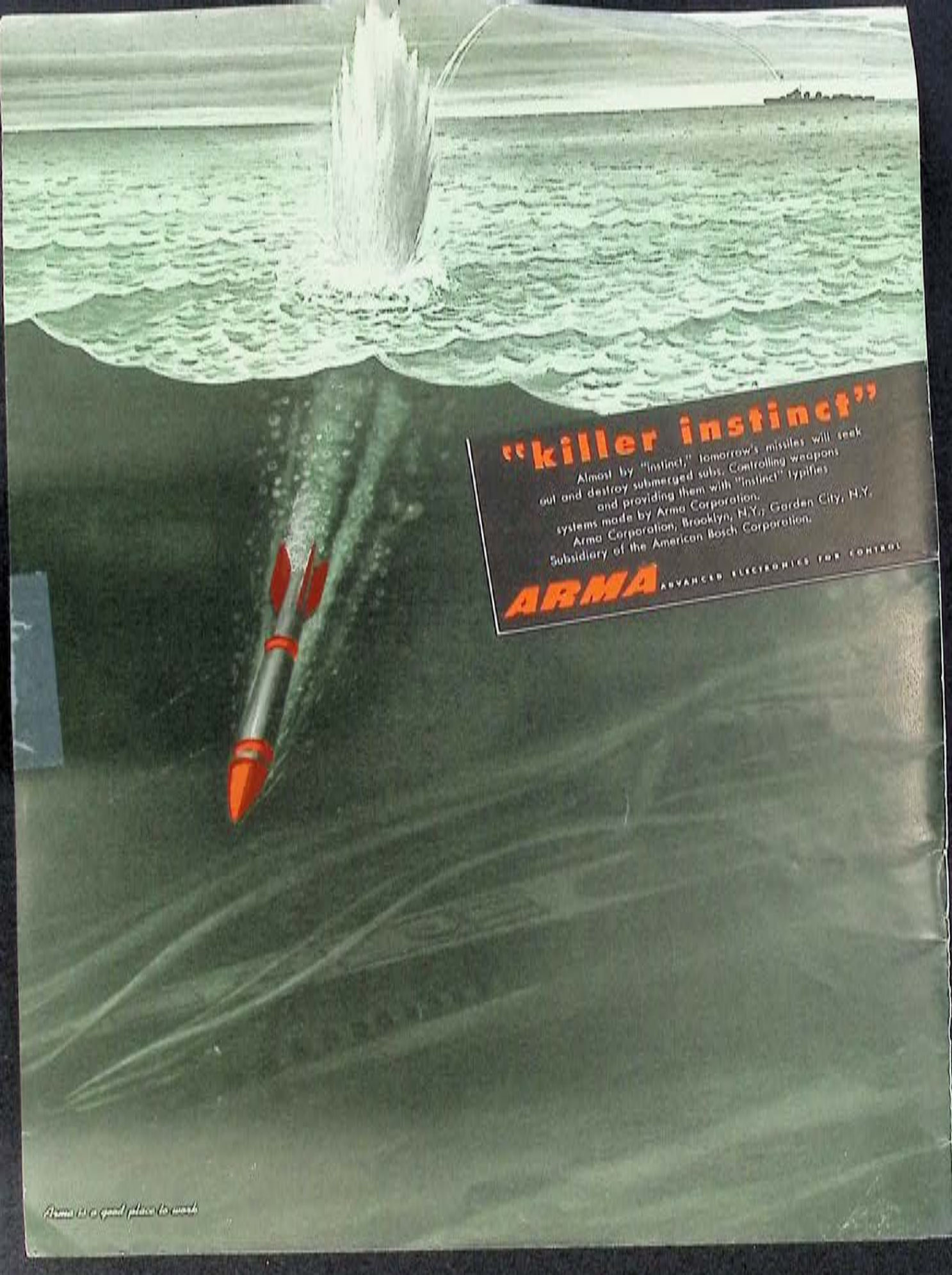
AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

WHAT FLYING DOES TO YOUR BODY

Physiology of Flight—A Youthful Science

MARCH 1954 • THIRTY-FIVE CENTS


"killer instinct"
Almost by "instinct," tomorrow's missiles will seek out and destroy submerged subs. Controlling weapons and providing them with "instinct" typifies systems made by Arma Corporation.
Arma Corporation, Brooklyn, N.Y.; Garden City, N.Y.
Subsidiary of the American Bosch Corporation.
ARMA
ADVANCED ELECTRONICS FOR CONTROL
Arma is a good place to work

WE WRECKED THE LABORATORY

—in forcing a failure!

HERE'S the way our Roll Test Room looked after we ran a Goodyear Airplane Wheel — under service load conditions—*far beyond* the life limits demanded by rigid specifications governing the wheel's manufacture.

We ran it hour after hour, mile after mile, day after day — until it literally "exploded"—to find out just where the point of failure would be, once its tough limit of endurance was reached.

By producing such failures, we produce success—for from them we learn more about the characteristics of one of man's oldest and most important inventions . . . the wheel.

As a result—knowing where to shave off metal, where to bolster strength — we are able to build even greater load capacity and life expectancy into each pound of airplane wheel.

Such thorough-going studies — which include the analysis of strain gauge, stress coat, load and burst tests, topped off by rigorous flight testing—have a great deal to do with the superiority of Goodyear Aviation Products.

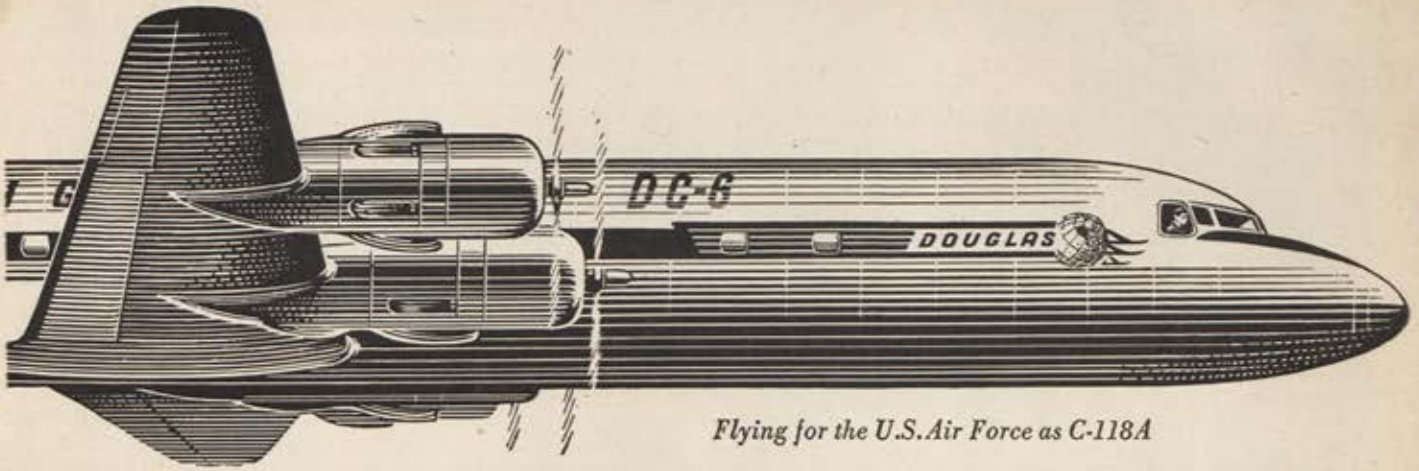
You might wonder if this tremendous investment in test equipment, engineering talent and research has paid off.

One simple fact gives the answer: *More aircraft land on Goodyear tires, tubes, wheels and brakes than on any other kind.*

Goodyear, Aviation Products Division, Akron 16, Ohio or Los Angeles 54, Calif.

GOODYEAR
AVIATION
PRODUCTS

FACILITIES + ABILITIES = EXTRA plus IN PERFORMANCE



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FOR MILITARY PERFORMANCE...

