alexandria, (Continued on following page) Va., who was top man in cadet exams for all three academies.

Cuff notes on academy life: The kaydets drill in new powder blue fatigues and sleep in powder blue . . . Hockey should become a big sport at the Academy since nearby Colorado College and Denver University annually put on ice two of the top teams in the US . . . Judo is on the athletic program for cadets, as well as skiing, fencing, wrestling, squash, and water survival . . . After their junior year in the Academy, cadets will spend part of their summer break at Stead AFB, Nev., taking a course in combat survival.

The average cadet is eighteen years old, five feet, ten inches tall, and weighs 160 pounds. He was a member of the National Honor Society in high school and won a letter in one sport (our bet is that it was football).

Four Air Force second lieutenants did the hat trick rankwise—but in reverse—the week of the dedication. They went from second Johns to master sergeants to cadets in three days to satisfy an AF regulation that prohibits commissioned officers from becoming Air Academy cadets. It'll be four years before they're second balloons again, but at that time they'll have earned college degrees and Regular commissions.

One cadet, Leo Rescott, of Kinston, N. C., missed the dedication with what the medics at first diagnosed as a case of measles. Later they figured he was probably allergic to dedications because the spots went away when the crowd did.

It took Brig. Gen. Clarence A. Shoop, commander of the California Air National Guard, half as long to get from Los Angeles to Denver in a T-33 as it took him to get from Lowry to Denver's Red Rocks Amphitheater the night of the dedication for a barbecue sponsored by the Denver Chamber of Commerce.

Metro-Goldwyn-Mayer, already working on an Air Force Academy motion picture, sent a large crew and writer Arnold Rivkin to take in the dedication. Cracked a jaundiced reporter: "I suppose they'll call it 'The Short Blue Line.'"

Gen. Nathan F. Twining and Secretary Harold E. Talbott both drew shouts of approval during their talks. Gen. Twining's top line—"Departure from tradition, where necessary, is already an Air Force tradition."

Secretary Talbott scored when he told the cadets: "Remember that it is to the maintenance of peace that you are dedicating your lives." And when he said, "We want no yard of ground, no dollar of treasure, from any country on the face of the earth." And especially when he said: "I beg of all you young men of the air age that you never become so smart, so cynical, so impressed with the tremendous weapons you control that you forget the Only Hand that is forever on your shoulder. I ask His blessing on you."

Biggest stir was caused by Red Air Force Lt. Col. Boris Bogatyrev, who hiked around looking very Russian in his powder blue, white, and green airman's uniform. With him were a Czech light colonel and a Hungarian captain. Best remark of the day was made by Lt. Col. Milan Radojcic of Yugoslavia. When asked what he thought of the proposed Academy layout, he said: "It's wonderful.



The first cadet to report in was Valmore W. Bourque, 20, of South Hadley Falls, Mass. He thought that it would be worth telling his kids he was the first AF Academy cadet.



Among those reporting in for the first class was Gregory Boyington, Jr., son of the World War II Marine ace and Congressional Medal of Honor winner, "Pappy" Boyington.



The number one man in the competitive cadet examinations for all three academies was Bradley C. Hosmer. He is the son of Col. and Mrs. Clark L. Hosmer of Alexandria, Va.

But what other country in the world could afford it?"

Climax of the show was the impressive fly-over by SAC B-36s, B-47s, and F-84s, and the Mach-nudging acro-exhibit put on by Luke AFB's Thunderbirds, flying new, "bent-wing" F-84Fs.—END





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Robert F. Worley, it operates facilities for air-to-air rocket firing for more than sixty all-weather interceptor units which spend a month each year at either Yuma or the 4756th Air De-

fense Group at Moody.

They haven't done much about the heat at Yuma in the past decade except change the flying hours (a dark 3 a.m. till noon now; just try to get an F-86D off the ground in that siesta-time heat!). But today you can lie in the shade of a peppermint-striped swimming pool backdrop at the club and look out toward where the Chocolate Mountains rise, watch the heat blur the countryside and consider the fact that it's still Yuma no matter how they fry it.

But now, even more than a dozen years ago, people are just too busy to complain about the heat. For here, away from the glamour and clamor of the metropolis and the marketplace, a hard core of fighter aces is pioneering something new in aerial warfare, something Gen. Benjamin W. Chidlaw, first commander of ADC, called "Thunderbolt Geometry," describing it as a completely new airwar technique: "We no longer swing in on our targets in line, or with the pursuit curve; we come at him from right angles, which is the reason we refer to it as 'geometry.' '

"The reason we add 'Thunderbolt' is because our planes have the capability of coming on the target at 1,000 feet or more per second," General Chidlaw said, "and that rate of closure is so fast the plane must be lined up on the objective and combat action must be started more than thirty miles off. This is a maneuver much

faster than a pistol shot."

According to Colonel Worley, Yuma commander, "We knew that some day an aggressor would have the bomb, and we had to have a weapon that would shoot down the most bombers—a weapon that would be dependable in day, night, or in bad weather."

The new concept of beam-firing grew out of the fact that as bomber speeds increased, pursuit curve tactics (where the fighter chased the bomber, always trying to "lead" him) kept the fighter in the dangerous tail-cone area of the bomber's rear guns for longer and longer periods, thereby decreasing the fighter pilot's chance of survival.

Surrounded by models of the latest century-series fighters in his office at Yuma, young-looking (he's thirty-five) Colonel Worley, who has commanded fighter units in Africa, Italy, the South Pacific, and Okinawa, told of the evolution of the new rocket concept.



Dummy rockets in photo demonstrate the firepower carried in one of the Northrop Scorpion F-89D wing tip pods. The plane carries 104 air-to-air rockets.



ADC aircrews receive proficiency checks in F-86D simulators at Yuma County AP. Instructor is at right.



A lethal 2.75-inch "Mighty Mouse" rocket is loaded into a North American F-86D by an armament systems man.

"It figures that if an interceptor could approach a bomber on a straight-line course from the side, the interceptor would be least vulnerable to the bomber's defense, for the side gunners would be forced to try to solve instantaneously a problem involving crosswind, constantly changing target angle, and high rate of target closure.

"For this type attack machine guns were out, however, because fixed guns have to be trained on their target for a relatively long time to deliver enough bullets to damage the target appreciably.

"The answer to our problem was

rockets, for a rocket-bearing interceptor needs be in position only for a second, as it fires its entire salvo of rockets almost instantly.

"This new system gives us two tremendous advantages: first, a good probability of survival for the interceptor, and second, a good probability of 'kill,' since each rocket in the fighter's salvo contains enough high explosive to knock down a bomber.

"The principal difference between the lead pursuit curve and the lead collision course," said Colonel Worley, "is that, to be effective, you have to see your target to make a lead pursuit curve. You have to turn your air-



FIGHTER IS VUL-NERABLE WHEN USING PURSUIT CURVE TACTICS

As bomber speeds increase, pursuit curve tactics keep the fighter in the dangerous tailcone area of the bomber's rear guns for longer and longer periods, thereby decreasing the fighter pilot's chance of survival. In this old system, you have to turn your aircraft continually on the target - just like shooting skeet, you have to have air ahead of target. computer necessary target data. The computer automatically figures the attack course from this data and gives the pilot steering signals on his radar scope. When the plane reaches the firing point, the computer automatically fires the rockets.

"When an interceptor is 'scrambled,'" said Colonel Worley, "the pilot gets his initial course and altitude from GCI (Ground Controlled Intercept). As he climbs he watches his scope, with the ground controller telling him when to expect a blip. When he has the faint smear of light

on the scope and is sure it is the target, he tells the controller and takes over himself for the attack run.

"He 'locks' the radar onto the target by means of a pistol grip control in the cockpit, whereupon the display on the scope changes from search to attack display, where a steering dot is shown. The steering dot shows the pilot where to fly. All he has to do is center the dot. If it is above and to the right of center on the scope, the pilot makes a climbing turn to the right.

"That's all there is to it; the dot guides the pilot on a straight-line attack course to the firing point. Close to that point the pilot depresses the firing trigger—but the rockets don't fire until the computer cuts them loose. As soon as they fire (in a ripple pattern) a big 'X' appears on the scope to signal the fact that the attack is completed.

"You may never have seen the plane you have shot down," Colonel Worley concluded. "All at once you're there. You hear the rockets go swish,

and that's all she wrote."

In charge of the actual briefing and providing training facilities for the visiting ADC squadrons is triple jet ace Maj. Jim Jabara. Jabara, a whirling armature of energy, maintains his position as top gunnery pilot at Yuma by means of a hard personal regimen of flying. Off the field, however, he doesn't relax much, playing all sports in season (he's a oneman softball team, racing after popups, stealing bases, needling the opposition). He was named the "Cigar Smoker of the Year" in 1951 by the Cigar Institute of America. (They took him to Atlantic City, gave him a huge humidor, and promised him eigars for life. But, Jabara adds wistfully, they aborted on the promise.) He answers the telephone with a Timestyle "Majabara speaking," and roars around the field in a bright-red 1929 Model A Ford (the vintage "A" is the standard field car for many of the

(Continued on following page)

THUNDERBOLT GEOMETRY, A NEW CONCEPT IN AIR INTERCEPT

By having an interceptor approach the bomber on a straightline course from the side, the interceptor is almost invulnerable to the bomber's defense. This lead collision course has two big advantages: a good probability of survival for the interceptor; and an equally good probability of "kill" because of the high explosive power in each rocket salvo.



craft continually on the target. It's just like shooting skeet; you always have to have air ahead of the target.

"But with the lead collision course, the equipment in the aircraft does that for you. You stand off and watch the target on radar the way a submarine watches a ship through a periscope. And, like a submarine, you fire a torpedo across his path. You fire your salvo and let him run into it. It is not a collision course because of the speed of the rockets. That's why they call it a lead collision course; the rockets are leading. They collide. You pass behind."

Colonel Worley, who flies every

plane on the Yuma ramp, including the helicopters, but who likes best to fly his own F-89D, "talked" us through a typical firing mission.

ADC's three all-weather interceptors all use the advanced radar firecontrol system developed by the Hughes Aircraft Company. The single-seat F-86D has a one-man system. The F-89 and F-94 use the two-man system, where all the radar information goes to the R/O and the steering signals to the pilot.

"The fire-control system consists basically of a radar and a computer. When a target is detected, the radar automatically tracks it, feeding the pilots; they always refer to them as "Thunderbirds").

Jabara has a long red carpet that he rolls out when a squadron commander arrives at Yuma. The unit, of course, has been briefed on what it will do in the training program. Approximately a month before the squadron comes to Yuma, a liaison team, made up of a pilot and an electronics man, visits the ADC squadron at its home base to tell its leaders what they are going to need at Yuma in the way of personnel and equipment. When they arrive at the Arizona base they are greeted by the same

"stacked up" missions, one above the other, which could be dangerous. The fact that the Mexican border is the southern boundary of the range does not help either, for the pilots must be extremely careful not to create any international incidents.

The teams in training do not start firing live rockets as soon as they hit Yuma, even though all the pilots are, in a sense, qualified, as no ADC interceptor jockey can come to Yuma unless he has piled up forty hours in the airplane, plus forty intercepts.

A squadron's thirty days at Yuma is broken up into three phases, the train the pilot to navigate his ship with the aid of electronic instruments, and the last teaches him the procedures needed to track and shoot down an enemy with the aid of radar.

On the flight line, Phase II is the target-separation phase. Here the aircrew learns to distinguish on radar between the tow ships and the target, which is towed at the end of a 5,000-foot cable. This training is solely for safety. "We don't want to shoot down one of our own bomber tow ships," says Jabara. "Besides the tow pilots get mad when you shoot at them.

"It takes about a week for any outfit



A North American F-86D Sabrejet lets go with a salvo of rockets. One hit with a rocket can knock down a bomber.

liaison team, which works with them during the thirty-day training period.

The ADC squadrons bring their own planes, their own armament and maintenance people, their pilots, and their own radar personnel from the AC&W squadrons-about 230 or 240 persons in all. (About as representative a "cross-cut" as you can get were the squadrons that trained at Yuma in June-the 325th Fighter-Interceptor Squadron from San Francisco, the 42d FIS from Chicago, and the 75th, which helps guard New York City. With the 325th were the famed "Sabre Knights" aerobatic team, down for some hard work on rocketry.) For a time, all three types of the Air Defense Command's allweather interceptor units came to Yuma to train. Now only the F-86D units come to Arizona; the newer unit at Valdosta, Ga., trains the F-89D and F-94C two-man interceptor teams.

The firing of rockets is done over the Luke Bombing and Gunnery Range, which stretches some 170 miles eastward from Yuma along the Mexican border. Even this vast, uninhabited area is too small, the pilots say, for they must share it with Luke AFB's .50-caliber, air-to-air program. After the first of the year, planes from Williams AFB, Ariz., will also be on the already overcrowded range. At the moment Yuma planes are flying

first of which is simple interception. In this phase, the interceptor pilot flies radar intercepts against an aircraft (usually two T-33 jet trainers) to get the feel of the lead collision course intercept principle and target separation.

While training the pilots, the Yuma people are also training controller directors. "This controller guy," says Major Jabara, "is as important to the air defense mission and the air defense team as the guy that flies the airplane. I like to call the controller a 'ground wingman,' just like a wingman in the day-fighter business, because so much depends on his control and his technique. If he's not good, the air crew might as well sit on the ground."

While his flying training is in progress, the pilot is also being trained on an expensive (\$690,000) Westinghouse F-86D simulator, which reproduces-complete with sound effects-almost all the conditions and hazards the pilot encounters in both ordinary flight and combat. A pilot's training in the simulator is broken down into four phases. The first is a transitional phase in which he sharpens up on the split-second thinking demanded for Sabrejet flying. The second is devoted to emergency procedures, such as icing, generator failures, landing gear failures, and flame-outs. The third phase helps

to really have the radar peaked up and set so the pilots can go away and fly those Phase II missions," Jabara says. "The difference between Phases I and II is that there is one more interceptor used in Phase II. This, of course, makes it tougher for the controller to control his aircraft; it becomes a problem of multiple target selection, and on radar this isn't easy."

A pilot must have a number of successful intercepts before he is graduated into Phase III—the actual firing phase. If the pilot is just slow, the instructors spend more time with him. If he can't cut it, he is sent home (and probably dropped from the interceptor squadron, for ADC's mission is too important to worry about hurt feelings).

Phase III is, of course, the meat of the program. It is important because the squadrons get little or no actual rocket firing at their home bases because of the scarcity of gunnery ranges. Under the current operational plan, each air crew must run twenty-four firing intercepts per year, a firing intercept consisting of a pass on a target on which a minimum of six rockets are fired,

The '86 Dogs at Yuma fire twentyfour rockets in combinations of six (or the entire load can be salvoed at once); at Moody AFB the '94Cs and the '89Ds can fire forty-eight and 104

(Continued on page 77)



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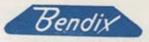
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rockets respectively. The instructors don't let them fire the whole load at once "because it doesn't take much of a pilot to rip up a rag that way." In case of an actual aerial invasion, however, it can easily be seen that the interceptors wouldn't have too much trouble bagging a plane or two apiece.

Reflective marquisette targets are towed by B-45 Tornado jet bombers and TB-29s manned by Yuma's 17th Tow Target Squadron.

"In the last six months," says Jabara, "we've had a big problem with the boys going up and shooting the rags off. That used to mean an aborted mission, but now the two ships can reel out another target in about five minutes and the mission continues."

All firing in the third phase in the '86D is observed by a safety pilot (called a "chase pilot") as most of the firing is done blind. In the near future all firing will be done under hoods. The pilot will take off and immediately go under the hood, never seeing the ground until he is ready to land again.

Helicopters are used at Yuma for target recovery. While the targets are being picked up and assessed, the base photo lab is developing and returning camera film of rocket-firing missions to the tactical missions. The F-86Ds mount three cameras, two on the wings to record the firing and one in the cockpit to evaluate the pilot's radar technique. Within ninety minutes after the plane is on the ground, the film has been developed and is ready for analysis to point up both hits and faulty procedure. As an actual bomber is much larger than the marquisette target, a photo of a Russian TU-4 bomber is superimposed over the motion picture of the target, and the pilot is credited if any of his shells came close enough to tag the bomber.

For a while every squadron into Yuma beat the previous one as far as rocketry was concerned. They'd come in, wearing special squadron headgear—tams, like the boys from Sault Ste. Marie (Kinross AFB, Mich.) wore, or square straws, or baseball caps—and they'd post their squadron insignia in the club, and then proceed to paste hell out of previous high gunnery scores.

But not any more; the scores are about as high as they can go.

At Yuma the pilots have been lavish in their praise and recognition of ground personnel. One pilot said he came to Yuma thinking the pilot was about ten percent of the job. Leaving



A GCI (Ground Controlled Intercept) radar controller, left, receives instruction during a proficiency rocket-firing program at Yuma. The controller gives the interceptor the speed and altitude of the target being tracked on the radar.

Yuma he re-evaluated the setup, giving the pilot two percent of the credit and the ground crew ninety-eight percent.

Because the lead collision rocketfiring techniques have been developed from scratch at Yuma, one of the toughest jobs on the base has been that handled by the Research and Development Section, headed by Maj. Dwaine R. Franklin, a pilot who has become sort of a self-taught genius of rocketry. Another top rocketeer, Capt. Robert H. Luedeka, who won the '53 ADC gunnery meet, also works in the R&D Section, helping to push back the frontiers of rocket knowledge.

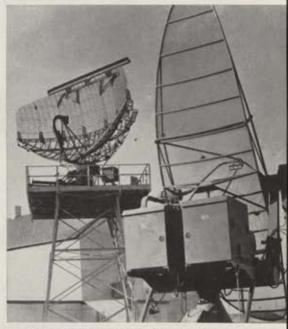
"We had quite a time with rockets at the first," says Jabara. "We'd get screwball ones, ones that were not burning evenly or ones on which the fins wouldn't pop out right when they'd come out of the tubes. Oh man, they were fun. They'd go up and down and sideways." One poor pilot even fired his one day and had them reverse a few hundred yards out in front of the ship and come zipping back at him. He dived into the basement of the plane and somehow they all missed.

"The rocket is almost perfect now."

Jabara said. "On the average they fire with less than a fourteen mil error."

Jim Jabara and other of the Yuma pilots admit that they had their doubts about "thunderbolt geometry" at first. "A lot of people in ADC, like my-

"A lot of people in ADC, like myself, are converted day-fighter pilots," Jabara says. "And we had a lot of doubts about this business at first. Some who haven't been here still do. But when they come out here and shoot rockets and actually shoot rags off, the convincing is over with be-



In addition to probing the sky for enemy bombers, Yuma's radars track down targets towed by ADC B-45 jets.

cause they see with their own eyes. One hit with a 2.75 rocket will blow hell out of an enemy bomber whereas with machine guns you can sit back there all day and pump at him and not do any good.

"I came out here and just overnight I said: Why, hell, here's a piece of equipment we can shoot airplanes down with. And I was real dubious. See, I'd just gotten back from Korea, flying '86Es, and it was a real conversion as far as I was concerned. I had always been leary of these guys who flew these all-weather airplanes.

(Continued on following page)



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THUNDERBOLT____CONTINUED



Capt. Howard Nelson of 42d F-I Sqdn., O'Hare AFB, known as "Mr. Rockets" after scoring highest in last year's USAF Rocketry Meet.

I'd say: Ah, any guy can do that, but actually employing this weapon—the all-weather weapon—is, I'd say, twice as hard as the day-fighter.

"But that's sissy stuff compared to this business. Taking off with a 200foot overcast, at night, going up, finding your target, locking on, firing, letting down—why, hell, this is twice as hard as I've ever done before.

"There's no guy has a harder job than an air defense fighter pilot in my estimation."

And the job will get even tougher at Yuma. Now they are flying at 30,000 feet at speeds above .8 Mach. But how about tomorrow?

ADC is already planning its conversion to the F-102A—a flying brute that comes in over the fence at 165 knots—and the Yuma program is supposed to start getting them next March.

As far as the men at Yuma are concerned, the lead collision course technique will be with them as far out as they can see, but, of course, they will be firing something different from rockets. It is no secret that the '102 will carry the Falcon missile, and that it is guided. But it will still probably be launched abeam via the advanced radar fire-control system. In any event, the Yuma center is now in the throes of planning a new program for the '102, a program that will encompass towing targets at a much higher altitude and will involve supersonic speeds, perhaps, in the interceptor

A sign outside Colonel Worley's office says: "The Air Force mission is to fly and fight, and don't you forget it!"

At Yuma they are flying and they haven't forgotten.

As for the fight, they're leaving it up to Ivan to toss the first punch.—End



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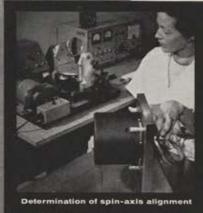
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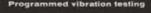




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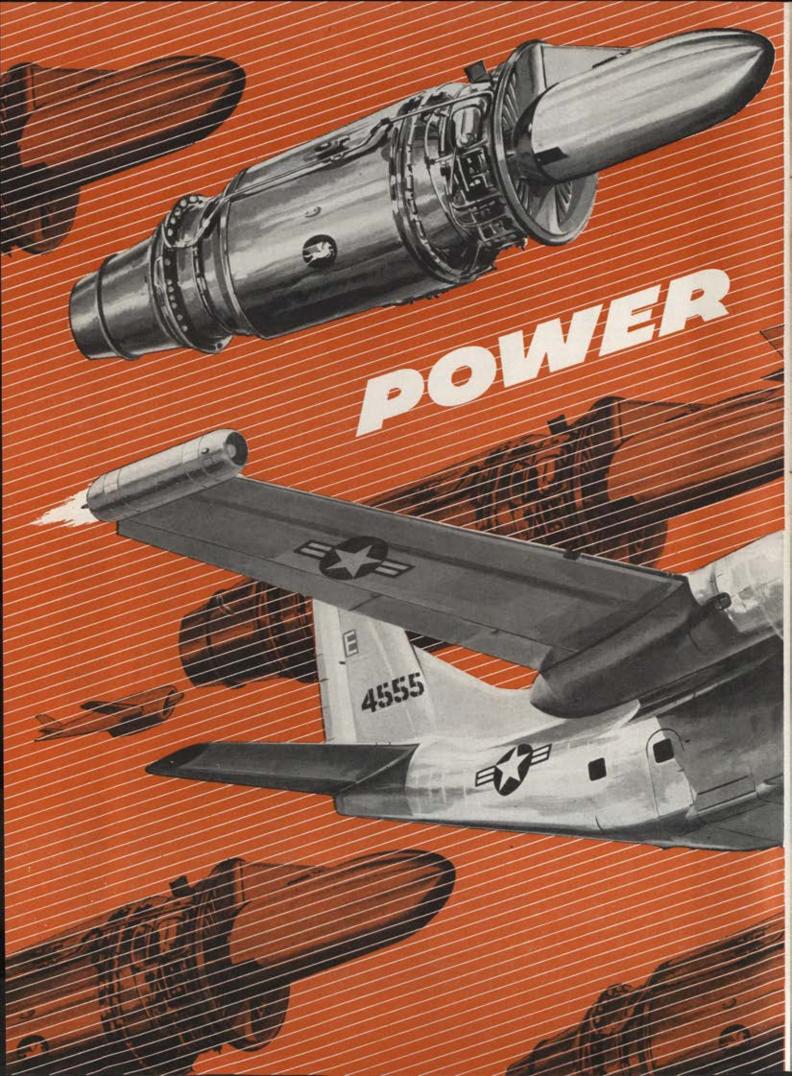
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The typhoon eye on radar from directly overhead. Part of the photograph has been blocked out for security reasons.

A first-hand account of a Pacific typhoon

Grace was a KILLER

By Maj. Robert E. Fuerst

Typhoons—dread Pacific counterparts of the hurricanes that this season roar up the Atlantic seaboard of the US are of major concern to our military forces in the Far East. Weathermen at our Pacific stations warily watch their birth and chart their progress. This is the story of a particularly destructive story—Typhoon Grace. Grace churned across Okinawa and Japan just a year ago, died after one violent week but some of the scars she left may still be seen. Here's the eyewitness story of Grace, as the new typhoon season plagues the Far East.



A sight that few have seen—the wall of clouds around the eye of a typhoon. In the center of the storm, the sea also presents a weird, confused pattern.

YPHOONS, the Pacific's equivalent of Atlantic hurricanes, are tagged with female names because not even the experts know for certain how they will behave. Typhoon "Grace," a bold lusty windstorm that blasted Okinawa in August of 1954, was even less a "lady" than her notorious sisters. She threw curves at American weather forecasters on the island that teased them and drove them frantic for days.

"Grace was no text-book typhoon," recalls Lt. Col. James W. Walker, commander of the island weather station. "She was an ornery one. That typhoon caused more headaches than hot saki at the Teahouse of the August Moon." Walker paused, a flicker of excitement in his eyes. "Yet Grace was one of the most interesting typhoons a meteorologist could hope for."

First, Walker explained, the typhoon was particularly erratic in movement. "Like an unpredictable criminal maniac," one reporter said. A second oddity was the large eye in the typhoon center and the long time it remained over Okinawa. It was the largest eye ever to hit the island. And finally, on the more serious side, was the potential danger. Nicknamed "killer storm" by the press, Grace threatened thousands of Americans stationed in the Far East.

(Continued on following page)

The story of Grace began on Friday the thirteenth. When Walker entered the weather station that August morning he had only an inkling of what lay ahead.

"How about this tropical storm, Colonel?" asked Major Kenney, pointing to a chart. "Any chance of its hitting the magic number soon?" The "magic number" is sixty-five-when winds in a tropical storm reach sixtyfive knots it becomes a typhoon.

'Well," said Walker, "our winds aloft have been picking up. They've reached forty knots at ten thousand feet. And the direction hasn't shifted. That's a pretty good sign low pressure is moving toward us.'

"We may know shortly," said Kenney. "There's a recon ship going out this morning. We should have their report by noon.'

'Right. Let's not worry until we have to," said Walker. "This is Friday the thirteenth. Anything can happen.'

Walker began his routine dutiespreparation of charts and forecasts to brief the officers in Wing and at Twentieth Air Force. Routine work, but important; Operations people were using weather information in their planning more and more all the time.

At mid-morning a teletype operator hurried into the office and handed Walker a message. "I thought you would want this personally, Colonel."

Walker read it twice, then walked to the forecaster room.

Kenney, notify the upper air section to start four runs a day instead of two. Tate, plot this data accurately on the large-scale chart." He looked for the clerk. "Jones, notify Fifteenth Weather Squadron of this bulletin. And tell them to have one forecaster standing by to go to the radar site.' He paused a moment. "I'll go up to Combat Operations at Twentieth Air Force. The rest of you stand by till I return. We've got a full-fledged typhoon on our hands.'

An unexpected typhoon allows no room for slip-ups. Probably this storm had been brewing for some time, but vast stretches of the Pacific are bleak and desolate-little or no data was available to aid the meteorologist. If things look unusual, a reconnaissance airplane (B-29 equipped with special meteorological instruments) investi-

In this case a recon pilot had taken off from Guam to explore the suspicious area. He fought his way through boiling clouds and violent rain to locate the center. Surface winds had already hit eighty knots. He radioed his findings back to the typhoon center at Guam.

When Walker returned, he and his staff studied the incoming data. Walker knew how reluctant authorities were to evacuate aircraft. It meant a huge waste of money if it were in vain. But after plotting the typhoon's path he advised officials at the afternoon conference that winds of more than fifty knots would hit Okinawa. B-29s of the 307th Bomb Wing, standing by for evacuation, began taking off for the Philippines and by evening were all safely on their way.

Walker took time out for a short sigh of relief. It had been a tough decision.

He continued analyzing and reviewing data and that night reported to Combat Operations. "Our latest plot shows the typhoon continuing toward Okinawa." Unobtrusively Walker crossed his fingers. "The eye itself will pass directly overhead. And the typhoon will intensify."

Okay," came the answer. "Fix us

up a radio release."

Back in the weather office Walker methodically wrote the situation in his log. During a typhoon he briefly described conditions and released an official announcement for radio broadcast every hour. The summary finished, he sent down to the Command Post for a jug of black coffee and held a last conference with his staff.

"It's midnight," Walker said. "Grace is almost two hundred miles southeast; our winds are still below forty. I think we're safe for ten hours.'

He took a swallow of coffee. "The next recon fix is due at six in the morning. Let's call it a night."

Early Saturday morning Walker returned to the station and had his first call from the radar site.

This is the radar controller. We've got the edge of the typhoon on our scope.

"What does it look like?" Walker asked.

"It's a series of concentric bands. Circular.'

"Can you see the center?"

"No, sir. There's no definite eye

"Well, sketch in a few streamlines on your scope and see if you can estimate the center."

There was a lull and then the controller came back, "It seems to be on an azimuth of one four five degrees. About one seven five miles out.'

"Fine," said Walker. "Keep us posted-I'd like half-hourly reports for the time being."

"Will do."

Walker walked to the observer's room and checked the wind indicator. The first gusts of fifty knots were there. He looked at his watch and smiled. They had hit it right on the button.

"It's about a hundred miles out now," said the radar controller on his next call. "It's a series of converging spirals-about three major bands. Each band is twenty miles wide."

'Okay," said Walker. "As soon as you get accurate fixes, call me every fifteen minutes."

Surface pressure continued to fall at an alarming rate. Winds rose during the afternoon-up to a steady fortyfive knots with gusts to seventy. In mid-afternoon another pilot struggled through the wild weather and explored the typhoon center; he found that it was still 100 miles out. Radar confirmed this shortly with an accurate fix: azimuth, 168 degrees; distance, 105 miles.

"It's now a series of five pin-wheel-



Lt. Col. James W. Walker, commander of the AF weather station on Okinawa.

ing bands," said the controller. "The eve isn't too well defined and it's not moving much. Just sort of jumping around over a small area."

"Okay," said Walker. His face was grim. The typhoon had been sitting there for hours now-moving about spasmodically, turning small loops, sliding here and there for no apparent reason, but not making any headway.

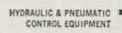
For fifteen bothersome hours Grace remained virtually stationary. Like a tantalizing wench she flirted with the forecasters. The rain increased to two inches by the end of the day but Walker felt that his staff had equalled this amount just sweating it out as they nervously watched.

Shortly after midnight radar announced a new twist, "Radar speaking. We have two eyes in her now, Colonel. The northwest edge of the original eye broke open and expanded.

(Continued on page 95)



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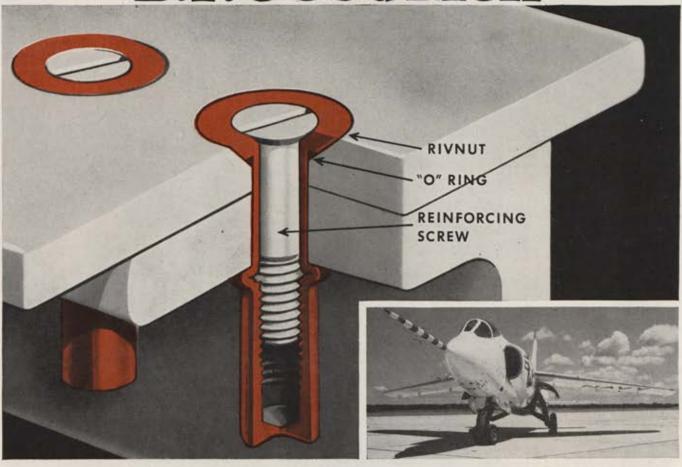
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Special new aviation Rivnut gives Tiger a longer leap

RUMMAN engineers decided to use integral wing tanks to stretch the range of their F11F-1 Tiger. They would let the single top and bottom aluminum skin panels that form each wing also serve as fuel tank walls. The problem was to find a blind fastener that could join the wing sections tightly enough to stand the strains of supersonic flight and still prevent loss of fuel.

Working with Grumman, B. F. Goodrich engineers solved the problem

by developing a new Seal-Head Rivnut with rubber "O" ring. The cross-section above shows how it works.

The B. F. Goodrich Seal-Head Rivnut is installed in a hole that's been drilled and countersunk in the wing skin panel. The Rivnut holds the sections together. The "O" ring makes a fuel-tight seal and withstands temperatures from -65°F. to 225°F. Then a special 150,000 p.s.i. tensile strength screw is screwed into the Rivnut to reinforce it. This fastener has been approved for primary aircraft structure.

Whatever your fastening problem, there's probably a B. F. Goodrich Rivnut that can solve it. For more information,

write: The B.F. Goodrich Company, Aeronautical Sales, Akron, Obio.



HOW STANDARD B. F. GOODRICH RIVNUT WORKS:

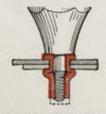


Standard Rivnut is threaded onto pull-up stud of a manual or pneumatic heading tool.



2. Rivnut is inserted, head firmly against work, tool at right angle to work.

3. Tool lever operates pull-up stud, threads are clean, intact, ready for screw attachment.





Then a thin wall formed across, making a double eye."

"What next? Okay, keep me posted."

The return call came half an hour later. "We're back to one eye again and the typhoon has started moving. The center is now on an azimuth of one five five degrees, ninety miles out."

It was early Sunday morning. Plotting a few more quick fixes, Walker grabbed the phone and notified Combat Operations. "The typhoon's resumed movement toward us. It's been deepening, so we'll get some real big winds for the next twelve hours. Up to a hundred knots possibly." He was reluctant to forecast this high a figure, but he knew it was a logical one. The typhoon had indicated eighty-fiveknot winds to the last recon pilot-it had been growing worse ever since. And he saw no reason to change his prediction that the eve would pass right over the island. The most plausible path was still toward Okinawa.

Walker was right. During the next twelve hours Grace lashed out with



Collapsed remains of the Kadena AFB education building on Okinawa island.

the full fury of her might, and there was little the weather man could do except follow it on his charts.

Riding back to the station at dawn the next day, Walker watched the typhoon at work. Fierce wind hurled the rain in sheets. The driver wore a heavy rubber uniform; ordinary raincoats were useless in this kind of rain—a man got completely soaked in seconds. The windshield wipers had no effect on the mass of water covering the glass. The driver had to crawl along the road, looking out the side windows.

At the station Walker's men bent double when they went outside to take their observations. The violent wind whipped sand and rain against their faces, stinging them a raw red. Anything loose was savagely driven across the ground. For a moment Walker wondered what all the small

(Continued on page 99)



Tremendous destructive power of Typhoon Grace is well illustrated by the damage done to this Air Force warehouse on Okinawa, Winds reached 113 mph.

ARDC SCIENTISTS SEEK VOLUNTEER WEATHER-SPOTTERS IN NEW ENGLAND

SCIENTISTS of the Air Force Cambridge Research Center, ARDC, are seeking the cooperation of the New England public in a new "severe storm identification program" in order to gain more understanding of the thunderstorms, hailstorms, gusty winds, and severe lightning that occur in New England in summer.

Air Force scientists, in cooperation with Harvard University's Meteorological Observatory, are conducting studies at the new weather radar station on Great Blue Hill, Milton, Mass. They hope to discover which features of a thunderstorm that appear on a radar scope are reliable indicators of hail, cloudburst rain, high gusty winds, and severe lightning activity.

If you are a New Englander, and especially if you live in eastern Massachusetts, Rhode Island, or southern New Hampshire, you can help the scientists obtain vital information by sending post cards or letters to the Blue Hill Observatory whenever you experience a severe hailstorm or thunderstorm.

The scientists at Milton would like the following information:

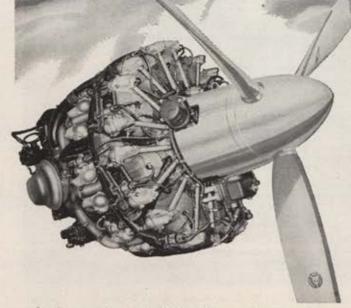
- 1. Where you saw the storm.
- The time of the beginning and the end of the hail-fall or cloudburst.
- The size and shape of the hailstones, including the largest, smallest and most common sizes.
- The approximate number of hailstones lying on the ground per square foot of area.
- Any report of damage by hail, high winds or lightning, and the time such damage occurred.
- Any unusual funnel-like appearance of the base of the storm cloud, with a description of its shape.

Pictures of cloud formations and hailstones (with a ruler or some other familiar object in the picture so the scientists can determine the size) would also be helpful to the research program.

The information requested should be mailed to the Blue Hill Observatory, Milton 86, Mass., Attention: Dr. David Atlas.

The Air Force researchers are hoping for a strong public response to their plea for information to help in the quest for more knowledge on the weather.—End

CONSERVATIVE



In the year just past, Turbo Compound-powered transports offered world travellers the advantages of 5½ billion seat miles of luxury service with perfect safety. The total is growing constantly. When present airline re-equipment programs are completed, 70,000,000 seat miles per day — over 25 billion per year — will be flown in transports powered by the Turbo Compound.



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Such performance is a tribute to the engineering perception and skills that were able to harness exhaust gases formerly wasted in empty air — harness them to the Turbo Compound, and increase its horsepower by twenty percent without increasing fuel consumption!

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This background of world-wide experience-combined with forward thinking that made the Turbo Compound the champion in its class – has now led to the concept of a new engine type which provides the richer resources of power needed for the sonic air age.





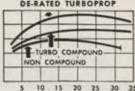
Across the continent in 5½ hours – across the Atlantic in 7½ hours – that is the promise of air transport by 1960. And for such performance, Curtiss-Wright has developed a new engine type – the DE-RATED TURBO-PROP – to provide safe, conservative power for huge transports that will cruise at speeds of 500 miles per hour plus.

SAFETY The DE-RATED TURBOPROP was developed from the famous Curtiss-Wright J65 turbojet, with modifications that harness the engine's power to a propeller for greater efficiency. This engine is capable of developing horsepower far beyond the needs of the immediate future. Curtiss-Wright engineers have, therefore, "de-rated" the engine for commercial use — modified its design so that it operates at a conservative 60% of its real potential — with low stress and low operating temperatures for greater reliability. The result: a light, compact powerplant with impressive safety factors, low noise levels, proved components, and an earning capacity which out-distances that of any other engine type ever developed.

NOISE This is a smooth running, powerful turbine that will permit an airplane to take-off quickly and climb rapidly to cruising altitude resulting in a minimization of airport noise. The lower tip speed of the low activity propeller possible with this engine will also provide a quieter cabin during take-off and climb than that possible with other type engines. Thus, the type of conservative, foresighted planning that created the Turbo Compound fulfills in the DE-RATED TURBOPROP the needs of the future for greater speed, less noise, plus range and safety with payloads that pay a record breaking profit.

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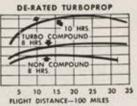


5 10 15 20 25 30 3 FLIGHT DISTANCE—100 MILES

Four-engined transports with DE-RATED TURBOPROPS will fly in the near-sonic range of 500 miles per hour plus, giving them block-to-block speeds of over 475 miles per hour on flights of transcontinental length. This compares with block-to-block speeds of 375 miles per hour for Turbo Compound transports, and less than 300 miles per hour for non-compounded engines.

CAPACITY

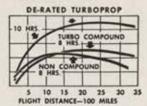
ANNUAL FULL LOAD TON-MILES PER PLANE



Because a typical four-engined transport with DE-RATED TURBOPROPS combines large payload capacity with near-sonic speed, it offers high utilization to the operator. For example, two transcontinental flights a day are possible with the same ship.

PROFIT

PERCENT OF PRESENT ANNUAL EARNINGS (60% FULL LOAD)



With high speed, payload and utility, the DE-RATED TUR-BOPROP-powered transport has a high annual revenue tonmile carrying capacity resulting in a substantial increase in earning power (annual per plane).