THE GREATEST

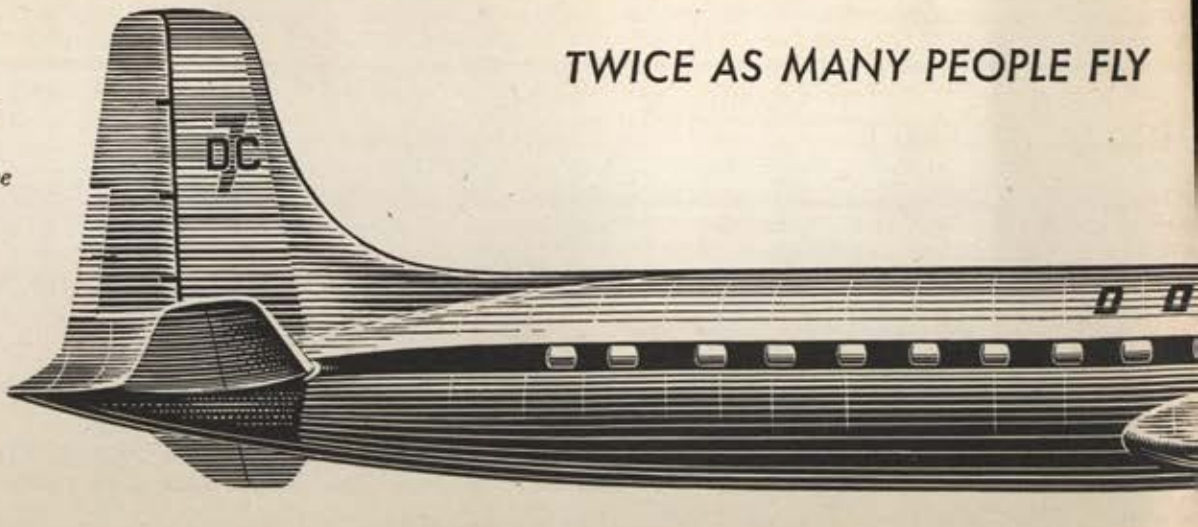
Latest model of the famed Douglas DC-6, the DC-6B represents the ultimate in this series of great, four-engine air transports. It was the DC-6B which flew 5700 miles from Los Angeles to Paris last May in 20 hours to complete the longest non-stop flight ever made by a commercial airliner. This airplane has an outstanding record in both commercial and military service. Its acceptance by the flying public has established it as a superior profit-maker.

DC-6 SERIES

"Queen of the Fleet" on these leading airlines of the world is the famous Douglas DC-6 or DC-6B

AA *Argentine* • *AIGLE AZUR *French* • ALITALIA *Italian* • AMERICAN *U. S.* • ANA *Australian* • BCPA *Australian New Zealand* • BRANIFF *U. S.*
CMA *Mexican* • *CGTA-AA *French* • CONTINENTAL *U. S.* • CPAL *Canadian* • DELTA-C&S *U. S.* • *EASTERN *U. S.* • FLYING TIGER *U. S.*
JAL *Japanese* • KLM *Netherlands* • LAI *Italian* • *LAN *Chilean* • NATIONAL-*U. S.* • *NORTH AMERICAN *U. S.* • NORTHWEST *U. S.* • PAL *Philippine*
PANAGRA *U. S.* • PAN AMERICAN *U. S.* • SABENA *Belgian* • SAS *Danish Norwegian Swedish* • SLICK *U. S.* • SWISSAIR *Swiss*
TAI *French* • UAT *French* • UNITED *U. S.* • WESTERN *U. S.* *Soon

Enlist to fly in the U.S. Air Force



TWICE AS MANY PEOPLE FLY

AIRLINERS EVER BUILT!

DC-7 SERIES

Already 88 of these new turbo-compound sky-giants have been ordered by the airlines. This brings to a total of 476 the number of DC-6, DC-6B and DC-7 airplanes delivered by Douglas or under construction. So aerodynamically clean . . . so powerful is the DC-7 that it is the only commercial airliner making scheduled non-stop flights *both ways* across the United States. It is designed for maximum operating profits and to bring the air traveler comforts never possible before.

These airlines are flying or have ordered the luxurious new Douglas DC-7

AMERICAN AIRLINES • DELTA-C&S AIR LINES
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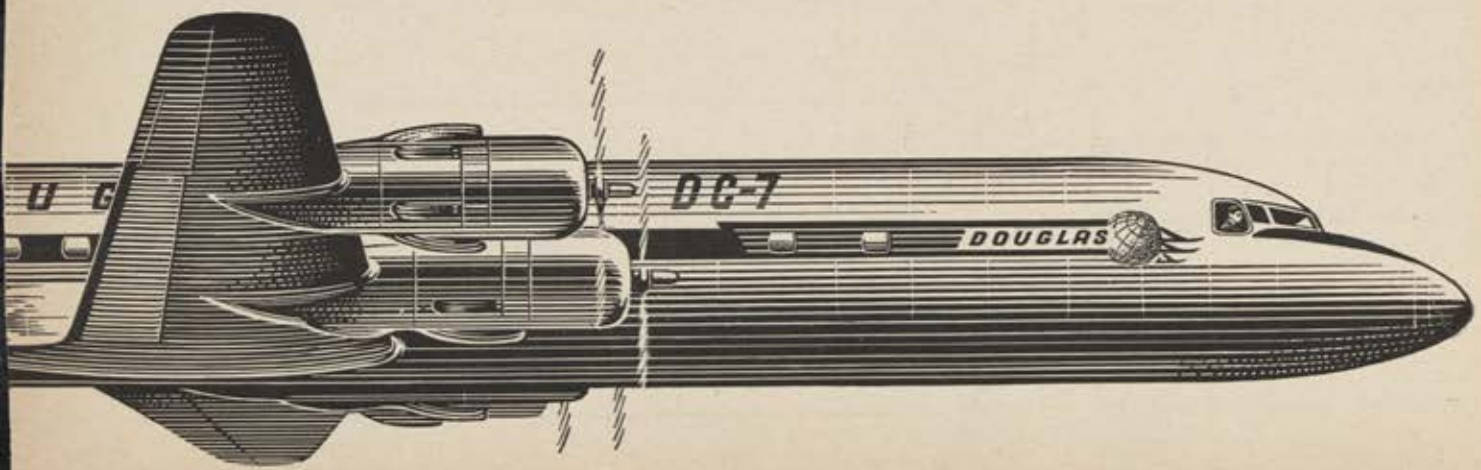
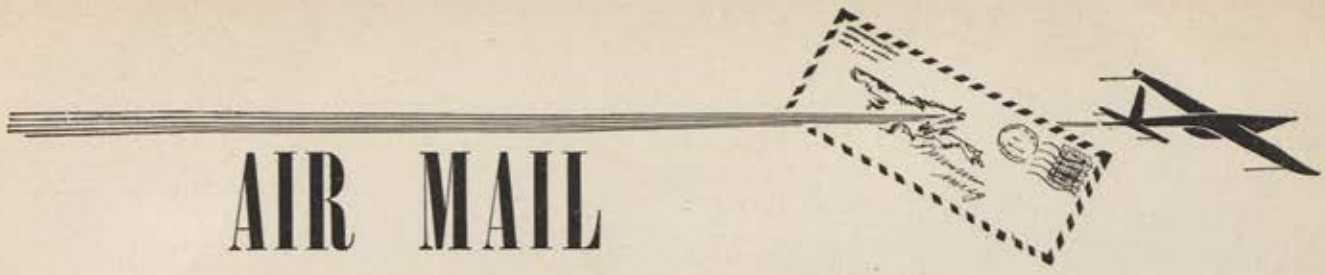
DOUGLAS

DOUGLAS *AS ALL OTHER AIRPLANES COMBINED*





AIR MAIL

Eulogy

Gentlemen: Your January item on the former Maj. Charles J. Loring, Jr., Medal of Honor winner, recalls many memories of a wonderful fellow.

As kids "down East," Charlie and I lived about six blocks apart. I remember him in grammar school, a fellow-member at the Boys' Club, as a high school ball player, and as a long-time member of the all-male choir at Portland's Immaculate Conception Cathedral.

Charlie represented everything we look for in American youth and his record in the Air Force reflected this.

Someone has suggested that Limestone AFB, Maine, be redesignated in honor of his memory—Loring AFB. I hope that the AFA picks up the ball on this proposal. There's certain to be a chorus of support from the wings and squadrons in the Northeast.

Robert T. Jordan
Washington, D. C.

Polish AF Veterans

Gentlemen: The Polish airmen who fought with the Allies during World War II wish to inform you of the existence of the Polish Air Force Association.

After the Second World War when it became obvious that Poland was doomed to remain under the domination of Soviet Russia, the majority of the members of the Polish Forces chose exile. Many of them emigrated to different countries and continents, but not to lose contact between each other, associations were formed representing the respective services. That is how the Polish Air Force Association came into being.

The activities of the Polish Air Force during the last war were highly praised by the Allies. Many Americans of Polish descent volunteered for active duty in the Polish Air Force stationed in Great Britain. To be exact, the contingent numbered 326 men.

Lt. Col. Tadeusz M. Czolowski, Pres.
Polish Air Force Association
5052 N. Menard Ave.
Chicago 30, Ill.

Suggestion Box

Gentlemen: I received my January '54 issue of AIR FORCE and may I say you certainly do not know what a good cover can do to a magazine. Why the heck you picked a stateside commando for the cover has got me. Besides an art student there's the Communications, Armament, Chief Photography, Crew Chief and Ground Mechanics you could have picked from if they were battle returnees of World War II or Korea, who were fed up with the life of the Air Force and wanted no part of re-enlistment. Sometimes I wonder what you fellows are thinking about when you put covers on the magazine. I certainly wish you would find something more interesting than some person who hasn't had combat experience in above.

Also, see if you cannot put some good stories about combat or organizations and what they did in combat. I've never seen a story on airdrome squadrons, and I can say they certainly save lots of fighters and bombers who could not make it back to the home base without our refueling, checking radios, etc., on a base set up just for this service. If you cannot find any such stories send out a questionnaire and you might get some valuable and interesting stories.

Roderick Loveland
Stamford, Conn.

Gentlemen: May I make just one little gripe? I know that this is a man's world; but couldn't there be just a page or two put in AFA magazine for the women?

Miss Irene P. Dehougne
Fresno, Calif.

Winfield Fans

Gentlemen: I wish to comment on M/Sgt. Winfield's article in the January issue entitled "Cause of the Pause."

First off, let me tell you that I have been a member of AFA almost since it was founded. Secondly, I am a veteran of two tours of active AF duty, also of a hitch in both the old active and inactive Reserve between World War II and the last conflagration in Korea. Presently I am a member of the Stand-by Reserve. Yes, I am an airman, not an officer. I was discharged as an Airman 2/c from my last active tour and hold the same in the Reserve.

In a previous letter to AIR FORCE (May 1953), I mentioned my reasons for not reenlisting and I blamed them on the Career Program. Maybe I was wrong but underlying it all were the reasons mentioned by Sergeant Winfield. I agree with him 100 percent as those were the reasons why I didn't go for another "bite" of active service as much as I love aviation and have a deep respect for the USAF.

Here is to a greater Air Force, once the things Sergeant Winfield and I referred to are understood and taken care of.

Walter L. Mock, Jr.
Hollywood, Calif.

Gentlemen: Congratulations to M/Sgt. Norman Winfield on his story "Cause of the Pause." His story was, without question, 100 percent correct in all phases. However, he left out an item that I believe should have been included (and I am sure it was an unintentional oversight), and that was the fact that our separate rations were reduced ten cents daily, effective July 1, 1953, at a time when the cost of living reached *a new high*. This also has caused many unfavorable comments. I wrote my Congressman regarding this, and I still await his reply. Even our Congressmen apparently overlook the fact that we are voters and taxpayers, and brother, I mean *taxpayers*.

James S. Hall
Tucson, Ariz.

Gentlemen: Applause of all non-coms to M/Sgt. Winfield for his article "Cause of the Pause" in your January '54 issue. I wish to render one very important comment for the "pause" and this concerns advancement. This question should be directed to the Pentagon.

What percentage of our Officer Candidates selected are non-coms with six, seven, and eight years' service, and what percentage are lower grade servicemen with one year's service and college education behind them?

I am twenty-four years of age, a master sergeant, with seven and one-half years' active service, and have been applying for entrance into Officer Candidate School since 1949. But I have not been selected, although my application has been on file in Washington. Why?

(Continued on page 7)

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FACTS ABOUT

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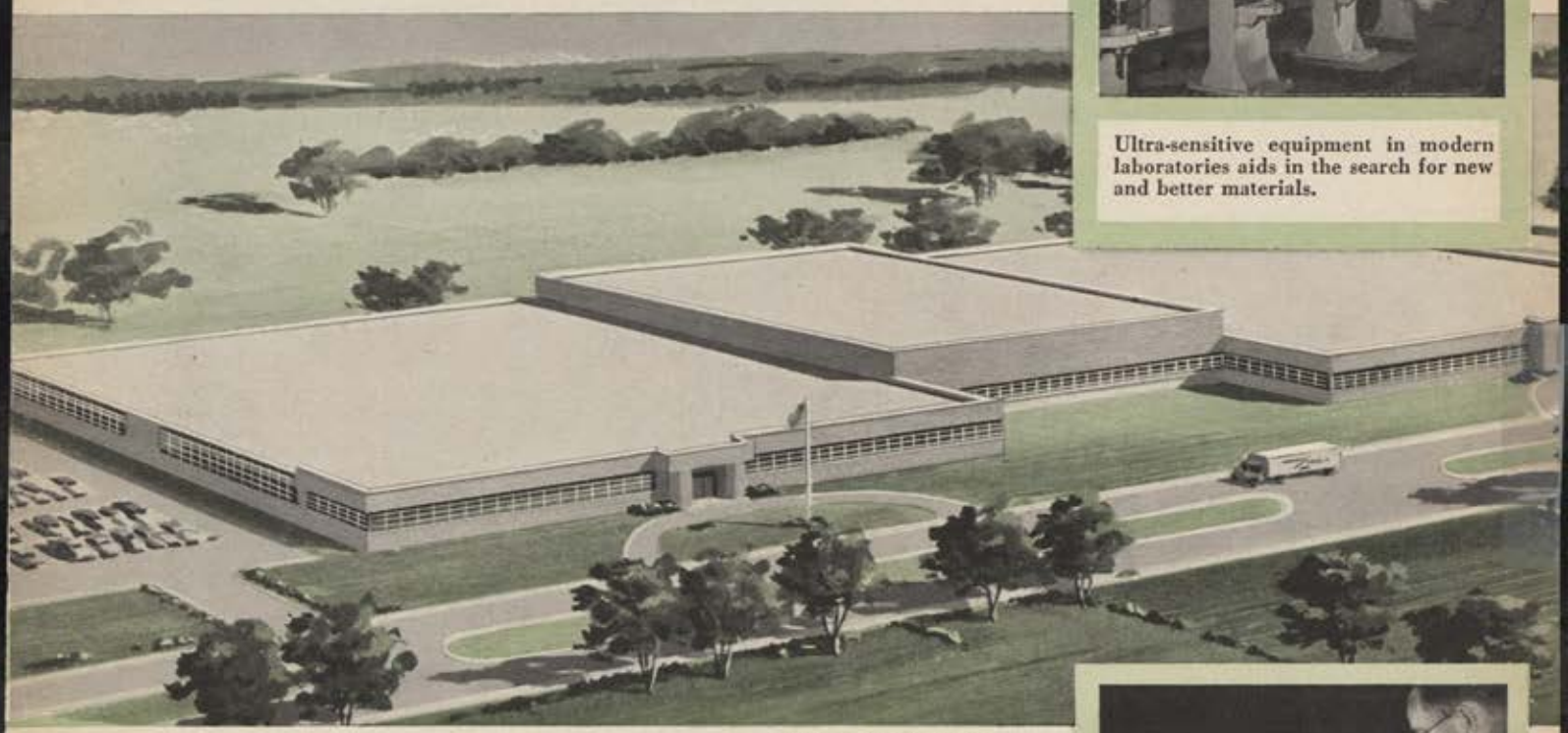
CURRENT PROGRESS

Manufacturing skills support producability of Fairchild J44 turbojet engines for pilotless aircraft.

Ultra-sensitive equipment in modern laboratories aids in the search for new and better materials.



Plant 3, Mineola, N. Y.

Advanced procedures maintain quality of J47 turbines, phase of large-scale component program.

This, the newest of three plants engaged in powerplant development and production, symbolizes the *planned* growth of the Fairchild Engine Division . . . and the progressive spirit of an organization that has pioneered in its field for over a quarter of a century.

Within these modern, completely equipped plants — totaling almost one million square feet of floor space — a variety of special-purpose powerplants are being designed and produced for use on land, at sea and in the air. These include the J44 turbojet engine, developed by Fairchild for the Navy and now in volume production for each of our Armed Services, new-type propulsion systems for underwater ordnance, and auxiliary aircraft engines . . . all in addition to a greatly expanding component manufacturing program.

Today, to meet these increased responsibilities, the Fairchild Engine Division is growing bigger . . . to serve America better.

ENGINE AND AIRPLANE CORPORATION
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SPEED CONTROL DIVISION, Wickliffe, Ohio • STRATOS DIVISION, Bay Shore, N. Y.

◀*Flight line work being done on B-52 tail. Tip is 48 feet above ground.*

More eight-jet giants are on the way

The Boeing B-52 Stratofortress is a global jet bomber of remarkable, but as yet undisclosed, speed, capacity and performance.

More of these eight-jet giants of defense are on the way. Production models are now taking shape in Boeing's huge Seattle plant, where wings are being joined to fuselages. In addition, the airplane has been ordered into production at Boeing's Wichita Division to provide a second source of B-52s. This action on the part of the Air Force is a result of the highly successful flight test program of the Stratofortress. It has proved that the aircraft is "ready for expanded production."

Boeing has invested much time and engineering skill in tooling up and getting the B-52 Stratofortress into production—for every hour spent in careful preparation saves hundreds of man hours, and substantial sums of money, in turning out finished airplanes. Boeing's unequaled experience with large multi-jet aircraft is an important factor in its ability to produce the new plane.

The global B-52 bombers are guardians of world peace. The very fact of their existence is a powerful deterrent to attack.

Boeing integrity in research, design and engineering created the Stratofortress. You can count on Boeing to produce these great bombers economically and efficiently.

Boeing is now building a prototype jet transport, designed to be adaptable for either military or commercial use. It will fly in 1954.

BOEING

AIR MAIL——CONTINUED

The answer is because I have only one year of college behind me, which continues to lower my competitive standing far below that of the "recruits."