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U.S. AIR FORCE

TAC's new combat cargo plane, the C-130 Hercules, represents a new era in mobility. It's the first military transport with turbo-prop power. It's fast-faster than many commercial transports. It's eager-able to take off and land in less than 300 yards. Designed for rugged and robust work, it can use even improvised runways.

First assignment for Hercules: providing a mobile airlift at a moment's notice for TAC's 18th Air Force. Hercules will fly cargo and men farther, faster and at less cost than any other combat transport. The job of quick resupply is a good example (and just one of Hercules' dozen or more prime missions). After dropping 64 paratroops, or landing supplies or 90 infantrymen in combat zones, the Hercules can hustle back to advance base, load up with some 20 tons of food, ammunition, medical supplies, and deliver them where front-line fighters need them. Then, converting in a matter of minutes to a hospital plane, a single Hercules can evacuate up to 74 litter patients.

This takes get-up-and-go. TAC's Hercules has it. Designed by Lockheed, the Hercules is now in production at Government Aircraft Plant No. 6 in Marietta, Ga., first U. S. turbo-prop production line for transports.



living things were doing-the flies, the ants, the birds, and the slender lizards that clung to the walls.

He quickly reviewed the situation. The typhoon was still advancing-a mass of power on an inevitable path toward Okinawa. Calling the radar site, he said, "Walker here. What's the latest?

Still coming directly toward us. Right now it's seventy miles out, mov-

ing this way at twelve miles an hour."
"It should reach us at noon then," said Walker. "Is the eye still as large as before?"

"Yes, sir. Fifty miles in diameter." "There should be a recon ship in the area. Any sign of him on your

We've been tracking him. He's almost in the eye right now."

"Good. I'll look for his report. Keep

me posted."

Walker felt sorry for the recon pilot, battling the typhoon in his search for data. Even though the reconnaissance people had a top safety record and flew into typhoons like this as routine work, it was comforting to be on the ground inside a substantial building.

Nothing further could be done. They had secured all equipment and everyone not on duty was inside the sturdily constructed and tied-down homes. Everything was as tight as



Personnel were safely sheltered in typhoon-resistant homes during storm.

possible. It was the typhoon's next move now. And for the balance of the morning Grace took over.

Even more vicious gusts whipped the island. Native homes were flooded as rain was relentlessly driven through crevices of their wooden walls. Great paddies of rice were completely ruined. Roads were blocked by landslides as winds blasted the rain-weakened cliffs and toppled them. The smaller straw huts of the fishing villages were torn from their floors and hurled roughly along the ground. Mountainous waves pounded the beaches. No living creature stirred. The typhoon was in command. Only the deep hiss of the wind and the staccato beat of driving rain could be heard. No warning thunder or lightning-only a potent force that boiled and surged against anyone who dared to face it.

Winds reached a steady seventyfive knots with gusts up to ninety. One abrupt gust rocked the station with an explosive hundred-knot jolt. On neighboring islands gusts reached 130 knots.

And then in a matter of minutes it was over. Roaring winds faded to gentle breezes; low-skimming dark clouds disappeared and the sky brightened; heavy rain changed to light intermittent drizzle. The eve of the typhoon was directly overhead.

"How does it look on the scope?" Walker asked the radar people.

"It's just about straight above us. And it's slowed down again. Moving only two or three miles an hour.'

"Okay. Try and catch it if it starts

out in a hurry.

He prepared the next radio release and called Combat Operations to pass it on. Then he opened a can of meat and beans and leaned back for a breather.

This is your latest typhoon bulletin," he heard on the radio. "The eye of Typhoon Grace is directly over Okinawa. Earlier, winds were from the northeast at eighty-two miles per hour, with gusts to one hundred thirteen miles per hour. The winds are shifting to the southeast and have dropped to fifteen miles per hour. They will shift to the southwest and increase to . . .'

The telephone rang in his office and he left the radio. "This is Colonel Walker at Base Weather.

A feminine voice asked, "Can you tell me if the storm has ended?"

Walker grinned. "No, ma'am. The eye of the typhoon is here now. We'll have the second half of it in a few

hours with some more winds and rain."

He hung up, still smiling faintly, and turned to the duty forecaster. "I'm going to the cot in the Command Post. If you need me or if the eye starts moving away, holler.'

The holler came a little later. Radar had caught a definite movement of the eye to the north. By midnight winds had reached a steady seventy knots with gusts over ninety. The heavy tall grass was bent flat, uprooted trees were hurtling across the fields, and once more everyone was forced to seek shelter.

Fixes by radar and reconnaissance showed a clear-cut track to the north. Pressure began to rise sharply. And gradually winds began to diminish. Late Monday morning they were down to thirty knots with gusts to forty. Walker was queried by Combat Operations.

"We'd like to announce All Clear as soon as possible. There's a lot of work to be done and we want to get started. The winds seem better now

-what do you think?"

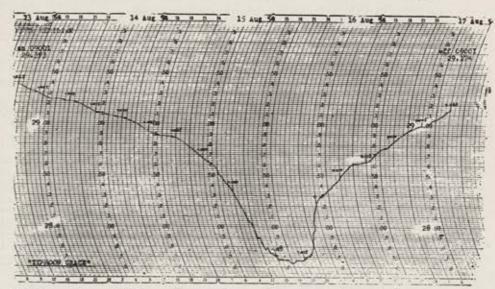
"I don't like to hedge," said Walker, "but it looks suspicious. The fifty-knot winds should extend two hundred miles from the typhoon center. The center is only a hundred miles away. There should be another ten or twelve hours of winds."

'What are the winds now?"

Walker shrugged. "That's the point. They've dropped below fifty and the storm is moving farther away all the

'Okay, we'll announce All Clear." Walker returned to his work, still slightly puzzled by the quick drop in winds. The next few radar fixes trickled in and Walker's puzzlement

(Continued on following page)



Striking pattern of Okinawa barograph records pressure change during storm.



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TYPHOON GRACE___CONTINUED

changed to concern. The typhoon showed no movement; it remained in position 100 miles to the north.

"Surface winds are increasing," said the duty forecaster.

Walker called Combat Operations and gave them the information.

"How come?" they asked.

"I'm not sure," said Walker. "The typhoon has been stationary now for three hours. Pressures are still rising -the storm should be weakening. Yet winds are rising too."

"We'd better return to alert status." "I agree. We never were out of range; there was just a temporary break for some strange reason. The winds will stay with us till the center is two hundred miles to our north."

"When will that be?"

Walker smiled, "I don't know, Twelve hours after it starts moving." "When will it start moving?"

"Again I don't know. But I think soon-within a few hours."

The move came shortly. Four hours after the typhoon stopped, it started again. Winds and rain gradually decreased, and by noon Tuesday the final All Clear was announced. Grace had loosed her hold on Okinawa.

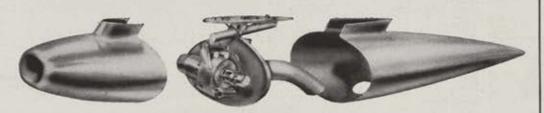
Damage was slight on the island considering the long stay of the storm. The typhoon-resistant homes came through; except for wet floors, little harm was done. Damage to military installations was not serious, but Okinawan crop losses were heavy. One Okinawan child was killed when a house was ripped away.

Grace continued her northward path, threatening Korea at first; but then it veered slowly toward Japan. When it struck southern Japan its violence had increased, with winds smashing at a 150-knot clip. The typhoon was more brutal in its treatment of the Japanese, killing more than thirty people, demolishing 1,500 homes, flooding 25,000 others, and sinking sixty ships of all sizes. Here Grace gained her reputation as a killer storm.

The typhoon headed further north over Japan and weakened rapidly. The dying storm passed Tokyo with winds less than forty-five knots and soon dissipated. After seven days of destruction the killer storm had perished. Born on Friday the thirteenth, Grace passed into history on August eighteenth.-END

About the Author - Maj. Robert E. Fuerst is well qualified to tell the story of Grace, for he knew her intimately. A member of the 15th Weather Squadron, he was Typhoon Duty Forecaster during the storm.





Solar research boosts altitude power output of gas turbine generator sets

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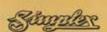


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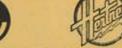
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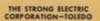
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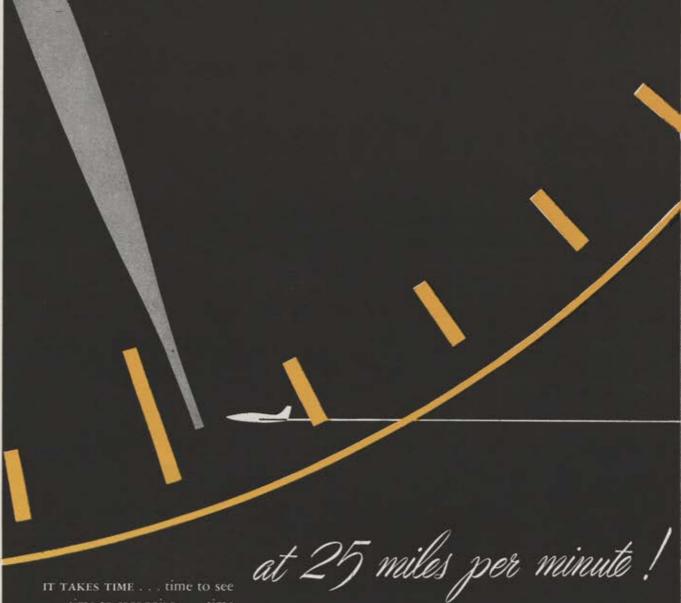
Slim engine nacelles, a mark of the turboprop, are evident in this shot.

TARTING sometime next year, TAC's 18th AF will begin replacing its present troop-carrying planes with the new Lockheed C-130A Hercules combat transport. Designed for logistic support, assault missions, and air-evacuation duties, the new freighter will carry men and materials into forward areas at almost twice the speed of present types—more than 400 mph.

Newsmen witnessing the preview of the plane were impressed by the short take-off and landing characteristics of the fifty-four-ton airplane. Lockheed pilot Leo J. Sullivan boosted the plane off the runway after a run of only 800 feet and then made an extremely short landing using full brakes and reverse props. The Hercules has four 3,750-hp Allison T-56 turboprops.—End



The ninety-five-foot long fuselage of the C-130A Hercules can accommodate an AF 5,000-gallon fuel tanker. Plane is designed for high, fast, long-range flights, or low and slow cargo and troop drops. The C-130 hauls a twenty-ton payload.



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What the AIR FORCE has in RESERVE



By Maj. Gen. William E. Hall, USAF Assistant Chief of Staff for Reserve Forces, USAF



New dormitory for Reserves at Laurence G. Hanscom AFB, Bedford, Mass.

WELVE months have passed since I have reported on the Air Force Reserve Program through these pages to readers of AIR FORCE Magazine. They have been highly significant months. The Reserve Forces today have missions which are spelled out with complete clarity, and in the fields of manning, equipping, and training, they have made notable progress during the past year.

Without doubt, the action in Fiscal Year 1955 which has done most to trigger the current active energy of the Reserve Program was a memorandum issued by the Chief

of Staff early in January.

This called for attaining an acceptable degree of combat capability within both the Air National Guard and Air Force Reserve at the earliest practicable date. It further called for pertinent Air Staff actions directed specifically toward full equipping of Reserve units with aircraft capable of carrying out the D-Day mission; providing adequate facilities and full unit equipment; and supervising and inspecting training programs.

How near, then, are we getting to the target? What have been the chief developments of the last twelve

months?

Among the most noteworthy has been the sharp increase in paid participation. During the first ten months of Fiscal Year 1955, paid training strength of the Reserve Forces increased an average of 3,600 per month. At the end of April 1955, total Air Force Reserve strength stood at 258,018, which included 48,553 paid participants-a rise of more than 15,000 over the paid participation on July 1, 1954.

The Air National Guard had a total strength of 60,879, with 6,568 officers and 54,311 airmen-all in pay status.

There is still a shortage of airmen in the Air Force Reserve, despite much improvement. However, we expect the shortage to be largely overcome by the system of Selective Assignment which was put into operation July 1,

The objective of this system is to assign to vacancies in Training Category A Units skilled airmen, who have been released from active military service but who still have Reserve obligations. Since there will be about 110,000 of these going off active duty each year, we believe that there will be enough to fill Reserve mobilization needs and thereby greatly enhance the combat readiness of every unit.

Selective assignment is merely one of the measures that have been undertaken in recent months to overhaul the Reserve's personnel problem. The revitalization plan included action requiring Reserve officers who did not meet minimum training standards in 1954 (who had no Reserve obligation) to elect one of three options-assignment to an active program, retirement, or resignation.

In April of this year, 79,950 option letters were mailed out. The effect was immediate and salutary. By May 20, 50,558 had responded. Of these, 59.9 percent requested

assignment to an active program.

Disposition of non-participating officers-together with a sizeable transfer of 68,500 officers to the Inactive Status List-will increase participation in active training units,

(Continued on following page)

insure that officers on the rolls can meet mobilizaton requirements of the Air Force, and provide realistic and attractive promotional opportunities to assure a steady, continued flow of interested Reserve leadership.

In this connection, it should be noted that the Air Force by July 1, the effective date of the Reserve Officer Personnel Act, was fully equipped to carry out the promotion provisions of that law. Through a heroic job by the Reserve Records Center in Denver, all records had been combed and selection boards had met to examine them. Selections are to be announced as soon as it is administratively practical.

Personnel-wise, actions taken during the past year have had a simple objective—to make certain that the Reserve Forces are manned by officers and airmen who can be relied on wherever and whenever they are needed. The aim is to make these forces at all times equipped, trained, and readily available for possible D-Day duty.

A change in the over-all unit program was made in accordance with the present mission of the Reserve Forces. Six former pilot training wings were eliminated from the Air Force Reserve, leaving fifty-one combat wings in the Air National Guard and Air Force Reserve. These wings include fighter-interceptor, troop carrier, fighter-bomber, tactical reconnaissance, tactical bombardment, radar calibration, and air resupply units.

Under the present plan, the Air National Guard will consist of twenty-three fighter-interceptor, two tactical bomber, and two tactical reconnaissance wings. All these are to be manned at war strength as quickly as practicable.

In the event of all-out war, twenty-three Air National Guard wings will be immediately assigned to Continental Air Defense Command for employment. A few jet fighter elements are already augmenting the runway alert maintained by regular Air Force units of Continental Air Defense Command. The remaining four Air National Guard wings will be assigned to the Tactical Air Command.

The fighter-bomber wings of the Air Force Reserve will, in an emergency, also have an initial air defense role, and later a tactical role. Tactical bomber wings and airlift wings will go immediately to Tactical Air Command. Parenthetically, it may be observed that the thirteen Reserve airlift wings could be a most compelling requirement of our Air Force on D-Day.

Operation of the twenty-four Air Force Reserve combat wings was considerably changed during the year by introduction of the "detached squadron plan." Heretofore Reserve Combat Wings have trained at twenty-four wingbase-type locations. Under the "detached squadron" concept, they will, in the future, operate from sixty locations, each supporting a smaller flying unit. In all, then, the Air National Guard and Air Force Reserve units are scheduled to have 154 flying locations by the end of Fiscal Year 1958. This again should serve to promote participation. The practicality of extending the "detached squadron" idea to some non-flying organizations is currently under study.

Now to the question of equipment. The Reserve Forces are being provided with modern aircraft as rapidly as possible without adversely affecting the active establishment build-up to 137 wings. They now have appreciable numbers of such aircraft as Republic F-84s, North American F-86s, Lockheed F-94s, Northrop F-89s, as well as the older Lockheed F-80s. They are also receiving Fairchild C-119s and Lockheed T-33s. All propeller-driven fighter planes have been eliminated from the Reserve wings and the Air National Guard will continue to phase out piston-engine fighters as fast as jets become available for replacement.



This new center in California is typical of the progress made in the past year in equipping the Reserve forces.

While pilot training has been dropped from the Reserve program, navigator training has been introduced. As of May, nineteen navigator training squadrons had been organized. They all had instructors in place; had supplies, aircraft, and personnel; and were successfully recruiting. Air Training Command will furnish active-duty training for these officers at James Connally AFB, Tex., with twenty hours of flying training for each navigator in Convair T-29 aircraft. It is estimated that about 516 navigators will be available for active duty training this summer under this very promising program.

The Air National Guard five-year construction program is well over the hump but a shortage of facilities is still harassing the Air Force Reserve. By the end of Fiscal Year 1955, the Air Force Reserve was utilizing twenty-seven Air Force, Navy, or civil airports. To accommodate the twenty-four combat wings and seventy-two squadrons, sixty air fields will be required. Included in these are eight locations to be utilized as permanent summer field training sites.

Construction of essential line items of the "package plan" for Air Force Reserve flying locations continued during the year at sixteen sites. Line items of the "package plan," to provide minimum operational facilities for Reserve use, consist of the following: hangar; motor service shop; paint, oil, and dope storage building; aircraft fuel storage area; warehouse; crash truck station; oxygen storage building; ammo and chemical storage building; and motor vehicle fuel storage area.

In addition to construction at flying locations, contracts were completed recently for the construction of two permanent Air Reserve Centers at Albany, N. Y., and Fort Worth, Tex.

The Air Reserve Center Program, established in the spring of 1954 to provide non-flying specialized and generalized training, showed marked gains in the past twelve months. An additional twenty-nine centers were activated, making a total of seventy-nine throughout metropolitan areas of the country. The ultimate goal of approximately 125 centers will be reached by the end of Fiscal Year 1957.

While combat and support units must be the hard core of the Reserve Forces, individual training by the Air Force Reserve—especially in the many ground duties required for a modern air force—is no less imperative. There is a definite requirement for thousands of individuals to be available to the Active establishment for replacement and augmentation on D-Day. Hence, the substantial success of the Air Reserve Center program has been gratifying.

(Continued on page 111)



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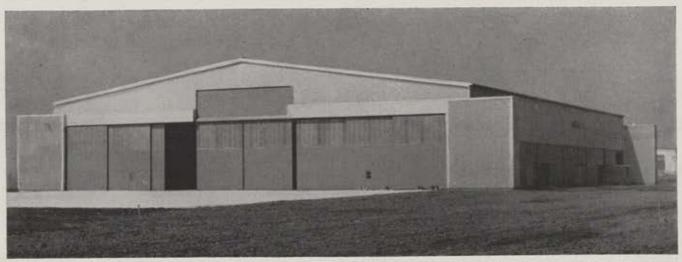
ELGIN NATIONAL WATCH COMPANY

So, too, has the Mobilization Assignee program. As of April 30, there were 5,053 participating assignees where a year before only 3,737 were on board. The rise took place despite the fact that the Air Force still has been unable to obtain authorization to increase paid drills for these Reservists from twelve to twenty-four per annum, as it is still pressing to do.

However, we are by no means satisfied. There are still slippages and shortages. There are still not enough participating airmen. These are the people with prior service who have the skills the Air Force wants very much to maintain. They are men who would be urgently needed in case of mobilization. (The Air Force Reserve accepted

is written because there are certain legal complications applying to Federal employees which do not affect the State employees who serve the Guard. If the plan is ultimately adopted, it will certainly give a dynamic lift to Reserve activities.

To sum up, the Air Force believes that it is economically impossible for the nation to maintain indefinitely an active establishment manned to fight an all-out global war which, quite possibly, could be a very short one. The current 137-wing program represents the minimum force we need for security, not the maximum. It must be supplemented by strong, modernly-equipped Reserve Forces, in being, and combat ready.



New hangar of the 445th FBW makes a major contribution to the defense of the Niagara Frontier and Western New York.

approximately 8,000 non-prior service personnel in Fiscal Year 1955 but the number of such Reservists will always be extremely limited.)

To be frank, there have not always been sufficient incentives to induce the degree of participation we would like to have. In some instances, there have been no provisions for pay in certain elements of Reserve training. In others, there has been a lack of facilities, training equipment, and other requirements for an interesting, attractive program. The entire Air Staff is bending all efforts to overcome these difficulties and the results of the past few months show it.

It should be emphasized that in meeting its Reserve personnel requirements the Air Force will continue its policy of manning through voluntary participation to the maximum extent. While the Air Force as a whole, including the Reserve components, must be a large one, it must also be an elite force of enthusiastic, highly-skilled, seasoned people.

One of the chief problems the Air Force Reserve has faced in the past would dissolve if a proposed plan for administration and support of units is adopted. It is the Air Reserve Technician Plan. This involves employment of civilians for jobs now performed by permanent party personnel. These civilians would be required, however, to be members of the Reserve unit. The potential benefits of this administrative scheme are impressive. Present permanent party people would be released for reassignment in the active establishment and Reserve units would have the assurance that administrative and support personnel would go with them if and when they were called to duty.

This plan has operated extremely well in the Air National Guard and no doubt would also in the Reserve. It is under study by the Civil Service Commission as this



Maintenance Laboratory of the Clearfield Air Reserve Center, Utah, after installation of new, improved lighting.

Achieving this goal will not be easy, even though high priority has been assigned to the Reserve Program. It is apparent that development of the desired combat capability is predicated on the rapid acquisition of facilities, the activation of units, and the provision of adequate equipment and supplies. Given the necessary funds and authorizations, we believe that the present program can be carried quickly to a successful conclusion and that the Reserve Forces will soon meet the high standards of strength the nation wants and must have for its continuing security.

True combat readiness has never before been attained by our Reserve components. But we think this can be done; we believe it must be done; and with the assistance and support of such patriotic groups as the Air Force Association, it will be done.—End Why Air Force wives are happier

MORALE



Good housing tends to keep good men in the Air Force—and the adequacy of the housing is largely a matter on which the wives pass judgment. Above, Maj. Robert E. Hairston and his family in their quarters on an English base.

BEGINS AT HOME



There's still a long way to go, but things are definitely looking up for the Air Force wife. Much of the credit must go to the 'Dependents' Assistance Program,' which helps AF couples out in everything from finding decent housing to quashing rumors

By Earl H. Voss

HINGS are finally looking up for the Air Force wife.

Until recently, thoughtless bureaucracy, thoughtless husbands, and downright necessity had combined to make many Air Force wives feel like second-class citizens. Things got so bad, in fact, that they were steering their hubbies out of the service, or making it so miserable at home that husbands couldn't do their jobs on the flight line.

Divorce rates went up. Reenlistments skidded. Unhappy airmen and officers found it harder and harder to keep their minds on their work. Their wives had so many problems—some real and some imaginary—that the men spent duty time trying to solve them.

Now the worm is turning. It isn't any quick roll-over. In fact, it is a painful transition. But wives are losing that abused look.

Now the Air Force's wife trouble is roughly down to par with the traveling salesman's. With combat crews taking off unexpectedly for three- or sixmonth training missions abroad, it would be unrealistic to expect much more. With Congress making only fitful progress in alleviating the housing shortage, the grumbling is almost remarkable for its diminuendo.

Here's the story of why Air Force wives are happier.

Once the wife problem had been identified, the next step was to find out why the wives were dissatisfied. Then Air Force headquarters, from Secretary Harold E. Talbott on down, had to decide:

- Which problems would require outside help from Congress or the Department of Defense.
- Which the Air Force could settle
- · Which just couldn't be solved.
- Which were irresponsible gripes. Each would require separate treatment. The Air Force found that more than half of the wives' troubles (fifty-two percent) could be taken care of within the Air Force. One-third of the complaints could be met only by Congress (through increased appropriations, mainly) or some other higher authority.

Housing problems led the list. Here the principal remedy had to be more money. The Air Force has made a start on getting increased appropriations. But it still has a discouragingly long way to go.

Next in line came fringe benefits or lack of same. Some ladies didn't like base-exchange inventories, or commissary hours, or parking regulations, or the ban on hard liquor sales. These the Air Force could handle. But complaints about increased prices would have to be referred back to Congress, which has done a pretty good job of legislating the PXs and commissaries back into the civilian price line.

Third most numerous complaint concerned medical care. Wives said their husbands had been lured into the service with promises of free medical care and they weren't getting it. The main difficulty, it seemed, lay in the shortage of hospitals, doctors, and nurses.

There were other protests about uniforms, pay, recreation facilities, transfers, entertaining, morale, civilian communities' attitudes, long temporary-duty tours, and schools. Upon investigation the Air Force found it

(Continued on page 115)



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ratio, true dynamic and static pressure, cruise control and other factors.

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Mail is checked by Mrs. Robert Ratzburg, a volunteer in the Dependents' Assistance Office at Smoky Hill AFB.

could remove a surprising number of these causes of discontent.

Some of the wives' tales were classics. Newcomers to the Air Forceyoung brides especially-sometimes tell fantastic interpretations of "rank has its privileges." One young thing worried that she might have to submit to advances from officers who outranked her husband. Another teetotaller thought she might have to take up drinking if the commanding officer's wife imbibed. One embattled female-no young bride-protested the base commander's edict pro-rating the cost of drinks at VIP receptions. There are no appropriations, of course, for such events. In defense of the base commander, it perhaps should be pointed out that he could spend himself poor trying to foot the bill alone. Some wives complained that civilians "treated them like dirt." One woman was upset because her husband was growing hard-boiled and calloused under the strain of practicing war games. Out in California, wives were "bitter," the Air Force learned, because the silver "US" was removed from their husbands' uniforms. (It's back.)

The material used in uniforms also

turned up as a problem. Some wives said Air Force uniforms wouldn't take starch. Others said they wouldn't stay pressed. Some claimed the "blues" went threadbare in a year (perhaps an unintended indictment of a chairborne husband). Another lady suggested that the government ought to replace worn-out combat ribbons.

Most of these complaints, of course, (Continued on page 118)



Mrs. Curtis E. LeMay, wife of SAC's famous general, chats with airmen at Davis-Monthan AFB, Ariz., about family problems. A study of dependents' problems by a committee headed by Mrs. LeMay started SAC's Dependents' program.

HERE'S ONE EXAMPLE OF HOW THE AIR FORCE 'TAKES CARE OF ITS OWN'

WENTY-eight hours of all-out help and cooperation brought vivid proof to Maj. Harold W. Brazier and his family that the Air Force does "take care of its own."

While the family was in Japan during Major Brazier's tour of duty there, Mrs. Brazier was hospitalized in Tokyo with a brain tumor. After several days, her doctors decided that it would be necessary to fly her to the US for emergency surgery.

At 3 p.m. last May 9, Major Brazier called Nagoya and talked with Lt. Col. J. R. Foley, a co-worker in the Fifth AF Inspector General's office. That started a sequence of events that put the major, his two children, and all their baggage on a plane bound from Nagoya to Tokyo at 5 p.m. the next day.

After talking to Major Brazier, Colonel Foley called the Command Surgeon for information on such emergency procedures. He then called personnel officials who immediately began preparing the necessary orders. Calls to commercial transportation, housing, the flight section, and the chaplain also brought immediate action to start the

family on its way.

While Major Brazier was returning to Nagoya from Tokyo to pick up his children, friends and neighbors at the American village had the situation well in hand. At a planning meeting, they listed the important details and made assignments covering such things as the disposition of Major Brazier's car, handling of bills, listing and packing of household items, preparation of clothing for the family's flight, and countless other details.

To further aid in the speedy departure, Fifth AF Personnel dispatched a special courier to process the major's papers and hand the completed forms to Major Brazier in Tokyo before the flight to the US.

At 7 p.m., May 10, twenty-eight hours after he had called Colonel Foley, Major Brazier and his family were awaiting the air evac plane in Tokyo. Even after their departure, friends and neighbors were handling the important details to complete the return of the family's belongings to the US.

From his home at 14141 Burton St., Van Nuys, Calif., Major Brazier recently notified his Nagoya friends that his wife's operation was successful and that "her condition is good and we are confident of her complete recovery."

In a letter to Lt. Gen. Roger M. Ramey, Fifth AF Commander, Major Brazier said, "I have never seen such cooperation or felt so sure of the existence of true comradeship. I have tried to write to each of the individuals who did so much, but I know I could never reach them all because many of them are unknown to me.

"I write this that you may know, and be justly proud of the calibre of people under your command. Further, I hope that through some medium, the heartfelt thanks of my family may be conveyed to personnel of Headquarters, Fifth AF and the 6101st Air Base Wing."—END



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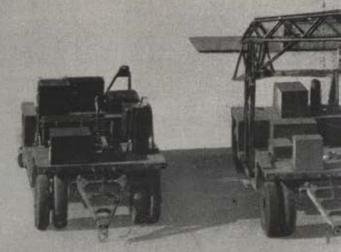
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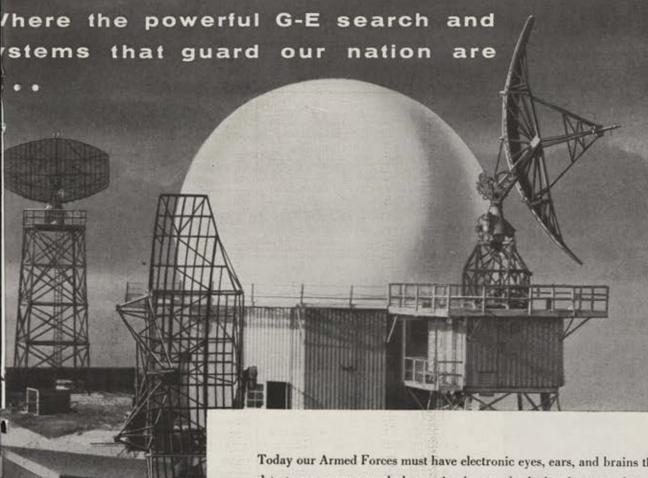
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Off to England on TDY for SAC T/Sgt. Charles Leonard, family left behind.



Dependents' Assistance office will help Mrs. Clifford as she waits for her B-47 crew chief husband's return.



A happier scene at Carswell AFB as the 11th Bomb Wing returns from TDY.

are on the light side. There were also many substantive problems which the Air Force survey brought out. After the results had been sorted, it was time for analysis.

Here is what the Air Force concluded:

 Wives didn't know enough about what their husbands were doing, or what was going to happen to them and their husbands next. That made them easy prey to fear of the unknown.

 Wives felt "left out" and lacked "team spirit." This was especially true in times of emergencies.

 Separations of wives from husbands (by training missions or transfers to short-of-housing overseas bases) were a big cause of discontent.

The quest for remedies was conducted on two levels. Secretary Talbott, Chief of Air Staff Gen. Nathan F. Twining, and the other top people took the high road—pleading with Defense Secretary Charles E. Wilson and Congress to get more and better housing on their bases, and better pay for all ranks. The other echelons of the Air Force took the low road, working inside the organization to develop esprit de corps among the wives.

All hands admitted that more than half the battle would have to be won inside the Air Force. That would not mean cutting out SAC and TAC training missions or cutting down the periods of husband-wife separation. Combat readiness came first, every one agreed, even the disgruntled wife, once she understood what was at stake.

But Secretary Talbott and his staff were convinced that four things could be done to make the wives happier:

 Tell them more about the Air Force and their part in it.

Help them more in time of need.

 Juggle overseas assignments to cut family separations to the irreducible minimum.

· Flatter the wives a little.

From the beginning it was recognized that self help would be necessary. Veteran Air Force wives would have to help the newcomers. All wives would have to take turns holding each others' hands.

Inside the Air Force a "Dependents' Assistance Program" had already been organized. At least one officer was assigned to the job at each base. "Dependents' Assistance Centers" were set up. Wives staffed volunteer committees to help other wives.

The first Dependents' Assistance Centers appeared only three years ago. The survey of wives' troubles ended last November. Already Air Force

How AFA's Widow Rehabilitation Program Helps Out, Too

AIR Force wives are pretty important people as far as the Air Force Association is concerned, too.

AFA has for some time been doing what it can to help out the widows of Air Force men who die in line of duty. Reports of such deaths come to AFA regularly through a special arrangement with the USAF Casualty Branch, under Personnel.

These reports become the basis for a program of AFA activity that leads directly to the home of the Air Force widow. First, on behalf of all the men and women of the Association, the AFA President sends the widow a letter of condolences.

A copy of that letter goes to whatever AFA unit is nearest the widow's home town. A representative of that unit-usually a member of the AFA Auxiliary—then makes arrangements to call on the widow.

The purpose of these calls is to find out how the Air Force Association can be of help. Assistance from then on depends largely on individual cases. AFA offers of help do not usually involve matters of money, which are considered more in the province of such agencies as the Air Force Aid Society. In a number of cases, however, AFA has helped find work for AF widows, and AFA's files contain dozens of examples of this helping hand extended in a time of real need.—End

wives are wondering how they used to get along without them.

To inform the wives, the DACs organized "orientation lectures" on the wives' level, not the husbands'. A wife learns what her husband does, how his job fits into the base's mission, and how the base fits into the "big picture." Surprisingly few got this information from their husbands.

At Langley AFB, Va., for instance, officers and airmen of the TAC 405th Fighter-Bomber Wing are getting a little more respect at home. Their wives have recently learned how important their hubbies' jobs are. The women have found out their husbands are key figures in President Eisenhower's program for stopping brushfire wars. They can fly non-stop to the scene of any aggression, and perhaps could be dropping atomic bombs two

(Continued on page 121)



Out where the air is thin, where every ounce of dead weight costs miles, rockets and guided missiles are reaching closer and closer to the fringes of space.

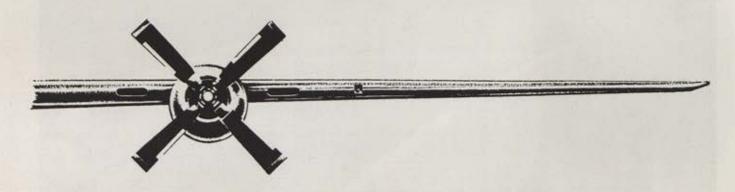
Pastushin Force Ejection—product of years of specialized research—assures safe, positive ejection of missile, rocket, bomb and aircraft components.



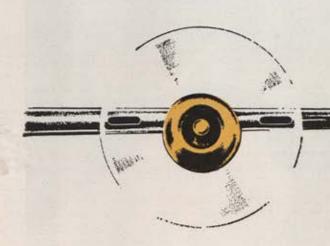
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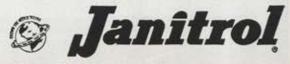


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Facts: The unit is less than 18" long, weighs under 16 pounds, heats fuel from minus 65°F to 200°F, and supplies hot fuel at the rate required as long as necessary to insure a smooth engine operation. It draws less than 7 amps, can be used while the starter is on.

This is another case in which the nameplate "Janitrol" stands for "specs met or exceeded" as it does in so many aircraft heaters, gas turbine components, and combustion equipment. Write for new engineering data sheet or call your Janitrol representative.



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days after they took off from Langley. The ladies got a look into the complicated cockpits of the jet fighters and light bombers their husbands fly or service.

Wives of Langley men still have their problems. Housing shortages are still acute. All but the highest ranking officers and airmen have to live off base. In the crowded Norfolk area, rents—even for modest little homes and walkups—are enormous. But the wives are beginning to feel as if they belong. Their sacrifices have taken on a new meaning. They still gripe. But they aren't putting the heat on as much as they were.

too often. And there was a time when it was hard to get information about conditions at the new station, especially if the move was overseas.

An Air Force wife used to walk down the gangplank with butterflies in her stomach. The husband might be there to meet her, but the country beyond him was utterly strange. There were wretched smells, signs she couldn't read, dirt in the streets, strange insects, too many bicycles, traffic that drove on the wrong side of the road, etc. And when the little woman got her first glimpse of "home" she was often appalled. The furniture was strange. The plumbing often left

the indifference-even open hostilityof nearby civilians.

Police are harder on the military than on civilians, the wives say. Charge accounts are difficult to establish. Service personnel are overcharged for everything from rent to dinner. Civilians don't give the military credit for working as hard as the next guy.

Here was an area where ignorance on both sides was compounding the trouble. The nearby communities had to be told politely the importance of the work the base was doing. And the Air Force wives had to get a clearer picture of how they could diplomatically disrupt the "tight little islands"



S/Sgt. Eugene Arnold checks out a set of household utensils from Mrs. Lewis Copple, volunteer at Offutt AFB DAC.



A newly assigned SAC family inquires about housing from Mrs. Reade Tilley, a volunteer member of Offutt's DAC.

In the Ninth Air Force a recent emergency typified the new effort to "upgrade" wives. In the midst of a training mission over Florida a runaway machine gun sent a .50-caliber slug plowing into a sergeant's chest. His wife, at home with the children in Louisiana, was notified before the ill-fated plane touched down in Florida. The Dependents' Assistance Center had her on the phone in a matter of minutes. It arranged to get a baby-sitter for the children.

Frequent bulletins on the sergeant's condition were relayed to the wife. A special plane was scheduled to fly her to the Florida hospital where her husband was being treated. The lady was short of cash, so the DAC arranged an emergency grant from the Air Force Aid Society. Within three hours of the accident, the sergeant's wife was at his bedside. No doubt her presence helped his swift recovery.

Now Dependents' Assistance Centers the country over are trying to beat Ninth Air Force's record.

Transfers have always been a sore spot; not enough notice was the usual gripe. Others thought the moves came a lot to be desired. Red signs warned against using the water without boiling. Even brushing the children's teeth could become a major crisis.

Of course, even in the old days wives were prepared to some extent. There were "orientation pamphlets" for a few places. But more often than not, they had been written by men, from the male point of view. The important details—the day-to-day, hour-to-hour, minute-to-minute strangeness—were usually overlooked. As these pesky, unforeseen details piled confusingly one upon another during the wife's first few days, she found her nerves jangling. What should have been a joyful reunion often became a tense readjustment.

Dependents' Assistance Centers now concentrate on getting detailed information on all overseas stations from other wives. Some DACs even arrange language courses. Conditions may not be improved, but wives can be spared the frightening strangeness.

In the United States, DACs make a special point of getting the wife into contact with the nearby communities since many gripes have centered on that many communities in America have become.

The Air Force is now in the midst of a two-way orientation program to remedy both problems.

The "laboratory" where these and other lessons in "wife public relations" were learned has been the Strategic Air Command, Mrs. Curtis LeMay, wife of SAC's commander, was (and still is) a prime mover in the program.

SAC at first found that long temporary-duty assignments were driving airmen out of the service and officers to divorce courts. Wives, it developed, were SAC's solar plexus. Now SAC goes out of its way to make life bearable for the wives left behind. If the move is of a size that cannot be kept secret, volunteer wives, with DAC help, set up refreshment stands on the flight line at take-off and return. Children are cared for in a special nursery, so that wives can get more time with their husbands,

After the husbands leave—whether with fanfare or stealthily at night their wives are in constant touch with the Dependents' Assistance Center.

(Continued on following page)

Any releasable news of their husbands is promptly passed along. One wife from the departed contingent is allowed to "camp" in the DAC to assure the lonesome ladies that no fast ones are being pulled.

There is a special rumor-checking department. Weird tales about the hubbies' hard times—or the co-educational partying the men are enjoying in some far-off land—are quickly checked through official channels.

a new SAC station, either in this country or overseas. The new base's DAC gets a "profile" of the family. If the wife is pregnant, a reservation is made at the base hospital, so there will be no hitch when junior arrives. If there are children of school age who need placing, the schools are alerted. If the moves are not too long, husbands are flown into the new base to look over housing which the Dependents' Assistance Center has scouted. This



As part of a program to assist personnel preparing to go overseas, Lt. and Mrs. Kenneth M. Meyerson arrange a Japanese exhibit at Maxwell AFB, Ala.

Committees of volunteer wives (whose husbands are home) maintain weekly contact with all the lonesome "widows." In SAC, each volunteer is responsible for ten "widowed" wives.