In two and one-half years my chances for a commission will end, and then I "rot" among the statistics of the AF. Do you think I would reenlist? Not on your life! Until they bring about a wiser officer selection program, the AF will look dim to any career-minded man.

Master Sergeant Winfield, I thank you. . . .

Master Sergeant

Neighbors All

Gentlemen: In the January issue of AM FORCE an article entitled "Good Neighbors—Made, Not Born," is featured. This is an excellent article on good community relations between an Air Force base and a civilian community.

This story has been repeated at other AF bases, and the more work of this type carried out the closer will the two elements—the base and the town—be drawn together in common understanding and cooperation.

Here at Patrick AFB, Florida, headquarters of the Air Force Missile Test Center, we have always endeavored to keep a "good neighbor" policy with nearby communities.

Maj. Salvatore A. Pelle, PIO
Patrick AFB, Fla.

Not Much Improvement

Gentlemen: I am greatly disturbed over the possibility that terminal leave pay may be discontinued. If this should happen, it will certainly be a blow to the morale of the Reserve officers now on active duty.

The Reservist lives from day to day, never knowing when he will be returned to inactive status. He tries to save all the cash he can, but with prices the way they are, and with moving from place to place, renting as many as three living quarters at one time during moves, and many, many other expenses not generally considered by people who write travel regulations, it is difficult to save a very substantial sum of money. So we have come to plan on our terminal leave pay as part of the money we will need to help tide us over during the necessary readjustment period following separation from the service. True, the sum is not tremendous, usually less than one thousand dollars, but at separation, for those of us who have no job in sight, it would make us feel much more secure.

Why do they keep talking about improving the lot of service personnel, and at the same time keep taking more and more away? They say one thing and do just the opposite. That is the fastest way for anyone or any organization to lose the confidence and trust of others. And it seems to me that one thing the Air Force needs now is the trust and confidence of its personnel. We've been hit from so many sides lately that we are getting punch drunk—and I say that in all seriousness.

Reserve Officer

The old Roman god Janus lives today in servo mechanisms, instruments, and controls which take past information and use it to guide the future —much as Janus faced backward and forward in time, to symbolize past and future.

time in your hands

Controlled, predictable flight depends upon data concerning the immediate past of a flight, as well as navigational information for the course ahead. Time is literally in your hands with Kollsman products.

Today our activities encompass four fields:

AIRCRAFT INSTRUMENTS AND CONTROLS
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Shooting the Breeze

WELL, we're all moved in at our new offices (The Mills Building, Washington 6, D. C., for those who didn't get the word last month), and the feeling of being in strange surroundings has pretty well worn off. The office-warming early in February was carefully time to coincide with AFA's eighth birthday. From this we learned that this brand of frugality isn't always wise, since the birthday cake that Organizational Director Gus Duda produced wasn't entirely compatible with the libations that had started the celebration. It may be poetic justice that just three days later Duda and his appendix parted company.

This office-warming was also something of a welcome for Ed Hogan, latest addition to the AFA Headquarters family. Ed is the new full-time Assistant to the Executive Director for Reserve Affairs, and will also turn to in an editorial way on the magazine side. This'll be no great chore for Hogan who's been writing for AIR FORCE for some months. His last "outside" job for us was the article on page 29. His first "inside" stint? The lead item in "People in the Air News," on page 17, whose subject, aptly, is Ed Hogan.—END

CREDITS

Page 15—Arlo Greer; page 17 (Hogan)—"Tex" Glazier; pages 23 and 38—Charles deM. Barnes; page 24 (chart), pages 32, 35, and 72—Hugh Brown; pages 24, 26 (Adenauer), and 27 (riot)—International News Photo; page 27 (Norstad)—Wide World Photos.

AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

Vol. 37, No. 3 • MARCH 1954

FEATURES

DEPARTMENTS

THE COVER

If you think it's tough to design and build today's higher-flying, Mach-busting planes, take a look at what it takes to keep a man in the cockpit of one of them. It's a whole science by itself, a science called the Physiology of Flight. The Air Force has put out a manual (AFM 160-30) on the subject, and we've borrowed from it for our cover this month. The figures represent the extremes of heat and cold imposed on man in his attempt to master the skies. These are just two of a great many factors involved in human engineering. For more of "What Flying Does to Your Body," see page 29.

AIR FORCE STAFF

MEMBERSHIP IN AFA

AIR FORCE Magazine is mailed monthly to all members of the Air Force Association. There are several ways you can become a member. If you were in the Air Force or its predecessor services, you're eligible. The $5 yearly dues include the magazine. Or if now on active duty, you can be a Service Member. Those interested in airpower can become Associate Members for $5 per year. The cost for CAP and AF-ROTC cadets is $3 per year. Details of membership in AFA on page 80.

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- ☐ Service Membership in AFA (includes magazine subscription) $5
- ☐ Associate Membership in AFA (includes magazine subscription) $5

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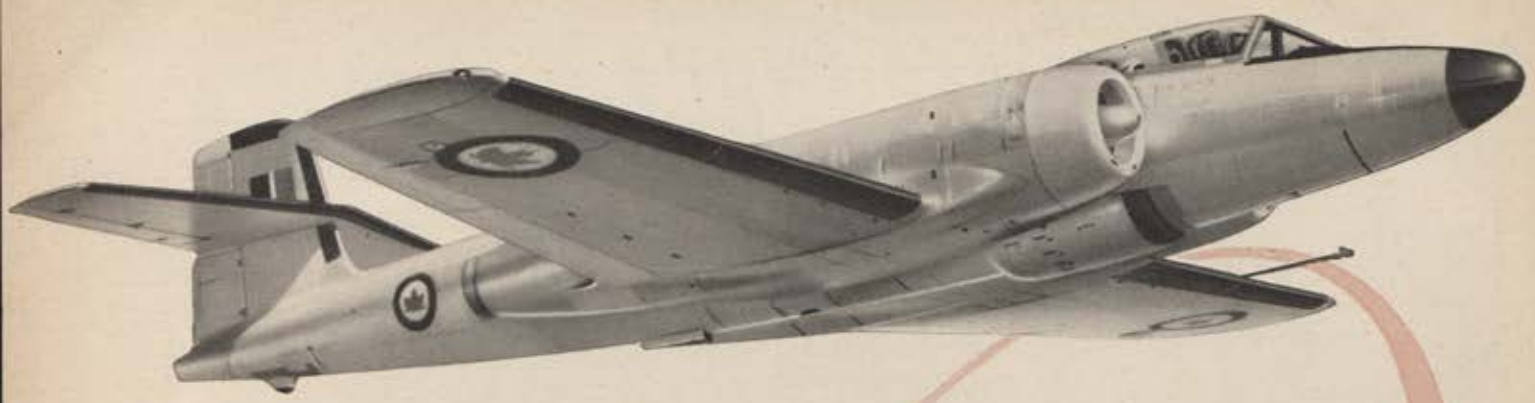

Americas' northern defender

CF100 FLIES 2100 MILES NON-STOP AT 550 M.P.H.

North of the American border, R.C.A.F. squadrons equipped with the jet powered AVRO Canada CF100 roam the perimeter of the Arctic on flights that exceed the range of any other interceptor in the world.

The CF100, Mark 4, packs more firepower than that carried by any fighter interceptor now in service. With its radar tracking and fire control system, it can seek and shoot down "bandits" in any weather, day or night, and fly supersonic during attacks. It can "scramble" as quickly from advance emergency bases at 60° below zero as it can in desert heat.

The CF100 with its two ORENDA jets, designed and built by AVRO Canada, is the delight of the men who fly them. While present production of this potent defender is for the R.C.A.F. guarding the North, this versatile aircraft is capable of this variety of tactical assignments:

1. GROUND ATTACK 2. GROUND SUPPORT FOR TROOPS
3. PHOTO RECONNAISSANCE 4. NIGHT INTRUDER
5. LIGHT BOMBING-MISSILE LAUNCHING

VANCOUVER TO NORTH BAY

2100 MILES NON-STOP AT 550 M.P.H.

3 HOURS 50 MINUTES R.C.A.F. CF100 MARK 3

F/L W. J. Kobierski, Pilot

F/L D. L. Turner, Navigator

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MALTON, ONTARIO

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AIRPOWER IN THE NEWS — BY JAKE CULPEPPER

AF ACADEMY — Battle is underway for the location of the proposed USAF Academy. Several Congressmen have introduced legislation calling for construction in their home districts. Under the bill recently passed by the House, AF Sec'y Talbott would be authorized to select the site. AF says if the bill passes the Senate this year, the Academy will probably be started at an existing AF base on a temporary basis until a permanent site is chosen and completed.

SCARWAF — Under recent SCARWAF (Special Category Army With the Air Force) transfer agreement signed with Army, all aviation engineer units and many of the 27,000 SCARWAF members are to be gradually absorbed by the AF beginning this July. AF has agreed to accept all Army personnel (except Regular officers) who transfer voluntarily. No one will be forced to transfer without his consent.

AF DOLLARS — Budget for FY '55 reduces total defense spending by about $4 billion from FY '54 while increasing AF budget from $15.6 billion to $16.2 billion. President Eisenhower announced a program of 137 AF wings by 1957 in his annual budget message which stated that 126 of these would be combat wings augmented by appropriate combat support units.

ECONOMY — Economy in AF is getting continuing emphasis through the AF Manpower Management Training Program at George Washington Univ., Washington, D. C. Number of senior AF officers attending that course is now approaching 1,500. . . . Special training devices are being widely used throughout the AF to simulate the environmental and operational situations normally encountered by crews and pilots in actual flight— instrument trailers, flight simulators, radar bombing trainers, navigation and gunnery trainers, etc. All such devices permit vital AF training without need for actual flights. AF says the economy inherent in this program is spectacular. A recent study by Operational Analysis of only five such programs within Air Training Command reveals that an additional $30 million per month would be required to carry out similar training in the air.

THE PLANES — Under FY '55 budget plans, AF will see its number of active aircraft increased from 21,000 in June, this year, to 22,000 by mid-1955. . . . Only one-fourth of current USAF flying time is in jets. Total of AF jet flight hours is now nearing the five million mark. . . . AF has awarded a $2 million contract to the Fresno Division of North American for reconditioning battle weary F-86 Sabrejets. . . . Sweptwing Republic F-84F Thunderstreaks are slated to replace war-tested F-84G Thunderjets at two SAC bases in near future. But AF has canceled orders for fifteen percent of its orders for F-84Fs in favor of the newer North American F-100 Super Sabre. Also canceled were thirty-three Martin B-57 twin-jet bombers, the US version of the British Canberra.

CAP — Four countries (Chile, Peru, Venezuela, and Cuba) have been added to the list of sixteen nations slated to take part in the 1954 International Cadet Exchange. One hundred and forty Civil Air Patrol cadets will visit twenty nations under auspices of the program July 21 to August 12. Same number of foreign cadets will visit US as guests of CAP wings.

A CHANGE— Revised elements of the Directorate of Procurement and Production

(Continued on the following page)

Engineering are: Small Business Office, Programs Control Group, Procurement Policy Division, Production Engineering Division, and Equipment Division. Features of the new set-up include integration of guided missiles with piloted aircraft in areas of programming, procurement, policy, and production engineering, and formation of separate office for small business affairs. Production Engineering Division is now focal point for all matters pertaining to production program for aircraft, piloted and pilotless.

PROGRESS — The Air University has broken ground for the first of ten buildings of a new educational center at AU's Air Command and Staff School, Maxwell AFB, Ala. The $5 million program includes five academic buildings and five quarters for bachelor officers.

NEW SHOP — ARDC has formed an AF Personnel and Training Research Center with headquarters at Lackland AFB, Tex. New Center was formed by integrating three former ARDC human research units—The Human Resources Research Center, Lackland AFB; the Human Resources Research Institute, Maxwell AFB, Ala.; and the Personnel Research Directorate of the Human Factors Operations Research Laboratories, Bolling AFB, D.C. Col. Herbert N. Cowless, former commander of Human Resources Research Center, has been named acting commander of the Center. Its work will include scientific research programs on the selection, classification, assignment, proficiency evaluation, and training of airmen and officer personnel, as well as crews and teams of individuals, involved in AF ground and air operations.

STAFF — Retirements: Maj. Gen. Eugene L. Eubank on December 31; Maj. Gen. Clements McMullen, oldest active pilot in AF, in February. . . . New assignments: Maj. Gen. Robert E. L. Eaton, commander of 6th Allied Tactical AF; Brig. Gen. Richard H. Carmichael, commander of 21st Air Division, SAC; Maj. Gen. William O. Senter, commander, Oklahoma City AMA; Brig. Gen. Maurice A. Preston, commander of 4th Air Division, SAC; Brig.Gen. Joseph D. C. Caldara, commander of 15th AF; Brig. Gen. Charles B. Dougher, commander of 5th Air Division; Brig. Gen. John B. Gary, commander of 35th Air Division; and Brig. Gen. Arthur L. McCullough, commander of MATS' 1503d Air Transport Wing, in Japan. (See pages 17 and 18 for additional staff changes.)

MATS — Military Air Transport Service hauled more than 500,000 passengers and patients during 1953 without a fatality. Three MATS divisions—Atlantic, Pacific, and Continental—carried 471,000 passengers and 57,000 patients. Also flown were 82,000 tons of priority cargo and mail. . . . On April 1 two MATS services—Air Rescue Service and Flight Service—will be transferred from Washington, D. C., to Orlando, Fla. A third MATS service, Air Photographic and Charting Service, moved to Orlando from Philadelphia about a year ago.

SHORT SNORTS — Another blow to morale of Armed Forces will take place April 1 when sales of liquor by the bottle will be stopped at messes and clubs of military installations in the ZI. . . . A recent Navy regulation requires its officers to wear swords for dress purposes again. . . . Fifth Armed Forces Day will be May 15 under the same slogan as last year, "Power for Peace." . . . Palm Beach International Airport, Fla., is now Palm Beach Air Force Base.

MORE SNORTS — B-29 and RB-29 crew tours in FEAF have been extended from six to twelve months. . . . Pentagon is not affected by recent WAF cutbacks.

COMPETENCE...

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By Wilfred Owen

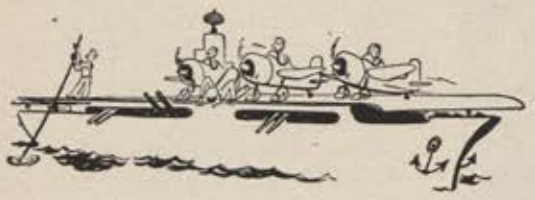
Air Activities of Fargo, N. D., is noted for spraying native mosquitos and dusting Dakota crops. But the air age shows what you can do with your headquarters in Fargo. Today owner Duane Strand's planes are working on locusts in the Middle East and India, as well as spraying coconut trees in Indonesia and cork trees in Portugal. And now Bolivia would like to have the boys from Fargo spray cotton.

• • •

A new, long distance, non-stop record was recently set by a DC-6B manned by a French crew. The trip was all the way from Los Angeles to Paris, a flight of 5,700 miles, and 1,800 miles farther than the previous non-stop record. The time: 20 hours and 28 minutes.

• • •

When the aircraft carrier Wasp *had trouble in Hong Kong*



Harbor's tricky tide, planes on deck were revved up to help bring her around in a difficult turn.

• • •

The non-military agencies of the US government operate 949 planes—one of the biggest civilian fleets in the world.

• • •

In the air age, going to a fire fast isn't always best. The Forest Service is reported to favor the almost extinct Ford trimotor plane for many of its fire-fighting operations because it carries a heavy load out of a small field and goes so slow.

• • •

At St. Moritz, according to the Swiss National Tourist Office, skiers who are in too much of a hurry to use the ski lifts can

get lifted to the summits of nearby peaks and glaciers by Super Piper aircraft.

• • •

Housing today's giant aircraft makes yesterday's housing problem look simple. Boeing's new hangar built to accommodate four B-52 Stratofortresses has an unobstructed doorway 780 feet long and sixty-five feet high. Total cost to keep a roof over B-52s: five million dollars.

• • •

About 3,000 helicopters have been produced in the United States. American manufacturers are currently working on thirteen different models.

• • •

The average length of trip for passengers on standard air flights is about half what it is for coach travel—481 miles for first class and 964 miles for tourist. Tourist fares average 4.25 cents per mile compared to six cents for first class.

• • •

At Pendleton, Ore., the airport makes money through the

operation of sixty-five commercial enterprises, including a riding club, wrestling matches, and chicken raising.

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PEOPLE IN THE AIR NEWS

Ed Hogan

Last fall, when the Air Reserve Association merged with Air Force Association, AFA became the only independent airpower organization in the country. One of the many beneficial results of the merger was AFA's decision to bolster headquarters' staff with an assistant to AFA's Executive Director James H. Straubel. The new man would be charged with coordinating and carrying out plans, policies, and directives on Air Reserve and Air National Guard matters. He'd be, in fact, an **assistant for reserve** (small "r") affairs.

Creation of the position reflected AFA's keen awareness of the contribution members of the reserve components are making to strengthening our nation's airpower. It indicates a necessary recognition of their importance to security—and survival—in the Air Age.

AFA found the man for the job right in its own back yard. He turned out to be a long-time contributor to AIR FORCE Magazine, **Edmund F. Hogan.** So (and pardon the expression), "Welcome aboard, Ed Hogan."

Hogan's a reservist who, like many other WW II veterans, spent two years on active duty during the Korean war. As a *Stars and Stripes* correspondent, he worked closely with the 12th and 15th Air Forces in the Mediterranean a scrap and a half ago and after V-E Day volunteered for service in the Far East where he made his way around the 14th and 5th Air Forces. During the Korean scrap he served in Eastern Air Defense Force and as Associate Editor of *Flying Safety* Magazine. Last year he served as a special consultant on the 50th Anniversary of Powered Flight to the Office of Public Information, Hq., USAF.