Every Friday there is a coffee hour at 10 a.m. All the lonesome wives—of officers and airmen both—get together and yak it up. They think up things to keep occupied. They do volunteer work—at nearby hospitals, perhaps. They arrange card parties.

They keep busy. And out of trouble. Baby-sitting is arranged on a cooperative basis so that wives can get away from their children for a few hours. If wives can't drive, the volunteer wives or the Dependents' Assistance Center arrange transportation. From the day the SAC wife gets to a new base, there is a conscious effort to widen her circle of friends. That is "insurance" against loneliness when her husband's turn at TDY comes.

One of the things Mrs. LeMay and her friends stress is that having fun doesn't necessarily mean spending lots of money. Wives sometimes had a tendency to spend more when their husbands were away.

Lately SAC's volunteer wives and the Dependents' Assistance Centers have been writing ahead when families from their base are heading for people leaving, or from friendly merchants in communities nearby.

Mrs. LeMay tells of a new plan to use the houses of officers and airmen on TDY on the occasions when the men can take their wives along to their temporary stations. She recalls a captain who was spending \$20 a day to keep his wife and three children in a motel near his new base while he tried to go house-hunting and master his new job all at the same time. Meanwhile his wife was trying to get the children in school.

The Dependents' Assistance Center got the captain guest housing on the base for \$1 a day. Instead of the crowded motel he got two bedrooms, a living room, a kitchen and bath. Then the DAC looked around for housing. An officer with housing on base happened to be taking his family along on a six-months' TDY tour. The newcomer said he would be happy to move in. So the DAC arranged to shuffle the furniture.

Through other channels, the DAC was able to place the captain's three children in school immediately. That freed his wife for the many details involved in moving a household. And the captain could devote more time to his new duties. This family had six months, then, instead of a few days,



Mrs. Inez B. Glass, widow of an AF officer, is assisted in her compensation application by Maxwell AFB Personnel Affairs Officer, CWO Louis E. Enders.

usually cuts down, or eliminates, house-hunting.

Another "gimmick" developed in SAC is its "lending library" of household goods. Newcomers who arrive on a base with half their equipment in Alaska and the other in Bermuda, for instance, can get pots and pans, dishes, blankets, mattresses, cribs, and many other items on loan. "Libraries" are accumulated through donations from

to look for permanent housing, unrushed and unburdened by the expensive motel rates.

Last August the Air Force put into effect a "concurrent travel" plan.

Housing is so short in some overseas localities that wives sometimes have to stay home for their husbands' whole tour. In other areas wives tag along months later, when their hus-(Continued on page 125)

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bands' names come to the top of long waiting lists.

These separations developed for two reasons: lack of housing and lack of shipping. The Air Force is now working on both these shortages. Restrictions on living off base at overseas stations are being revised (at the risk of increasing disease rates and financial troubles). And new efforts are being made to increase the amount of transportation available.

Early this year more wives started going overseas with their husbands or joining them within sixty days.



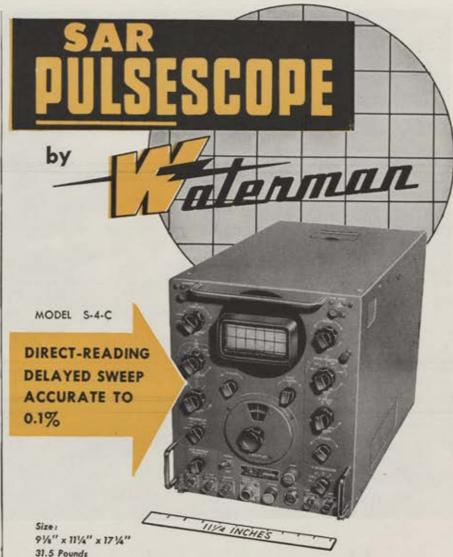
A/1C Donald R. Dorey had to leave his wife behind when he went overseas. Now family morale is up, since AF has authorized more concurrent travel.

Concurrent travel is now authorized—although not always available—to stations in the United Kingdom, Norway, Germany, France, Italy, Spain, Greece, French Morocco, Libya, Turkey, Panama, Bermuda, Hawaii, and Alaska.

Air Force Headquarters also has nudged overseas commanders to project their requirements for officers and men a little bit farther into the future. That gives paper work a chance to trickle down to men assigned overseas, sometimes in time to get families fully prepared for the move.

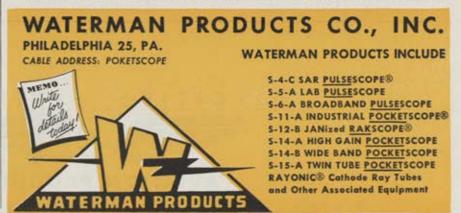
Taken in the aggregate, these new efforts make a significant contribution to the Air Force mission. There are still lots of things yet to be improved, of course. But the wives are finally proving that even in the Air Force it is wise never to underestimate the power of a woman. To this all Air Force males must now give at least grudging acknowledgment.—End

About the Author — Earl Voss last wrote for us in May '54 ("Red Shadows over the Rising Sun"). In WW II he served in the Far East. He's been with the Washington, D. C., Evening Star since 1951.



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Guide to AIR FORCE BASES



Where they are

How they were named

What the housing situation is

A BILENE AFB, Tex., 6 mi. SW of Abilene. Medium bomber base, 15th AF, SAC. Formerly Abilene Army Airfield, also known as Tye Field and Abilene Municipal Airport #1; named for city. Housing: officers, fair; airmen, fair.

ALTUS AFB, Okla., 2 mi. E of Altus. Medium bomber base, 15th AF, SAC; named for city. Housing: officers, fair; airmen, fair.

AMARILLO AFB, Tex., 14 mi. SE of Amarillo. Jet mechanics and airframe repair schools, TTAF, ATC; named for city. Housing: officers, excellent; airmen, excellent.

ANDREWS AFB, Md., 1 mi. E of Camp Springs, 11 mi. SE of Washington, D. C. Hq., MATS; fighter-interceptor base, EADF, ADC; formerly Pyles Field; renamed for Lt. Gen. Frank M. Andrews, pioneer exponent of airpower, CG of US forces in Europe, killed in aircraft accident, Iceland, 1943. Housing: officers, good; airmen, good.

ARDMORE AFB, Okla., 16 mi. NE of Ardmore. Troop carrier base, 18th AF, TAC: named for city. Housing: officers, poor;

airmen, poor.

ARNOLD ENGINEERING DEVELOPMENT CENTER, Tenn., 10 mi. E of Tullahoma. Hq., AEDC; named for Gen. H. H. "Hap" Arnold, WW II AF Commanding General. Housing: officers, excellent; airmen, excellent.

BAINBRIDGE AB, Ga., 7 mi. NW of Bainbridge. Primary contract pilot training, FTAF, ATC; named for city. Housing: officers, poor; airmen, poor.

BAKALAR AFB, Ind., 3 mi. N of Columbus. Reserve training, 10th AF, ConAC; formerly Atterbury AFB; renamed for Lt. John E. Bakalar, WW II fighter pilot killed in France, September 1944. Housing: officers, fair; airmen, fair.

BARKSDALE AFB, La., 1 mi. S of Bossier City, 6 mi. E of Shreveport, Hq., 2d AF, SAC; medium bomber base; named for Lt. Eugene H. Barksdale, WW I pilot killed near Wright Field, Ohio, August 1926, while testing observation-type plane, Hous(Continued on following page)

ing: officers, excellent; airmen, excellent.

BARTOW AB, Fla., 5 mi. NE of Bartow. Primary contract pilot training, FTAF, ATC; named for city. Housing: officers, excellent; airmen, good.

BEALE AFB, Calif., 11 mi. SE of Marysville. Aviation Engineer Force, ConAC; named for Camp Beale, for Brig. Gen. Edward F. Beale, California Indian agent before the Civil War, Housing: officers, good; airmen, good.

BERGSTROM AFB, Tex., 7 mi. SE of Austin. Strategic fighter base, 2d AF, SAC; formerly Del Valle AAB; renamed for Capt. John A. E. Bergstrom of Austin, killed at Clark Field, P. I., December 1941, during Jap bombardment. Housing: officers, excellent; airmen, excellent.

BIGGS AFB, Tex., 6 mi. NW of El Paso. Heavy bomber and tow target base, 15th AF, SAC; named for Lt. James B. Biggs, WW I fighter pilot, killed in a take-off accident in France, October 1918. Housing: officers, fair; airmen, fair.

BOLLING AFB, 3 mi. S of Washington, D. C. Hq. Command, USAF; named for Col. Raynal C. Bolling, Asst. Chief of Air Service, died saving life of a 19-year-old private near Amiens, France, 1918. Housing: officers, excellent; airmen, good.

BROOKLEY AFB, Ala., 3 mi. SSW of Mobile. Air Materiel Area, AMC; foreign clearing station, MATS; formerly Bates Field, renamed for Capt. Wendell H. Brookley, test pilot, killed in BT-2B crash near Bolling Field, February 1934. Housing: officers, fair; airmen, fair,

BROOKS AFB, Tex., 7 mi. SSE of San Antonio. Hq., Air Evacuation, MATS; Reserve training, 14th AF, ConAC; formerly Gosport Field; renamed for Lt. Sidney J. Brooks, Jr., of San Antonio, killed in air crash near Hondo, Tex., November 1917, on final day of cadet training and commissioned posthumously. Housing: officers, excellent; airmen, excellent.

BRYAN AFB, Tex., 6 mi. WSW of Bryan. Basic single-engine jet pilot training; FTAF, ATC; named for city. Housing: officers, good; airmen, good.

BUNKER HILL AFB, Ind., 2 mi. E of Bunker Hill. Fighterbomber base, 9th AF, TAC. Former Naval Air Station; will become active about January 1, 1956. Named for city. Housing: officers, fair; airmen, fair.

BURLINGTON MUNICIPAL AP, Vt., 3 mi. E of Burlington.

Fighter-interceptor base, EADF, ADC; named for city. Housing at Ethan Allen AFB.

CAMPBELL AFB, Ky., 14 mi. S of Hopkinsville. Air Base squadron, 8th AF, SAC; named for Fort Campbell, for Gen. William Bowen Campbell, 19th century Tennessee governor, Indian fighter, and public figure. Housing: officers, fair; airmen, fair.

CARSWELL AFB, Tex., 7 mi. WNW of Fort Worth. 2d AF, SAC; heavy bomber base; formerly Tarrant Field, renamed for Maj. Horace S. Carswell, Jr., of Fort Worth, WW II B-24 pilot and winner of CMH, killed in China, October 1944. Housing: officers, excellent; airmen, excellent.

CASTLE AFB, Calif., 7 mi. NW of Merced. Heavy bomber base, 15th AF, SAC; formerly Merced Field; renamed for Brig. Gen. Frederick W. Castle, WW II B-17 pilot and winner of CMH, killed over Germany, December 1944. Housing: officers, excellent; airmen good.

CHANUTE AFB, Ill., 1 mi. SE of Rantoul. Aircraft maintenance and weather schools, home of Mobile Training Wing, TTAF, ATC; named for Octave Chanute, aviation pioneer and navigation engineer, died in US, 1910. Housing: officers, good; airmen, good.

CHARLESTON AFB, S. C., 10 mi. N of Charleston. Medium air transport base, MATS; named for city. Housing: officers, good; airmen, good.

CHELI AF STATION, Calif., 1 mi. WSW of Maywood. Specialized depot, AMC; formerly 822d AF Depot; renamed for Maj. Ralph Cheli, CMH winner, died March 6, 1944, while a Japanese prisoner. Housing: officers, fair; airmen, fair.

CLINTON COUNTY AFB, Ohio, 2 mi. SE of Wilmington. Reserve combat training, 1st AF, ConAC; named geographically. Housing: officers, good; airmen, fair.

CLOVIS AFB, N. Mex., 7 mi. W of Clovis. Fighter-bomber base, 9th AF, TAC; named for city. Housing: officers, fair; airmen, fair.

COLUMBUS AFB, Miss., 9 mi. N of Columbus. Air base squadron, 2d AF, SAC; named for city. Housing: officers, excellent; airmen, excellent.

(Continued on page 131)

Glossary of Terms Used in Guide to Air Force Bases

AAB	Army Air Base	co	Commanding Officer
AB	Air Base	ConAC	Continental Air Command
A/C	Aircraft	ConAD	Continental Air Defense Command
ADC	Air Defense Command	CTAF	Crew Training Air Force
AEDC	Arnold Engineering Development	DFC	Distinguished Flying Cross
	Center	DSC	Distinguished Service Cross
AF	Air Force	EADF	Eastern Air Defense Force
AFB	Air Force Base	FTAF	Flying Training Air Force
AMC	Air Materiel Command	MATS	Military Air Transport Service
AP	Airport	NAS	Naval Air Station
ARDC	Air Research and Development	SAC	Strategic Air Command
	Command	TAC	Tactical Air Command
ATC	Air Training Command (formerly	TTAF	Technical Training Air Force
	ATRC)	USAF	United States Air Force
AU	Air University	WADC	Wright Air Development Center
CADF	Central Air Defense Force	WADE	Western Air Defense Force
CG	Commanding General	wwi	World War One
CMH	Congressional Medal of Honor	ww II	World War Two

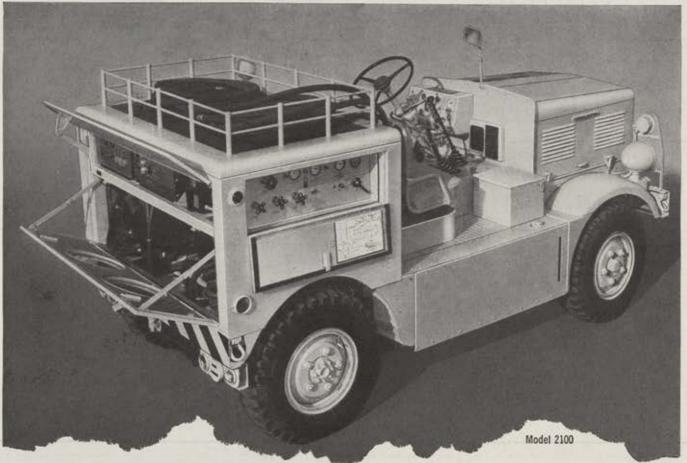
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CRAIG AFB, Ala., 5 mi. SE of Selma. Instructor pilot training, FTAF, ATC; named for Bruce K. Craig, flight engineer for B-24 manufacturer, killed during B-24 test flight, in US, 1941. Housing: officers, excellent; airmen, good.

DALLAS NAS, Tex. (Hensley Field), 11 mi. SSW of Dallas. Reserve training, 14th AF, ConAC; named for Maj. William N. Hensley, airpower pioneer, died in US, 1929. Housing: officers, good; airmen, good.

DAVIS-MONTHAN AFB, Ariz., 4 mi. SE of Tucson. Medium bomber base, 15th AF, SAC; formerly Tucson Municipal Airport, renamed for Lt. Samuel H. Davis, killed in US, 1921, and Lt. Oscar Monthan, bomber pilot, killed in Hawaii, 1924. Housing: officers, excellent; airmen, excellent.

DOBBINS AFB, Ga., 2 mi. SE of Marietta. Reserve training, 14th AF, ConAC, CADF, ADC, joint use; formerly Marietta AFB; renamed for Capt. Charles M. Dobbins, killed transporting paratroopers over Sicily, July 1943. Housing: officers, excel-

lent: airmen excellent.

DONALDSON AFB, S. C., 7 mi. SSE of Greenville. Hq., 18th AF, TAC, troop carrier base; formerly Greenville AFB; renamed for Maj. John O. W. Donaldson, fourth ranking US ace in WW I, killed in flying accident near Philadelphia, September, 1930, during aerial circus. Housing: officers, good; airmen, good.

DOVER AFB, Del., 3 mi. SE of Dover. Air transport base, MATS; named for city. Housing: officers, poor; airmen, poor. DOW AFB, Me., 2 mi. W of Bangor. Air refueling base, 8th AF, SAC; formerly Bangor AB; renamed for 2d Lt. James F. Dow of Oakfield, Me., killed in crash near Mitchel Field, June 1940. Housing: officers, good; airmen, good.

DULUTH MUNICIPAL AP, Minn., 7 mi. NNW of Duluth. Fighter-interceptor base, CADF, ADC; formerly Williamson-

Johnson AP. Housing: officers, fair; airmen, fair.

EDWARDS AFB, Calif., 2 mi. S of Muroc. Hq., AF Flight Test Center, ARDC; formerly Muroc AFB; renamed for Capt. Glen W. Edwards, test pilot, killed at Muroc Field, June 1948, in crash of YB-49 "Flying Wing" Housing: officers, good; airmen,

EGLIN AFB, Fla., 2 mi. SW of Valparaiso. Hq., Air Proving Ground; Hq., AF Armament Center, ARDC; named for Lt. Col. Frederick I. Eglin, killed in US, 1937. Housing: officers, fair; airmen, fair.

EGLIN AF AUXILIARY FIELD #9 (Hurlburt Field), Fla., 6 mi. W of Fort Walton. Light bomber base, 9th AF, TAC. On Eglin AFB reservation. Housing: officers, fair; airmen, fair.

ELLINGTON AFB, Tex., 16 mi. SE of Houston. Observer training, FTAF, ATC; named for 2d Lt. Eric L. Ellington, killed during training flight near San Diego, 1913. Housing: officers, excellent; airmen, excellent.

ELLSWORTH AFB, S. D., 8 mi. NE of Rapid City. Heavy strategic recon base, 15th AF, SAC; formerly Rapid City AFB; renamed for Brig. Gen. Richard E. Ellsworth, killed in B-36 crash in Newfoundland, March 18, 1953. Housing: officers, good;

airmen, good.

ENGLAND AFB, La., 6 mi. NNW of Alexandria. Fighterbomber base, 9th AF, TAC; formerly Alexandria AFB; renamed for Lt. Col. John B. England, WW II ace killed in air crash in France, November 17, 1954. Housing: officers, fair; airmen, fair. ENT AFB, Colo., Colorado Springs. Hq., ADC; named for Brig. Gen. Uzal G. Ent, CG, 2d AF, recipient of DSC, died in 1948. Housing: officers, fair; airmen, fair.

ETHAN ALLEN AFB, Vt., 2 mi. E of Winooski. Housing and administration for Burlington Municipal AP, EADF, ADC; named for the famed Revolutionary War leader of the Green Mountain Boys. Housing: officers, good; airmen, good.

FAIRCHILD AFB, Wash., 11mi. WSW of Spokane. Heavy bomber base, 15th AF, SAC; formerly Spokane AFB; renamed for Gen. Muir S. Fairchild, WW I bomber pilot, Vice Chief of Staff, USAF, died of heart attack, Washington, D. C., March 1950. Housing: officers, good; airmen, good.

FORBES AFB, Kan., 7 mi. S of Topeka. Medium strategic recon base, replacement training center, 8th AF, SAC; formerly Topeka AAB; renamed for Maj. Daniel H. Forbes, Jr., WW II bomber pilot, killed at Muroc Field in the crash of the YB-49

"Flying Wing" June 1948. Housing: officers, fair; airmen, fair. FOSTER AFB, Tex., 5 mi. NE of Victoria. Fighter-bomber and day-fighter base, 9th AF, TAC; named for 1st Lt. Arthur L. Foster of Georgetown, Tex., killed in air crash near Brooks Field, February 1925. Housing: officers, good; airmen, fair. FRANCIS E. WARREN AFB, Wyo., 2 mi. W of Cheyenne. Supply, administrative, and motor vehicle maintenance schools,

TTAF, ATC; named for first US Senator from Wyoming, first elected governor of the State, Civil War winner of CMH, died in US, 1929. Housing: officers, excellent; airmen, good.

GADSDEN AF STATION, Ala., 5 mi. NW of Gadsden. Specialized depot, AMC; named for city. Housing: officers, excellent; airmen, excellent.

GARY AFB, Tex., 5 mi. E of San Marcos. Liaison helicopter, pilot, and mechanic schools, FTAF, ATC; formerly San Marcos AFB; renamed for 2d Lt. A. Edward Gary, native of San Marcos and WW II B-17 co-pilot, killed at Clark Field, Philippines, December 1941. Housing: officers, good; airmen, good. GEIGER FIELD, Wash., 6 mi. WSW of Spokane. Fighter-

interceptor base, WADF, ADC; formerly Sunset Field; renamed for Maj. Harold Geiger, WW I dirigible expert, killed while crash landing at Olmsted Field, May 1927. Housing: officers,

good; airmen good.

GEN. BILLY MITCHELL FIELD, Wis., 6 mi. S of Milwaukee. Reserve training, ConAC. Also known as Milwaukee County AP. Named for Gen. Billy Mitchell, pioneer flyer whose defiant faith in airpower brought about his court martial, died in US,

1936. Housing: officers, good; airmen, good. GENTILE AF STATION, Ohio, 6 mi. NW of Dayton. Specialized depot, AMC; formerly 862d AF Depot; renamed for Maj. Don S. Gentile, WW II fighter ace, credited with destroying thirty-two German aircraft. Killed in an aircraft accident near Andrews AFB, Md., on January 28, 1951. Housing: officers, fair; airmen, fair.

GEORGE AFB, Calif., 6 mi. NW of Victorville. Fighter-bomber and day-fighter base, 9th AF, TAC; formerly Victorville AAB; renamed for Brig. Gen. Harold H. George, WW I ace, commander of US Air Forces in Australia in WW II, killed in Australia, April 1942. Housing: officers, good; airmen, excellent.

GOODFELLOW AFB, Tex., 2 mi. SE of San Angelo. Basic multi-engine pilot training, FTAF, ATC; named for Lt. John J. Goodfellow, Jr., of San Angelo, killed in fighter combat, France, September 1918. Housing: officers, good; airmen, excellent.

GRAHAM AB, Fla., 5 mi. NE of Marianna. Primary contract pilot training, FTAF, ATC; named after operator of field; formerly Marianna AB. Housing: officers, good; airmen, good.

GRANDVIEW AFB, Mo., 16 mi. S of Kansas City. Hq., CADF, ADC; formerly Grandview AP; named for nearby city. Housing:

officers, fair; airmen, fair.

GRAY AFB, Tex., 6 mi. SW of Killeen. Special activities base, 2d AF, SAC; formerly Camp Hood AAF; renamed for Capt. Robert M. Gray, pilot on first Tokyo bombing mission of WW II, killed in India, 1942. Housing: officers, poor; airmen, poor. GREATER PITTSBURGH AP, Pa., 5 mi. SW of Coraopolis. Fighter-interceptor base, EADF, ADC; named for nearby city. Housing: officers, good; airmen, fair.

GREAT FALLS AFB, Mont., 4 mi. E of Great Falls. Strategic fighter base, 15th AF, SAC; named for city. Housing: officers,

fair: airmen, good.

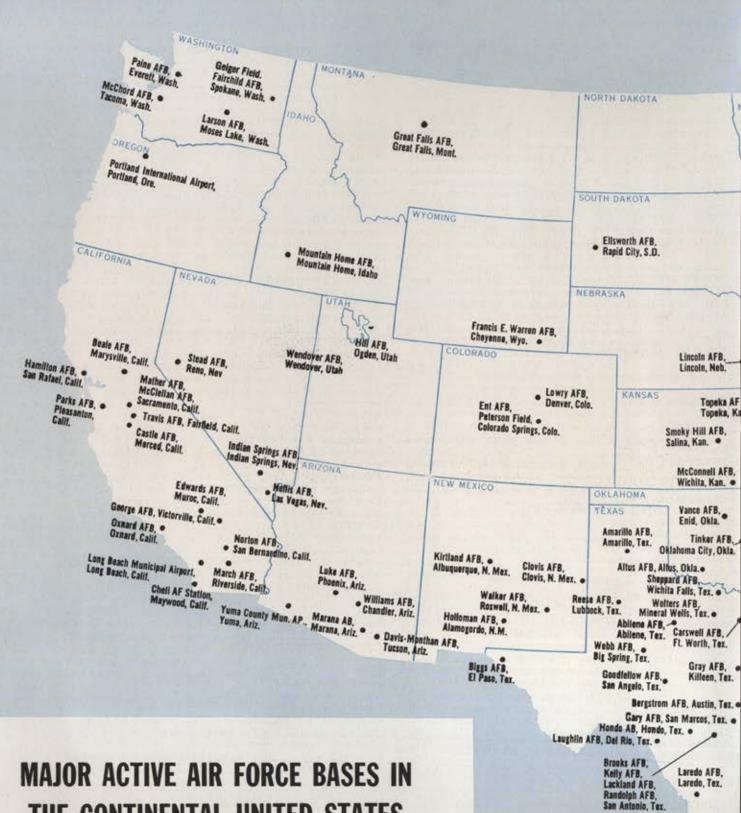
GREENVILLE AFB, Miss., 6 mi. NE of Greenville. Primary pilot training school, FTAF, ATC; named for city. Housing: officers, fair; airmen, fair.

GRENIER AFB, N. H., 4 mi. S of Manchester. Transport base, MATS; named for 2d Lt. Jean D. Grenier of Manchester, killed in US, 1934, while in snowstorm during air mail test run. Housing: officers, fair; airmen, fair.

GRIFFISS AFB, N. Y., 2 mi. NE of Rome. Hq., Rome Air Development Center, ARDC; Rome AF Depot, AMC; formerly Rome AB; renamed for Lt. Col. Townsend E. Griffiss of Buffalo. recipient of DSC, killed on flight from Russia to England, Feb-

ruary 1942. Housing: officers, fair; airmen, fair.

GUNTER AFB, Ala., 5 mi. NE of Montgomery. Extension Course Institute, AU; USAF School of Aviation Medicine, AU; named for William A. Gunter, mayor of Montgomery for 27 (Continued on page 135)

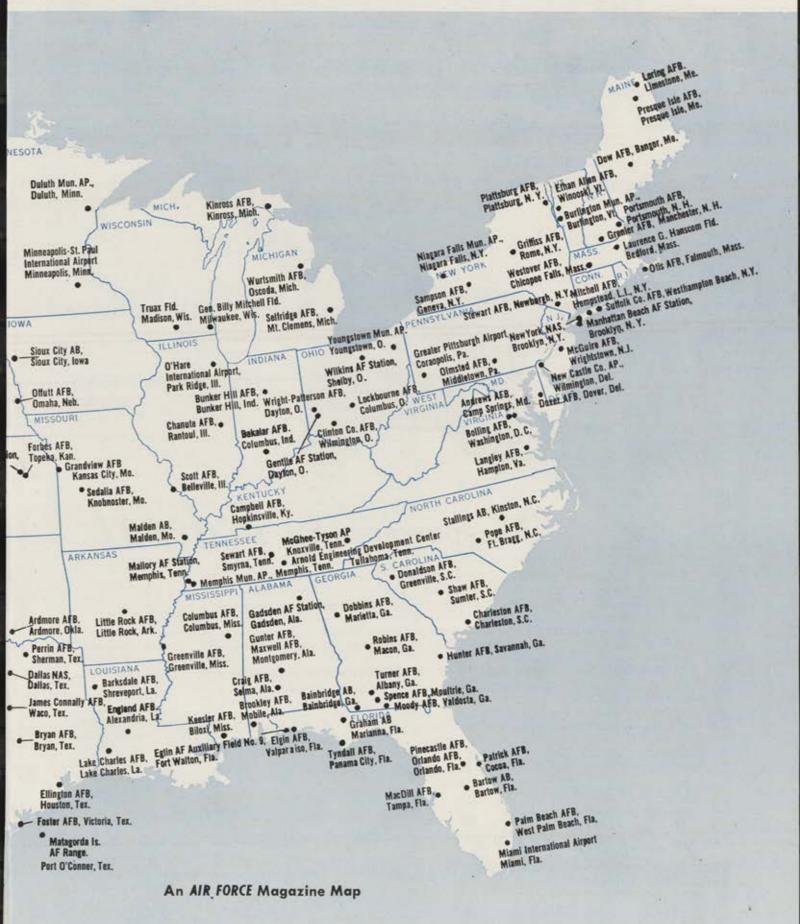


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years, ardent exponent of airpower, died in 1940. Housing: officers, good; airmen, good.

HAMILTON AFB, Calif., 6 mi. NNE of San Rafael. Hq., WADF, ADC; Hq., 4th AF, ConAC; air rescue base, MATS; formerly Marin Meadows, renamed for 1st Lt. Lloyd A. Hamilton, recipient of DSC, killed in fighter combat, France, August 1918. Housing: officers, excellent; airmen, good.

HARLINGEN AFB, Tex., near Harlingen. Observer training, FTAF, ATC; named for city. Housing: officers, good; airmen,

HILL AFB, Utah, 6 mi. S of Ogden. Hq., Air Materiel Area, AMC; named for Mai. Plover P. Hill, killed near Wright Field while testing one of first B-17s, October 1935. Housing: officers,

good; airmen, good.

HOLLOMAN AFB, N. Mex., 8 mi. SW of Alamogordo. Hq., Holloman Air Development Center, ARDC; formerly Alamogordo AAB; renamed for Col. George V. Holloman, guided missile pioneer, killed in air crash in Formosa, March 1946. Housing: officers, fair; airmen, fair.

HONDO AB, Tex., 1 mi. NW of Hondo. Primary contract pilot training, FTAF, ATC; named for city. Housing: officers, excel-

lent; airmen, excellent.

HUNTER AFB, Ga., 3 mi. SW of Savannah. Medium bomber base, 2d AF, SAC; named for Maj. Gen. Frank O'D. Hunter, WW I ace, recipient of DSC, four clusters; past AFA Director. Housing: officers, good; airmen, good.

INDIAN SPRINGS AFB, Nev., 1 mi. NW of Indian Springs. Special weapons testing base, ARDC; named for city. Housing: officers, poor; airmen, poor.

JAMES CONNALLY AFB, Tex., 7 mi. NNE of Waco. Observer training, FTAF, ATC; formerly Waco AFB; renamed for Col. James T. Connally of Waco, killed on B-29 mission over Yokohama, Japan, May 1945. Housing: officers, good; airmen, excel-

KEESLER AFB, Miss., 2 mi. WNW of Biloxi. Electronics, communications, and radar schools, TTAF, ATC; named for Lt. Samuel R. Keesler, Jr., of Greenwood, Miss., aerial observer, killed on special bombing mission near Verdun, France, October 1918. Housing: officers, excellent; airmen, excellent.

KELLY AFB, Tex., 6 mi. WSW of San Antonio. Hq., Air Materiel Area, AMC; foreign clearing station, MATS; named for Lt. George E. M. Kelly, a pioneer Army pilot who was killed in the US, 1911. Housing: officers, excellent; airmen, excellent.

KINROSS AFB, Mich., 3 mi. SE of Kinross. Fighter-interceptor base, EADF, ADC; named for nearby city. Housing: officers,

fair; airmen, fair.

KIRTLAND AFB, N. Mex., 4 mi, SSE of Albuquerque, Hq., AF Special Weapons Center, ARDC; formerly Albuquerque AAB; renamed for Col. Roy S. Kirtland, aviation pioneer and former CO of Langley Field, died in 1941. Housing: officers, good; airmen, good.

LACKLAND AFB, Tex., 7 mi. WSW of San Antonio. Basic training, OCS, WAF training, pilot-observer pre-flight, USAF Recruiting School, TTAF, ATC; Hq., AF Personnel and Training Research Center, ARDC; formerly San Antonio Aviation Cadet Center; renamed for Brig. Gen. Frank D. Lackland, former Commandant of Kelly Field flying school, died in 1943. Housing: officers, excellent; airmen, excellent.

LAKE CHARLES AFB, La., 3 mi. E of Lake Charles. Medium bomber base, 2d AF, SAC; named for city. Housing: officers,

fair; airmen, fair.

LANGLEY AFB, Va., 3 mi. N of Hampton. Hq., TAC; fighterbomber and light bombardment school; fighter-bomber base; named for Samuel P. Langley, pioneer aeronautical scientist, died in 1906. Housing: officers, good; airmen, good.

LAREDO AFB, Tex., on Rio Grande, near Laredo. Single-engine jet pilot training, FTAF, ATC; named for city. Housing: officers,

poor; airmen, poor.

LARSON AFB, Wash., 6 mi. NNW of Moses Lake. Troop carrier base, 18th AF, TAC; formerly Moses Lake AFB; renamed for Maj. Donald A. Larson, native of Yakima, Wash., WW II ace, killed on fighter mission over Ulzen, Germany, August 1944. Housing: officers, excellent; airmen, fair.

LAUGHLIN AFB, Tex., 7 mi. E. of Del Rio. Crew training for fighter-bomber pilots, CTAF, ATC; named for Lt. Jack T. Laughlin, pilot killed in action in Far East, 1942. Housing: officers, fair; airmen, fair. (This base swaps missions with Williams AFB, Ariz., on January 1, 1956).

LAURENCE G. HANSCOM FIELD, Mass., 1 mi. SSW of Bedford. Hq., AF Cambridge Research Center, ARDC; fighterinterceptor base, EADF, ADC; formerly Bedford AFB; renamed for Laurence Hanscom, Boston and Worcester newspaperman, Army Reserve pilot, killed near base, 1941. Housing: officers, good; airmen, fair.

LINCOLN AFB, Neb., 5 mi. NW of Lincoln. Medium bomber base, 8th AF, SAC; named for city. Housing: officers, fair;

airmen fair

LITTLE ROCK AFB, Ark., 15 mi. NE of Little Rock. Medium strategic recon-base, 2d AF, SAC; named for city. Housing: (newly activated base, information unavailable.)

LOCKBOURNE AFB, Ohio, 11 mi. SSE of Columbus. Medium strategic recon bomber base, 8th AF, SAC; named for city. Housing: officers, fair; airmen, fair.

LONG BEACH MUNICIPAL AP, Calif., 3 mi. NE of Long Beach. Reserve training, fighter base, 4th AF, ConAC; named

for city. Housing: officers, good; airmen, good.

LORING AFB, Me., 2 mi. NW of Limestone. Heavy bomber base, 8th AF, SAC; formerly Limestone AFB; renamed for Maj. Charles J. Loring, Jr., CMH winner killed in Korea in November 1952 when he crashed his damaged F-80 into enemy artillery emplacements, destroying them. Housing: officers, good; airmen, good.

LOWRY AFB, Colo., 5 mi. ESE of Denver. Interim USAF Academy; special weapons, flexible gunnery, armament, and photographic, schools, TTAF, ATC; named for Lt. Francis B. Lowry of Denver, recipient of DSC, killed on photo mission over France, September 1918; only Colorado airman to be killed in WW I. Housing: officers, good; airmen, good.

LUKE AFB, Ariz., 20 mi. WNW of Phoenix. Fighter-bomber advanced training; air crew training, ATC; named for Lt. Frank Luke, Jr., "balloon-busting" WW I ace, winner of CMH and recipient of DSC, killed in France, September 1918. Housing: officers, good; airmen, good.

MacDILL AFB, Fla., 8 mi. SSW of Tampa. Medium bomber base, 2d AF, SAC; named for Col. Leslie MacDill, fighter pilot, killed in air crash at Anacostia, Md., 1938. Housing: officers, excellent; airmen, excellent.

MALDEN AB, Mo., 4 mi. N of Malden. Primary contract pilot training, FTAF, ATC; named for city. Housing: officers, fair;

airmen, fair.

MALLORY AF STATION, Tenn., Memphis. Specialized depot, AMC; formerly 830th AF Depot, renamed for Maj. William N. Mallory, WW II intelligence officer with the 1st Tactical AF, killed returning home in 1945. Housing: officers, good; airmen,

MANHATTAN BEACH AF STATION, N. Y., Brooklyn, N. Y. Overseas replacement depot, 1st AF, ConAC; named geographi-

cally. Housing: officers, fair; airmen, fair.

MARANA AB, Ariz., 35 mi. NW of Tueson. Primary contract pilot training, FTAF, ATC; named for nearby city. Housing:

officers, good; airmen, good.

MARCH AFB, Calif., 9 mi. SE of Riverside. Hq., 15th AF, SAC; medium bomber and air rescue base; named for Lt. Peyton C. March, Jr., son of WW I Army Chief of Staff, killed in air crash in US, 1918. Housing: officers, excellent; airmen, good.

MATAGORDA ISLAND AIR FORCE RANGE, 9 mi. SSW of Port O'Connor, Tex. Training installation, 2d AF, SAC; named for island in Gulf of Mexico. Housing: officers, fair; airmen, fair. MATHER AFB, Calif., 10 mi. E. of Sacramento. Observer training, FTAF, ATC; air rescue base; named for Lt. Carl S. Mather, killed near Ellington Field during training flight, 1918, five days after receiving commission. Housing: officers, excellent; airmen,

MAXWELL AFB, Ala., 3 mi. WNW of Montgomery. Hq., Air (Continued on following page)

University; Air War College, Air Command and Staff College; Hq. AF-ROTC; named for 2d Lt. William C. Maxwell of Natchez, killed on Luzon, Philippines, August 1920, while attempting emergency landing. Housing: officers, good; airmen, good.

McCHORD AFB, Wash., 8 mi. S of Tacoma. Fighter-interceptor base, WADF, ADC; air rescue base, foreign clearing station, MATS; named for Col. William C. McChord, killed in US, 1937.

Housing: officers, good; airmen, good.

McCLELLAN AFB, Calif., 10 mi. NE of Sacramento. Hq., Air Materiel Area, AMC; named for Maj. Hezekiah McClellan, pioneer in arctic aeronautical experiments, killed in test flight of new plane, US, 1936, Housing: officers, good; airmen, fair. McCONNELL AFB, Kan., 5 mi. SE of Wichita. Medium bomber crew training, CTAF, ATC; formerly Wichita AFB; renamed for the two McConnell brothers of Wichita, Thomas L., killed July 10, 1943, in the S. Pacific, and Fred M. Jr., killed in 1945 in a private plane crash in Kansas. Housing: officers, fair; airmen, fair.

McGHEE-TYSON AP, Tenn., 12 mi. SSW of Knoxille. Fighterinterceptor base, CADF, ADC; named for Charles McGhee Tyson, WW I flyer whose family donated land for the airport.

Housing: officers, good; airmen, good.

McGUIRE AFB, Fort Dix, N. J., 1 mi. SE of Wrightstown. Hq., Atlantic Division, MATS; formerly Fort Dix AAB; renamed for Maj. Thomas B. McGuire, Jr., of Ridgewood, N. J., 2d ranking WW II ace, P-38 pilot, winner of CMH, recipient of DSC, killed over Leyte, 1945. Housing: officers, good; airmen, good. MEMPHIS MUNICIPAL AP, Tenn., 6 mi. SSE of Memphis. Reserve training, 14th AF, ConAC; named for city. Housing: officers, excellent; airmen, good.

MIAMI INTERNAT'L AP, Fla., 5 mi. NW of Miami. Reserve training; 14th AF, ConAC; named for city. Housing: officers,

excellent; airmen, excellent.

MINNEAPOLIS-ST. PAUL INTERNAT'L AP, Minn., 7 mi. SSE of Minneapolis. Fighter-interceptor base, CADF, ADC; formerly Wold Chamberlain Field, renamed for twin cities. Housing: officers, good; airmen, fair.

MITCHEL AFB, N. Y., 2 mi. NE of Hempstead, L. I. Hq., ConAC; Hq., 1st AF; named for Maj. John P. Mitchel, first Fusion mayor of NYC, fighter pilot, killed in air crash in Louisiana, July 1918. Housing: officers, fair; airmen, fair.