No stranger to AIR FORCES's columns, he has written "ANG Angles" for several months. Hogan, a veteran newsman and writer, also authored "The Needs of War: Spur to Air Progress" (Dec. '53). One of his last free-lancing acts before joining AFA was a two-part series on the physiology of flight, which begins on page 29 of this issue.

Airpower to **Richard Stanton Wolfe** was a living, breathing thing. And in 1947 when a group of airpower enthusiasts banded together at Columbus, Ohio, Dick was the heartbeat of the meeting. He'd dreamed it, planned it, directed it. When that meeting adjourned, AFA's first convention was history. An Air Force major in WW II, Wolfe's interest in aviation never flagged. He was not only a charter member of AFA, but carried the gold card of life membership. On December 27, 1953, Columbus lost a leading civic leader, and AFA a champion. For on that day, while cruising in Caribbean water, Dick Wolfe, 46, died.

When crusty four-star **Gen. John K. Cannon,** 62, decided it was time to retire, it caused a burst of promotional activity around the Pentagon, and furnished the USAF with one of its biggest

(Continued on following page)

Cannon

Weyland

Partridge

Everest

Cook

Boatner

Landon

Rawlings

shake-ups. After thirty-six years' service, "Uncle Joe" was doffing his blues for mufti. Thirty-three of those years he'd spent as a flyer. As an instructor he'd taught many a fledgling, including Generals Vandenberg, Twining, and LeMay. His retirement left open Tactical Air Command's CG slot. It will be filled by **Gen. Otto P. Weyland,** 52, whose FEAF post goes to **Lt. Gen. Earle E. Partridge.** Presently Deputy Chief of Staff, Operations, Partridge, 53, gets not only FEAF but his fourth star. Partridge's successor is **Lt. Gen. Frank F. Everest,** 49. In Europe, Gen. Alfred M. Gruenther, NATO chief, acquired a new deputy when AF Deputy Chief of Staff, Materiel, **Lt. Gen. Orval R. Cook** was named to succeed retiring Gen. Thomas T. Handy, USA. Replacing Cook, 55, who was also nominated for full general, is **Lt. Gen. Bryant L. Boatner,** 46, AF's present Inspector General. **Maj. Gen. Truman H. Landon,** 49, Partridge's assistant at Operations, was named for Boatner's job and for a third star. Another change outside the Pentagon was the promotion of Air Materiel's commander, **Edwin W. Rawlings,** 49, to four-star rank (making nine full generals for the AF. The Army has seven, the Marine Corps one, and the Navy six full admirals). And finally, fittingly enough with the retirement of the AF's veteran "Uncle Joe" Cannon, Chief of Staff Nathan F. Twining became the AF's ranking general.

Last year at AFA's Convention in Washington, D. C., **Dr. Ivan A. Getting,** youthful (42), brilliant (Rhodes scholar), physicist and vice president (engineering and research) of Raytheon Mfg. Co., told the Airpower Symposium (Air Force, Oct. '53): "We cannot afford not to push science to the utmost. . . . It is our basic material defense." That the USAF was willing to "push science" was indicated in a letter from Chief of Staff General Twining to Getting. "The AF is fortunate in being able to utilize your knowledge," wrote Twining, reappointed him chairman of the Electronics and Communications Panel of the Scientific Advisory Board, USAF. As former Chief Scientist of the Air Force, Dr. Getting would feel right at home.

Wolfe

Col. Winston Peabody Wilson, 42, born in Arkadelphia, Ark., was named to succeed another Razorback—**Maj. Gen. Earl T. Ricks**—as chief of the AF Division, National Guard Bureau. A graduate of Hendrix College, Conway, Ark., Wilson enlisted in Little Rock's 154th Observation Squadron as an aviation mechanic.

Getting

Wilson

Commissioned a second lieutenant in 1940, Wilson was rated an aerial observer. Three years later he received a pilot's rating. Specializing in reconnaissance, he commanded the 16th Photo Squadron in 1944. At WW II's end he was chief of reconnaissance for PACOUSA. Leaving the service in '46, he was recalled in 1950, coming to Washington, D. C., with Ricks. In July of last year, Wilson was named acting chief of the Air Force Division of the National Guard Bureau, to ailing General Ricks ("People in the Air News," Feb. '54). In succeeding General Ricks, Wilson will receive the star of a brigadier general.—End

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BIGGER PUNCH—Two squads of hard-hitting Marines—26 men with full battle equipment—charge out of this new Sikorsky helicopter's wide-open nose door in a demonstration of airborne assault techniques. The huge XHR2S was designed especially to meet the Marine Corps' need for a big, fast, highly maneuverable helicopter.

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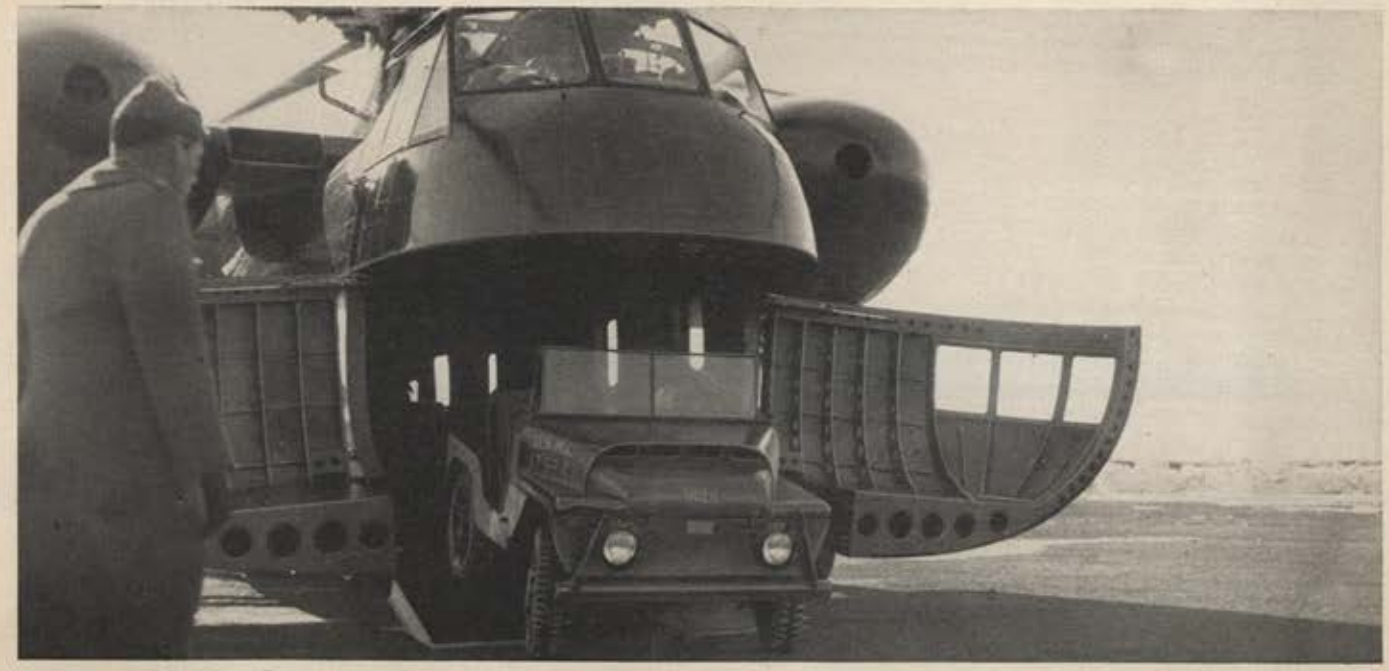

PRACTICAL DESIGN—Location of two R-2800 engines in high, outboard pods leaves the fuselage open and clear for passengers, vehicles or other cargo. Wide clam-shell doors and built-in ramp permit rapid loading and unloading. The helicopter compares in size to a twin-engined airliner. A commercial model, the S-56, will be built later.

BUILT FOR BATTLE—Sikorsky Aircraft's rugged XHR2S, the most powerful helicopter now flying, was designed to carry out modern vertical assault tactics. It has flown with over 6,500 pounds of payload, and at speeds well over 150 m.p.h. with landing gear retracted into engine pods. Five-bladed main rotor and the tail both fold mechanically for easy stowage and handling aboard ship.