MOODY AFB, Ga., 12 mi. NNE of Valdosta. Interceptor crew training, CTAF, ATC; named for Maj. George P. Moody, fighter pilot, killed in US, 1941. Housing: officers, fair; airmen, fair. MOORE AB, Tex., 14 mi. S of Mission. Primary contract pilot

MOORE AB, Tex., 14 mi. S of Mission. Primary contract pilot training, FTAF, ATC. Reactivated in 1954. Housing: officers, fair; airmen, fair.

MOUNTAIN HOME AFB, Idaho, 11 mi. WSW of Mountain Home. Medium bomber base, 15th AF, SAC; named for city. Housing: officers, excellent; airmen, excellent.

NELLIS AFB, Nev., 8 mi. NE of Las Vegas. Fighter-bomber crew training, aerial gunnery, CTAF, ATC; formerly Las Vegas AFB; renamed for Lt. William H. Nellis, of Las Vegas, fighter pilot, killed in action over Luxembourg, December 1944. Housing: officers, good; student officers, fair; airmen, fair.

NEW CASTLE CO. AP, Del., 5 mi. SW of Wilmington, Fighterinterceptor base, EADF, ADC; named geographically. Housing:

officers, good; airmen, good.

NEW YORK NAS, N. Y., (Floyd Bennett Field). Reserve training center, 1st AF, ConAC, joint use with Navy; named for Admiral Richard E. Byrd's pilot on first flight over North Pole, 1926. Housing: officers, fair; airmen, fair.

NIAGARA FALLS MUNICIPAL AP, N. Y., 4 mi. E of Niagara Falls. Fighter-interceptor base, EADF, ADC; Reserve training, ConAC; named for city. Housing: officers, fair, airmen, fair.

NORTON AFB, Calif., 5 mi. ESE of San Bernardino. Hq., Air Materiel Area, AMC; formerly San Bernardino Air Depot, renamed for Capt. Leland F. Norton, bomber pilot killed near Amiens, France, May 1944. Housing: officers, excellent; airmen, excellent.

OFFUTT AFB, Neb., 9 mi. S of Omaha. Hq., SAC; named for 1st Lt. Jarvis Jennes Offutt, killed in fighter action, France, 1918. Housing: officers, fair; airmen, fair.

O'HARE INTERNAT'L AP, Ill., 15 mi, NW of Chicago, Fighter-interceptor base, EADF, ADC; Reserve training; formerly Douglas Airport; renamed for Lt. Cmdr. Edward H. O'Hare of Chicago, Navy pilot in WW II, winner of CMH, killed in action near Tarawa in the Pacific, 1943. Housing: officers, fair; airmen, fair.

OLMSTED AFB, Pa., 1 mi. NW of Middletown. Hq., Air Meteriel Area, air freight terminal, AMC; formerly Middletown Air Depot; renamed for Lt. Robert S. Olmsted, balloon pilot, killed when his balloon was struck by lightning over Belgium, September 1923. Housing: officers, fair; airmen, fair.

ORLANDO AFB, Fla., 2 mi. E of Orlando. Hq., Air Photographic and Charting Service, Hq., Air Rescue Service, Hq., Flight Service, MATS; named for city. Housing: officers, excel-

lent; airmen, excellent.

OTIS AFB, Mass., 9 mi. NNE of Falmouth. Fighter-interceptor base, EADF, ADC; named for Lt. Frank J. Otis, killed in air crash in US, 1937. Housing: officers, fair; airmen, fair.

OXNARD AFB, Oxnard, Calif. Fighter-interceptor base, WADF, ADC; named for city. Housing: officers, fair; airmen, fair.

PAINE AFB, Wash., 6 mi. S of Everett. Fighter-interceptor base, WADF, ADC; named for 2d Lt. Topliff O. Paine, air mail pilot, killed in US while mapping air mail routes, 1922. Housing: officers, good; airmen, good.

PALM BEACH AFB, Fla., 2 mi. W. of West Palm Beach. Transport base, MATS; formerly Morrison Field; renamed for

city. Housing: officers, excellent; airmen, excellent.

PARKS AFB, Calif., Pleasanton, 28 mi. E of Oakland. Hq., Air Base Defense School, TTAF, ATC; overseas replacement depot; formerly Camp Shoemaker (Navy); renamed for Adm. Charles W. Parks, naval engineer. Housing: officers, good; airmen, fair. PATRICK AFB, Fla., 12 mi. SE of Cocoa. Hq., AF Missile Test Center, ARDC; formerly Banana River NAS; renamed for Maj. Gen. Mason M. Patrick, Chief of Army Air Service during and after WW I, died in US, January 1942. Housing: officers, good; airmen, fair.

PERRIN AFB, Tex., 6 mi. NNW of Sherman. Fighter-interceptor training, CTAF, ATC; named for Lt. Col. Elmer D. Perrin of Boerne, Tex., killed testing a B-26 near Baltimore, June 1941.

Housing: officers, good; airmen, good.

PETERSON FIELD, Colo., 6 mi. E of Colorado Springs. Administrative flying, ADC; named for 1st Lt. Edward J. Peterson, killed in US, in airplane crash, 1942. Housing: officers, fair; airmen, fair.

PINECASTLE AFB, Fla., 7 mi. S of Orlando. Medium bomber base, 2d AF, SAC; named for nearby city. Housing: officers,

good; airmen, fair.

PLATTSBURG AFB, N. Y., 1 mi. NE of Plattsburg. Medium bomber base, 8th AF, SAC; named for city. Housing: (newly

activated base, information unavailable.)

POPE AFB, Fort Bragg, N. C., 12 mi. NW of Fayetteville. Troop carrier base, 18th AF, TAC; named for 1st Lt. Harley H. Pope, killed while making a forced landing in a Jenny in South Carolina, January 1919. Housing: officers, good; airmen, good. PORTLAND INTERNAT'L AP, Ore., 5 mi. NNE of Portland, Fighter-interceptor base, WADF, ADC; troop carrier base; named for city. Housing: officers, excellent; airmen, good.

PORTSMOUTH AFB, N. H., 3 mi. W of Portsmouth. Medium bomber base, SAC; named for city. Housing: officers, good;

airmen, good.

PRESQUE ISLE AFB, Me., 1 mi. NW of Presque Isle. Fighterinterceptor base, EADF, ADC; named for city. Housing: officers, fair; airmen, fair.

RANDOLPH AFB, Tex., 15 mi. ENE of San Antonio. Transport pilot training, medium bomber training, CTAF, ATC; School of Aviation Medicine; named for Capt. William M. Randolph of Austin, fighter pilot, killed in aircraft accident in Texas, 1928. Housing: officers, excellent; airmen, excellent.

REESE AFB, Tex. 12 mi. W of Lubbock. Multi-engine pilot training, FTAF, ATC; formerly Lubbock AFB; renamed for Lt. Augustus F. Reese, Jr., of Shallowater, Tex., killed on bomber mission over Cagliari, Italy, May 1943. Housing: officers, excellent; airmen, excellent.

(Continued on page 139)



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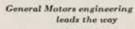




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WEST COAST ENGI-NEERING OFFICE—Complete engineering design and test service. 3006 Wilshire Blvd., Santa Monica, California. ROBINS AFB, Ga., 14 mi. SSE of Macon. Hq., 14th AF, ConAC; Hq., Air Materiel Area, AMC; named for Brig. Gen. Augustine Warner Robins, Chief. Materiel Division, Air Corps, who devised system of cataloging in 1920s still used; died in 1940. Housing: officers, fair; airmen, fair.

SAMPSON AFB, N. Y., near Geneva. Processing center, basic training, TTAF, ATC; former Navy base named for Rear Adm. William T. Sampson, Atlantic Fleet commander in Spanish-American War, died in 1902. Housing: officers, good; airmen, fair.

SCOTT AFB, Ill., 6 mi. ENE of Belleville. Hq., ATC: Personnel and communications schools; named for Cpl. Frank S. Scott, first enlisted man to die in an air accident, killed at College Park, Md., 1912. Housing: officers, good; airmen, good.

SEDALIA AFB, Mo., 3 mi. S of Knobnoster. Medium bomber base, 8th AF, SAC; named for nearby city. Housing: officers,

fair; airmen, fair.

SELFRIDGE AFB, Mich., 3 mi. E. of Mount Clemens. Fighterinterceptor base, EADF, ADC; Hq., 10th AF, ConAC; air rescue base; named for Lt. Thomas E. Selfridge, killed in 1908 demonstrating Wright Brothers' plane for government. Housing: officers, excellent; airmen, good.

SEWART AFB, Tenn., 3 mi. N. of Smyrna. Troop carrier base, 18th AF; TAC; formerly Smyrna AAB; renamed for M2j. Allan J. Sewart, Jr., bomber pilot, recipient of DSC, killed in action over the Solomons, November 1942. Housing: officers, fair; air-

SHAW AFB, S. C., 7 mi. WNW of Sumter. Hq., 9th AF, TAC; tactical recon; named for 1st Lt. Erwin D. Shaw of Sumter, killed during recon flight over German lines. July 1918, while serving with Royal Flying Corps. Housing: officers, fair; airmen, fair.

SHEPPARD AFB, Tex., 6 mi. N of Wichita Falls. Aircraft maintenance school, TTAF, ATC; named for Morris E. Sheppard, US Senator from Texas, chm. Senate Military Affairs Committee, who died in 1941. Housing: officers, good; airmen, good.

SIOUX CITY MUNICIPAL AP, Iowa, 10 mi. S of Sioux City. Fighter-interceptor base, CADF, ADC; named for city. Housing: officers, fair; airmen, fair.

SMOKY HILL AFB, Kan., 4 mi. SW of Salina, Medium bomber base, 8th AF, SAC; named for geographical area. Housing: officers, fair; airmen, fair.

SPENCE AB, Ga., near Moultrie. Primary contract pilot training, FTAF, ATC; named for Lt. Thomas L. Spence of Thomasville, Ga., WW I pilot, killed in aircraft accident at end of war. Housing: officers, fair; airmen, fair.

STALLINGS AB, N. C., 5 mi. NW of Kinston. Primary contract pilot training, FTAF, ATC; formerly Kinston-Lenoir Co. Airport; renamed for Lt. Harry F. Stallings, Jr., B-29 navigator, killed in action in Pacific, April 1945; and his brother, Lt. June Bruce Stallings, P-51 pilot, killed over Germany, March 1945. Housing: officers, fair; airmen, fair.

STEAD AFB, Nev., 10 mi. NW of Reno. Survival training, CTAF, ATC; named locally. Housing: officers, good; airmen, fair.

STEWART AFB, N. Y., 4 mi. NW of Newburgh. Hq., EADF, ADC; fighter-interceptor base; named for Lachlan Stewart, sea captain whose father provided the original land for the base. Housing: officers, fair; airmen, fair.

SUFFOLK CO. AFB, N. Y., 3 mi. N of Westhampton Beach, L. I. Fighter-interceptor base, EADF, ADC; named for geographical area. Housing: officers, fair; airmen, fair.

TINKER AFB, Okla., 8 mi. SE of Oklahoma City. Hq., Air Materiel Area, AMC; air freight terminal; named for Maj. Gen. Clarence L. Tinker, a Pawhuska Indian, bomber and fighter pilot, CG, 7th AF, killed in Battle of Midway, June 1942. Housing: officers, good; airmen, good.

TOPEKA AF STATION, Kans., 6 mi. N of Topeka. Specialized depot, AMC; named for city, also known as 832d AF Depot. Housing: officers, fair; airmen, none.

TRAVIS AFB, Calif., 6 mi. ENE of Fairfield and Suisun. Heavy strategic recon bomber base, 15th AF, SAC; foreign clearing station, MATS; formerly Fairfield-Suisun AFB; renamed for Brig. Gen. Robert F. Travis, bomber pilot, recipient of DSC,

killed in B-29 crash in US, August 1950. Housing: officers, good; airmen, good.

TRUAX FIELD, Wis., 1 mi. E of Madison. Fighter-interceptor base, CADF, ADC; named for 1st Lt. Thomas L. Truax of Madison, pilot killed in training flight in US, November 1941. Housing: officers, fair; airmen, fair.

TURNER AFB, Ga., 4 mi. ENE of Albany. Strategic fighter base, 2d AF, SAC; named for Lt. Sullins Preston Turner of Oxford, Ga., killed in aircraft accident at Langley AFB, May

1940. Housing: officers, poor; airmen, poor.

TYNDALL AFB, Fla., 8 mi. SE of Panama City. Aircraft control and fighter-interceptor training, CTAF, ATC; air police school; named for Lt. Frank B. Tyndall of Pt. Seward, Fla., WW I fighter pilot, killed in air crash, 1930, first Florida mili-

tary flyer to be killed. Housing: officers, good; airmen, good.

VANCE AFB, Okla., 4 mi. SSW of Enid. Basic multi-engine pilot training, FTAF, ATC; formerly Enid AAB; renamed for Lt. Col. Leon R. Vance, Jr., WW II winner of CMH, lost in hospital aircraft when forced down at sea off Iceland, 1944. Housing: officers, excellent; airmen, excellent.

WALKER AFB, N. Mex., 6 mi. S of Roswell. Medium and heavy bomber base, 15th AF, SAC; formerly Roswell AAB; renamed for Brig. Gen. Kenneth N. Walker, a native of New Mexico, CG, 5th Bomber Command, WW II winner of CMH, killed in Southwest Pacific while leading a bombing attack, 1943. Housing: officers, good; airmen, fair.

WEBB AFB, Tex., near Big Spring. Basic single-engine pilot training, FTAF, ATC; formerly Big Spring AFB; renamed for 1st Lt. James L. Webb, Jr., F-51 pilot, killed off Japanese coast,

1949. Housing: officers, fair; airmen, fair.

WENDOVER AFB, Utah, 1 mi. S of Wendover. Gunnery range, 9th AF, TAC; named for city. Housing: officers, poor; airmen, poor.

WESTOVER AFB, Mass., 3 mi. NNE of Chicopee Falls, Hq., 8th AF, SAC; air refueling base; fighter-interceptor base, EADF, ADC; named for Maj. Gen. Oscar Westover, Chief of Air Corps, killed in air crash near Burbank, Calif., September 1938. Housing: officers, excellent; airmen, good.

WILKINS AF STATION, Ohio, 1 mi. S of Shelby. AF Specialized depot, AMC; formerly 831st AF Depot; renamed for Maj. Raymond H. Wilkins, CMH winner, killed November 2, 1943, over Rabaul, New Britain, after destroying two enemy ships. Housing: officers, fair; airmen, none.

WILLIAMS AFB, Ariz., 10 mi. E of Chandler. Basic singleengine pilot training, FTAF, ATC; jet pilot training; formerly Higley Field; renamed for Lt. Charles L. Williams, native of Arizona, bomber pilot, killed in Hawaii, July 1927. Housing: officers, excellent; airmen, excellent. (This base swaps missions with Laughlin AFB, Tex., on January 1, 1956.)

WOLTERS AFB, Tex., 3 mi, W of Mineral Wells, Hq., Aviation Engineer Force, ConAc; formerly Camp Wolters; named for Brig, Gen. Jacob F. Wolters of Houston, founder and CO of Texas National Guard Cavalry. Housing: officers, excellent; airmen, excellent.

WRIGHT-PATTERSON AFB, Ohio. 2 mi. ENE of Dayton. Hq., AMC; WADC, ARDC; USAF Institute of Technology; formerly separate areas including Fairfield Air Depot, Wilbur Wright Field and McCook Field, and Patterson Field; now named for Orville and Wilbur Wright, and Lt. Frank S. Patterson, killed in air crash near this base during early tests of synchronized machine gun firing, June 1918. Housing: officers, good; airmen. good.

WURTSMITH AFB, Mich., 3 mi, NW of Oscoda, Fighterinterceptor base, EADF, ADC; formerly Camp Skeel, later Oscoda AFB; renamed for Maj, Gen. Paul B. Wertsmith, CG, 13th AF, killed in B-25 crash in North Carolina, 1946. Housing: officers, good; airmen, good.

YOUNGSTOWN MUNICIPAL AP, Ohio, 10 mi. N of Youngstown. Fighter-interceptor base. EADF, ADC; named for city. Housing: officers, fair; airmen, fair.

YUMA COUNTY MUNICIPAL AP, Ariz., 7 mi. SE of Yuma. Weapons training center, ADC; named for city. Housing: officers, excellent; airmen, good.—End



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Military coding equipment takes one pulse and inserts it into a delay line and in effect sends it over a number of paths, each of different lengths. Combining the output of the paths gives a pulse train with pulses spaced in accordance with artificial length of the path. Ordinarily the flexibility of the equipment is limited by the fixed taps in the delay line and the accuracy is established by auxiliary circuitry.

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Guide to

HOUSING at **OVERSEAS BASES**

What it will cost

How long you must wait

Alaska

EIELSON AFB, 17.5 mi. SE of Fairbanks. Named for Capt. Carl B. Eielson, pioneer of Alaskan aviation who flew over the North Pole with Sir Hubert Wilkins in 1928, flew first US air mail in Alaska, and was killed in a crash while trying to aid an iced-in vessel in the Bering Sea.

ELMENDORF AFB, 4 mi. NE of Anchorage. Hq., Alaskan Air Command; named for Capt. Hugh M. Elmendorf who was

killed in 1933 during test flight of a P-25. LADD AFB, 3.5 mi. E of Fairbanks. Named for Maj. Arthur K. Ladd was was assistant G-4 at general headquarters Air Force,

Langley Field, Va., where he died in 1935. Covernment housing available in Alaskan area. Delay in ob-

taining: officers, 12 to 34 weeks; NCOs, 20 to 48 weeks. Private housing standards are fair to good. Average cost of unfurnished rentals: Anchorage, from \$125 up for two bedrooms; Fairbanks, from \$150 up for two bedrooms.

Austria
TULLN AB, 13.5 mi. NW of Vienna.

Government housing available at Tulln. Delay in obtaining: field grade, no delay; company grade, 20 or more weeks; NCOs, 20 or more weeks. Private housing standards are fair to good. Average cost of unfurnished units: from \$25 up for apartments; from \$100 up for houses. Furnished units: from \$50 up for apartments; from \$200 up for houses. (Housing is in Vienna, prices include utilities.)

Bermuda

KINDLEY AFB, 2 mi. S of St. George. Named for Capt. Field E. Kindley, outstanding WW I pilot, killed in an air crash at Kelly Field, San Antonio, Tex., in 1920.

Government housing available for key personnel only. Delay: field grade, 15 weeks; company grade, 23 weeks; NCOs, 13 weeks. Private housing available throughout the year on any part of the island. Average unfurnished rentals: from \$75 up plus utilities (about \$15). Furnished: \$115 to \$130 including utilities. Leases usually on monthly basis.

Canal Zone

ALBROOK AFB, 1 mi. NE of Balboa. Named for 1st Lt. Frank P. Albrook, killed in air crash at Chanute Field, Ill., in 1924.

Government housing available at no delay. Private housing authorized only for dependents of personnel not eligible for assignment to government quarters.

England

BENTWATERS AB, 4.5 mi. NE of Woodbridge.

BOVINGDON AB, NE of Bovingdon. No government housing. BRIZE NORTON AB, SW of Brize Norton. Housing for key personnel only

BURTONWOOD AB, S of Burtonwood. Government housing. BUSHY PARK, at Middlesex. No government housing.

FAIRFORD AB, 1 mi. SSE of Fairford. No government hous-

GREENHAM COMMON AB, SE of Greenham Common. No government housing.

LAKENHEATH AB, SE of Lakenheath. Government housing.

MANSTON AB, 2 mi. WNW of Ramsgate. Housing for key personnel only.

MILDENHALL AB, 2 mi. NW of Mildenhall. Government

SCULTHORPE AB, W of Sculthorpe. Government housing. SOUTH RUISLIP AB, at South Ruislip. No government housing. SHEPHERDS GROVE AB, 2 mi. E of Stanton. No government

UPPER HEYFORD AB, at Upper Heyford. Government housing

WADDINGTON AB, NE of Waddington.

WEST DRAYTON, at West Drayton. No government housing. WIMPOLE PARK, at Wimpole Park. USAF Hospital. Government housing.

Government housing limited in England. Available at some bases for key personnel, long delays for others (see each base). Private housing standards low due to the fact that England is suffering an over-all housing shortage. Rents range from \$50 to \$160, depending upon residential area, for furnished units. This does not include utilities which run from \$90 to \$150 quarterly for an average family. All leases must be examined by base legal officer prior to signing. The only exceptions to above conditions are:

Burtonwood-housing difficult to obtain near base, but available beyond a 15-mile radius. Rents range from \$50 to \$100,

Shepherds Grove-pricate housing most scarce in this area with available housing as much as two years in advance.

France

BORDEAUX AB, 6 mi. W of Bordeaux. CHAMBLEY AB, NE of Chambley.

CHATEAUROUX-DEOLS AP, 3 mi. NNE of Chateauroux.

CHAUMONT AB, SE of Montsaon. FONTAINEBLEAU, at Fontainebleau.

MOULIN, at Moulin.

ORLY AB, 9 mi. SSE of Paris.

TOUL-ROSIERES AB, 8.5 mi. NE of Croix de Metz.

Government housing available only at Chambley and Chateauroux. Delay: 4 to 16 weeks at Chambley and more than 20 weeks at Chateauroux. Private housing is very limited, rents range from \$50 to \$150 plus utilities. Utilities vary greatly from place to place ranging from a low of \$15 to a high of \$84. Housing in the Orly AB-Paris area is low standard and rentals average \$200 plus \$50 for utilities.

French Morocco

BEN GUERIR AB, 2 mi. SSE of Ben Guerir.

NOUASSEUR AB, 2 mi. ENE of Nouasseur.

SALE AB, 5 mi. ENE of Rabat. Hq., 17th Air Force, USAFE

SIDI SLIMANE AB, 6.5 mi. WSW of Sidi Slimane.

Government housing, where available, for key personnel only. Private housing:

Ben Guerir-\$100 to \$150 plus utilities (\$60 to \$85). Few furnished units. Housing in Marrakech, 40 miles from base.

(Continued on following page)

Nouasseur-\$65 to \$200 plus \$30 for utilities. Twenty to 30 miles from base.

Sale-availability fair to good, unfurnished units rent for \$75 plus \$35 utilities. Housing 1 to 3 miles from base.

Sidi Slimane-limited housing in Meknes, 42 miles from base. Housing critically short in Port Lyautey, 40 miles from base.

Germany

BITBURG AB, 13.5 mi. SE of Trier.

ERDING AB, 2 mi. NE of Erding. FURSTENFELDBRUCK AB, 2 mi. NNE of Furstenfeldbruck.

GIEBELSTADT AB, E of Giebelstadt.

HAHN AB, 1 mi. S of Hahn.

LANDSBERG AB, 2 mi. NE of Landsberg.

LANDSTUHL AB, 1.5 mi. NE of Landstuhl.

NEUBIBERG AB, 5 mi. SSE of Munich.

RHEIN-MAIN AB, 6.5 mi. SW of Frankfurt.

SPANGDAHLEM AB, 8 mi. E of Spangdahlem.

TEMPELHOF AB, at Berlin.

WIESBADEN AB, 4.3 mi. SE of Wiesbaden. Hq., USAFE;

Hq., Air Materiel Force.

Government housing available at all bases. No delay at Erding and Neubiberg. Delays of 15 to 24 weeks at other bases. Private housing authorized with the provision that government quarters will be accepted on assignment. Private rentals not authorized when government quarters are available. Temporary private housing available at reasonable rates pending assignment to government housing. Rents range from \$50 to \$150.

Greenland

NARSARSSUAK AB, 1 mi. N of Narsarssuak. SONDRESTROM AB, 7.5 mi. NE of Sondrestromfjord.

THULE AB, 2.5 mi. SE of Thule.

Government quarters only are available at Narsarssuak, no private housing. No dependents allowed at Sondrestromfjord or

Guam

ANDERSEN AFB, N Guam Island. Named for Brig. Gen. James R. Andersen, Chief of Staff to Lt. Gen. Millard F. Harmon at Hq., AAFPOA in WW II. General Andersen's plane was lost off Kwajelein in 1945.

Government housing available. Delay ranges from 26 weeks for field grade to 38 weeks for NCOs. Private housing availability fair to good. Unfurnished units rent for \$85 to \$95 plus \$30 for utilities. A limited number of newly constructed houses may be leased for two years at \$125 per month.

Hawaii

HICKAM AFB, at NW Oahu. Named for outstanding aviator Lt. Col. Horace M. Hickam, commander Third Attack Group,

killed in air crash, Fort Crockett, Tex., in 1984.

Government housing available. Delays: field grade, 8 weeks; company grade, 30 weeks; NCOs, 16 weeks. Lanham Act houseing available with 2-week delay. Private housing availability is fair to good. Rentals from \$65 for one-bedroom to \$115 for two-bedroom unfurnished house, plus utilities averaging \$17 for family of four.

Japan

ASHIYA AB, SSW of Ashiya. CHITOSE AB, 1 mi. SE of Chitose. ITAMI AB, 10 mi. NNW of Osaka.

ITAZUKE AB, 1 mi. N of Fukuoka. JOHNSON AB, 1 mi. S of Irumagawa.

KOMAKI AB, at Komaki.

MIHO AB, at Miho.

MISAWA AB, 2 mi. WNW of Misawa.

NAGOYA AB, at Nagoya.

TACHIKAWA AB, NW of Tachikawa.

TOKYO INTERNATIONAL AIRPORT AB, 8 mi. S of Tokyo.

YOKOTA AB, 1.5 mi. E of Fussa.

Government housing available with long delays (six months to two years). Private housing availability ranges from extremely limited at Misawa, to good at Nagoya. Rentals vary greatly, from \$30 to \$120 plus utilities ranging as high as \$40. In the Tokyo area, availability is fair to good and unfurnished units rent for \$90, plus \$35 for utilities.

Korea

KIMPO AB, 7 mi. SE of Kimpo.

PUSAN AB, 6 mi. NE of Pusan.

SUWON AB, at Suwon.

TAEGU AB, 4 mi. NE of Taegu. No dependents authorized for Korea.

Labrador

GOOSE AB, 1 mi. W of Goose Bay.

Government housing for key personnel only. Forty-two-week

Newfoundland

ERNEST HARMON AFB, 1 mi. E. of Stephenville. Named for Capt. Ernest E. Harmon, specialist in piloting large aircraft and winner of many air trophies. He was parachute patent expert and ironically lost his life while bailing out of a plane with a chute that failed to open.

PEPPERRELL AFB, at St. Johns. Hq., Northeast Air Command. Named for Sir William Pepperrell of Kittery, Me. (then Mass.), an American soldier who served with the Colonial Army in 1746 as a Colonel of the Militia. He was made a baronet by British for his outstanding service during French and Indian War.

Government housing limited. There is no family housing for company grade officers at Pepperrell AFB. Delay of 76 weeks at Ernest Harmon AFB, 120 weeks at Pepperrell. Private housing extremely limited and of poor to fair standards. Rents range from \$85 unfurnished, to \$140 furnished plus \$70-\$75 for

Okinawa

KADENA AB, 1 mi. SE of Kadena. NAHA AB, 2 mi. SW of Naha.

Government housing available with 48-week delays. Private housing is practically nonexistent, but purchase or private construction is authorized. Land can be leased from private owners for 10 or 20 years at a yearly rate of about \$100. Construction can be completed in about 90 days at a cost of \$3,000 to \$4,000. Local bank will loan up to 60 percent of the value. Average depreciation ranges from \$25 to \$30 a month. Utilities average \$25 a month.

Pacific Ocean

JOHNSTON ISLAND AFB, on Johnston Island.

Government housing only.

Philippine Islands

CLARK AFB, on Luzon Island. Named for Maj. Harold M. Clark, killed in crash in Canal Zone in 1919.

Government housing available. Sixteen-week delay for officers; 32-week delay for NCOs. Private housing availability is limited and restricted to certain areas within a 60-mile radius of Clark AFB. (Manila is within this area.) Rents near base in Balibago subdivision range from \$50 to \$125. All rentals must be medically inspected by base authorities before approval to rent is granted.

Puerto Rico

RAMEY AFB, 5 mi. NNE of Aguadilla. Named for Brig. Gen. Howard K. Ramey, a WW II pilot and later instructor at Kelly Field, Tex., where he became director of the Observation Section of the Advance Flying School. In 1942 he was G-3, 4th Bomber Command, San Francisco. He went overseas as a command pilot and combat observer and was reported missing in action in March 1943.

Government housing available. Delays range from no delay to 74 weeks for officers, and from 16 to 84 weeks for NCOs. Private housing availability fair. Rents range from \$50 to \$125 for unfurnished units. Does not include utilities, which average \$12 a month.

Saudi Arabia

DHAHRAN AIR FIELD, 3.5 mi. SE of Dhahran.

Government housing for key personnel only. No delay. No private housing authorized in Saudi Arabia.

Tripoli (Libya)
WHEELUS FIELD, 5 mi. E. of Tripoli. Named for 1st Lt.
Richard E. Wheelus, ATC, killed in 1945 in the Near East.

Government housing available with delays ranging from 64 to 72 weeks. Private housing in Tripoli, unfurnished, rents from \$30 to \$100 plus utilities (\$8 to \$20 in the summer, up to \$50 in the winter).-END







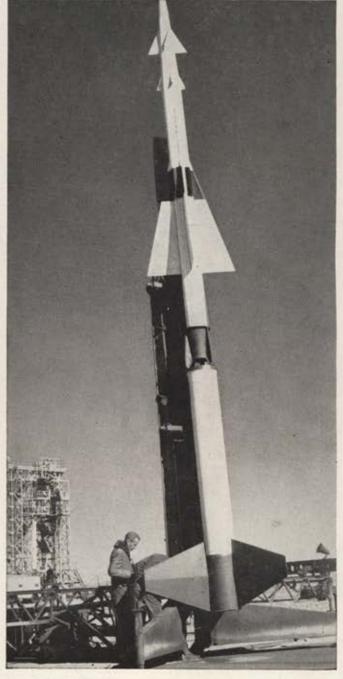


VERY IMPORTANT PILOT

In him are combined the training, the scientific knowledge, the personal qualities that fit him to be master of a screaming fury that is faster than sound, faster than human senses. As he flies, electronic "crewmen" wait on him every mile and every moment. They peer through the dark, give him voice contact with far-away places, pinpoint his targets, fire his guns, tell him where he is . . . extend the power of arm and brain a thousand

times. To speed his mission, bring him back surer and sooner, to enlarge his opportunities—RCA has assembled many of the world's foremost engineers and scientists. Their job is to study the pilot's needs, hear his viewpoint and search everlastingly for new and better electronic aids for him. And what they do for the pilot, they do for others in the armed forces—on land, at sea and in the air.





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The Army Air Corps Is Back

Few taxpayers are aware of the needless expense caused by duplication of Air Force functions through formation of another air force by the United States Army. In fact, this Army air force comprises a fourth air force, complementing those now existing of the Navy, the Marines, and the United States Air Force, itself. The wastefulness of this action is shown in the plans of each commander of a field army to use 939 Army aircraft. These are in addition to the Air Force aircraft available to him from normal theater support. The latter alone could adequately supply all his needs. The assignment to individual commanders of airplanes is a throwback to the penny packet method of distributing aircraft learned to be so fallacious in the early North African campaign of World War II. This requirement of almost a thousand Army planes in each field army (of which there are now eight) to perform functions which the Air Force can now do most economically, without increased cost to the taxpayer in additional planes, merits careful consideration. It is a subject which should receive close scrutiny by the public, the Bureau of the Budget, and Con-

The natural desire of an Army commander to control his own aviation. while commendable from the individual commander's limited viewpoint, must be evaluated in the light of what will give the greatest good to the nation. It has been reiterated many times in recent months that the most pressing problem facing the nation is the maintenance of adequate defense forces for security within our national economy. This cannot be done if the Army continues to obtain and to use airplanes based on concepts of warfare learned in World War II and Korea. In truth, some Army concepts of operation even hark back to the Civil War when the mule-drawn vehicle was the best transportation known. The Army is unfortunately degrading the use of airpower in these obsolete fashions, for it treats the air-

plane as a faster kind of truck or horse to be used over the same routes and distances established by trucking methods. Similarly, its concept of tactical operations still confines its activities to a combat zone geographically defined based on former ground limitations. However, one lesson learned through hard experience by other users of airpower is now being relearned by the Army. That is-the requirement for centralized control of airpower that it does possess to obtain maximum usefulness. Attempts are being made to do this in the Army Transportation Corps over the objections of other branches and corps of the Army desirous of continuing individual control. This fourth air force, in addition to airplanes, is wastefully duplicating pilot and mechanic training schools as well as supply and maintenance facilities. In fact, with plans for complete world-wide air mobility of the Army, the Army is building up an air force with which it hopes to become entirely independent of any support of the present Air Force.

One example of the wasteful use of aircraft planned is the assignment, within the 939 planes of the field army, of sixty helicopters to be used for the sole purpose of medical supply and evacuation. In addition to this, 467 helicopters may be secondarily used for this purpose. Actually, an air force troop carrier assault squadron of sixteen helicopters could evacuate from 1,000 to 5,000 casualties per day, which should be adequate for the most pessimistic of commanders. For if this commander intended to use as many as 527 helicopters for casualties, his war would soon be over in favor of the enemy.

However, this wasteful duplication is not the most serious problem presented by the fourth air force. The real problem which will exist in the large number of Army planes programmed for a combat area, will be that of tactical control. A single, centralized tactical control system must be set up to identify all planes, locate targets for friendly aircraft, and per-

mit flexibility of assignment of aircraft in a theater of operations. This centralized control system is now possessed by the Air Force. A duplicating system set up by the "Army Air Corps" or none at all, to control Army planes would soon make the air over the battle area a snarled-up mess and lead to disaster. Proper air cover must be given throughout a controlled system, for any reconnaissance, supply, troop carrier or evacuation missions. One single agency must control all types of air operations in combat, whether fought on the patterns of preatomic days or the new concept of flexible mobility and dispersion.

It is to be noted that the Army appears justified in its demands for more air transportation and air support, when considered with the requirements presented unilaterally by the Army. However, when an analysis is made of the actual airlift needed to fight a new type of war with a hardhitting compact army devoid of many weighty, obsolete, logistical organizations, it is seen that the requirements are preposterous. They are based on the airlift needed to move World War II type armies from mudhole to mudhole.

In the past, budgetary limitations have necessitated the expenditure of most Air Force funds, and justifiably so, to build up the Strategic Air Command as a ready retaliatory striking force to prevent war. Now, with the need to develop armies that are truly air mobile, it is logical that the Air Force should be the proper custodian of the job in order to do it best and most economically. We should not be influenced by the precedent set in the recent past, of the Army attempting to enter the air business due to default of the Air Force because of its limited budgets. Millions can be saved by taking from the Army all aircraft other than a few small planes needed by commanders for liaison, and even this latter allocation is probably not necessary. It is not unlikely that billions could be saved, if the Army coordinated its tactics with proper use of airpower and cut out obsolete methods of operation based on surface-bound

JET BLASTS_ CONTINUED

views. The claim that scientific advances have now made one airplane capable of doing the work that thousands did during World War II also can be applied to the functions of the infantry. As an example, one ground soldier controlling a number of rocket field pieces can do the work of an entire field artillery regiment.

The resolution of this problem will require a little knocking of heads together by the Commander in Chief and the Secretary of Defense. It will require telling the Army to stick to its own business. It will require that the Army cooperate and not compete with the Air Force in developing techniques of using air and ground power to the best advantage of the nation. It will require that this fourth air force concept be abandoned by the

There is a best way to do a job. The nation's economy demands that it have that best method through proper unification of the services and the prevention of duplication or quadruplication. National survival and not service survival is at stake.

Colonel Moneysaver

Could Be

I got some thought-provoking answers the other day to some questions that have been bothering me for a long time. A friend of mine was getting discharged. He's one of the many who won't reenlist.

"Why not?" I said. "What's wrong with the Air Force? Isn't it true that we get higher pay than we've ever had? Higher reenlistment bonuses?"

"Just a minute," says he. "In spite of all these things there is still one

thing missing-security."
"How can that be?" I asked. "What more do vou want? Don't you get retirement pay? Free insurance? Free education? Free medical care?"

"Look," he patiently explained, "I know all the stock phrases the recruiting posters quote. There's one thing they forgot to put on the bottom of that list of 'advantages of reenlisting.' That's five words-'Subject To

Change Without Notice!'

'Every time we turn our backs," he continued, "Congress, or the Hoover Commission, or the Grocery Store Lobby, or the Movie Lobby, or somebody is nibbling away at our 'fringe benefits.' It seems like they are always trying to beat us out of a few dollars somewhere. We never know when we'll wake up some day to find out that we've been legislated out of our commissary or BX privileges, or dependent medical care. Or whether they'll pay us a reenlistment bonus one day and try to take it away the

"Here's what I mean by security. I want a four-year or six-year contract -a contract that isn't one-sided, that can't be broken by either party. My contract has expired now, and you can be sure of one thing-I won't sign another one like it. Next time, I'll read the fine print!"

Well, what do you think? Is that why more Air Force people aren't reenlisting?

Sergeant Skeptic

The Second John Story

We're in the Second John business. Like almost every other business today it's booming. Our factories all over the country are turning out Second Johns by the hundred every year. Now we all know that the public's idea of a Second John is an eager, wide-awake, bright-eyed individual, ready with his new broom to sweep away the minute he is turned out. However, our factories don't turn out this original brand of Second John. The kind we specialize in is the "When-Can-I-Get-Out" type. This is no ordinary Second John, this product of ours. You'd be surprised at the intricate machinery that had to be set up to produce this particular grade of material. Why, to produce just one Second John takes three tons of printed forms, including three-quarters of a ton of IBM test paper made up into tests of various kinds, every one of which must be "T" scored, Item-Analyzed, Ease-Indexed, etc.

This is done much easier than it sounds. Remember we have nothing but the highest paid employees doing this work. Of course, we could arrive at the same answers by doing it more simply, but it wouldn't be as much fun, and then again it would cut down the cost. Since we're on a cost plus arrangement with the government, our unit cost of around \$50,000 per unit isn't half bad. After all, think of this trivial amount in comparison with the service life of one Second John, Why, at this low price it only costs the government about \$25,000 a year to utilize each one's service. You will have to admit that here is top value. Anybody in his right mind wouldn't argue this fact.

Getting back to the production of our product, do you know that our rejection rate is the lowest in the industry? It only takes five hundred initial units to produce fifty units of high enough quality to pass final inspection. This figure might sound a little off balance but when you realize that we don't spend any time at all in selecting our raw materials it is easy to understand why the ratio is so lopsided. Maybe our management leaves a little to be desired, but we've decided that it isn't worth the trouble to screen all the raw material for physical defects at the beginning since these things will show up anyway after about three years in the assembly line.

Recently we up-graded our requirements. Henceforth all of our completed products must be able to fly. Our measuring standards, although a little antiquated, tell our inspectors whether they are equipped to fly. Unfortunately, our devices give no indication whether the product will actually get off the ground. Experience to date leads us to believe that a high percentage will never get the coveted metal wing design. One of the major problems of the future is what to do with all the airborne rejects.

Our production schedule is geared to the needs of the industry under the current cold spell, and until the weather changes it is doubtful that there will be any worldwide temperature changes. The market is flooded with the paper-shuffling model of our product; we've about reached the saturation point in that field. From the looks of things, the only remedy will be to recall all units that don't stand . up in the air.

T/Sgt. Charles A. Wahler AF-ROTC Fordham University New York, N. Y.

Air Force Stepchild

Our Air Force is way up front in technological advancement. It takes a back seat to no one in the realm of research and development; the overall quality of its personnel and facilities ranks with the best in both private enterprise and government. But its public relations program can be likened to an old caboose hitched to a super-streamliner.