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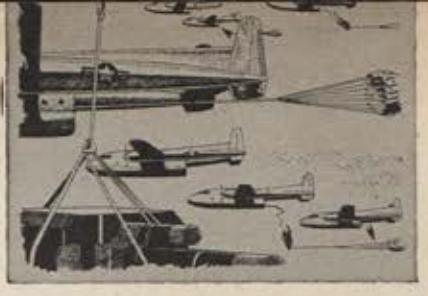

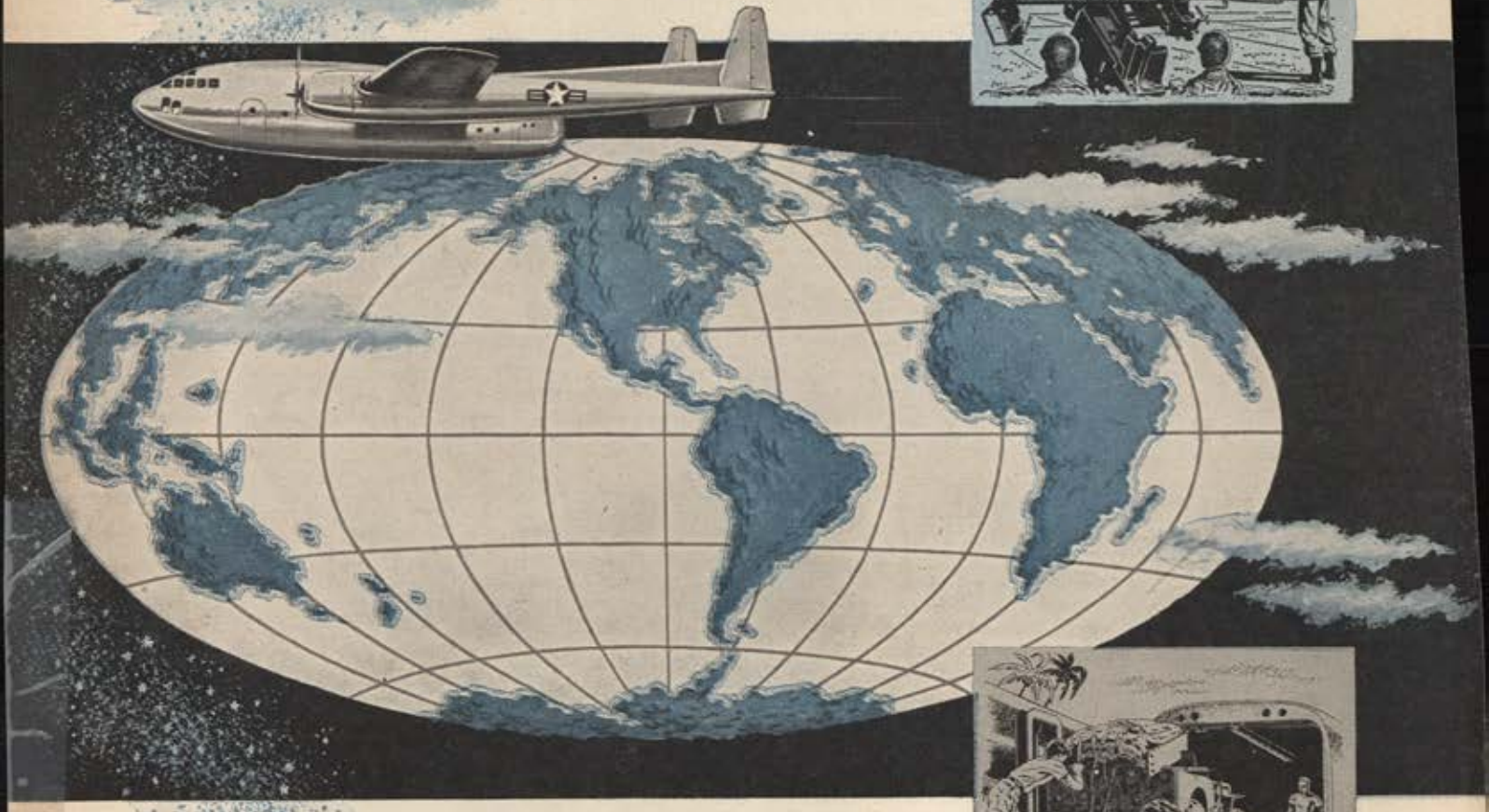

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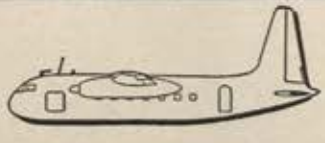

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Preview of

THE NEW WEST GERMAN AIR FORCE

Its creation would help make the defense of Western Europe a workable reality instead of a pious hope

By O. K. Armstrong

THE GERMANS are ready to join in Western Defense, with everything we'll let them have, including a new air force—*if and when.*"

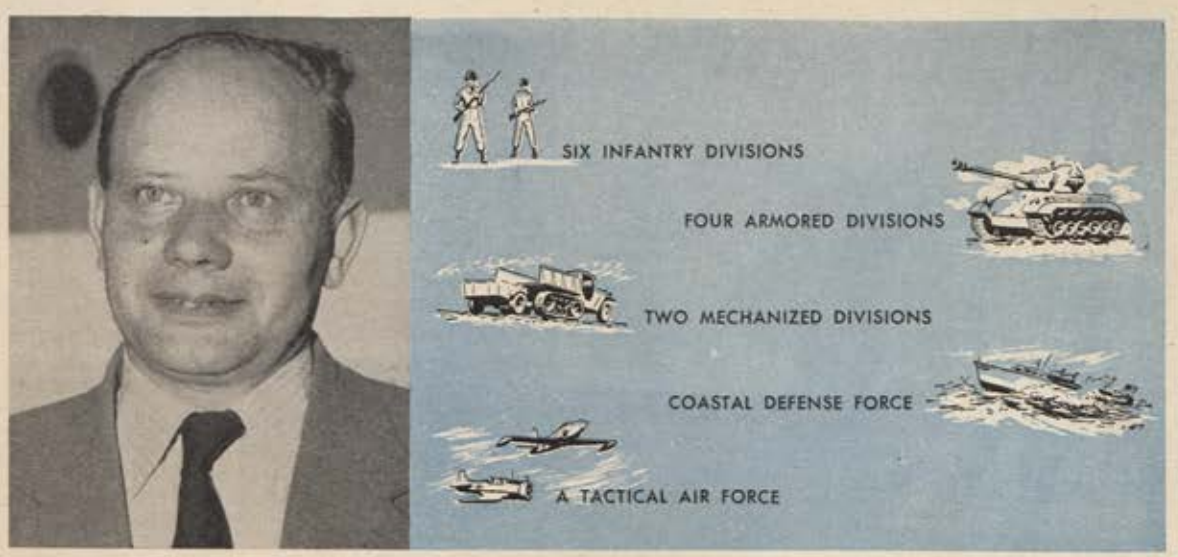
That's the way a high-ranking American officer summarized it for me, in SHAPE headquarters near Paris. He meant, of course, if and when the French government ratifies the European Defense Community treaty, bringing Germany into the defense of the free nations of Europe and the world.

Another officer, with slightly less rank but considerable more feeling, put in his word:

"No *if* about it. It's *when*—and I don't mean maybe!"

After some hedging, his senior agreed. It's *when.* In scores of interviews with military and civilian officials of the United States and Germany, as well as our allied nations, I learned that the majority of them expects the very pressure of events to bring a reluctant French government to ratify. They will close the books on past wars and open a new ledger with Germany on the asset side in the fight against world communism.

(Continued on following page)



The German people will do their part to defend their homeland and the free nations, says Dr. Theodor Blank (above), of West Germany's Defense Ministry. West Germany's initial contribution to European defense is shown graphically above. Twenty wings with some 1,500 planes (900 of them jets) will make up the new West German tactical AF.

Just in case the French government is still hesitant about bringing its thinking up to 1954 reality, it is clear as sunshine that Germany will be given the green light by other Western powers to proceed with the creation of its own military strength. That was at least implied in the warning that Secretary of State John Foster Dulles threw in the teeth of European statesmen generally and the French in particular last December in Paris when he declared:

"If the EDC is to be created, it will have to be soon. If not, the United States will be forced into an agonizing reappraisal of its own basic policy."

"We are ready when you are," declared Dr. Theodor Blank, who holds the West German Government's Defense Ministry "portfolio in waiting" (as one of his subordinates calls it). "We are ready and anxious to do our part in defense of our homeland and the free nations. Last September's elections indicated how our people feel about it. They don't want any more war, but they don't like slavery, either."

From Dr. Blank's own office I obtained the figures agreed upon by leaders of the North Atlantic treaty countries for Germany's initial contribution to the European defense. I checked the matter with the United States authorities at SHAPE and in Germany. Wrapped up in one neat package, here it is.

Western Germany is to furnish twelve ground divisions—six infantry divisions, four armored, and two mechanized divisions—plus some naval strength mainly for coastal defense on the Baltic Sea. A new tactical air contingent, composed of twenty wings, and a total of 1,500 planes will be the German air contribution to EDC. The bulk of these —tentatively 900—will be late model jet fighters.

"You can be assured our planes will be manned by pilots and personnel capable of performing their mission effectively," the German Defense Ministry spokesman told me.