Many Air Force personnel (including senior officers) consider public relations as essential as the dates on a Marilyn Monroe calendar.

Contrary to the all-too-apparent beliefs of many senior officers, not anybody (just because he's a handsome (Continued on page 149)







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and personable extrovert) can be put into an information services slot with a casual, "You take care of all our public relations, Bill. I don't want to be bothered by the press or any community problems." "Bill" does the best he can, but he's not a skilled public relations practitioner. He may get away with it, but if he doesn't, nobody will ever really know how many adverse editorials, Congressional letters, or worse will follow in his wake.

Now, what happens to the trained, competent public relations officer or airman? Where is he?

At one time or another, he has been pushed out of the public information field by a blanket "policy" directive. Eventually he elects to stay out of that field because—having normal job ambitions and aspirations—he discovers it put him on a treadmill, careerwise.

That treadmill is the result of the "hot-and-cold" aspects of the public information career field and the violent vacillations concerning its essentiality. Thus many career-conscious officersdecided and proven assets to Air Force public relations-turn to other fields. One such top-notch career officer, with a journalistic background and a master's degree from the School of Public Relations at Boston University, is now in a different field. When the public relations man has to "sell" his senior officers on the justification of his job and the necessity for adequate cooperation, not only is it nigh impossible to experience satisfaction and self-growth on his assignment but the opposite sets in: breakdown of morale and retrogression.

What of the public information specialist who sticks to his last and wants an info services assignment come hell

or high water?

He'll carry the info services "spec" number, but far too frequently he'll be put in some alien field with info services as an additional duty, if at all. "Exigencies of the service" can cover a multitude of sins, and as long as public relations is relegated to a relatively insignificant status in the Air Force structure, its specialists will be vulnerable to frequent transfers (itself an internal public relations problem), playing the jack-of-alltrades game and used to fill any qualifying slot open at the time. Four months fresh out of the Armed Forces Public Information School (with an outstanding, comprehensive curriculum and fine faculty), I was put into Special Services. It took a year of struggle to prove I was a square peg in a Special Services hole and I received a key PI job. That lasted for



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Now there's no need to sweat out ILS approaches or fight to maintain OMNI tracks! ARC's new Course Director automatically directs the pilot to the correct headings required for effectively intercepting and making good a desired track. Heart of the system, the Compass Slaved Directional Gyro, gives constantly corrected directional information. System is accurate to one degree.

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combines directional and track information obtained from the Localizer/OMNI Receiver and makes computations to provide the pilot with correct heading to intercept and/or make good a desired track, compensates for cross-wind. It relieves the pilot of 90% of his mental effort, prevents missed ILS approaches, saves time, effort and fuel, assures greater safety. Ask your dealer for complete information.



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three months—reduction in public info personnel.

If the problem of sustaining a sound Air Force public relations program is more than just inculcating proper attitudes internally, then we must strive for a broader outlook on the part of those concerned with "budgetary limitations."

But any salesman must be sold on his product first before he can convince anyone else of its merits.

Surely Americans have a right to a better understanding of their Air Force, its mission and problems. A vital, growing Air Force is news in these days of international crises; such news must be properly disseminated. And "properly" covers a lot of territory unfamiliar to the layman.

Unfortunately, that breed of officer with the antiquated attitude concerning news media, "We don't have to tell them a damned thing!" is far from extinct. In line with that same sort of thinking is the conviction that public relations and publicity are one and the same.

Such prevailing attitudes do not help to alleviate the pressures created by the inevitable and continual complaints ("crank" and otherwise) emanating from many communities. In

(Continued on following page)



• This new Scott-Firewel miniature Oxygen Regulator system is doing a full-size job on the Douglas A4D "Skyhawk". The "Skyhawk" fulfills a need for lightweight fighter aircraft. This system helps solve giant problems caused by the need for miniaturization.

The regulator is attached to the pilot's standard oxygen mask. Resulting in a 100% saving of valuable panel space. The regulator itself weighs only 134 ounces as compared to 434 pounds of the standard regulator. A small 3/8 inch mask-hose replaces the regular, bulky breathing tube. These are only a part of the advantages of the new Scott miniature Oxygen Regulator System now available for military and commercial use.

Lighter components make lighter aircraft



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JET BLASTS____ CONTINUED

those areas where there is considerable jet flying, such community problems have become intensified.

These and similar situations (internal as well) must be correctly analyzed, rectified if and when necessary, and the facts interpreted to all concerned.

Nobody can begin to estimate the community ill-will, the number of Congressional letters and antagonistic editorials which may have had as their source the fumbling of some inept Air Force representative.

The most adequate and correct conducting of contemporary community-Air Force relations is assured by public relations-conscious senior officers and the availability of a skilled public relations practitioner, prepared to provide a planned program.

What can be done about it? Initiate a continuing program of education.

Our internal information program should include a clear definition of public relations, its concepts, purpose, and significance in today's Air Force, pointing out the errors in the attitudes of many Air Force personnel. Indoctrination centers and appropriate schools (particularly those attended by officers) should include basic public relations courses in their training. Provide advanced courses in public relations for carefully selected officers and airmen possessing the interest in, and aptitude for, such education. Briefings for newly-assigned personnel should include analysis of local public relations problems or potential ones. These should be held for overseas assignees, particularly, and at the POE. Provide adequate career opportunities and a fair degree of job stability for public information specialists.

The pay-off of an effective public relations program is the outstanding success achieved at Truax Field, Madison, Wis.-the result of carefully planned and skillfully handled public relations.

But until more senior officers stop interpreting public relations as a necessary evil having as its main mission the back-slapping and hand-shaking of the "right people" (with primary emphasis on keeping "those snooping reporters" at bay) and are fully convinced it requires trained men to effectively conduct a necessary PR program, public relations will remain a stepchild in the Air Force.

Maj. Art Frank Langley AFB, Va.

 The opinions reflected in the above article are those of the author and do not necessarily reflect those of the US Air Force.-The Editors.



HEADQUARTERS FOR "RANGE UNLIMITED"

The only facility in the United States devoted 100% to the design, development and production of in-flight refueling systems and related components, Flight Refueling's new plant at Baltimore's Friendship International Airport is the logical place to come for any aircraft fueling problems.

High production capacity, a pioneering engineering group with vast in-flight refueling experience and complete test laboratories explain why Flight Refueling Inc. is setting the pace in this new era of aerial refueling.

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FRIENDSHIP INTERNATIONAL AIRPORT,

BALTIMORE 3, MARYLAND



OFFSHORE HELICOPTERS—Humble Oil Company's drilling projects in the Gulf of Mexico are being served by three new Sikorsky Aircraft S-55 helicopters. For overwater operations, the helicopters are equipped with special

flotation gear. Dependable Sikorsky S-55s, which avoid the hazards of surface transportation, have proved to be highly successful carrying drilling crews, special personnel and equipment between the mainland and offshore rigs.

AROUND THE WORLD WITH SIKORSKY HELICOPTERS



SONAR DUNKER—Versatility of Sikorsky helicopters is again being demonstrated in the Atlantic, where Navy HO4S helicopters now perform anti-submarine missions. By dunking or trailing special sonar gear, the HO4S is prepared to make a major contribution to the job of finding and killing enemy submarines. This HO4S, with rotor blades folded, is pictured aboard the USS Leyte.



COPTERS FOR CANADA—Sikorsky HO4S helicopters are now serving with the Royal Canadian Navy. The first aircraft of an additional order of ten is pictured here during brief delivery ceremonies. Sikorsky helicopters, both military and commercial, are widely used in Canada. The dependable transportation they provide in a wide variety of jobs is especially important in Canada's wilderness areas.





FIRST ARMY FLIGHT OF THE VS-300

In July, 1940, the first Army pilot flew a Sikorsky helicopter. He was Capt. H. F. Gregory (now Brig. General), pictured here in the experimental VS-300.

This historic aircraft, America's first truly successful helicopter, led to the manufacture of Sikorsky R-4s, with which the Army Air Corps pioneered helicopter operations during World War II. H-34s AT WORK—New Sikorsky H-34 transport helicopters are now on the job at Army aviation centers. Here a group of 12 combat-equipped soldiers at Camp Rucker, Alabama, trains with one of the big helicopters, which are larger and more powerful than the widely-used Sikorsky H-19s. The new helicopters are also built as the Navy's anti-submarine HSS and will also be available as a 12-passenger commercial S-58.



SIKORSKY AIRCRAFT

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One of the Divisions of United Aircraft Corporation



Chrysler Windsor 4-Door Sedan

THE FORWARD LOOK

It's America's newest love affair

Last November, when the 1955 Chrysler Corporation cars were introduced, it was immediately clear that America liked THE FORWARD LOOK. Now, after six months, it is fair to say America loves THE FORWARD LOOK. People who own these cars say they're the finest they've ever driven.

America's motorists, long aware of the mechanical excellence of Chrysler Corporation cars, are finding even more special values in THE FORWARD LOOK than they might have expected. No cars were ever so responsive, so effortless to drive, so sure to handle.

The full-time Power Steering affords far greater control and ease than part-time devices of other makes. The finest V-8 engines and 6's made provide more efficient power. Exclusive PowerFlite provides the best combination of smoothness and acceleration of any automatic transmission. The modern positioning of the drive selector on the

dash makes for easier, surer operation. Perhaps even more compelling is the beauty of THE FORWARD LOOK—a long, low, wholly contemporary style that suggests motion even when the car is standing still!

To inspect and to drive the cars of THE FORWARD LOOK is to establish a new sense of value of today's motor cars. THE FORWARD LOOK has caught on. This truly is the year to change to a Chrysler Corporation car!



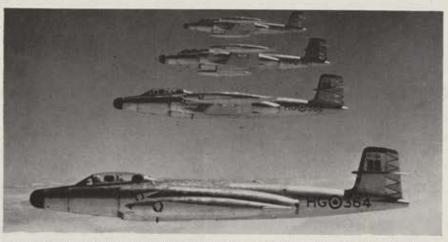
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See Chrysler Corporation's great TV shows, "Shower of Stars" and "Climax!" Thursday evenings, CBS-TV Network.

Tech Talk

The AF-financed Lincoln Laboratory of the Massachusetts Institute of Technology has announced discovery of two "radically new and extremely important" methods for long-distance transmission of radio waves. According to Dr. William H. Radford, head of the Communications Division at the Laboratory, the two developments seem "of special importance in the plans for continental air defense because they open a vast number of new communications channels to supplement the now crowded conventional

have been limited to a line-of-sight range. One of the systems sends UHF voice signals by scattering the extremely short waves and reflecting them in the troposphere—the first seven miles of the atmosphere. The other system sends teletype signals in the VHF range by scattering them in the ionosphere, fifty to sixty miles above the earth. Experimenting with this system, the scientists are now sending signals 1,100 miles to a station in Iowa. Professor Radford said that one of the new systems is already in oper-



Our Canadian friends felt that our readers might be interested in the latest photo of their rocket-firing AVRO Mark 4 CF-100. We agreed, so here it is.

transmission bands; and because the dependability is higher than can be achieved by other means."

The new developments should enable transmission of very-high frequency (VHF) and ultra-high frequency (UHF) signals for hundreds and maybe thousands of miles. Up to now, both VHF and UHF transmissions

ation between Thule AB in Greenland and Loring AFB in Maine.

A new Navy anti-aircraft missile the Convair Terrier—has successfully destroyed a drone target plane during exercises off the Atlantic coast recently (see cut). Developed for the US Navy Bureau of Ordnance by the Con-

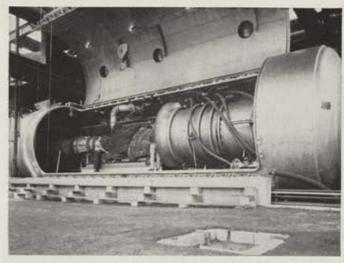


The Navy's anti-aircraft guided missile, the Convair Terrier, blasts off from the battleship USS Mississippi.

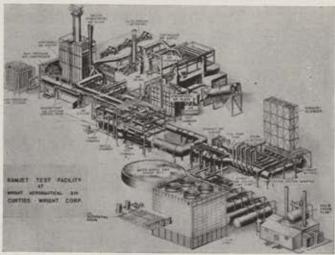
vair Division of General Dynamics Corp. along with the Johns Hopkins University Applied Physics Laboratory, it will arm the Navy's first two guided-missile cruisers, the USS Canberra and the USS Boston, and will be used by the Marines in amphibious operations. No details of the weapon were released aside from the fact that it is supersonic and is said to have a greater range than the largest antiaircraft guns. It is being produced by Convair's Pomona, Calif., plant.

Curtiss-Wright's Aeronautical Division has put into operation a \$7,700,000 laboratory for the development and production testing of ramjet engines (see cut). Cautiously worded announcements from both the Defense Department and the company on the occasion indicated that major improvements have been made in US

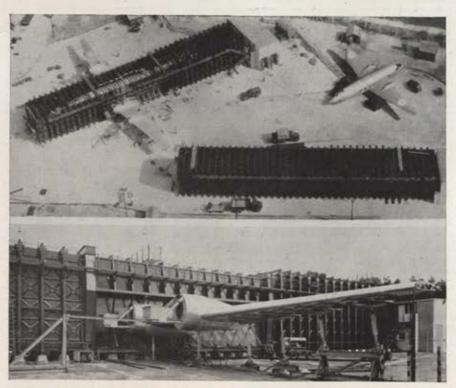
(Continued on following page)



New test stand for ramjet engines at Curtiss-Wright Corp. Thirty-six-foot-long hatch admits engines for testing.



An over-all diagram of the new Curtiss-Wright testing facility. Test chambers are in the center of the drawing.



A British Bristol Britannia turboprop airliner is fatigue-tested in a water tank at Farnborough, England. Bottom view shows jacks which simulate loads.

development of ramjets—up to a point where ramjets are now ready for use in missiles designed to travel at more than 3.500 mph.

While ramjets have always been a favorite of engineers because of their simplicity—they have no moving parts—and their efficiency at high speeds, they have not been too practical because they will work only at high speeds and must be given assistance to get started.

The new laboratory, supplementing the testing facilities already in existnce at Curtiss-Wright's Wood-Ridge, N. J., plant, was built under the sponsorship of the AF. According to Board Chairman and President Roy T. Hurley, elaborate steps have been taken to minimize the noise from the roar of the engines being tested in the facility.

The Boeing B-52 Stratofortress that seems to be going one way while its landing gear is going another (see cut) is showing off the new cross-wind landing gear, which will be standard equipment on all of these long-range jet bombers. All four of the dual-wheel main-gear units can be prepositioned from the cockpit to permit the plane to take off or land in a "crabbing" attitude, canceling out the

effect of a wind across the runway. On landing, instead of having to drop a wing into the wind to counteract the drifting effect of a crosswind (a dangerous maneuver close to the ground, in a heavy bomber with a 185-foot wingspan), the pilot can fly at the angle required to maintain a straight course down the runway, and position his gear accordingly. The development should enable the bomber to operate in what would otherwise be difficult flight conditions.

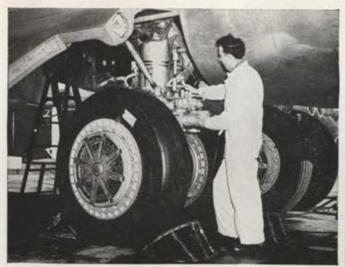
In Santa Monica, Calif., to accept delivery of the first of twenty Douglas DC-7Bs for Eastern Air Lines, Capt. Eddie Rickenbacker said that recent improvements of aircraft and engines will make possible speeds of 1,200 mph for commercial travelers. The board chairman of the airline also said his company has been working with manufacturers on a turboprop transport capable of speeds of more than 400 mph and that he expects it to be



New Aero Commander 560A, similar to one used by President Eisenhower for short trips, has a 211-mph top speed.

flying for Eastern in three or four years. In a forecasting mood, Rickenbacker said he felt that 550-mph turbojets should be operating on trunk lines by 1960, Eastern's new "Golden Falcons" will provide luxury service between New York and Miami.

A new light jet transport with a cruising speed of 560 mph-designed (Continued on page 159)



A close-up view of the Boeing B-52 landing gear in normal position. The eight wheels of the plane's main landing gear can be pre-positioned for crosswind operations.

A Stratofortress making a taxi run in a crosswind at Boeing Field. The crabbed position looks strange, but the gear is a boon to pilots. It will be standard equipment.







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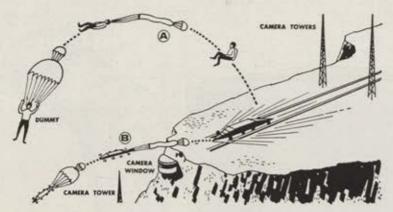
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Drawing shows how new AF supersonic test sled track on Hurricane Mesa (right) will operate. Recently completed, the unit is the first of its kind built to test ejection seat equipment in free flight under controlled conditions.

either as an industrial executive transport, or a military transport and transitional trainer—is in the advanced planning stage at the Fairchild Aircraft Division of the Fairchild Engine and Airplane Corp. Specifications include: wingspan—thirty-five feet, four inches; length—fifty feet, ten inches; height—thirteen feet, three inches; and gross weight, 17,695 pounds. It will be powered by four Fairchild jet engines.

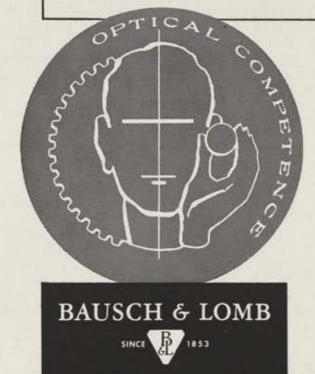
The first rocket test-sled run has

been made on the new AF supersonic test sled track at Hurricane Mesa near Zion National Park, Utah (see cut). The test facility, called SMART (Supersonic Military Air Research Track), was designed and constructed by the Coleman Engineering Co., of Los Angeles, for ARDC. SMART will duplicate actual supersonic flight conditions on the ground and will be used to test aircraft seat ejection equipment, various types of parachutes, and the effects of bail-out at supersonic speeds on both equipment and people.

There are no plans now, however, to use live persons in the tests.

As illustrated in the accompanying drawing, a rocket-propelled "locomotive" pushes the simulated cockpit along the 2½-mile track. Near end of the test run, dummy A is ejected from the cockpit. The locomotive is stopped by water brakes, and the test carriage B is shot off the end of the cliff. Both dummy and the test carriage (simulated cockpit) are parachuted to the canyon floor, which is 1,500 feet below.—End

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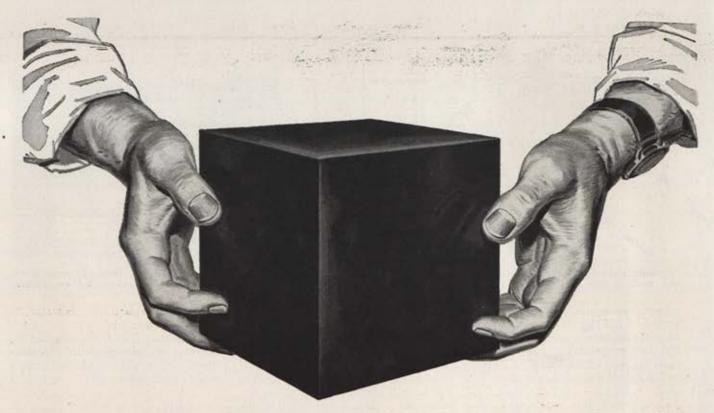
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No matter who you are or what you do, the chances are good that this little black box will have a far-reaching effect on your way of life within the very near future.

For this is "TRANSAC"*—the smallest, lightest, and fastest "electronic brain" yet announced—and its development by Philco scientists finally unlocks the door to mass production and widespread use of electronic computer and control systems in industry, science, business, and the Armed Forces.

And a well-locked door it was— Because the demand for the benefits of automatic computation mushrooming out of World War II has, until now, put a breaking strain on computer design. As they have grown more complex they have grown more cumbersome and harder to produce.

Their thousands of vacuum tubes have generated not only heat and the need for bulky air-conditioning, but also problems of power consumption and maintenance. And their size and weight have barred their use in many urgent military applications.

To this dead-end situation Philco engineers brought a fresh outlook and combined it with their experience from pioneering the "Surface Barrier" Transistor.

By utilizing the unique high frequency properties of the Philco "Surface Barrier" Transistor, they evolved an entirely new concept in computer design—the Philco Direct Coupled Transistor Circuits.

This "direct coupling" of transistors is the key that unlocks the door.

By one basic stroke, it cuts sharply the number of elements in a circuit, pares down the bulk and weight, slashes cost and production time...and speeds up computation!

"TRANSAC", for example, is onethird smaller and lighter, and 10 times faster than any transistorized computer announced to date. It operates on one small battery, with less than 1/1000th of the power needed by a comparable vacuum tube computer, and generates less heat than a Christmas tree bulb.

Yet it performs all computer functions—multiplies, divides, compares, and "carries" for 19 binary digits and algebraic sign, and also performs 416,000 complete additions or subtractions per second!

The civilian applications for this system are limitless. And the military uses—with the emphasis on lightweight portability, low power consumption, and high accuracy—are only to be hinted at.

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 Philos Corporation for Transistor Automatic Computer. For further information, write Philos, 4700 Wissahickon Avenue, Phila. 44, Penna.



ANOTHER FIRST FROM THE PHILCO LABORATORIES

SILVER MEDAL WINNERS

AFA awards are presented to outstanding AF-ROTC cadets

AF-ROTC programs, beside providing basic military knowledge, help develop character traits among students. In 1954-55, some 100,000 cadets were active in the 188 colleges and universities that conduct programs in forty-six States, D. C., Puerto Rico, and Hawaii. This year, as in the past seven, the AFA Silver Medal

went to the outstanding cadets, as named by their respective Professors of Air Science, based on scholarship, leadership, initiative, military bearing, resourcefulness, and neatness. A typical 1955 winner was (right) Cadet Lt. Col. Ronald E. Buesinger of Washington Univ., St. Louis, receiving medal from AFA's Wallace Brauks.





At University of Washington, Seattle, Cadet Maj. Dale W. Becker gets medal from Wing Cmdr. Harold R. Hansen.



Colorado A&M's Cadet 1st Lt. Ronald M. Hughes receives his AFA Medal from Broadmoor Cmdr. Crawford Scott.



PAS Col. C. E. Doyle pins medal on Cadet Col. Armando Gonzalez at College of A&M, Mayaguez, Puerto Rico.



At Northwestern Univ., Cadet Capt. David Burkett receives award from Skokie Valley Cmdr. Bob Vaughan.



Ogden Sqdn. Cmdr. Marvin Fischer pins the Silver Medal on Cadet Col. William W. Wagner at Utah State Ag. College.



At UCLA, Dr. Theodore Stonehill, Commander of Golden Eagle Sqdn., pins medal on Cadet 1st Lt. Robert High.



Cadet Maj, Henry A. Collins of Maryland State College is congratulated on award by PAS Col. Joseph Ambrose.



Cadet Col. Willibrord Silva of Univ. of Hawaii receives his medal from the Oahu Sqdn. Cmdr., V. Thomas Rice.



At Charleston, S. C., Gen. Mark Clark, president of The Citadel, presents the AFA Medal to Cadet L. E. Hamrick.



At Univ. of Nebraska, Cadet Lt. Col. Earl Barnett receives medal from Col. Walter I. Black of local AFA squadron.

THIS YEAR'S LEADERS

SINCE the AFA Silver Medal was inaugurated in 1948, the award has gone to more than 800 cadets—

A & M College of Texas, College Station, Tex. Cadet M/Sgt. John W. Jenkins.

Agricultural & Technical College of North Carolina, Greensboro, N. C. Cadet Capt, Linis L. Stuart (1954 winner).

Alabama Polytechnic Institute, Auburn, Ala. Cadet Allen G. Myers, III.

Amherst College, Amherst, Mass. Cadet Thomas B. Carstensen.

Arizona State College, Tempe, Ariz. Cadet M/Sgt. Thomas D. Tedrick.

Baylor University, Waco, Tex. Cadet Norman C. Brady.

Bowling Green State University, Bowling Green, Ohio. Cadet George Hill.

Brigham Young University, Provo, Utah. Cadet Marion E. Probert (1955 winner). Cadet John M. Hafen (1954 winner). Brooklyn College, Brooklyn, N. Y. Cadet Herbert Horowitz.

Case Institute of Technology, Cleveland, Ohio. Cadet Louis E. Mullen.

Catholic University of America, Washington, D. C. Cadet Col. Anthony J. Buttimer.

Central Washington College of Education, Ellensburg, Wash. Cadet Gary W. Orr.

The Citadel (Military College of S. C.), Charleston, S. C. Cadet L. E. Hamrick,

Coe College, Cedar Rapids, Iowa. Cadet 1st Lt. Charles L. Elson.

College of Agriculture & Mechanic Arts, Mayaguez, P. R. Cadet Col. Armando L. Gonzalez.

College of Puget Sound, Tacoma, Wash. Cadet Capt. Jack Hudspeth.



At the University of Pennsylvania, Cadet Mark Hess receives his award from Frank J. Stieber, AFA Sqdn. Cmdr.

the cream of the AF-ROTC crop during the last seven years. The medals are presented, generally in military ceremonies, on the campuses of the respective schools. In many cases (see

rom had had by local and wing Cmdr. Stanley Zamachaj presents medal to Cadet Wesley Mowry at Univ. of Massachusetts.

durcuts), the awards are made by local and had been seed as the standard of the standa

cuts), the awards are made by local AFA leaders. Below are listed the names of as many winners and their schools as had been reported to AIR FORCE Magazine by presstime—END

Colorado A & M College, Fort Collins, Colo. Cadet 1st Lt. Ronald M. Hughes.

Cornell University, Ithaca, N. Y. Cadet M/Sgt. Thomas C. Reed.

Dartmouth College, Hanover, N. H. Cadet Howland Shaw Russell (1954 winner).

DePauw University, Greencastle, Ind. Cadet 2d Lt. Lee E. Dirks

Duke University, Durham, N. C. Cadet Col. Hugh M. Milton, III.

Florida State University, Tallahassee, Fla. Cadet Capt. Donald L. Rogers.

Fordham University, New York, N. Y. Cadet Frank P. Walters.

George Washington University, Washington, D. C. Cadet Maj. Ralph W. Furtner.

Georgetown University, Washington, D. C. Cadet Col. Donald J. Swanz.

Iowa State College of A & M, Ames, Iowa. Cadet M/Sgt. Mahlon L. Piper.

Maryland State College (Division of University of Maryland), Princess Anne. Md. Cadet Maj. Henry A. Collins.

Massachusetts Institute of Technology, Cambridge, Mass. Cadet William J. Neff.

Mississippi State College, State College, Miss. Cadet Col. Joseph H. Kennedy.

North Texas State College, Denton, Tex. Cadet William Don Castleman.

Northwestern University, Evanston, Ill. Cadet Capt. David Y. Burkett, III.

Parks College of St. Louis Univ., East St. Louis, Ill. Cadet Capt. Michael J. McAlister. Pennsylvania State College, University Park, Penna. Cadet Lt. Col. John Seddon.

Queens College, Flushing, N. Y. Cadet Harry J. Schmitt. St. Louis University, St. Louis, Mo. Cadet Capt. Patrick Wright.

Southern Illinois University, Carbondale, Ill. Cadet Maj. Ronald L. McMillan.

Southwestern Louisiana Institute, Lafayette, La. Cadet Ewell J. Faul.

Stanford University, Stanford, Calif. Cadet Lt. Col. Leland R. Fillmore.

State University of Iowa, Iowa City, Iowa. Cadet Lt. Col. Ronald Schaefer.

Syracuse University, Syracuse, N. Y. Cadet Lt. Col. Hamilton S. Dixon.

Tennessee A & I State University, Nashville, Tenn. Cadet Lt. Col. Johnnie J. Brown.

Tulane University, New Orleans, La. Cadet Col. Frank J. Klonoski.

University of Buffalo, Buffalo, N. Y. Cadet Col. Leonard B. Strong.

University of California at Los Angeles (UCLA), Los Angeles, Calif. Cadet 1st Lt. Robert L. High

University of Cincinnati, Cincinnati, Ohio. Cadet Richard B. Amand.

University of Colorado, Boulder, Colo. Cadet Col. Donald W. Burger.

University of Hawaii, Honolulu, T. H. Cadet Col. Willibrord Silva.

University of Kentucky, Lexington, Ky. Cadet Col. Deward Johnson. University of Louisville, Louisville, Ky. Cadet Col. Fergus C. Groves, II (1955 winner). Cadet Maj. Fred Burton (1954 winner).

University of Maryland, College Park, Md. Cadet Capt, Paul D. Lambrides.

University of Massachusetts, Amherst, Mass. Cadet Wesley I. Mowry.

University of Missouri, Columbia, Mo. Cadet Lt. Col. Melvin D. Wiseman.

University of Nebraska, Lincoln, Nebr. Cadet Lt. Col. Earl Barnette.

University of New Hampshire, Durham, N. H. Cadet Robert W. Hicks,

University of North Carolina, Chapel Hill, N. C. Cadet M/Sgt. Jack L. Wilson.

University of Notre Dame, Notre Dame, Ind. Cadet James C. Krebs.

University of Pennsylvania, Philadelphia, Penna. Cadet Mark Hess.

University of Utah, Salt Lake City, Utah. Cadet George S. Huefner.

University of Washington, Seattle, Wash. Cadet Maj. Dale W. Becker.

University of Wisconsin, Madison, Wis. Cadet Lt. Col. Robert A. Weninger.

Utah State Agricultural College, Logan, Utah. Cadet Col. William W. Wagner.

Washington University, St. Louis, Mo. Cadet Ronald E. Buesinger.

Wisconsin State College, Superior, Wis. Cadet Leonard R. Peterson.



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LURIA ENGINEERING Company





Minutemen of the Air

The Air Guard's

NEW MISSION





By Maj. Gen. Winston P. Wilson

Chief, Air Force Division, National Guard Bureau



Part-time pilots patrol the skies over America.

N THE spring of 1916, with America teetering on the brink of a major war, Reynal C. Bolling, then a captain in the New York National Guard and commander of the first National Guard aviation unit in history, despairingly wrote in a letter to his superiors:

"Men qualified by character, intelligence, and education to become officers can readily be obtained. It is extremely difficult, however—and, in my opinion, will not generally prove possible—to obtain the right sort of mechanics as enlisted men in National Guard organizations."

Captain Bolling then pointed out the great complexity of aircraft engines—the Hispano-Suizas and Liberties of his day—and expressed his view that "the mechanic who reports only once or twice a week for a few hours" could never hope to attain the degree of proficiency that was, and that remains, so essential to their proper maintenance.

This pessimism, moreover, was heartily endorsed in the same report to the Chief of the National Guard Bureau at that time by a Lt. Joseph E. Carberry. Carberry was in charge of the Signal Corps Aviation Station at Mineola, N. Y., where Captain Bolling's unit was encountering so many problems, and he occupied a position rather similar to that of the Air Force unit instructors assigned to the Air National Guard in our times. Less materially, but no less pertinently, Carberry probed the psychological reasons for the straits in which he and Bolling found themselves.

"The consistent devotion of the First Aero Company members," he said, "has been wholly admirable. But as an aero company, in the military sense, it is nonexistent. Whatever his vocation, it is the desire of every man in the company that he be given an opportunity to demonstrate his qualifications as an aviator! The company was organized on this basis, and whether it might have been organized on any other is highly problematical."

Lieutenant Carberry, our research has revealed, was separated from service at the conclusion of World War I (Continued on following page)



Today, the Air National Guard stands immediately prepared to defend American citizens' lives, homes, and liberties.

AIR FORCE Magazine • September 1955

THE AIR GUARD______CONTINUED



Although manned entirely by volunteer citizen-airmen, all ANG units are on call round-the-clock, seven days a week.



The success of the citizen-airmen in the maintenance of their equipment is reflected in the Guard's performance.

as a lieutenant colonel. His name has been lost, to those of us in the National Guard Bureau, at least, thereafter.

Captain Bolling was called into active service with his unit, the First Aero Company of the New York National Guard, and he accompanied it to France. He went on to become a colonel and a hero for whom, after his death in combat in 1918, Bolling Air Force Base in the District of Columbia was named. There is a large oil painting of him in the Officers' Club there, and today he is remembered and revered by Air National Guardsmen everywhere as the first commander of the National Guard's first air unit.

Under such circumstances it might seem unfair to the memories of both men-particularly to that of Colonel Bolling-to recall, now, their conclusions as well as the abortive attempts to read the future and the errors in judgment that prompted them. However, just as any personal anniversary seems to be justification in itself for the family crime of dragging out the album to see how Mother looked in a 1922-style hat, this—the ninth "birth-day" of the Air Force Association—provides the provocation for us to look at such early "pictures" of ourselves to measure our progress.

When I came across Bolling's and Carberry's remarks, I wondered, quite naturally, what they would think of today's Air National Guard—the more than 700 federally recognized and functioning combat and tactical-support type units—that I am proud and pleased to call our country's readiest reserve.

More specifically, what would they think of the complexity of today's aircraft with their jet engines and electronic systems? Would they approve of our method of selecting qualified young airmen from among the ranks to be sent to Air Force schools and returned to us as competent and capable officers and pilots? Our success in the maintenance of our own equipment and in handling our own recruitment is assurance, I believe, that they would. And that success is reflected in both size and performance of the Air National Guard,

Captain Bolling took with him into that first air war only four airplanes, six officers, and thirty-nine enlisted men. They and their equipment constituted the Air National Guard, as such, of that era. Today, in contrast, our organization—already used extensively in the Korean emergency and in the limited "war" that ravaged that unfortunate country—stands immediately prepared to defend American citizens, their lives, homes and liberties, with 2,055 aircraft, more than 7,000 officers and some 54,000 airmen.

This force, which is a force-in-being, has been equipped by the United States Government. It is trained with the same high standards as the regular Air Force, under the supervision of Air Force officers who are assigned to its various component-units as Advisers. It is organized into twenty-seven wings, twenty-seven groups, twenty-seven air base groups, twenty-seven maintenance and supply groups, twenty-seven tactical hospitals, eighty-seven squadrons, an appropriate number of support units normally required to facilitate their operations, plus a number of tactical control groups and aviation engineering battalions.

Although manned by citizen-airmen volunteers completely, all units are on a twenty-four-hour-day, seven-day-week "duty call" basis, prepared to respond to any emergency, and at least some idea of their potential effectiveness in such contingencies were indicated in the National Guard's recent alert test, Operation Minuteman.

Exceeding even the liberal expectations of the Air National Guards staunchest proponents, it developed that no less than sixty percent of our people had reported to air bases and their other duty stations within one hour after that simulated, nationwide emergency had been declared. More than eighty percent were "on hand" and available for immediate service as needed within the second hour. Within brief minutes, aircraft had been armed. were airborne, and were climbing toward make-believe enemy targets on vectors supplied their pilots by the Aircraft Control and Warning Squadrons of the active Air Force augmented by our own Aircraft Control and Warning Squadrons. In that grim "game" we proved to the world that, like the citizen airmen of England's "City Squadrons" who rose to meet the Luftwaffe over Britain, we could similarly engage an aerial enemy guided to our shores by a comparably evil intent.

What could we do against a "real enemy"? That, too, has been demonstrated to a very appreciable extent.

Since August 15, 1954, the Air National Guard has been assigned a new responsibility—that of assisting the Air Defense Command in augmenting its protective forces in certain strategically vital areas. Seventeen units were selected to provide crews of five pilots and ten airmen to keep two aircraft constantly on a status of "five-minute alert" during fourteen-hour, dawn-to-dusk schedules day in and day out throughout the year. While, fortunately, we are unable to claim having made any fighter-kills, we can claim a warm friendship with many new friends in the Air Defense Command that are based on the following record of performance achieved the past fiscal year:

We were scrambled approximately 7,400 times, made a (Continued on page 169)

166

Best Pair.. to Get You There!



Wherever You Fly — Enjoy
Top Engine Performance
with Famous Flying
Red Horse Products!

For top-flight performance and protection make this famous pair your traveling companions. Not only do Flying Red Horse aviation products have the approval of every major aircraft builder... surpass rigid specifications of the Army and Navy—but they can be found at hundreds of U.S. airports, coast to coast, border to border.

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For converting static and differential pressure into suitable electrical signals.



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RELATIVE WIND TRANSDUCERS

Both self powered and servo driven types available for sensing changes in airstream direction.



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Solves continuously and simultaneously the mathematical equations for angle of attack of an aircraft.



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near total of 16,000 intercepts, and flew some 18,000 hours under Air Defense Command control.

Very happily for all of us, none of those intercepts disclosed an intruding hostile bomber. Most of them, actually, were military or civilian aircraft whose pilots merely had wandered off course or had become careless about altitude and time. But they paid an immediate dividend in the invaluable, highly realistic training they provided our personnel and those of the Air Defense Command as well. Only slightly less materially, too, all of us are aware that any of these "unknowns" that turned out to be straying "friendlies" could have been the enemy. Every identifying contact that we made released members of the "regular team" to tackle others had they proven so.

Evidence that the Air Defense Command concurs in this thinking is to be seen in the fact that we have been asked to expand our Runway Alert program. This will be done in the near future. Moreover, since July 1, 1955, all Air National Guard fighter organizations, of which the great majority formerly were listed and trained as fighterbomber outfits, have been redesignated fighter-interceptor units. They have been directed to abandon the secondary mission, tactical support, that has been theirs to fulfill

since their inception.

Frankly, we feel that that mission, air defense, is more in line with our National Guard's tradition—repelling a hostile host from our homes and fighting them elsewhere any time we are needed. We feel that the Air Defense Command's interest in us is, indirectly, a tribute to the support we gave them this year. Certainly they wouldn't want us if we had failed, and no less certainly it is our intention to succeed again. To implement that intention, we already are launched upon an extensive program to modernize our fighter units, to make them all-jet and—in many cases—to convert them into all-weather organizations.

During the past fiscal year, for example, the Air National Guard's airplane inventory increased by 237, reflecting, primarily, the conversion of thirteen fighter squadrons from conventional to jet-aircraft operations and the phasing of four tactical-reconnaissance squadrons into RF-80Cs. By the end of the first quarter of Fiscal Year 1957, the last of our reliable but outmoded F-51 Mustangs will have been disposed of, and our fighter people will be completely equipped with F-80s, F-89s, F-94s, F-86s, F-84s, and at least two T-33As per squadron to be used in transition and instrument training.

In the planning stage, too, is a similar program intended to modernize the six squadrons that comprise our two tactical-bomb wings.

Besides fighter and bomber operations, the Air National Guard this year is entering still other military fields. Authorized and in various stages of organization are four air transport squadrons and four air resupply groups. These, in most cases, will replace fighter organizations that must be relocated because of runway lengths and other contributing factors.

The activation of these units, coupled with our acquisition of better and better-equipped aircraft, poses a coincidental problem, however, that is remarkably like that which confounded Captain Bolling and Lieutenant Carberry so long ago. It is one we share with the regular Air Force establishment, also.

We can get officers. We can get pilots and convert them into capable jet aviators. But technically trained personnel, highly skilled in the exacting sciences required—for example—to maintain a radar gunsight, are difficult to come by. Because of our arrangement with the Air Force to

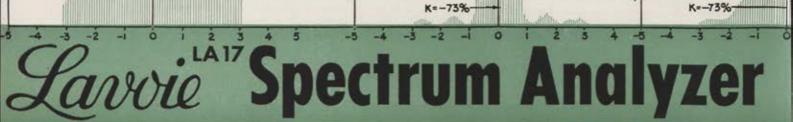
send our people to Air Force schools, this becomes a problem of recruitment more than anything else.

We are faced with a programmed strength of 76,100 officers and airmen, as compared with an authorized strength of 90,400, by the end of Fiscal Year 1957, and we are in competition with the regular and other reservecomponent services as well as with industry in obtaining them. But unlike Captain Bolling, those of us who have been closely associated with the Air National Guard during its brief history are confident that we will get them. We recall that we started with nothing in June of 1946 and that there were 54.560 of us when the Communists swarmed over South Korea. That figure slumped to only 12,000 men at the peak of induction in 1951 when some 46,000 others had been ordered into active military service. We lost many when they returned, but still we recruited back to our present strength, always a tremendous task for any military organization that has just been involved in war.

Despite Captain Bolling's opinion that enlistment of "the right sort of mechanics" will not prove "generally possible," the Air National Guard of today has established a precedent for doing just that and even under less favorable circumstances than those encountered by our 1916 pioneers. And in the years to come it must be done.

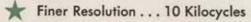
Located, as they are, in all forty-eight states, Alaska, the District of Columbia, Hawaii, and Puerto Rico, our Air National Guard Wings, Groups and Squadrons have been strategically deployed as though by intent instead of geographical accident to provide fluid, effective and immediately ready reinforcement to our Air Force in case of the "trouble" we all so earnestly hope to avert.—End





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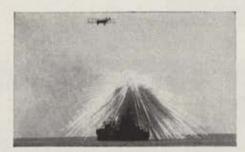
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Billy Mitchell sacrificed his career, but he focused public attention on airpower.

Who Says the Air Force Has No Tradition?

By Brig. Gen. Dale O. Smith



From a vast body of rich tradition has come the modern US Air Force of today,

ITH the dedication of the Air Force Academy, some say that the Air Force is starting to build a new tradition. Not so, The Air Force has a vast body of deep and rich tradition, never fully codified, perhaps, but real nonetheless. It molds the character of everyone in the Air Force. And much of it is uniquely Air Force.

Unquestionably the Air Force Academy will do much to teach and to codify this Air Force tradition. The new academy graduates will understand it better than those of us who have lived through its evolution. And, of course, the academy itself will generate new traditions and customs which will later spread to the Air Force at large. But the fundamental traditions of our profession exist today as a priceless heritage which we should cherish and preserve. The Air Force did not materialize magically from thin air. It is the direct lineal descendent of the Army and the Navy. The Air Force was born with the military virtues; virtues which have been learned and relearned on every battlefield of history, whether it was on land, sea, or in the air.

Heading the list of military virtues is that high abstraction—honor. This word means much to us. It means scrupulous truth, honesty, and devotion to duty. How can an army, navy or air force fight to win if its reports are slanted or inaccurate? How can a government trust and depend upon its military men unless they speak their minds with utmost candor, even when such candor may mean their self-destruction? Perhaps honor is an ideal which can never be wholly realized, but it is an ideal of the highest order in the military profession, and some have carried it to high peaks of achievement.

The United States Air Force has grand traditions in this regard. Brig. Gen. Billy Mitchell sacrificed his career by openly challenging the doctrines of his day. He spoke his mind clearly and frankly because he felt the nation was seriously endangered in following false military prophets. His fine sense of honor compelled him to warn his superiors. When they failed to listen, he went to higher and still higher authority until he appealed to the final authority—the American public. His actions cannot be condoned from the standpoint of discipline, but he rightfully regarded his duty to his country as paramount. There can be little question that he knew his shining career would be laid on the block. But Billy Mitchell was an honorable man,

Doomed and suffering excrutiating pain from cancer, Gen. Hoyt Vandenberg sat for days before a Congressional committee to plead that the Air Force budget not be cut in the critical year of 1953. This unpolitical performance placed General Vandenberg under a cloud for the remaining few days of his life. It would have been so much easier for a tired and dying man to go along with the political current, but Hoyt Vandenberg was an honorable man.

Yes, the Air Force can claim a whole roster of selfless heroes who lost their reputations, or their lives, by adhering to this high-level abstraction, honor. To them, honor meant even more than simple truth, honesty, and duty. It meant that they were dedicated, come what may, to the defense of their country. They had "taken the queen's shilling" and there could be no turning back, ever, from this solemn commitment.

In the early days of our republic, the military man's loyalty was divided between federal and state governments. The Civil War settled that question, unequivocally. The professional soldier, sailor, or airman now places the Constitution and the national government of the people at the top of his list of values. The oath of allegiance has real meaning to him. It transcends any loyalty to individuals, institutions, or political parties. It comes even before loyalty to the military service itself. This was what motivated Billy Mitchell and Hoyt Vandenberg to speak frankly.

Over the years the Air Force has manifested a sense of mission not exceeded by any military force in history. The men of the old Army Air Service and Air Corps regarded themselves, rightly or wrongly, as the neglected step-children of the Army. Flying dilapidated and obsolete aircraft, they would eagerly solicit tasks unequal, by any sensible standard, to the capacity of their equipment. They felt this to be necessary in order that the air arm be recognized for its true worth in the scheme of national defense. When finally the Air Corps was allowed to go ahead on an exercise, the airmen threw themselves into the project like demons. By dint of stubborn determination and blazing energy they made their rickety equipment

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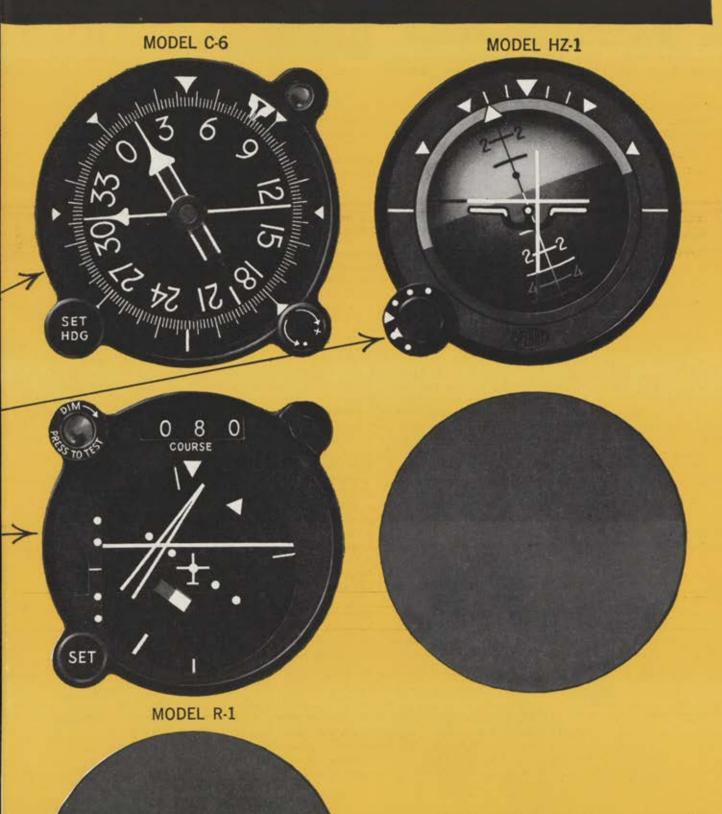
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TRADITION_____CONTINUED



A tired and sick Gen. Hoyt S. Vandenberg pleaded for a strong AF. An honorable man, he fought for his beliefs.

perform. With all odds against them, they accomplished the mission.

Nothing was too difficult. Never did they balk at an assignment or hesitate because of aircraft which were long overdue for the salvage yard. Following Billy Mitchell's motto of "Get It Done," they flew wood and fabric DH-4s for ten years after the end of World War I, until their fuselages were "rotten" and their "wings were warped and bent," to quote an old ballad. Forced landings and casualties in the DH-4s were routine events. But Capt. St. Clair Streett led them on the first flight to Alaska in 1920. DH-4s crisscrossed the country and circled the border, the pilots seldom knowing where the next landing would find them.

Whenever a few new airplanes dribbled into the inventory, enthusiasm went unbounded. In 1922 Lt. Jimmy Doolittle flew across the country in twenty-one hours of flying time, and Gen. Billy Mitchell set a world speed record of 223 miles per hour. A year tater Lieutenants Kelly and Macready spanned the continent non-stop. A round-the-world flight was undertaken in 1924 by a flight of four Douglas biplanes under command of Maj. Fredrick L. Martin. The leader went down in Alaska, but his second in command, Capt. Lowell Smith, carried on. Another plane, almost home, ditched in the North Atlantic. The remaining two craft—Smith's and one piloted by Lt. Eric Nelson—completed the circumnavigation. Mission accomplished.

Although these "freak flights, depending on the determination and will-to-do of the flyers," (as Gen. "Hap" Arnold referred to them) failed to accomplish the objective of awakening America to the need for airpower, such daring exercises did hammer home a tradition, a tradition which asserts: "We can do it with whatever we've got, and we will."

The first American formation ever to engage in air combat accomplished its mission this way. On April 14, 1918, (it was Sunday, a prophetic day in air warfare) the first patrol of the 94th Pursuit Squadron took off. Two German planes had been reported approaching through the clouds. Lts. Alan Winslow and Douglas Campbell found the intruders, got on their tails, and shot them down. Both German pilots bailed out over our lines and were found to be experienced veterans. As this combat proved, what the Air Force lacks in equipment, or even in training, can often be made up with incredible courage and initiative. This is a tradition. Let us pray it will never change.

Many of the airmen in World War I carried the threads of these traditions through to World War II and after. Gen. Carl "Tooey" Spaatz, for example, as a major in the first war shot down two enemy aircraft. He skippered The Question Mark between wars to set an endurance record of 150 hours and to prove that air refueling (dem-



Gen. Carl A. "Tooey"
Spaatz, a pioneer
airman who carried the
thread of tradition
between two wars.
In WW I he downed
two German planes,
later skippered the
Question Mark's
endurance flight.

onstrated earlier by Captain Lowell Smith) was possible. He commanded the great Strategic Air Forces both in Europe and later in the Pacific. And he retired after serving as the first Chief of Staff of the United States Air Force. Nor has he "faded away," for today he writes a column in Newsweek on air strategy which is the distillation of his profound experience and piercing vision. Who says we haven't any tradition with giants like "Tooey" Spaatz in our family tree!

The spirit and tradition of the pioneer lives in the Air Force, always seeking new records to break, greater heights to climb, more efficient techniques, more successful tactics, more versatile equipment. Fertile imagination, combined with the zest of a challenge and the will to do, are fundamental to the Air Force. The Air Force Academy may not have a "long grey line" behind it as with West Point, or a "don't give up the ship" tradition as with Annapolis, but the Air Force Academy can boast of a long line of trail blazers the like of which the world has never before witnessed in any uniform. And the quest continues unremittingly as the daily newspapers attest, from "The Lucky Lady" circling the globe non-stop, to the airlift of 7,000 troops from the East Coast to Japan in seventy-two hours.

It takes open, inquisitive minds to envision and to experiment. Realizing that military institutions tend to become stultified with dragging dogma and attempting to guard against such miring of the pioneer tradition, Air Force leaders established a unique school following the second World War. Air University, combining all advanced officer schools under one command, was organized under a policy of freedom of expression. Consequently freedom of mind flourishes there to a degree rarely found even in civilian institutions. There are no approved solutions at Air University. Originality, objectivity, and skill at problem solving are the criteria for high grades. This freedom of thought and expression is itself a tradition of the Air Force. Let us guard it jealously.

It is tradition, too, that the US Air Force can do big, unheard-of tasks; do them without weeks and months of planning, but do them tomorrow; and with all that, do them well. Readiness for any contingency is fundamental. This tradition also began with "Get It Done" Billy Mitchell. As Hap Arnold put it, "The air offensive which Mitchell laid on in the Meuse-Argonne in September was the greatest thing of its kind seen in the war." It was the first massed air operation of history, involving 1,500 allied aircraft. Air Marshal Sir Hugh Trenchard called it "the most terrific exhibition I have ever seen—[it] cleaned out the air." Although an unqualified success, this first air offensive never has been given its rightful place in history. But it established Air Force tradition.

(Continued on page 176)

This page for pilots only,

Some views expressed by various intrepid birdmen through the ages



"THE MOST IMPORTANT PART OF ANY FLIGHT IS THE LANDING"

-Icarus, son of Daedalus.

Daedalus was the "do-it-yourself" type. He fixed up a couple sets of homemade wings out of wax and took son Icky for a short hop. These were Icky's last words as the wax began to melt. There's nothing home-made about the modern pilot's equipment. To ease the strain in the air he has his auto-pilot. To ease the strain of landing he has HYTROL, the Anti-Skid Braking System. HYTROL can be engaged during approach, ensuring positive directional stability immediately on touchdown.



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"ANY LANDING IS A HOT LANDING-PERIODI"

-Cadet before first jet solo.

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At the opening of the second war, the President asked for an Air Force of 264 groups, when only five were in existence. The end of the war found 264 groups flying, most of them overseas in combat. Vast air armadas were roaming the skies at will over enemy territories and an air bridge had been built over the top of the world, "the Hump." This supply line carried as much as 70,000 tons a month and made the costly Burma Road obsolete by the

time it was completed.

When Berlin was blockaded our government faced a decision which gravely risked war. But the Air Force stepped in and almost overnight began supplying a city of two million souls with everything from coats to coal.

One-third of the way around the world our Air Force was challenged by a crafty belligerent who had assembled hundreds of swift new jets, the MIG-15s. Although vastly outnumbered, and far from our bases, we fought them to a standstill over MIG Alley. In our Sabres we dominated the enemy air and all but swept the MIGs from the skies. This stupendous task, with the odds against us, was simply traditional for the USAF. It was a continuation of Mitchell's "Get It Done."

Today, our Strategic Air Command is ready for anything. Poised, alert, trained to the teeth, throbbing with withstrained energy, holding the aggressive forces of the world in check by its mere existence and purposefulness. Perhaps the most difficult of all tasks is to keep a huge command on a wartime footing in a peaceful environment. No flags, no bands, no real appreciation from the people. But it is necessary, and if it is necessary the Air Force can do it. General Curtis LeMay, doggedly determined to "Get It Done," personifies Air Force tradition.

It is traditional for airmen to dare. Some of their daring is foolhardy and needs direction into productive channels. But the Air Force has been lenient with its daring screwballs, recognizing the value of this exuberance as a fundamental factor in leadership. Who can say that the ride Second Lieutenant James H. Doolittle took on an undercarriage to win a five dollar bet (and for which he was grounded for one month) was not preparation for the electrifying Tokyo raid? Or for the time he stunted a B-26 on one engine to prove to a disheartened group in England that the B-26 wasn't a complete flop?

It was an element of this spirit which caused the pilots on the battleship-bombing exercise of 1921 to urge Billy Mitchell to have the Navy shoot at his bombers. The reason was that Secretary of the Navy Daniels had told the press that the bombers could never survive under naval gunfire. The pilots would dare the fire to "get it done" right. In 1942 this same spirit over Germany regarded the deadly flak as "nothing but a deterrent." By this they meant that flak might frighten and disturb them, but it would never stop them. Royal Air Force veterans had earlier repeatedly advised that daylight bombing against the German flak would be impossible. But our airmen traditionally did the impossible, and this was no exception.



Ploesti, Schweinfurt, and countless other air battles typify the AF traditions of mission and responsibility.

Nor is it exclusively the pilots who aspire to new horizons. The pioneer tradition has been infused throughout the Air Force, from the fire-fighting crash crews who constantly explore new techniques, to the flight surgeons who risk their lives (as Col. John Stapp does on his monstrous deceleration sled). All those in Air Force blue avidly seek new knowledge for their profession. Boat flights that battle high seas in frail, swift craft to rescue downed airmen, and engine mechanics who suffer the screaming noises and super-sonic vibrations of powerful jets, and electronics men worrving over their black boxes in arctic coldness, and weather men flying into eyes of hurricanes, and communicators and supply men, and through the whole list of Air Force skills-all are searching better ways to "Get It Done." All dare to try something new. All dare to risk mistakes and personal failure in order to provide more effective airpower. It's traditional.

The official document which come nearest to codifying Air Force traditions is AF Manual 35-15, Air Force Leadership. In addition to emphasizing the "mission religion," this manual stresses the sense of responsibility. The very nature of the Air Force heightens the individual's sense of responsibility beyond what is found in most other walks

of life.

In the air a man is often alone. There is no one to watch him. His own conscience is the voice of authority. He speaks to others over interphone or radio. He is his own master. The planners back at the base have no idea what he may run into: weather, enemy, mechanical trouble. But the airman knows what he must do. His sense of responsibility assures heads-up and conscientious performance. He never turns back from a task. If he is blocked or thwarted he will find another way.

Ploesti, Schweinfurt, and countless other air battles typify the Air Force traditions of mission and responsibility, of daring and pioneering, of preparedness and initiative. These and many other traditions were forged from adversity and danger. Barrels of blood have gone into them, and tank-cars of sweat. For in the short history of our Air Force there has been a heap of living, much dying, and lots of learning.

Let us preserve these sacred traditions, perpetuate them, teach them, revere them.-END



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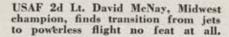


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High on a Windy Hill





A way of flight that antedates the Wright Brothers by many, many years still keeps its clutch on the hearts of enthusiasts

VERY summer glider pilots from all over the United States, and from some foreign lands as well, gather at Harris Hill, Elmira, N.Y., for the annual National Soaring Contest of the Soaring Society of America. This year's meet, early in July, was an exceptionally good one, from all reports. It was the twenty-second contest and also marked the twenty-fifth anniversary of the first glider flight in Elmira, a spot that is often called the soaring capital of the world.

Strangely enough, the pilot who piled up the highest number of points was not named national champion. The reason was a technical one based on the fact that Soaring Society rules stipulate that the national champ must be a member of the Society.

Top dog at Elmira this year was Commander H. C. N. (Nick) Goodhart, of the British Royal Navy, now attached to the British Embassy in Washington. Goodhart

(Continued on following page)

Lt. Col. Floyd Sweet, SSA president; 2d place winner Bob Smith; national champ Trager; high scorer Goodhart.

Far right: Dr. Wolfgang Klemperer, world's first licensed glider pilot, with Capt. Ralph Barnaby, USN (Ret.) first American to have glider license.





entered the competition knowing he couldn't officially win but the Soaring Society rewarded his efforts with a special silver trophy. He piled up 1,081 points.

Forty-three points behind Goodhart, and officially national champion for 1955, was Kemp Trager of Detroit, with 1,038 points. Trager worked his way up from seventh to first place in the last three days of flying by scoring heavily in the task and open flying events. His biggest point getter was a goal flight to Martinsburg, W.Va., on the next to last day.

Two points behind Trager, with 1,036, was Bob Smith, Ulster, Penna, Bill Ivans, La Mesa, Calif., finished a close third with 1,016 points and might have upset the applecart except for a sub-par performance on the last day.

Spectators at the meet saw little of the top pilots. Their day began with an early morning session with Meteorologist B. L. Wiggin, who arose at six each morning to compute weather conditions for the day. Then contest officials set the "task" for the day-either a "goal flight" to a pre-determined point or a day of "open" competition, in which the pilots named their own choice of flights. Then the rush was on to prepare ships and to report to the flight line for take-off. Once aloft, pilots would nose around for thermals to carry them to the chosen point.

Based on a point-a-mile scoring system, the longest flight is not necessarily the highest rated. If the pilot chooses a predetermined goal and makes his target, he gets a twenty percent bonus of the total score. For example, on one day they were given their choice of four landing places-Harrisburg, Penna., Williamsport, Penna., Hagerstown, Md., and Winchester, Va.

Hot pilots picking the long Virginia goal to rack up. quick points would miss out on the bonus if they failed. Conservative flyers selecting closer destinations-and land-

ing there-would profit.

Besides Goodhart's special trophy, some twenty awards were made at the meet. Trager won the DuPont Trophy, symbolic of the national championship. The Bendix Aviation Distance Trophy, for the longest straight-line flight from Harris Hill, went to Stanley Smith, a Bell Aircraft engineer, who made it from Elmira to Huntington, Mass., a distance of 208 miles. The Donald Douglas Trophy, to the championship soaring club, went to the Elmira Area Soaring Corp. The Larissa Stroukoff Memorial Trophy was won by Stephen Bennis, Linthicum Heights, Md., for the longest goal and return flight. Bennis also won the cash prize offered by Fairchild Engine & Aircraft Corp. for reaching the Hagerstown Municipal Airport on a "goal"

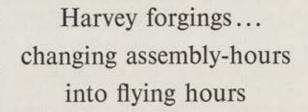
Although the Air Force no longer has a glider program there is still a hard core of enthusiasts in uniform who devote their spare time to soaring. President of the Soaring Society, for example, is Lt. Col. Floyd Sweet, who is now

on duty in the Pentagon.

And one of the top contenders at Elmira was AF pilot Dave McNay, fresh from taking top honors at the AFAsponsored Dayton Soaring Meet (see "AFA News," pages 214 and 217).

Perhaps we, as a nation, are overlooking the value of glider training in our air education and flight training programs, particularly in screening out those who might prove inept.-END





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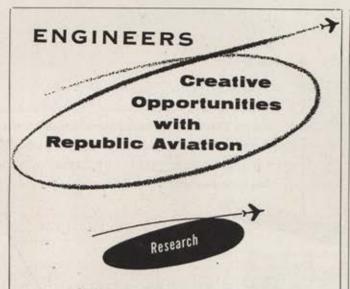
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Electronics Engineer

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Armament Staff Engineer

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REPUBLIC AVIATION

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AIRPOWER IN THE NEWS_____CONTI

J. Old, Jr., became commander of the 15th AF, SAC, March AFB, Calif. Replacing him as Director of Operations, SAC, Offutt AFB, Nebr., is Maj. Gen. Robert H. Terrill. Brig. Gen. Henry K. Mooney is new Deputy Commander of the 15th. He had been Commander of the 806th Air Division, SAC, Lake Charles AFB, La. . . . The orders relating to the reassignment of Brig. Gen. Alfred F. Kalberer as reported in June, have been changed. He became Commander of the 14th Air Division, SAC, Travis AFB, Calif., on August 1. He replaced Brig. Gen. Stanley J. Donovan who became Deputy Chief of the Joint US Military Group, (Spain), APO 285, New York. . . . New Commander of the 21st Air Division, SAC, Forbes AFB, Kan., is Brig. Gen. Henry R. Sullivan, Jr. He had been Commander of the 26th Strategic Reconnaissance Wing (Med.), SAC, Lockbourne AFB, Ohio. . . . Maj. Gen. George W. Mundy has been assigned duty as Deputy Commander of the 2d AF, SAC, Barksdale AFB, La. He had been Director of Supply and Services in the office of the Deputy Chief of Staff, Materiel. Brig Gen. Richard J. O'Keefe took over as Director of Supply and Services. . . . On September 1, Maj. Gen. Fay R. Upthegrove becomes Commander of the 3380th Technical Training Wing, ATC, Keesler AFB, Miss. Replacing him as Commander of the 313th Air Division, FEAF, APO 239, San Francisco, is Brig. Gen. William G. Hipps. General Hipps had been Executive Assistant to the Secretary of the Air Force. . . . In August, Brig. Gen. Chester W. Cecil, Jr., became Director, Management Analysis Service in the office of the Deputy Chief of Staff, Comptroller. He replaced Brig. Gen. Harold Q. Huglin who became Director, Planning and Program Division, Plans and Readiness Area in the Office of Defense Mobilization. General Cecil had been Assistant for Plans and International Affairs in the office of the Deputy Chief of Staff, Comptroller. . . . Brig. Gen. Royal Hatch, Jr., has been ordered to extended active duty as Deputy Commander for National Guard Affairs, ConAC, Mitchel AFB, N. Y. . . . This month, Brig. Gen. Hugh A. Parker becomes Inspector General of the Air Defense Command, Ent AFB, Colo. Replacing him as Deputy Commander of the Alaskan Air Command, APO 942, Seattle, Wash., will be Brig. Gen. James H. Davies, who had been Commander of the 3380th Technical Training Wing, ATC, Keesler AFB, Miss. . . . Maj. Gen. Robert E. L. Eaton returns to the ZI for duty as Commander of the 10th AF, ConAC, Selfridge AFB, Mich. He had been Commander of the 6th Allied Tactical Air Force in Izmir, Turkey. Replacing him is the present Commander of the 10th, Maj. Gen. Richard A. Grussendorf. . . . In August, Maj. Gen. Floyd B. Wood was released from duty as Deputy Commander, Technical Operations, ARDC, and assigned duty as Deputy Commander for Research and Development, ARDC. . . . Brig. Gen. Kurt M. Landon became Deputy Commander for Resources, ARDC, in August. He had been Deputy Commander, Support Operations, ARDC. . . . Also at ARDC, Brig. Gen. Marvin C. Demler was released from duty as Assistant Deputy Commander for Technical Operations and assigned duty as Assistant Deputy Commander for Research and Development. This month, Brig. Gen. Herbert L. Grills becomes Commander of the 3320th Technical Training Wing, ATC, Amarillo AFB, Tex. He had been Commander of the 7th AF, (Advance), APO 156, San Francisco, Calif. . . . At ARDC's AF Cambridge Research Center, Laurence G. Hanscom Field, Mass., Dr. Lowell M. Hollingsworth has been named Director of the Electronics Research Directorate. He succeeds Dr. Frederick C. Frick.-END



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In AFA's memorial to Earl T. Ricks . . .

Part-Time Pilots Strut Their Stuff

ANG pilots compete in 1,945-mile event

By Edmund F. Hogan
RESERVE AFFAIRS EDITOR, AIR FORCE MAGAZINE



ANG pilots who participated in the all-jet Ricks Memorial Trophy event are shown just before the cross-country dash.



AF Chief Gen. Nathan F. Twining, actress Anne Francis, and Colonel Poston.

HE Air Force Association's second annual Earl T. Ricks Memorial Trophy event, a cross-country competition for Air National Guard jet pilots, is now a matter of record. Of the twenty-two who entered, nineteen completed the 1,945-mile course between Ontario, Calif., International Airport and Wayne-Major Airport in Detroit. And Lt. Col. James A. Poston of Columbus, commander of Ohio's 166th Fighter-Bomber Squadron, emerged as the winner.

A veteran of 165 combat missions in World War II and another nineteen missions in jets in Korea, Poston drove his Republic F-84E Thunderjet over the distance in the corrected time of two hours, fifty-seven minutes, forty seconds.

Actually, Poston required three hours, thirty-two minutes, thirty seconds to fly the route. But he was given

(Continued on following page)





Capt. Arnold G. Wackerman, left, and his observer Bob Ferris came in second. Here, they're given a welcome.

Capt. Jack M. Burden of Houston, Tex., fourth-place winner, is appropriately welcomed to Detroit by Miss Francis.



Third-place winner, Captain McCrory of Pittsburgh, a member of Pennsylvania's 146th Squadron, gets a royal welcome from his mother, his wife, Anne Francis, and Maj. Gen. Winston P. Wilson, Chief, AF Div., NG Bureau.

a time allowance of thirty-four minutes and 50 seconds. This allowance —or handicap—was subtracted from his elapsed time.

Each aircraft in the race was given a time allowance. This allowance was established in an effort to equalize the performance of each aircraft, making the event a test of pilot skill and flight planning. Maximum performance figures for each aircraft in its basic tactical configuration and at its optimum altitude were used as a primary computation. True air speeds were figured over a 1,700-mile nautical course. The difference in time required to complete this distance, using maximum performance figures and excluding stops, was used as a basic time allowance.

An additional period of time was allowed for each refueling stop. This time period was computed on the basis of one second for each four gallons of fuel in the largest internal tank of each aircraft plus one minute hose-handling time for each filler cap on each aircraft excluding tip tanks and drop tanks.

Second place went to Capt. Arnold G. Wackerman of Tonawanda, N. Y., who flew a Lockheed F-94B representing the Empire State's 107th Fighter-Interceptor Wing. His observer on the flight was a former Air Force pilot and now a West Coast newscaster for Columbia Broadcasting System, Bob Ferris. Wackerman's time for the distance, including handicap, was two hours, fifty-nine minutes, nine seconds.

When the official figures had been computed by the National Aeronautics Association, it became known that third place went to Capt. George C. McCrory of Pittsburgh, a member of Pennsylvania's 146th Squadron. Flying a Republic F-84F, McCrory was the fastest pilot of the event. He traversed the distance in the best elapsed

time of three hours, nine minutes, fifty-nine seconds for an average speed of 611.27 miles per hour. But he had a handicap of only eight minutes and one second, so his corrected time added up to three hours, one minute, fifty-eight seconds.

Fourth place in the official computation went to Capt. Jack M. Burden of Houston's 111th Squadron. Flying an F-80C, Burden negotiated the route in the corrected time of three hours, two minutes, eight seconds.

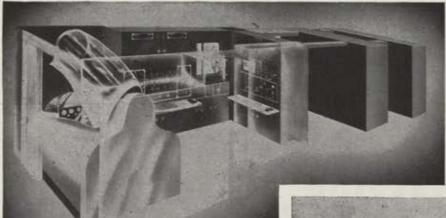
This was the first year for the handicap system, and a number of the pilots complained that the times were not realistic. But the order of finish would indicate otherwise. Eight different types and models were entered. One of each type and model finished in the first eight pieces. The spread between the first airplane and the tenth was less than ten minutes. Indeed, only six minutes and forty-five seconds separated the first five aircraft.

The scant time differential among the aircraft stemmed not only from the handicap but from the brilliant efforts of refueling crews at such stops en route as Denver, Des Moines, and Colorado Springs. These crews were Air Guard volunteers from the units the pilots represented. They received neither pay nor per diem. But they handled fuel lines in such fashion for their pilots that the average ground time per aircraft at refueling points was something under four minutes

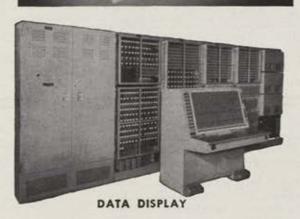
Pilots and crew chiefs were guests of AFA-sponsored receptions on the West Coast prior to take-off and, in Detroit, each pilot who finished was introduced to more than 35,000 persons who attended the opening of the International Aviation Exposition by John R. Alison, AFA President, and George C. Kenney, AFA Board Chairman. General Nathan F. Twining, USAF Chief of Staff, introduced Poston.

Dignitaries at the finish time also included Lt. Gen. Leon W. Johnson, ConAC commander; Maj. Gen. Winston P. Wilson, chief of the Air Force Division, National Guard Bureau; Maj. Gen. George G. Finch, Fourteenth Air Force commander; Maj. Gen. Richard A. Grussendorf, Tenth Air Force commander; Brig. Gen. Royal S. Hatch, ConAC Deputy for ANG Affairs; and Brig. Gen. Felix R. Vidal, ConAC Deputy for Reserve Affairs.

Although but two years old, the Ricks competition has grown into not only a major program of AFA but has become one of the top aviation events in the country.—End



MISSILE GROUND HANDLING EQUIPMENT





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The products shown here are typical of the combined efforts of Westinghouse Air Brake's facilities. The F-100 Flight Simulator, for example, is now being mass produced by the Union Switch & Signal Division after having been developed by Melpar, Inc. The zero-length launcher is being manufactured under subcontract for the Glenn L. Martin Company. The chassis units are fabricated by LeTourneau-Westinghouse Company, and are shipped to Union Switch & Signal Division where electrical, and hydraulic control equipment is installed.

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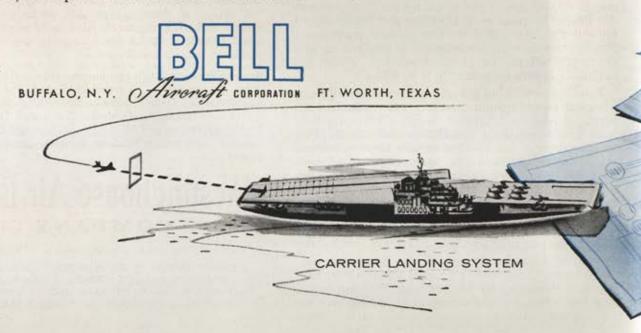
In guided missiles, Bell is prime contractor for the

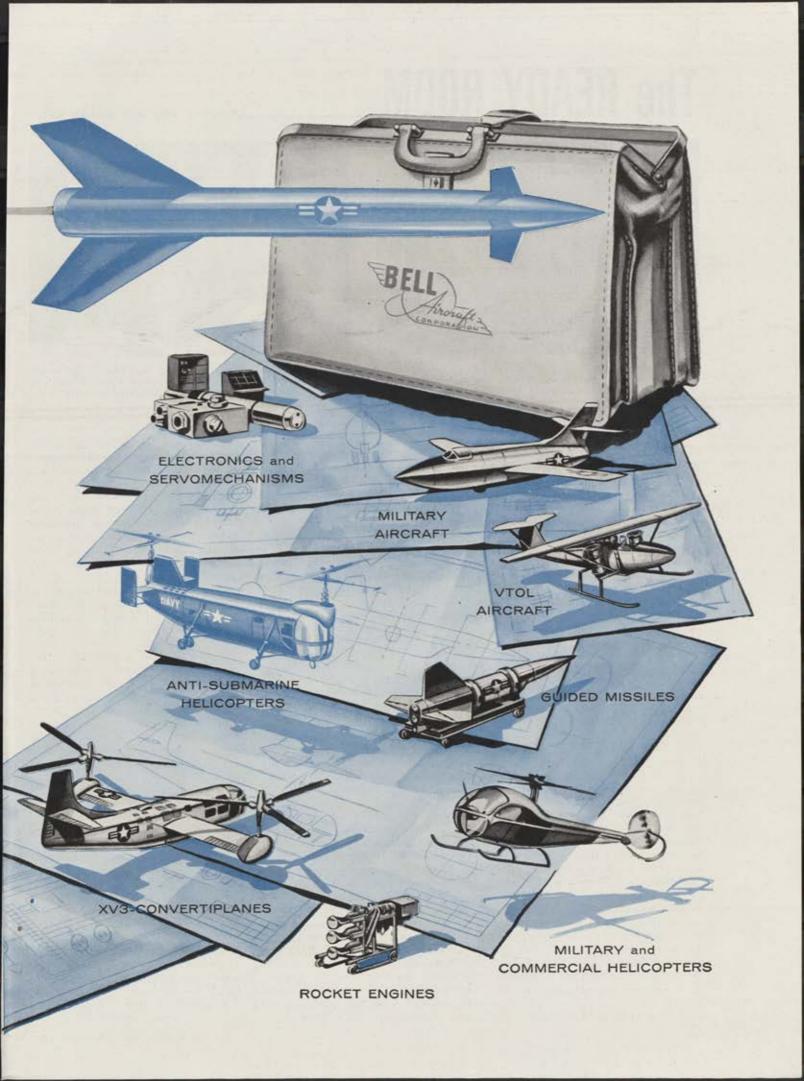
strategic, long range GAM-63 Rascal, one of the few contractors to undertake the *complete* weapons system assignment from airframe to rocket engine, from its electronic components and servos to ground-support equipment and training devices.

In one of the country's largest and best equipped rocket engine facilities, Bell has developed and is producing engines for the Rascal and Nike missiles as well as for other projects. The famous Bell series of high performance research aircraft — X-1, X-1A, X-2 and X-5 — is supplying today's information for tomorrow's tactical planes.

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The READY ROOM

RESERVE AND AIR GUARD NEWS



At anniversary of Los Angeles Air Reserve Center, emcee David Showalter chats with M/Sgt. Frank Gonzales, the I,000th Air Reservist actively in the training program.



These four Pittsburgh lawyers are the first AFReservists admitted to practice before US Supreme Court. From left, Majors Shannon and Schifano, and Lts. Burkardt and Dean.

The on-again, off-again National Reserve Plan finally has passed Congress—but in a form much-revised from the original version presented several months ago.

As finally passed by both houses of Congress, the compromise plan places more emphasis on voluntary participation in the Reserve than on compulsion—a principal feature of the kind of program the Administration desired. The new law also relieves from further service, in the event of emergency, men who have fought in one or more wars. This will eliminate from obligatory Reserve service those who were on active duty during the Korean war.

Another feature provides that a man who enlists or is drafted and serves two years on active duty can apply for transfer to a Reserve unit and complete his total military obligation with three years of part-time training.

Youths between 17 and 18½ years of age may volunteer for from three to six months of training, to be followed by seven and one-half to seven and three-quarters years of Ready Reserve participation. They also can escape any active duty by volunteering for full-time duty in a Reserve unit and remaining active in it until they reach the age of twenty-eight.

The program has undergone numerous changes since it was submitted to Congress. The House watered down the original version and the Senate watered it down still further. What finally emerged was a compromise between the House and the Senate.

In its final form, the National Re-

serve Plan eliminates the National Guard from its provisions. It further sets back by at least two years the Administration's mid-1959 target date for a Ready Reserve totaling almost 3,000,000 officers and men.

After six years of trying to find a home suitable for jet operations, Maryland's 104th Air Guard Fighter Squadron has made the grade—thanks to the Glenn L. Martin Company.

The aircraft manufacturing concern offered the ANG unit not only the airport runways but land at the northern edge of the field where the Guard can build a hangar, fuel storage facilities and a parking apron. All this at no cost either to the federal government or Maryland.

In offering the 104th a permanent home, George H. Bunker, President of the Martin Company, said he was amazed at Baltimore's lack of civic pride in failing to provide facilities for jet operations. The criticism obviously was aimed at the Baltimore City Airport Board which has consistently refused to let the 104th into huge Friendship International Airport.

Until the Martin company came to the rescue, the 104th faced the prospect of being converted to a transport-type unit. Confined to an antiquated municipal airport whose runways could not be extended to permit jet operations, the 104th was among several Guard units slated for conversion to multi-engine equipment.

With an adequate location now available, the 104th will be equipped immediately by the National Guard Bureau with F-86 Sabrejets. This will give all three squadrons of the 113th Fighter-Interceptor Wing comparable equipment. The Wing's 121st Squadron in Washington, D. C., and 142d Squadron in Wilmington, Del., have been flying the Sabres for two years.

Establishment of the 104th at the Martin plant sets a national precedent in that it marks the first time an Air Guard unit has been provided facilities at a privately owned field.

A revised Air Guard Regulation 36-012, which sets up procedures for appointment and federal recognition of warrant officers, has been published.

Applicants will be required to complete any seven-level airman proficiency test within the career field ladder in which the warrant officer vacancy exists. This test may be administered in place of the superintendent level test. Exams must be given during the scheduled proficiency testing phase for the appropriate career field and answer sheets will go to the Commander of the 2200th Testing Squadron at Mitchel AFB for scoring.

Candidates who fail the examination the first time will be given a second chance. But a second failure will make a candidate ineligible until the Air Force makes up new tests and gives them to the Air Guard.

The question of whether a Reserve pilot has sufficient free time to devote to flying jets has been the subject of discussion for several years. Now comes one Reserve jet pilot who definitely has the time.

In the fiscal year just ended, Lt. (Continued on page 195)





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Glenn R. Stremke of Hales Corners, Wis., who flies an F-80 in the Reserve 438th Fighter-Bomber Wing at Milwaukee, piled up 329 hours-three times the minimum required by Air Force Regulation 60-2.

The first pilot to check out in jets a year ago, three weeks after the wing received its F-80s, Stremke flew bombers during World War II. He is one of fifty-five wing pilots who have made the successful transition into jets in the last year.

Air Force has authorized the Air National Guard to retain officers qualified for promotion, who would be excess to T/O spaces if promoted under the new Reserve Officers Personnel Act, until promotion lists are compiled and distributed.

In order that the Air Guard may comply with provisions of ROPA and still maintain operational readiness. Air Force also is permitting the Guard to establish non-T/O positions, enabling units to retain certain skilled officers promoted under ROPA to ranks in excess of those reflected in

T/O grade authorizations.

This authority, however, will be withdrawn not later than June 30, 1957. Which means that the Air Guard has only two years to bring grade and positions into line with each other. For this reason, the Guard Bureau has decided to exercise strict control over these non-T/O positions, allocating spaces only upon written requests which must be accompanied by complete justification. Further, these spots will be given only to those officers who appear on a promotion list published by USAF, who have career specialties needed, and for whom there are no grade vacancies in any T/O unit in the grade to which they have been promoted.

The Reserve Forces Policy Board, highest-level advisory agency to the Department of Defense, has recommended additional training periods for rated members of the Air Force Reserve and Air National Guard in line with a resolution adopted by the Air Force Association at its annual Convention in Omaha last year.

At a meeting in the Pentagon last month, the Board decided that there was considerable merit to the argument raised by the rated Guardsman and Reservist that he was required to participate - at no compensation - in many days of flying in addition to the authorized training periods in order to satisfy requirements of AFR 60-2.

The regulation prescribes that rated Reservists and Guardsmen must

meet the same minimum requirements as rated persons on active duty. In the majority of units, however, the rated pilot-particularly those in staff positions-cannot fly during scheduled training periods. Therefore, they must get their flying hours in at their own time and own expense.

The RFPB action would authorize thirty-two additional training periods for purposes of flying. It would cost an estimated \$3.5 million.

The decision by the RFPB is by no means final. Approval by the Department of Defense must follow and the additional funds must be found.

Mayors of twenty-two cities in four upstate New York counties recently spurred the Air Force Reserve program in their communities with proclamations inviting public participation in Reserve preparedness programs scheduled in the two principal cities in the four-county area, Kingston and Poughkeepsie.

An estimated 18,000 persons attended the Poughkeepsie program, staged at Dutchess County Airport and highlighted by aircraft displays arranged by the USAF Orientation Group. Another 10,000 persons attended a similar program in Kingston.

The fifth annual Air National Guard gunnery exercise is scheduled this

month for Gowen Field at Boise, Idaho, with eighteen teams entered, representing as many wings.

The meet will be conducted in two phases, one for day-fighter and fighter-bomber aircraft, the other for fighter-interceptor aircraft. Each wing will be represented by a five-man team, four principals and one alternate. The key member of each team will be the wing or group commander, who will be required to fire all missions.

Day - fighter and fighter - bomber teams will fire for record eight air-toair missions (four at 20,000 feet and four at 27,000 feet), one dive-bomb mission, two panel gunnery missions, two skip-bomb missions, and two airto-ground rocketry missions.

Fighter-interceptor teams will fire five air-to-air missions at 20,000 feet and another five at 27,000 feet. Northrop F-89 Scorpions and Lockheed F-94 Starfires will comprise the aircraft in the fighter-interceptor phase.

USAF's Gunnery School will provide members of the all-important arbitration committee, and Air Force also will provide Air Rescue Service aircraft. Otherwise, the meet will be an all-Guard show involving an estimated 700 officers and airmen.

Last year's team event was won by the 140th Fighter-Bomber Wing of Colorado. This team will represent the

(Continued on following page)

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has its eye on tomorrow!

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Radio Receptor has been a leader in electronics since 1922, tackling and solving tough assignments from the conference stage through design, development and full scale production. By keeping our eye on tomorrow we are able to meet today's demands for new ways and new devices to help increase our country's might.



Radio Receptor's Miniature Transponder Beacon, Model RRco-XI, opens the way to once "impossible" applications. For instance, it is capable of full transponder beacon protection for short range liaison aircraft, helicopters, lifeboats and ground patrols.

Engineering Products Division

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RADAR, NAVIGATION AND COMMUNICATIONS EQUIPMENT,
SELENIUM RECTIFIERS THERMATRON DIFLECTRIC HEATING EQUIPMENT.

THE READY ROOM_CONTINUED

Air Guard in the 1955 world-wide USAF Gunnery Meet at Nellis AFB, Nev.

Project officer for the Guard meet is Maj. Billy C. Means of Hayward, Calif., who won the individual title in the 1952 meet at Victorville, Calif., and who is on active duty in the Air Force Division of the Guard Bureau.

More than 200 AF-ROTC students from sixteen colleges and universities, including twenty-eight members of the Arnold Air Society, have completed summer training at Donaldson AFB in South Carolina.

The program at Donaldson, home of the 63d Troop Carrier Wing, included orientation flights in the Douglas C-124 Globemaster, Lockheed T-33 jet trainer, de Havilland L-20 liaison airplane, and Sikorsky H-19.

Among the colleges and universities represented were Williams, Rutgers, Fordham, Howard, Maryland, Florida, Brigham Young, North Carolina State, and MIT.

Continental Air Command has given direct commissions, ranging from second lieutenant to captain, to Z1 Reserve airmen.

First Air Force led the list with a total of twelve appointments. Fourteenth Air Force gained five, and two each went to the Fourth and Tenth Air Forces.

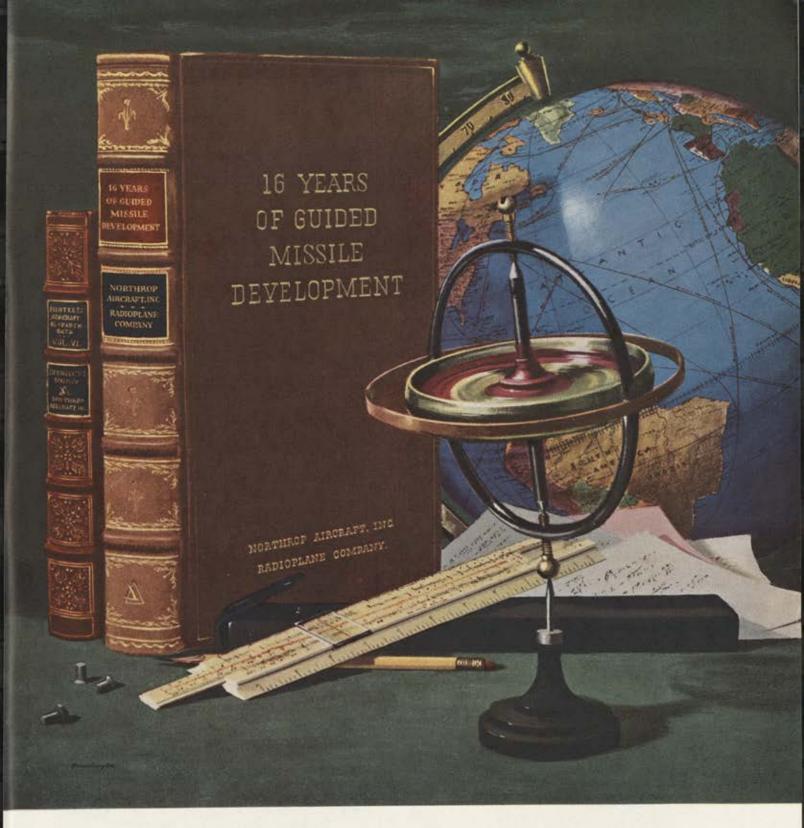
Records of another fifty-four Reservists selected for officer status are being processed at the Records Center in Denver, and these promotions will be announced in the near future.

Civilian instructors will join Air Force officers in teaching some of Ohio State University's AF-ROTC course work next year in an experimental program which could bring about changes in the training plan for this group of future officers.

The university's Board of Trustees authorized the trial program which had been recommended by a joint committee representing the Air Force and university faculty.

At Ohio State, which has one of the largest AF-ROTC units in the country, the curriculum for these students includes instruction in such subjects as political geography, communications, international tensions, and agencies. The university has highly qualified civilian instructors in these areas and they will be called upon to teach these specialties.

Dr. Howard L. Bevis, university president, announced that the experiment has the full approval of Maj. Gen. M. K. Deichelmann, who heads the AF-ROTC program—END

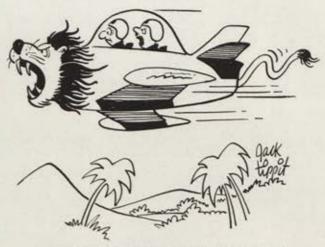


BALANCE — Foremost of Northrop achievements is an efficient organization well balanced between the poles of advanced research and economical production. Northrop scientists in physics, astronomy, metallurgy, electronics, aerodynamics, optics and many other fields are doing their work years in advance of the need. From this long-range thinking and planning within the Northrop complex have come the Radioplane Company's family of pilotless drones and missiles, first and foremost in their field; the Scorpion F-89 interceptors, present defenders of our heartland approaches; and Snark SM-62s, deadly intercontinental A-bomb carriers. As streamlined as its products, the well-balanced Northrop organization is at work on even greater weapons to strengthen this nation's defense... and is more ready than ever to develop and produce them efficiently and on schedule.





"So THAT'S where I stuck my bubblegum!"



"I warned you about buzzing too low over the jungle!"

Flying Can Be Funny

Through the USAF with Sketchpad and Pencil

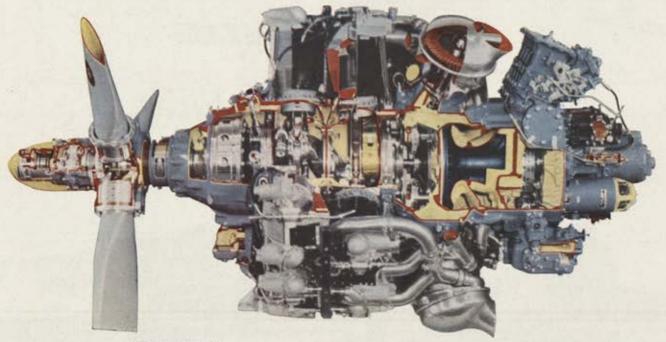
■ACK Tippit, whose cartoons have become a regular feature of our "Shooting the Breeze" department, first learned about the Air Force during a four-year hitch with the 13th AF in the Pacific during World War II. He flew forty-six combat missions in B-24s. Recalled for the Korean fracas, he served two years at McConnell AFB, Kan., as training aids officer, working on the first B-47 trainers. While there he qualified in a T-33. He's a captain in the AF Reserve, works as an advertising artist and free-lance cartoonist out of Lubbock, Tex. His stuff has appeared in The Saturday Evening Post, Collier's, Sports Illustrated, and some sixty other notable publications, including of course, AIR FORCE. He's thirty-one, married, has a four-year-old son and a daughter, 1½. He's the proud possessor of a wire-haired terrier whose registered kennel name is "Tippit's Rejection Slip."-END







"Sir, I hate to mention it, but you closed the canopy on my pinkie."

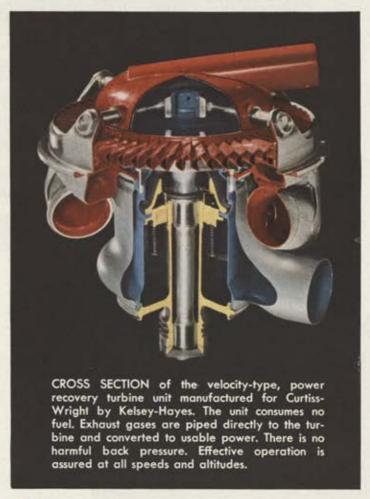


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Kelsey-Hayes helps put 20% power bonus into Curtiss-Wright engines

One more example of Kelsey-Hayes diversity at work for major industries throughout America

Any way you translate it—20% longer range, 20% less fuel, 20% more payload—power recovery turbines on the Curtiss-Wright Turbo Compound engine mean greater operating economy. The entire power recovery unit—requiring 2000 close tolerance machining operations—is manufactured to highest engineering standards by the Kelsey-Hayes Wheel Company, Detroit 32, Michigan.

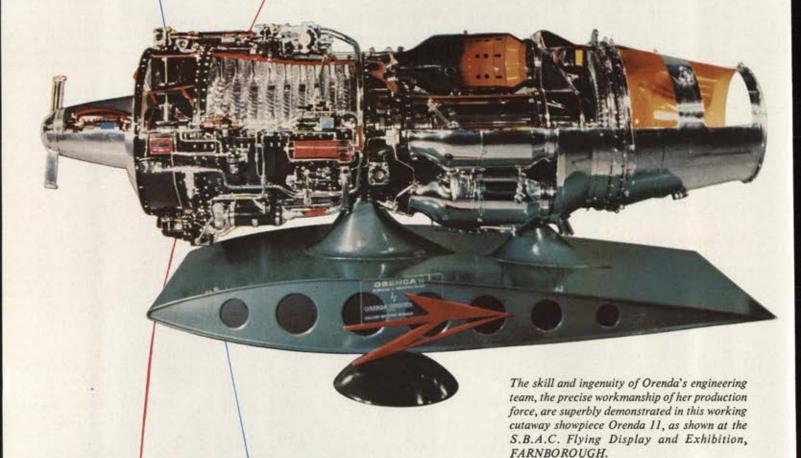


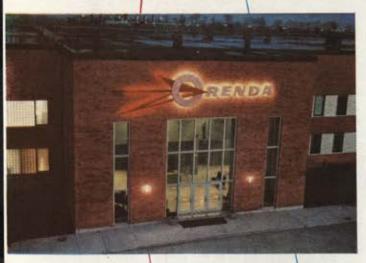


World's Largest Producer of Automotive Wheels



power going places

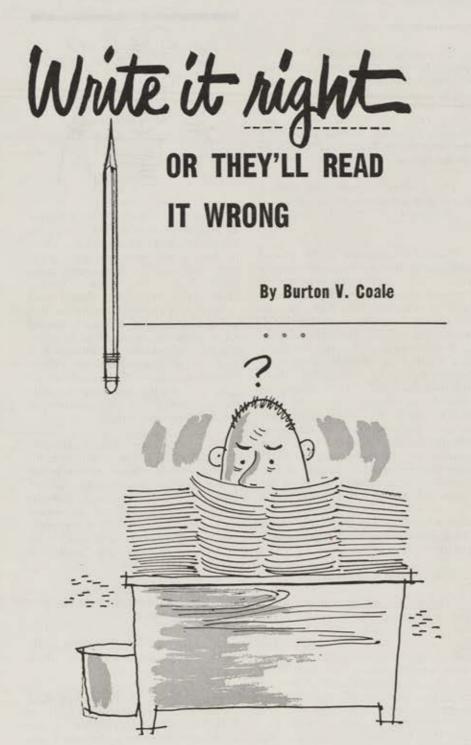




Main entrance to the plant where more than 2500 Orendas have been built in little over two and one ralf years. In England, in Europe, in Canada, Orenda-powered Sabres and CF-100's of the Royal Canadian Air Force daily demonstrate leadership in their respective fields. Now Orenda Sabre 6's have been chosen for the South African Air Force "after giving consideration to all the best jet fighters now in production"—another tribute to Orenda power.



MALTON • CANADA P.O. Box 4015, Terminal A, Toronto A.V. ROE CANADA LIMITED-MEMBER, HAWKER SIDDELEY GROUP The new battlecry in the AF is, 'Make it readable!'



That's the battlecry coming from Air Force headquarters these days. The cry is an old one,

but the approach isn't.

The new approach has Government double-talk as its target. Long sentences, like the following 120-word gem from an Air Force regulation, are on their way out:

"When, in an exceptional case, a person or agency outside the Department of the Air Force not authorized to classify defense information originates information which is believed to require classification, such person or agency is required to protect that information in the manner prescribed by Executive Order 10501 for that category of classified defense information into which it is believed to fall, and transmit the information forthwith, under appropriate safeguards, to the department, agency, or person having both the authority to classify information and a direct official interest in the information (preferably that department, agency, or person to which the information would be transmitted in the ordinary course of business), with a request that such department, agency, or person classify the information.'

Short, crisp, to-the-point sentences that flow smoothly from one thought to the next, are a feature of the new look. The above example, after going through the readable writing mill, came out in shorter, clearer sentences, like this:

"Sometimes a person or agency outside the Air Force, not authorized to classify defense information, originates information which may require classification. This information must be protected in the manner prescribed by Executive Order 10501. The person or agency that originates the information must send it, under proper safeguards, to the department, agency, or person having both the authority to classify and a direct official interest in it. This is preferably the department, agency, or person to which the information would be sent in the ordinary course of business. A request that the department, agency, or person classify the information must accompany the information."

It takes a "heap of readin'" for a person to keep up with all the material the Air Force prints. The Air Force turns out the written word on a wealth of subjects ranging from how to hold a Sadie Hawkins Day (com-(Continued on following page) plete with kickapoo joy juice) to control of common cutaneous diseases in man. A lot of this, in the form of regulations, letters, and manuals, is required reading for every Tom, Dick, and Harry in the Air Force. That alone represents a lot of man-hours but, in the past, about sixty percent of the material has required a second reading or even more before Tom, Dick, or even Harry understand it. And that is a terrific waste of time.

The effectiveness of the Air Force mission is in direct proportion to the effectiveness of Air Force writing. If ideas are clear, operations will succeed. If ideas are vague, operations may fail.

The task of introducing a new approach to Air Force writing has been assigned to the Publications Development Section in the Publishing Division of the Air Adjutant General, Under the guidance of Hilary Milton, a former Air Training Command writer and University of Alabama instructor, a writing staff is looking over all "foggy" Air Force directives and putting them in a new, easier-to-read style.

One of the first steps was to show staff writers how they could improve their own work. A directive on orders, which originally sputtered and stumbled its way through twenty-two long



"Blanket travel orders authorize the recipient to travel from a specific place to such places, or within specified geographical limits, during a stated period of time, as may be required."

paragraphs, was dressed up in a new format and cut down to seventeen clear, concise paragraphs. A paragraph that had read like this:

"Blanket travel orders authorize the recipient to travel from a specific place to such places, or within specified geographical limits, during a stated period of time (for example, sixty days), or between limiting dates, as may be required. Several stations included in the itinerary of temporary duty travel orders or variations in the itinerary should not be considered blanket travel. When the person is required to travel over extended periods within a specified geographical subdivision, arrangements should be made for issuance of necessary travel orders by a convenient local official authorized to issue travel orders, so that nonblanket travel orders may be issued locally as required."

now reads like this:

"Blanket travel orders authorize a person to make an unspecified number of trips within geographic limits during a stated period of time (for example, sixty days) or between limited dates. Don't use blanket orders just because there are several stations on the itinerary or because of variations in the itinerary."

The readability crew also took a crack at a paragraph in an Air Force regulation on casualty assistance which read:

"Casualty assistance is an official function of the Air Force to provide timely and sympathetic assistance to the next of kin and/or dependents of missing or deceased Air Force personnel during the period immediately following the casualty and until such time as it is determined that the Air Force has fulfilled the obligations set forth herein. In case of deceased members. this includes assistance in arranging for funerals or military honors; advising and aiding the next of kin in applying to governmental or commercial agencies for insurance, pensions, compensations, and other benefits to which they may be entitled. In case of personnel missing, missing in action, beleaguered, interned in a neutral country, or captured by the enemy, it includes insuring that the family of the Air Force member is provided for during the period of his absence."

and overhauled it to read:

"The Air Force helps the next of kin and/or dependents of deceased members in arranging for funerals or military honors. It furnishes advice and aid in applying for insurance, pensions, compensations, and other benefits. When a person is missing, missing in action, beleaguered, interned in a neutral country, or captured by a hostile force, the Air Force makes certain that his family is provided for during his absence."





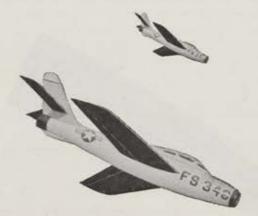
To give the clear writing program an additional boost and to bring it to the attention of any one who is about to write a new directive, writing experts laid down a few simple rules for Air Staff writers to follow. Among other things, the writer should bear in mind that the reader, whether he's an airman or general officer, should know in the beginning what he is going to read about. An introductory sentence in a regulation on Officer Candidate School attempted to do this, but, as the following example shows, ended up blunderbussing through forty-odd words:

"This Regulation prescribes the policies governing officer candidate training for warrant officers, airmen in the active military service with the Air Force, and female civilians, and the administrative procedures concerned with the eligibility criteria, application, examination, assignment to training, and assignment upon graduation or elimination."

The readability boys figured most airmen would be better informed if the sentence read:

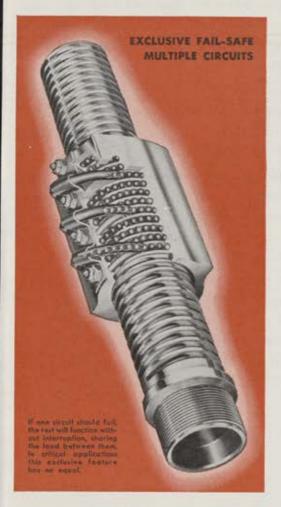
"This Regulation tells how to apply and to process applications for Officer Candidate School, USAF."

Prospective Air Force writers must remember that upholstering a sentence with big words doesn't help the plight of the average airman. Take such mil-(Continued on page 205)



HERE'S A BETTER ACTUATION METHOD!

Saginaw ball/bearing Screws can help you solve weight, power and temperature problems



WHAT IT IS AND HOW IT WORKS



Let's start at the beginning, with the familiar principle that there's far less friction in rolling than in sliding. By applying this principle,



the Safety ball/bearing Screw radically increases the efficiency of rotaryto-linear motion (and vice versa). Instead of silding, mating surfaces glide on rolling steel balls.



Like stripes on a barber pole, the balls travel toward end of nut through spiral "tunnel" formed by concave threads in both screw and mating nut.



At end of trip, one or more tubular guides lead balls diagonally back across outside of nut to starting point, forming closed circuit through which balls recirculate.

TREMENDOUS ADVANTAGES IN AIRCRAFT ACTUATION

Conventional Acme screw's efficiency is less than 25%; Safety ball/bearing Screw's ranges from 90 to 95%! Combined with electric, hydraulie or pneumatic power source, it forms an actuator for aircraft (and similar uses) that:

SAVES WEIGHT—permits use of smaller motors and gear boxes; eliminates pumps, accumulators, piping, etc.

SAVES POWER—Safety b/b Screw requires only 1/3 as much torque for same lineal output as conventional Acme screw.

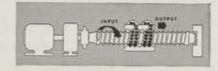
SOLVES TEMPERATURE PROBLEMS—operates successfully from - 75°F to +900°F—and without lubrication, if needed.

ANY SIZE FROM 11/2 INCHES TO 391/2 FEET IN LENGTH

Every Safety b/b Screw is individually engineered for its particular application. Our engineers are eager to help solve your actuator problems now.

MAIL COUPON TODAY FOR YOUR ENGINEERING DATA BOOK

(or see our section in Sweet's Product Design File)



ASSURES POSITIVE POSITIONING—permits precision control within thousandths of an inch, plus perfect synchronization.

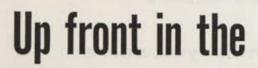
INCREASES DEPENDABILITY—offers longer life and added security of exclusive multiple circuits, plus greatly decreased dirt sensitivity of special "Gothic arch"-shaped races.

REDUCES PART AND INSTALLATION COSTS—savings in weight, motor size, power and auxiliary equipment cut cost, too.

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Allison Model 501 for commercial use develops more power for its size and weight than any other Turbo-Prop engine built today

Pay-off on ten years of Turbo-Prop pioneering is the Allison Model 501 engine, commercial version of the T56 which recently completed the most exacting model test ever required of a propellertype engine.

Now in production, this engine develops 3750 horsepower, or 2.3 horsepower per pound of weight—a power-to-weight factor better than any other Turbo-Prop engine available today, and almost 2½ times that of contemporary piston engines.

In a typical application, the Allison "501" saves one ton of weight per engine nacelle, and has an engine frontal area of only six

Turbo-Prop Race

A RESTAURANT

square feet—less than half the frontal area of a reciprocating engine with comparable power. Its amazing compactness cuts speed-reducing nacelle drag as much as 60%.

These advantages will enable cargo transports powered with these engines to carry heavier payloads faster at far less cost than present aircraft.

And in passenger operation, smooth-running Allison Turbo-Props will provide quieter, more comfortable flights—and permit speeds better than 7 miles a minute.

Allison Turbo-Props are engines in being—not merely on paper. They are the first American Turbo-Props being built and delivered in production quantities, and have to their credit more actual flight experience than all other U.S. Turbo-Props combined.

ALLISON Division of General Motors Indianapolis, Indiana Builder of Turbo-Jet and Turbo-Prop Aircraft Engines



Allison

More than five-and-one-half million hours of turbine engine flight time . . . TURBO-PROP ENGINES

0

itary hand-me-downs as "promulgation," "implementation," and "verification" out of the game and use words that everybody understands like "set up," "carry out," and "verify."

Staff writers are warned not to add an "opinion" to their writing, Recently a personnel publication came out which told airmen how to fill out an individual position inventory form. In one place the writer said, "This section (of the form) is very simple to fill out and you will need no further instructions on how to do this." That's what he thought.

Project officers, who probably have never written an Air Force regulation before, are advised not to throw words on paper helter-skelter but to do some thinking before they start writing. Here's what a staff writer should do before he picks up his pen:

Establish the need for the publication,

• Determine what the publication will do,

· Determine who will use it,

Determine its broad coverage,

· Plan the order of presentation,

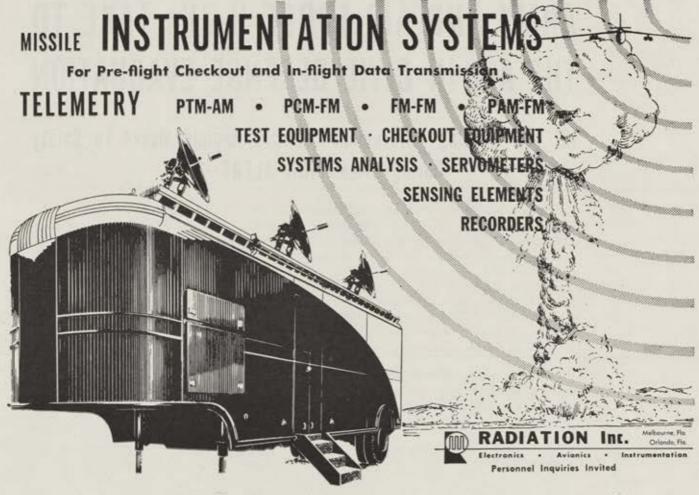
Make a comprehensive outline,

 Give specific wording to outline topics. The trump card in selling the new style writing program is the "person-to-person" visit. Teams of writers visit project officers, showing examples of good and bad writing with visual aids and graphic illustrations. They go from the general to the specific, beginning with an over-all outline of the writing improvement program, then moving on to a question-and-answer session that gives specific answers on preparing manuals and regulations.

The writers have still another means of reaching embryo Hemingways in the Air Force. A manual on how to prepare Air Force publications will soon be off the press. Articles on such subjects as "Let's Improve Our Writing" and "Let's Plan Our Writing" are put out monthly by the writing specialists.

One of the readable writing experts probably went overboard when he changed "Forms retained by preparing and intermediate activities will, after being retained six months, be disposed of in the nearest container for waste" to "Throw out your forms, boys; they're obsolete." But this example shows that Air Force writing can be led out of the gobbledygook jungle.—End







ARMY AND AIR FORCE H-21'S TAKE TO THE AIR IN CIVIL DEFENSE EVACUATION

121 Top Ranking Government Officials Rapidly Moved To Safety During OPERATION ALERT-1955

At 12:05 p. m. on June 15th when the sirens sounded in the nation's capital for OPERATION ALERT — 1955, 12 Piasecki H-21 helicopters descended upon the Pentagon area to evacuate top government and military officials.

For the first time helicopters were used for a mass evacuation in Civil Defense operations. Minutes later our country's key personnel were miles from the Pentagon enroute to relocation centers.

Helicopter courier service to the Pentagon helped maintain business as usual during the three day period. Our hats are off to the men and women of the Federal Civil Defense Administration and other participating government agencies.

We salute the pilots and crews of the U. S. Army's 509th Helicopter Transportation Company and the U. S. Air Force's 516th Troop Carrier Group who, with their H-21's, successfully accomplished this air evacuation.

We at Piasecki are proud that the Army and Air Force selected the Piasecki H-21 "Work Horse" helicopters for this important mission.

VERSATILE PIASECKI HELICOPTERS IN EXTENSIVE MILITARY SERVICE

The H-21, the only transport helicopter in service capable of carrying 20 passengers, is used for transporting combat troops and carrying loads of military equipment and supplies weighing up to two tons in Army and Air Force operations.

Operation Alert — 1955 is another typical example of the versatility of this and other Piasecki helicopters.

The operational advantages inherent in the Piasecki tandem rotor configuration are being demonstrated in the many tasks it performs under all types of conditions throughout the world. A commercial version of the H-21 will soon be available for airline and industrial use.

This new carrier is another result of Piasecki's unceasing efforts to improve helicopter performance — to build helicopters to do more jobs and do them better than ever before.

ENGINEES NEEDED FOR.



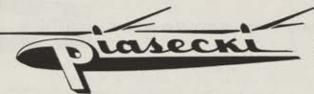
Military Evacuees Board H-21 at Pentagon



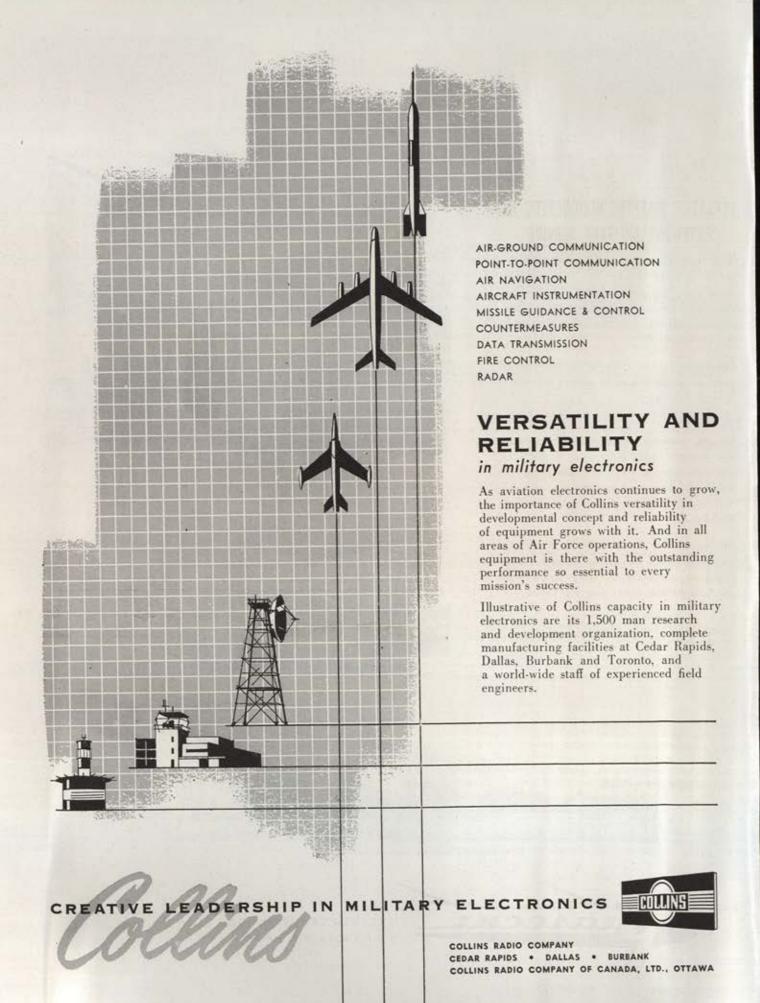
H-21 Participating in Operation Alert-Philadelphia



H-21's Departing from Pentagon to Relocation Centers



HELICOPTER CORPORATION



New Squadron in Hagerstown, Md.

A MARYLAND COMMUNITY THAT DOES THINGS IN A BIG WAY IS AIMING AT 2,800 MEMBERS

Hagerstown, a Maryland community that does things in a big way, has formed an AFA Squadron, and aims to make it one of the nation's largest. Its goal-2,800 members. At presstime the new unit was off to a good start with memberships already over 300. Charter members feel the goal can be reached by early fall.

James Straubel, AFA Executive Director, and Gus Duda, Organizational Director, were among the 500 persons who witnessed the charter signing on July 12. Also present were local business and civic leaders, AF veterans, Reservists, the entire CAP Squadron, local AF Recruitof the Ground Observer Corps, and Lt. James Malek, a member of the 42d Fighter-Interceptor Squadron at O'Hare AFB, gave a demonstration of the equipment worn by fighter pilots.

designed to develop interest in outstanding performance of duty, has been organized by the Twin-Cities Squadron in St. Paul-Minneapolis. The Squadron, under

Civil Defense Directors and officials from several neighboring communities. Lt. Col. Fred L. Ross described the operation of the Nike battalion he commands. Maj. Allen Freidman talked on the importance

An "Airman of the Month" program,

Peace." (See photos on the next page.) Nationally, AFA is a co-sponsor-with the Navy League of the United States and the Military Order of World Wars-of the National Armed Forces Day Dinner in Washington. Locally, AFA units sponsor parades, dinners, luncheons, tours of nearby military installations, and many

SQUADRON OF THE MONTH

The DuPage Squadron DuPage, III. CITED FOR

its sponsorship of "Kid's Day" in the community. This program has attracted

wide attention throughout the area, and accomplishes a basic AFA mission in promoting an interest in Air-Age Education.

quaint citizens with the modern defense In Skokie, Ill., the AFA Squadron ac-(Continued on following page)

other programs designed to better ac-



Col. George F. Ceuleers, Commander at Portland, Ore., International Airport, receives AFA award from Sqdn. Cmdr. Glenn Currey on Armed Forces Day.



Shown at the first meeting of the new Hagerstown, Md., Squadron are, from left, Squadron Commander C. F. Barelay; Fairchild President Richard S. Boutelle; AFA Executive Director James Straubel; Mayor Winslow F. Burhans who was made an honorary Squadron momber; W. L. Landers; and William F. Owens.

ers, and representatives of the Fairchild Engine & Aircraft Corp., including the Pegasus Club, the Fairchild supervisory group and one of the local organizations supporting the new Squadron. Its president, M. A. Bigelow, introduced the Squadron officers.

Following acceptance of a Constitution and election of officers, Richard S. Boutelle, Fairchild's President, presented Cadet memberships to the twenty-three Cadets who make up the Hagerstown

CAP Squadron.

Charles F. Barelay was elected Commander of the Squadron. William F. Owens, Martin Wempe and William Burch are the other officers. Boutelle, Allen Ethridge, Myron Swope, Roger Davis, and E. R. Gelvin were named to the council.

A Civil Defense meeting sponsored by Chicago's West Suburban Squadron in Forest Park Village Hall on June 7 drew an audience of more than 100 persons. The program, arranged by Squadron Commander M. Lee Cordell, attracted

the leadership of Commander Leonard Stevens, and working with the personnel at Minneapolis-St. Paul International Airport, obtains gifts and services for one airman a month who has been recommended by a committee.

Free radios, hotel suites, dinners, and other prizes are awarded to the winners. Top airmen are also interviewed over television station WCCO, through the cooperation of the station management and Sherman Booen, whose program, "World of Aviation," is highly rated in

In 1950 the nation observed its first Armed Forces Day. AFA, with a sincere interest in programs which will aid the Armed Forces Day theme, has participated in the day's observance in greater measure each year.

Once again in 1955, more than half of all the AFA Squadrons sponsored or cosponsored local Armed Forces Day pro-grams. Through these efforts, millions of Americans were better able to understand the meaning of the phrase "Power for



Jack Gross congratulates Miss Sally Porter after her selection as Olmsted Sqdn. Sweetheart, Harrisburg, Penna.



In Long Beach, Calif., Floyd Danman escorts Miss Dianne Hall in parade.



Chartered last April, Oklahoma City Squadron had booth at Tinker AFB.



In Skokie, Ill., AFA float with Miss Lace aboard was the hit of the parade.



George Wilson demonstrates "On Guard" theme on Skokie Valley Squadron float.



Frank Brazda and Portis Christiansen with San Diego Squadron's winning entry in "Parade of Lights." Float won first prize trophy in night-time display.

complished this aim through co-sponsorship (with the Skokie Valley News) of a two-day program that included a threehour parade, a banquet, luncheon, and huge rally in the high school stadium, which attracted some 10,000 persons.

In Long Beach, Calif., the 1st Reserve Squadron took part in the big Armed Forces Day parade and festivities, as did many other Squadrons all over the country. In Ogden, Utah, Armed Forces Day was on the Utah Wing Convention agenda. The entire delegation took part in the program at nearby Hill AFB.

In Oklahoma City, the new AFA Squadron erected an information booth in the hangar at Tinker AFB, and relayed the AFA message to thousands viewing the public display of our nation's airpower.

In Dayton, Ohio, the Wright Memorial Squadron cooperated in the annual luncheon sponsored by the Chamber of Commerce. This unit also assisted in the program for the general public at Wright-Patterson AFB.

An outstanding annual event in San Diego is the Harbor Days festival. A feature of the program is the Parade of Lights, in which yachts are decorated as floats and sail past the reviewing stand at night. Each Division winner gets a trophy for originality and effective use of lighting.

Last year the San Diego AFA Squadron came in second, and this year they walked off with first prize. The Squadron's entry was a huge model of Convair's F-102 (see cut).

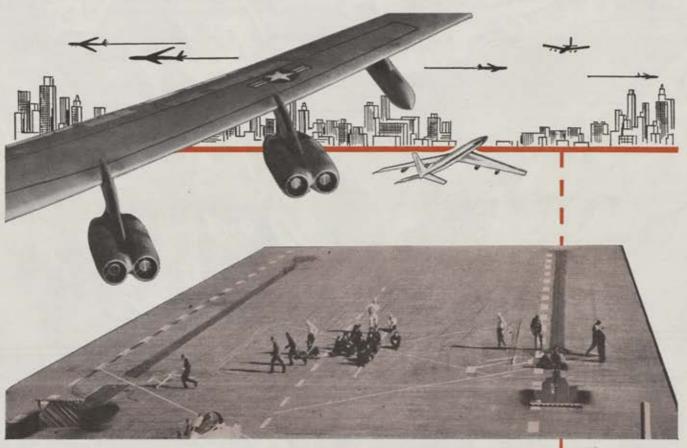
Many of the Squadron members worked on the float, including Commander Jim Snapp, Frank Brazda, George May, who was chairman, John McBratney, Bill Strong, Portis and Loris Christiansen, and Rolan Bohde.

In most cases, an AFA Squadron goes through some growing pains before it reaches a point where it can sponsor some social event to make its presence felt in the community. In the case of our new Houston Squadron, this procedure, by necessity, was tossed out the window.

On June 5, in a meeting in Houston, two AFA members expressed a desire to form a unit. They also wanted to sponsor some sort of public recognition for Capt, Jack M. Burden, an Air National Guard pilot who was to represent Texas in the AFA-sponsored California to Detroit Ricks Memorial Event (see page 185). Burden was to leave Houston on June 28 for the Ontario, Calif., take-off point, so the organizers had about twelve days to plan the program.

In spite of the rush, a fine dinner program was planned, and carried out without a hitch. Approximately 100 attended the banquet, and heard an address by AFA's Southwest Regional V-P, Maj. Gen. Clements McMullen (USAF, Ret.). Houston's Mayor Roy Hofheinz presented the keys to the city to Burden along with appropriate messages of greeting to the Mayors of Los Angeles and Detroit.

The Charter application, signed by (Continued on page 213)



Will the airfield of the future resemble a carrier flight deck?

According to the authorities, it is only a matter of time-perhaps 10 years or so-when launching and recovery systems will be as common a sight on airfields as they are today aboard carriers.

It is to be, for the fields of today are acknowledged to be inadequate for many of the jets on the drawing boards right now, Think of the problems this raises—

For the military, increasing the length and strength of runways only adds to their vulnerability.

For commercial interests, construction costs would be prohibitive—even where they were fortunate enough to obtain suitable sites.

Special high energy catapults and modern arresting gear offer one solution to these problems. Such equipment can keep existing fields in use...cut costs when new fields are required...maintain present high safety standards.

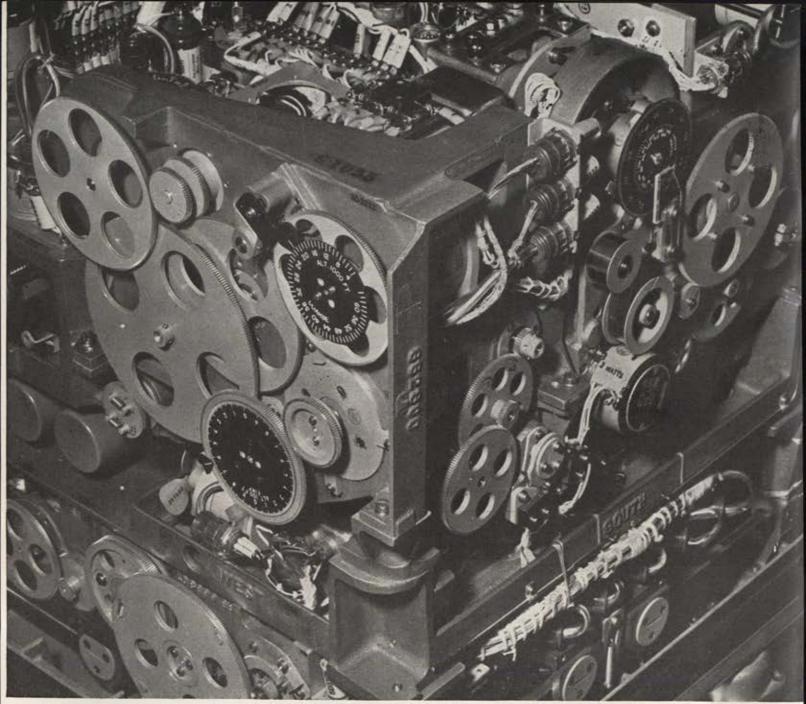
Bliss personnel are developing launching and recovery systems capable of handling heavier, faster planes. Backed by research and technical know-how, they are ready for the day...that is not too far away...when "land-based" carriers are needed.

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Houston Squadron's Bob Thieme wishes luck to Jack Burden in the Ricks Race.

sixty-three individuals, was carried to Detroit by Burden and presented to AFA President John R. Alison. In a special ceremony at Detroit's Sheraton-Cadillac Hotel after the cross-country event, the official Charter for this new Squadron was presented to Robert H. Taylor, who was elected Deputy Commander of the Squadron. Taylor is Commander of Burden's outfit, the 116th Fighter-Bomber Wing, Texas ANG.

Robert B. Thieme, a Houston minister and AF Reservist, was elected Commander of the Squadron.

The cooperation between the AF Reserve Center and the Air National Guard was particularly gratifying. Col. Joseph H. Batjer, Reserve Center Commander, worked many long hours with Taylor and Thieme on the project.

For the second year, the DuPage (Illinois) Squadron has sponsored a successful "Kid's Day." On June 13 some 300 junior high school children showed up at Elmhurst Airport to view aviation films, partake of free refreshments, and most important, take an airplane trip over the area.

This was the first flight for ninety-five (Continued on following page)



Owen Ferry, Joe Dougherty, and Frank Stieber welcome Maj. Gen. Roger J. Browne, 1st AF CO, to Philadelphia.



about aerial navigation ... AND FORD INSTRUMENT COMPANY

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Applicants who also have Instrument Rating or Flight Engineer's Certificate (or Flight Engineer's examination written portion passed) will be accepted through age 29... with both Instrument Rating and Flight Engineer's Certificate through age 30.

Successful applicants will attend United's Flight Training Center and receive a salary while training. Look to your future—apply now for both present and future employment.

Write: C. M. Urbach Placement Superintendent United Air Lines Stapleton Airfield Denver, Colorado AFA NEWS



Jack Jenefsky, right, and participants in glider meet co-sponsored by the Wright Memorial Squadron. Lane Trophy winner Dave McNay is third from right.

percent of the kids and the interest expressed indicated that it would not be the last. This is the Squadron's aim—to stimulate interest in flying, and develop a better understanding of the air age.

Principals in the planning were Vern Arnt, DuPage Squadron Commander, John Carr, past Wing Commander of Illinois, and George Anderl, an AFA National Director. All those present had



Randall Leopold presents Pennsylvania Wing Award to Rep. Harry W. Price for his efforts on behalf of AFA in state.

high praise for George Edgecumbe, operator of the airport, who furnished planes, pilots, gasoline, and facilities. Edgecumbe was awarded the Illinois Wing Trophy for outstanding service this year.

Again this year Dayton's Wright Memorial Squadron co-sponsored the Wright Memorial Glider Meet. This seventh edition of the program was the largest and (Continued on page 217)



HILLER DEVELOPMENTS ...designs for greater mobility

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Methods

Watch Hiller pace the industry in new developments.



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Are you working at your highest potential? The problems on which you are engaged may not utilize the full range of your skill and imagination. That next step on the ladder may be out of reach in your present position, because it is already adequately filled.

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Republic is a most logical choice for ambitious professional men. Rapidly growing operations provide many possibilities for career building in research, development and manufacturing. And Republic's new, all-expense-paid plan makes relocation problems easy.

At Republic you can count on a progressive company, never resting on its laurels; always searching out and testing new ideas. As you probably know, the F-84F Thunderstreaks and RF-84F Thundersflashes are soon to be followed by the F-103, F-105 and XF-84H.

Republic picks up the bill for your relocation. The company will pay for moving your household effects, up to 5,000 pounds; for storage up to 30 days, where necessary, and \$10 per diem up to 30 days, while you're getting settled.

Republic pays top salaries and you'll receive important personal benefits; up to \$20,000 life, health and accident insurance; hospital and surgical benefits for the whole family; and 2/3 of the cost of collegiate and graduate study up to \$150 per year.

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Please forward complete resume, giving details of your technical background, to: Assistant Chief Engineer Administration Mr. R. L. Bortner



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Loud meets the increased aircraft demands for quality and economy with expanded facilities and equipment.

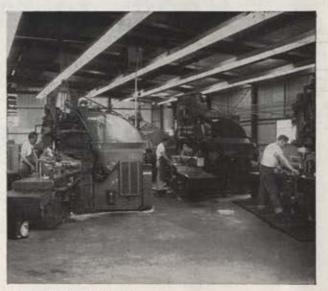
ISTORY—From a small repair shop started in 1908 Loud has grown into one of the most completely equipped job machine shops in Southern California. This modern plant, including engineering and test laboratories, occupies almost two hundred thousand square feet and employs approximately seven hundred persons.

Facilities-Within this modern completely equipped plant fabrication of the smallest precision valves to the largest aircraft structural fitting is accomplished. Loud is one of the very few plants equipped to handle all phases of manufacture from raw material to finished product in one plant. One of the largest milling departments in the West contains forty large mills, over 10 of which are of the Hydrotel automatic duplicating type. Other unusual equipment includes flash weldersone an 800 KVA giant capable of up to 12 square inches of chrome moly up to 10 inches in diameter; complete heat treating facilities including a 10 foot deep vertical atmospheric controlled furnace (necessary for the production of highly stressed arresting hooks); automatic duplicating lathes, automatic chucking lathes, qualified spot welding machines, complete qualified plating facilities including hard chrome, anodizing, cadmium, silver, copper, and dichromate (for magnesium); all types of grinding and honing machines, and the finest of inspection tools such as comparators and surface analyzers.

In addition to this unusual equipment the plant contains a multitude of turret lathes, hand screw machines, automatic screw machines, engine lathes, drill presses—some automatic indexing, large radial drills, boring machines, shapers, and planers. Complete qualified facilities for arc, oxy-acetylene, and heli-arc welding of steel and aluminum are provided.

These facilities make Loud an outstanding source for major sub-assemblies of aircraft.

With this complete manufacturing facility in one plant Loud can produce major structural sub-assemblies. An assembly line for the production of tactical ground



ONE OF THE LARGEST milling departments in the West contains forty large mills, over 10 of which are of the Hydrotel automatic duplicating type.

handling equipment is currently turning out jet engine cradles in large quantities.

Products—Loud produces complicated structural fittings of both steel and dural, all types of machined parts—large and small, hydraulic cylinders, valves, hand pumps, servo-control mechanisms, pressure tanks, landing gear struts, nose wheel steering units, pneumatic and fuel valves and filters, all to exacting aircraft specifications.

Progressive—Loud's modern manufacturing facilities are constantly being expanded to meet the increased aircraft demands for quality and economy. This has resulted in the ability to produce precision machined products of the highest quality at a lower price than can be produced by the customers themselves.

"The tough jobs go to Loud" is indicative of the respect manufacturers have for Loud "know how."

- Engineering and design development by Haskel Engineering Associates, Glendale, California
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 Kansas City (Independence), Mo.; Baltimore, Md.

H. W. LOUD MACHINE WORKS, INC. 969 E. 2nd Street, Dept. A, Pomona, California best attended of all. A record fifty-eight pilots entered the fourteen events, using twenty-four sailplanes in a grand total of 189 official flights. This year's meet was the second largest in the nation. Only the national meet in Elmira, N. Y., is larger (see page 179).

The meet is run off in two Divisions— Junior and Senior, for two age groups. The Lane Trophy, symbolic of the Senior Division championship, went to Dave McNay of Youngstown, Ohio, who placed first in three of the seven Senior events. Robert Urban, Erie, Penna., was winner of the Republic Trophy for Junior Champion. In a special program limited to college teams, Ohio State edged out Purdue for the Northrop Collegiate Trophy.

This is the seventh successive year this program has been carried out by the Squadron. It was begun when Dr. Jerome Meyer, now a National Director, was Squadron Commander. Dr. Meyer is still active in the planning and promotion of the program and took an active role again this year. Jack Janefsky is the present Squadron Commander.

Through the cooperation of the 501st Air Defense Group and its Commander, Col. O. B. Johnson, the Elgin (Illinois) AFA Squadron recently was host to a group of forty members of the Elgin Association of Commerce on a day-long tour of O'Hare AFB, near Chicago. The four was a part of the Squadron's public information program, sponsored to show local businessmen and industrialists what is being done to safeguard the area.

AFA units from California to New York have sponsored local premieres of the Paramount movie "Strategic Air Command" in recent weeks. The film which stars Jimmy Stewart and June Allyson, is the story of the men and planes of SAC.

On the occasion of the ninth anniversary of the Command, a special preview was held in Omaha, sponsored by the Ak-Sar-Ben AFA Squadron. AFA's President John Alison was on hand, along with Gen. Curtis LeMay, Stewart, Miss Allyson, and other notables from the military and Hollywood. Arthur C. Storz, 1954 national Convention Chairman, was chairman for this affair.

The world premiere of the film was held in New York, where the NYC Squadrons acted as co-sponsors. Part of the program was televised and seen by millions of Americans, when Arthur Godfrey devoted the last half-hour of his weekly show to the theater program.

In Seattle, Wash., the premiere was a part of "Airpower Day" ("AFA News," August '55), sponsored by the Washington Wing, while in Atlanta, Ga., where the AFA Squadron is not even chartered as yet, the Southern premiere was sponsored by the group forming the unit,

In New Orleans, La., some 3,000 people from a three-state area were guests of the Robert S. Hart Squadron and the Louisiana Wing, in a gigantic program staged by AFA and Paramount, The Keesler AFB Choir was featured. WRITE FOR DETAILED BROCHURE

SERVEL DEFENSE DIVISION

EVANSVILLE 20, INDIANA

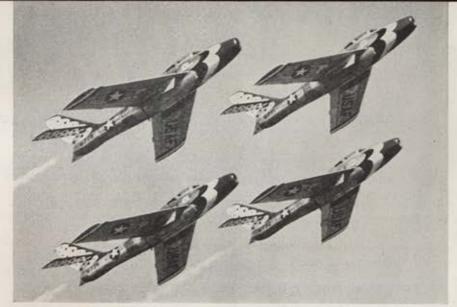
In Pittsburgh and State College, Penna., AFA Squadrons sponsored not only the premiere, but parades which called attention to the film and the Association.

The San Diego Squadron obtained a number of guest tickets to the premiere and distributed them to Boy Scouts, CAP Cadets, and other aviation-minded groups in the city.

In Los Angeles, Portland, Philadelphia, Harrisburg, Dayton, Toledo, Skokie, and many other cities, AFA units cooperated in the sponsorship of this movie.—END



Dayton premiere of "Strategic Air Command" was sponsored at Colonial Theater by Wright Memorial Squadron. Jack Janefsky, Commander, is shown at left, with winners of AFA recognition during on-stage program. From left, they are: Janefsky, M. P. Crews, the six "Miss Armed Forces Day" contestants, Bob Tieman, Paramount representative, Cadet Edward Sortman, and Al Coleman.



Thunderbirds in formation. Officially, it's the 3600th Air Demonstration Unit.

Three Weeks with the Thunderbirds

The leader of the AF's official acrobatic team takes the reader along on the 'road'

By Capt. Jacksel M. Broughton

VE GOT the best job in the flying business. I mean it. I lead the Thunderbirds, the official Air Force acrobatic team. Our official title is the 3600th Air Demonstration Unit, but we like "Thunderbirds" better. Part of my job, the biggest part, I guess, is leading the fourship diamond of shiny red, white, and blue F-84Fs in low-level formation acrobatics. If you've seen our show you know what I mean. If you haven't,

maybe this will help. Let's go on tour with the Thunderbirds as we swing through the AF-ROTC summer encampment series.

Our first ROTC show this year was at Tyndall Air Force Base, Fla. We arrived the evening of June 19, for our show the next day. Actually, we didn't just arrive—we struggled for days to get into position.

The Thunderbirds are a pretty self-contained unit. My outfit consists

6735 EXP PORCE

One of the shiny red, white, and blue Republic F-84F Thunderstreaks used by the Thunderbirds. Nine pilots, thirty-two airmen, six F-84Fs, one Lockheed T-33, and one Fairchild C-119 are required to keep this "show on the road."

of six Republic F-84Fs, one Lockheed T-33, one Fairchild C-119, nine pilots, and thirty-two airmen. Our job is simply this—to keep our aircraft looking and working like the best pieces of machinery in the world, and to make all our scheduled demonstrations.

In getting ready for this particular tour we were lucky. We had three days to get the birds in shape. That may sound like a long time, but it's a man-sized job. My crewmen are hand-picked experts, otherwise we couldn't do it. They are proud of their record, proud of their aircraft, and proud of the job they are doing. I've seen them work thirty-six hours straight, against the clock, to put four ships into a show,

This trip was the usual full blower effort. We inspected the aircraft, we scrubbed some of them, we made sure they each had a new set of rubber, we loaded the C-119, and then we double - checked everything again. And we sneaked a practice mission into the middle of this. They help iron out the wrinkles. We also sneaked a squadron party into the act. They help iron out the wrinkles, too.

Sunday morning at 0600 we were off and running. In rapid succession, the C-119 sprang a fuel leak, we couldn't get Number 51 started, and Billy Ellis blew a nose wheel tire on take-off and almost hung himself up in the runway barrier.

No percentage in prolonging the details. By 2348 that night we had five '84s and the C-119 in Florida. By 0130 the bus driver had delivered everyone to the roost. By 0200 everyone was in the sack, sleeping, thinking about that 0600 alarm, or thinking about the thousand and one details to be cleaned up before show time.

The jangle of the alarm puts things back in gear in a hurry. An inquisitive glance skyward is automatic. Looks good! Clear sky, mild winds, and pretty good visibility. Looks like we might make some money today. We gather up the suitcases and grab some breakfast. Next a trip to the flight line.

What's involved in getting ready for a show? It's just like preparing for a game of football, preparing a flight plan, or going on stage before as many as 250,000 strangers. After the birds are ready, I get the signals straight with my backfield—the three pilots in the diamond. We talk over such things as where we are going to roll, how tight to pull the 360-degree turn, what point do we cross on for the bomb-burst, After a check on fuel consumption, runway length, and time on target, I set a "startengines" time, we all glance at the crowd, and off we go.

(Continued on page 221)



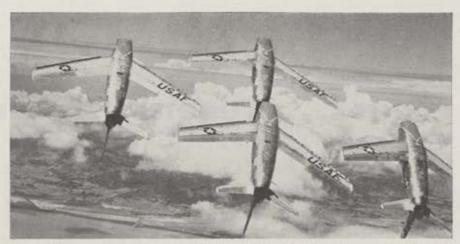
Colonel Gordon



Captain Hellwege



Captain Jones



"There I was . . ." At bottom of this loop, Sabre Knights will exceed 500 mph.

Another aerobatic team

The Sabre Knights

Maneuvering four F-86Ds as one, this precision team thrills audiences throughout the US



Lieutenant Low

ERE'S a look at another aerobatic team, the Sabre Knights. Stationed at Hamilton AFB, Calif., they're the only precision formation team in the world flying all-weather interceptors.

In addition, they are part-timers, pulling regular duty with the 325th Fighter-Interceptor Squadron.

Leader of the Sabre Knights is Lt. Col. Vince Gordon, combat veteran, squadron commander, and former Skyblazer (see page 222). He organized the Sabre Knights soon after reporting to Hamilton in August 1952.

Maneuvering as one airplane, the four combat veterans fly their North American F-86Ds just five feet apart and always remain in full view of the audience. They perform a series of loops, rolls, and other maneuvers in their precision diamond formation.

Left wingman is Capt. Dick Hellwege, a tall, twenty-seven-year-old officer, who grew up in Erie, Penna. He's been with the Sabre Knights since August 1953 and has flown nearly every jet fighter in the Air Force.

At right wing is Capt. Bruce Jones, a flight commander, and Korean veteran with more than 2,000 jet hours during his four years of flying experience.

The fourth man of the team is Lt. James F. Low from Sausalito, Calif. A tall, good-looking officer who's been mistaken for an undergraduate instead of a twenty-nine-year-old combat veteran, he won fame in 1952 when he became the only second lieutenant jet ace of the Korean conflict, downing nine MIG-15s.

All told, the Sabre Knights have racked up some 7,000 hours of jet flying time and have appeared at demonstrations throughout the nation since September 1954.—End



The Sabre Knights loop in a tight diamond formation.

past...present...future

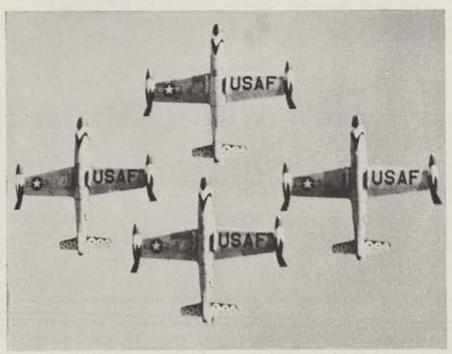
Ford builds for national defense

During the past 10 years, Ford Motor Company has invested more than two billion dollars in new additions to its research, engineering, and manufacturing facilities.

The total is staggering, but the investment is already paying off, not only in better quality automobiles but in production of military products as well. For while Ford's production is predominantly cars, trucks, tractors, and farm and industrial equipment, it is currently manufacturing in large volume a wide variety of products for the military.

To provide for the future, Ford designated a vast portion of its new facilities for research and engineering. These facilities—now expanding to cover more than 750 acres—are continually developing new products . . . materials . . . and manufacturing methods that advance the civilian economy and contribute to national defense.

FORD MOTOR COMPANY



From this position, the team goes into one of their most dramatic maneuvers, the bomb-burst. This shot was taken when they were still flying Thunderjets.

Once we are airborne, a quick look at the field is in order. If you have watched our show, you probably see us sneak off behind the crowd for a peek at the area. We enter our first maneuver from behind the crowd so this is an important step in our planning and timing. Then we leave the immediate show area to warm up. A few sample maneuvers, a few snide remarks to each other, and we're ready for the show.

Each show is the biggest one, and that first maneuver, the entry, has to be good. Up from behind the crowd in trail—over their heads at 550 mph and up—up and over—into the diamond on our backs—straight down at them—and roll to the left. Now we are working in front of them. The air is smooth and we are flying good.

Twenty-five hot minutes later we're on the ramp talking it over. There's always room for improvement. Not much time to chat now, however—in five minutes it's off to the base theater to talk to all the base pilots. Yes, we talk too. We all remember the woman in Memphis who told us, "Oh, you look just like people." That shook us. Anyway, one hour later we have finished our Flying Safety lecture and are ready for a sandwich. Load up, refuel, and number one is in the books. We are airborne for number two, at Greenville, Miss.

Where do Thunderbirds come from? Here's how we get 'em. When a spot opens up on the team, I start looking over the fighter-gunnery instructors at Luke AFB, Phoenix, Ariz., our home station. A team member has to qualify on three scores—pilot ability, exceptional officer qualifications, and a burning desire to be a Thunderbird. All three have to be there or it won't work. Our selections are all made from experienced fighter-gunnery instructors.

We pick about five officers who look good and put them to the test. I fly with them—just two ships—starting slowly and working up the tempo all the time. After I've had a good look at all of them, I go into qualifications and records very thoroughly. The burning desire is easy to spot. It sticks out all over the right type. A careful evaluation of all the factors, an OK from the boss, an intensive training period, and we have a new man.

Our next stop is Greenville, Miss. A few passes, a couple of nip-ups for the cadets and officers waiting on the ramp, land, and we are in the middle of our second show.

Preparations for the Greenville show followed the normal pattern. Take-off was delayed by a late gooney bird, visibility was not too good and there were a few other minor problems. Nothing vital. The air was smooth, hot, and humid. By the end of the show you could wring a pint of water out of any one of our classy, black flying suits. All in all a good show, Our crew chiefs said "One of the best," and that's our best indicator. Reservice, reload, and by noon we are off for England AFB, La.

The show at England is a big one



From left: Leader, Capt. Broughton; Lt. Matthews; Capt. Spalding; Capt. Creech; Lt. Palmgren; and Capt. Davis.



Capt. Jacksel M. Broughton, leader of the official AF aerobatic team.

for me. The occasion is the dedication of what used to be Alexandria AFBchanging the name to England. The place is loaded with VIPs, from the headshed right on down. There are a lot of my old friends here, and I like them to see us at our best. But most important of all is the dedication itself. The late Lt. Col. John B. England was one of my best friends. From a fabulous war record, through years of conscientious and skillful service to the Air Force and the nation, up to his untimely death in Europe, he was a great man and a great officer, John B. was a fighter; an unusually dedicated individual who lived fighter planes and fighter pilots to the end of his brilliant career, Nothing could be more fitting than to dedicate a fighter base to his memory. No thrill could be greater than to demonstrate the fighter maneuvers he believed in so strongly. Maneuverability, speed, fighter-pilot skill-a salute to a great guy and a great business.

Two hundred and twelve aircraft and pilots assembled for this one. Briefings, time hacks, communications checks, mass take-offs, H-hour plus sixteen, our target time, and then the thrill of the show. No time to linger or reminisce. There's a show in Bryan, Tex., at 0900 tomorrow and it's already 1700. Crack the whip, load up, and blast off again.

Cruising over to Bryan I think of that bomb-burst today. That's the climax maneuver of our show. It's a real crowd-pleaser, probably because

(Continued on following page)

THUNDERBIRDS _____CONTINUED

we're low, fast, and approaching from four different directions. They can't keep up with all four of us, and when we swish past at six hundred mph, it shakes them up. We enter the burst out of a whifferdill, or turnaround, and come directly towards the crowd. We have smoke tanks in our new birds, and that adds to the effect. The white smoke makes a beautiful pattern against the blue sky and also makes it easier for the crowd to understand what we are up to. The wingmen and the slotman turn their smoke on as we start up into the burst, but I can't turn mine on until we break out of the diamond or I'll cut all that fancy paint off the top of the slotman's tail.

My first task is to get the diamond vertical over our predetermined crossover point, usually right in front of the crowd. As we approach vertical I say "Thunderbirds - break" - here I turn on my smoke-"now," and away we go. I pull my nose straight through vertical and over onto my back. Lucky Palmgren, the slot man, rolls his aircraft 180 degrees and does the same thing, Bill Creech, the left wingman, and Billy Ellis, the right wingman, each break ninety degrees to the side and over on their backs. The next forty seconds are filled with a roll, a split "S," and much fast talk, throttle-moving and dive-brake manipulation. Swish, We cross in front of the crowd, one going north, one south, one east, and one west. While the crowd is still trying to figure who went where, we are up and over the top, rolled out, and back into the diamond ready for a flat pass, a victory roll, and the landing pattern. A fine maneuver to demonstrate what four fighter pilots can do with four first-line fighters and plenty of practice. Besides that it's a lot of fun.

Bryan gives us our first weather sweat on this trip. At 0530 the sky is clear as a bell, but by 0730 the gulf flow is moving up towards Central Texas and a few puffy clouds appear. Then-bang-in ten minutes there's a broken layer at a thousand feet. No good for airshows. The condition will improve; the question is how soon? Somewhere between the twentieth and thirtieth time you are asked, "What time are you going to take off?", your replies tend to become rather curt. But when the weather finally breaks and the show rolls, you forget about it. From Bryan we move to Waco, Tex., where we sweat the same gulf flow - twenty-four hours later.

The maintenance men take over (Continued on page 225)

I Flew with the Skyblazers

By Art Buchwald

Staff Writer, NY Herald Tribune

One civilian's impression of a fast ride in a jet. Reprinted by permission of the New York Herald Tribune.

A BEMEDALED Air Force sergeant came in the office the other day and said: "Have you ever seen the Eiffel Tower from a jet fighter plane?"

We hemmed and hawed for a while and then admitted we hadn't.

"Well, we'd like to take you out to Chaumont Air Base and give you a ride."

"What for?"

"We're the 48th Fighter-Bomber Wing, otherwise known as the famed Statue of Liberty Wing, and we think we can fly circles around anybody else in Europe."

"Is it dangerous?"

"Of course not. You can fly one of these jets in a wheelchair. It would be hard to strap you in, but you could do it."

The sergeant was very persuasive, and before we knew what we were doing we said okay.

Saturday was J Day. Two full colonels, three lieutenant colonels, several majors, captains, and one lieutenant were on hand to greet us.

"IT WAS NICE OF YOU TO COME," one of the colonels shouted as four Sabrejets flew over our heads.

"WE'VE GOT A NICE LITTLE OLD FLIGHT LINED UP FOR YOU."

"WHAT ARE THOSE JETS DO-ING UP THERE?" we asked.

"THEY'RE THE SKYBLAZERS, THE AIR FORCE'S CRACK PRE-CISION FLYING TEAM. THE FEL-LOW IN THE LAST PLANE IS JIM REYNOLDS, THE BROTHER OF ALLIE REYNOLDS, THE FOR- MER NEW YORK YANKEE PITCH-ER," one of the lieutenant colonels said proudly.

"THEY'RE PRACTICING FOR A SHOW IN A COUPLE OF WEEKS," a major said.

"WHEN DO I GET TO SEE THE EIFFEL TOWER?" we asked.

"THERE'S BEEN A CHANGE OF PLANS," one of the colonels said. "YOU CAN SEE THE EIFFEL TOWER FROM A JET ANYTIME, BUT WE THOUGHT SINCE THE SKYBLAZERS WERE PRACTICING YOU WOULD LIKE TO TAKE A RIDE WITH THEM."

The noise of the jets drowned out our answer, which was just as well.

After watching them do some stunts the colonels, lieutenant colonels, majors, captains, and one lieutenant took us over to the locker to get us fitted into a G suit. A G suit looks like a pair of coveralls, but is made in such a way that your liver won't shoot out of the cockpit when you come out of a dive. There are pockets all over the G suit in case you get sick in flight. They gave us a helmet with an oxygen mask attached. The purpose of the oxygen mask, it was explained to us, was to prevent you from biting your nails in the air. There were sungoggles attached to the helmet, so when your eyes popped out of your head there would be a receptacle to catch them. The Air Force had thought of everything.

By this time the Skyblazers had landed and the four pilots came into the locker room. We were introduced to them. The leader of the group was Maj. William N. Dillard, of Greenville, S. C. He was assisted in his mad occupation by Capt. William Gilmore,

(Continued on page 225)



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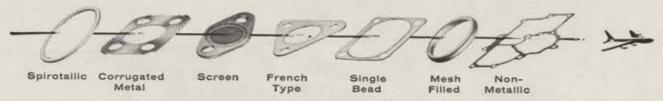
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after the Waco show. Two ships are due for a hundred-hour inspectionnow. No fancy scheduling and no surplus of parts and equipment here. Just an immediate demand for a jet inspection on a B-25 base with that demon schedule offering no quarter. It's a pleasure to watch those crew men swarm over the machines like a bunch of ants. There's no lost motion here.

Our second week begins at Lubbock, where the 3,332-foot altitude presents a small power problem. The greater the elevation of the air patch, the tougher the show. A machine that won't start and an unusual airspeed condition that causes the skin on several fuel tank pylon racks to crack and rip off, keeps the boys busy.

At Wichita Falls, we fly one of our tighter shows-the tighter they are the better we like them. A new track record, in fact-eighteen minutes from the entry until I touched down on the runway in the lead aircraft. Enid, Okla., was suffering from Oklahoma weather-dust and high winds. Putting a bomb burst in front of a crowd, with the wind in your face on one pass, then at your back on the next, takes both planning and luck. The luck helps a lot when the breeze varies from thirty knots on the deck to fifty knots at six thousand feet.

Houston, Tex., put us back in the gulf flow area but the show went on schedule. The weather followed us to Laredo, but we managed to get that one off also. The cloud cover there forced us to change our course on each maneuver. Matching up the holes in the clouds with the crowd's line of vision is great sport. We finished the second week of the tour with a short flight to our next stop, Randolph AFB, San Antonio, Tex.

Randolph, "West Point of the Air," is loaded with memories and inspiration for thousands of airmen. For us, it's the home of Crew Training Air Force, the first major headquarters in our chain of command. Our immediate command is the 3600th Combat Crew Training Wing, Brig. Gen. T. C. Rogers, commanding. On the other side of CTAF, our channels progress through Air Training Command under Lt. Gen. Charles T. Myers, to Air Force Headquarters, Washington, D. C.

Maj. Gen. Charles F. Born, commander of Crew TAF, is the godfather of the Thunderbirds. The team was officially formed under him when he was the boss man at Luke AFB. He still keeps an eve on us.

The Thunderbirds were formed in (Continued on page 229)

of Dushore, Penna., 1st Lt. Jack H. Bennett, of Greeley, Colo., and Jim Reynolds, Allie Reynolds's brother.

'You're the first passenger that has ever ridden with the Skyblazers." Major Dillard said. "We're as interested in seeing what happens as you

Our eyes started bulging and they gave us some oxygen on the ground.

The officers slapped us on the back and wheeled us out to a two-place jet plane which the Air Force uses as training craft to separate the men from

A sergeant lifted us into the plane and strapped our legs down tight. Then he strapped our chest, wrapped a parachute around us, and fastened the safety belt.

He pointed to a yellow lever just beneath the right side of the seat.

This will probably never happen, but in case you get into trouble pull that lever and you'll be shot out of the plane, seat and all. Then unfasten your safety belt and pull the ripcord of your parachute.'

One of the colonels jumped up on the wings and attached a "hot mike" to our oxygen mask.

"This will probably never happen, but in case you get into trouble pull that lever and you'll be shot out of the plane, seat and all. Then unfasten your safety belt and pull the ripcord."

"ALL RIGHT, ALREADY," shouted through the oxygen mask.

Our plane taxied onto the runway. On our right was Captain Gilmore's F-86 Sabrejet. On the left was Lieutenant Bennett, and in the slot was Captain Reynolds.

The idea seemed to be we were all going to take off at the same time.

Major Dillard's soft South Carolina accent came over the intercom.

"Blazers away."

The four planes roared down the runway. When we opened our eyes we were 10,000 feet over the field.

The nice thing about flying jets is you can't hear the engines. The only noise in the cockpit was the beating of our heart, which had moved up next to the throat mike.

When the team is airborne the only one who does any talking is Major Dillard.

'Let's try a li'l ole ordinary barrel roll," he said.

A li'l ole ordinary barrel roll, we discovered, is when the pilot rolls the plane in a complete 360-degree spin. The plane comes out of the bottom of the roll at a li'l ole ordinary speed of 420 knots (the reason they call them knots is that that's exactly what happens to your insides).

The first inkling we had that we weren't flying in a TWA Constellation came when sharp pains started running up our legs. But they didn't stay there long. Suddenly they hit us in the stomach. We had the feeling Rocky Marciano had somehow sneaked into the cockpit and let us have it. At the end of the spin the plane was barreling along at 500 mph. We stuck our eyeballs back in their sockets. We looked to see how the other Sabrejets were doing. They hadn't moved an inch from our wing tips.

But Major Dillard seemed dissatisfied. "Let's try it again, boys, and this

time tighten up."

"They looked pretty tight to me,

major," we said.
"I'll give the orders," he replied. "And by the way, if you're going to scream this time would you please turn off your intercom?"

We did four more barrel rolls before Major Dillard was satisfied. Rocky Marciano was with us on every

"And now," the major said, "a few simple wingovers."

Instead of your eyes popping out of your head, on a wingover they sink back into your brain.

Next we tried a diamond roll. which was followed by a horizontal bomb burst.

When we pulled out of the last one the major asked us: "Did you black out?"

We said we didn't. "I did," he chuckled. We started to cry.

The other Blazers had disappeared and Major Dillard said: "There's a beautiful chateau I want to show you about twenty miles away. We just discovered it the other day. You can't get any idea of the speed of a jet until you fly close to the ground."

We reached the chateau and flew around it in a circle.

"Did you see it?" he asked us.

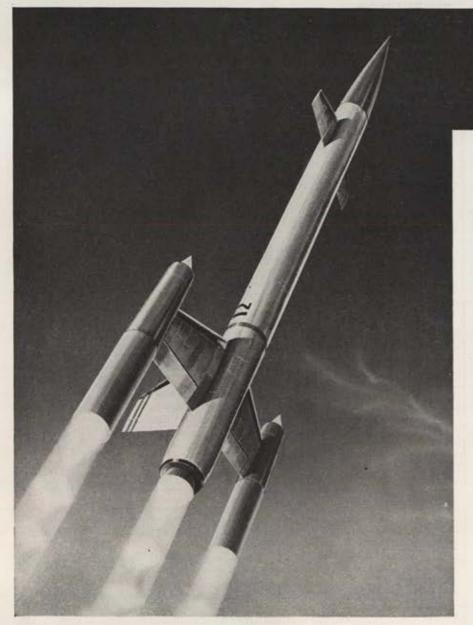
"See it? I saw the old countess sitting in the bedroom reading Bonjour Tristesse and I don't think the count's going to win that solitaire hand if he doesn't play his black jack on the red queen."

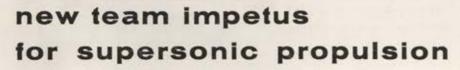
There were no more hedges to cut or chateaux to see, so Major Dillard flew us back to the base.

Willing hands reached up and lifted us out of the cockpit and we all went to the Officers' Club to eat steaks and drink each other's health.

In keeping with the spirit of the day we sat with the Skyblazers at the table, twelve inches apart.-END

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Added impetus is being given to rocket and ramjet developments by a unique new industrial team. For the first time, mechanical experience in supersonic engine development is linked with chemical experience in the manufacture of special fuels in an integrated research and development program. This has been accomplished by the affiliation of Olin Mathieson Chemical Corporation with Reaction Motors, Inc. and Marquardt Aircraft Company.

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Aimed especially at the advancement of high-speed and high-altitude aircraft and missile power plants, these three affiliated companies provide a combination of skills, experience and facilities which is available nowhere else as an integrated unit.



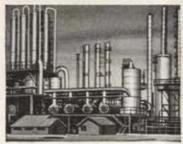
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What airline made courtesy a career?



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THUNDERBIRDS____CONTINUED

May 1953 as the official USAF team. Since then we have performed all over the United States, plus fifteen other countries. Our total audience record is now over ten million, and we hope to increase that considerably within the next few months.

Sunday, July 3, 1955, was show time at Randolph. The humidity at takeoff time was awful. When you can work up a sweat climbing into your aircraft, you know it's humid. The thing that beats us on high humidity is the cockpit smoke or condensation. Our cockpit heating and cooling system is quite efficient. When you set it on cold, it forces air into the cockpit at a great rate. When the air has a high moisture content, however, the pressure and temperature turn it into vapor. The solution is simple-you turn on the heat and take some more "heat fag" salt pills,

By 1000 hours on July 3, our show at Randolph was over. Next show, Sacramento, Calif., but not until July 6. Back to Phoenix, the old homestead, and no show on Monday. Reservicing and loading after the Randolph show broke all records, and we

were off for home.

Home always looks good. I live in Phoenix with my wife, AJ, and our son. Mark, a rousing two-year-old. We've been married since 1951 when I got back from Korea, and have spent almost three of those four years at Luke. I'm from Rochester, N. Y. She's from Spokane, Wash, Her brother, Art, is also a fighter pilot. Capt. Bill Creech, our left wingman, is also married and is from Iowa. He and his wife and son, Bill, live a few blocks from us in Phoenix. First Lt. Billy Ellis, our right wingman, is from Louisiana and has sunk temporary roots in Arizona with his wife and two children.

Capt. Ed Palmgren, our slot man, is from either Rocky Mount or Winston-Salem, N. C., depending on whether he wants you to think he's from a small town or a smaller town. Ed is a bachelor and from present indications may be one for a while.

A day in Phoenix ahead usually means a steak and an evening out. What do we talk about? Fighters and

air shows, natch.

No show the next day. But the holiday goes into the "Take-it-later" file and is full of inspections, clean clothes, and a stab at two weeks' worth of piled-up paper work. And then on Tuesday we're off to Sacramento, Calif.

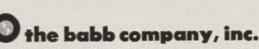
Beautiful clear sky, a slight cool breeze and the low elevation made this one a natural. We had what THAT WE MAY CONTRIBUTE IN SOME SMALL MEASURE TO THE OVERALL EF-FORTS OF THE MEN AND WOMEN WHO ARE THE USAF, IS INDEED GRATIFYING.

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looked to us like a perfect cross on the bomb-burst, If we have a good cross we all land feeling good. If the cross is off, we all pout.

We have three shows in the Denver area, two at Denver and one at Colorado Springs. Our field elevation at Denver is 5.420 feet and at Peterson it's 6,172 feet. This makes our engine acceleration sluggish and intensifies the close formation problem. It's like driving your car up a mountain road. Pushing on that gas pedal up near the top doesn't do much good.

The big one is the dedication of the new Air Force Academy. This is a once-in-a-lifetime deal. A big day for the nation and the Air Force! Threatening weather broke just in time and the ceremony was a big success. We were getting used to the altitude.

That about does it. We head for Phoenix. We have two more ROTC shows on this tour. Luke AFB and Williams AFB. We will run them both out of Luke. Then a four-day stay in Phoenix to practice, rest up, and start the next tour.

I hope you enjoyed this tour with the Thunderbirds. And if you haven't seen us, come out and catch our show. See for yourself why I've got the best job in the business.—End

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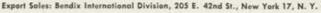
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