Behind his words lay the result of a hot fight among the NATO negotiators over Germany. The fight was kept under wraps, never hitting the headlines. But it went on, hammer and tongs, for weary months, long after there was agreement that Germany should furnish ground troops. It raged over the burning question:

Shall Germany be allowed an air force at all?

Bear in mind a little history. From the time the North Atlantic treaty was signed in April 1949, the big problem was what to do with Germany. The geographical facts of life had forced the realization that there can be no adequate defense of Europe without Germany. The majority of the treaty nations, including such victims of Nazi aggression as Belgium, Holland, and Denmark, were ready to admit the new democratic government of Western Germany into the alliance. But not France. Understandably, in the light of past experience with German invasions, French leaders were reluctant to yield. When General Eisenhower took command of SHAPE in February 1951, and many times during his tour of duty, he made it clear that Germany would have to be included with some active and measurable participation.

But the French were adamant about admitting Germany to the NATO partnership. As a substitute, they came up with the scheme of the European Defense Community. Germany would be a member, along with France, Italy, Belgium, Holland, and Luxembourg. These nations would furnish military quotas, *not as national units,* but as members of a truly European defense force. Thus there could never be another "German Army," nor another German General Staff to plot aggression.

Getting down to cases on what Germany should contribute to an EDC force, there was early agreement on ground troops. At that time the plan was to hold the Russians on the Rhine, if possible. If the Germans wanted to furnish infantry, artillery, machine guns, and auxiliary units to slow up the invaders, that was all right with the French.

But a German air force was another thing. By virtue of total victory, the occupying powers had decreed that never again should Germans build or fly military airplanes. As for civilian aircraft, the Germans couldn't build or fly them either—unless and until treaties of peace made some concessions, such as use of commercial planes if made in factories of victorious nations. It has been a policy of no planes, no gliders, no blueprints. On several occasions, German boys were arrested for flying paper-and-stick models!

At the time of the Berlin Airlift, former German pilots begged to be allowed to fly the shuttle bringing in the food and fuel. They were curtly refused. Many of them got jobs

at Rhine-Main Airport at Frankfurt or Templehof in Berlin, loading and unloading the cargoes, now and then glancing longingly into the cockpits.

From many visits to West Germany and many contacts with government officials, industrialists, and leaders of business and labor since the close of the war, I know there was growing resentment against the policy of no commercial airlines. The Germans well understood why the occupying authorities were against any future German military aircraft, but the prohibition of commercial flying was a device, they felt, for eliminating competition.

With this public sentiment in mind, officials of the new Bonn government listened to the hot NATO discussion from the sidelines. Then, brought in to be told that their defeated country would be permitted ground troops, the German negotiators played a card of their own. They agreed that EDC was a sound idea and that they would try to get approval from the *Bundestag*. But how about an air force? Wouldn't it be good tactics to have at least a defensive air arm right up near the front line of any possible aggression?

Allied negotiators said that would have to be decided later. The German spokesmen consulted leathery old Chancellor Konrad Adenauer. What that shrewd leader of a rapidly recovering Germany said is not on record, of course, but his representatives came back and told NATO in effect:

"Sorry, but we much prefer a balanced military force, which means an air unit, in keeping with modern defense needs." When allied negotiators tried to argue the matter, the Germans firmly asserted they would take EDC in one package—air force and all—or ratification might be "greatly delayed." So an agreement was reached, and the German *Bundestag* came up with its ratification. Dr. Adenauer's resounding victory at the polls indicated that his course met

(Continued on following page)

Berlin Airlift. West Germans pitched in, loaded and unloaded the fleets of aireraft that shuttled to and from the blockaded city. But former German pilots got a brushoff when they begged to be allowed to fly relief planes.

West Germany's Konrad Adenauer. His victory at the polls indicated grassroots approval.

with general approval at the grassroots of West Germany.

Besides the German attitude, two things weighed heavily in favor of a new German air force, and tipped the scales toward the decision. First, the stark fact of the growing Soviet airpower in East Germany. Second, the inescapable realization that airpower is, and will continue to be, the great deterrent to any advance of Soviet military forces westward into Europe.

At Camp Wentorf, near Hamburg, the largest assembly point in West Germany for refugees from the Soviet zone, I talked to the former shop foreman of a factory in Saxony. He had taken part in the uprisings of last June, and had escaped one jump ahead of the secret police. This refugee had been a German paratrooper in World War II. A close relative is an officer in the *Volkspolizei,* the East German branch of the Red Army.

"Near my home at Grossenheim in Saxony is an airfield, where there are twelve jet fighters. They are Russian MIG-15s. There they are training young German pilots as fast as they can turn them out. Veteran pilots of the Korean war—Russians, Czechs, Poles, and other eastern Europeans —often show up for refresher courses or as instructors."

From such authentic sources, buttressed by other reports, an accurate picture of the military strength of the Soviet Union in East Germany can be built up. As of early 1954, we know that the Soviets have twenty-three "marching divisions" in their zone of Germany, equipped and ready to go. In addition, there are nine supporting divisions, with anti-aircraft and other auxiliiary units. This is the mechanized, highly mobile striking force, the spearhead for any aggressive attack westward.

As for the German military force in the Soviet zone, there were 120,000 men under arms before the uprisings of last June. Now the number is around 190,000, the best organized of which are 45,000 in the Army Group North, commanded by Maj. Gen. Hermann Rentsch, with headquarters at Pasewalk. All are supplied with Soviet heavy equipment, artillery, and tanks of type T-34 and T-43.

Actual strength of the Soviet ground forces in East Germany has increased very little in numbers since 1947, as the divisions have remained about constant. However, operationally they have been vastly improved. Weapons and equipment have been modernized, principally from German factories. Bridges, cables and other lines of communication, barracks, and all other military installations have been enormously strengthened.

The Communist build-up is most impressive in terms of airpower. In late 1948, there were only a few Soviet planes in East Germany. Today there are between 1,100 and 1,200, of which 700 are the latest MIG jets. The remainder are light or medium bombers. This may not seem a high proportion of the total Soviet strength of 20,000 planes, but is significant in the light of the intense program of training which got under way in 1951, when all pretense that pilots were given instruction "for sports and pleasure" was dropped and the creation of a true Communist air force began.

There are now about 5,000 in the "People's German Air Force," organized as the First Air Division. Cottbus, Kamenz, and Bautzen are the most important centers for

Last June's riots caused Soviets to increase their strength in East Germany. At right, East Berlin rioters rip up a Red banner.

President Eisenhower's feeling that airpower is a major deficiency in West Europe's defense has been echoed by his successors at SHAPE—Generals Ridgway and Gruenther. At left, Eisenhower with NATO's Gen. Lauris Norstad during an inspection of air bases in West Germany in April 1951.

ground-school training, conducted under the strictest Soviet supervision.

Fields for flying training, such as the one at Grossenheimer, dot the eastern area. Runways have been resurfaced and lengthened, and all necessary facilities have been added to maintain the more than 700 jets and 400 supporting planes.

I talked to an escapee who had been a welder in a steel plant. He told of the spasmodic, but always feverish, preparations made to install anti-aircraft weapons all over the eastern zone. But, he added, the Russians are now afraid to let the Germans man them. "Behind every German anti-aircraft soldier stands a Russian with a gun at his side," he commented.

Apparently this distrust is even more marked in the case of guided missiles. At the close of the war, the Soviets seized every German scientist they could who might know something about jet engines, radar in general, and guided missiles in particular. How much feet-dragging there has been on the part of the Germans, with perhaps a little sabotage on the side, is hard to estimate. But we know there are guided-missile bases, and we know they are aimed westward.

Largest of the military-plane factories in the Soviet Union is just outside Moscow. Assembly plants are scattered over many communities of East Germany and the satellite areas of eastern Europe. We know, and the Russians know that we know, where to pinpoint them on our intelligence maps. The shortest distance to these facilities is from West Germany itself. It is no secret that United States officials in SHAPE backed the plan for a new German air force.

As Brig. Gen. William P. Nuckols, US Air Force, chief of public relations for SHAPE, has said, "In the face of Soviet air strength, not to make use of any German air potential would be militarily unrealistic."

Here is where the second factor, the use of a German air force as a deterrent to Soviet attack, comes in. Despite all the optimistic reports from SHAPE, all three top commanders—Eisenhower, Ridgway, and now Gruenther—have said that airpower is one of western Europe's major deficiencies. At the close of 1953, we could count only 4,000 planes assigned to Gen. Lauris Norstad at NATO. About half this number are American, for the most part fighters and fighter-bombers. This does not include the US Stra-

(Continued on following page)

ABOUT THE AUTHOR

Mr. Armstrong's byline last appeared in AIR FORCE in May 1951 when he and Congressman Dorn reported on "The Lessons of Korea" (at left, with General Nuckols and another FEAF officer in Korea, 1951). Mr. Armstrong represented Missouri in the 82d Congress. He now writes, mostly on foreign political, military, and economic affairs. He was in the Air Service in WW I.

tegic Air Command, nor the Royal Air Force retained under British command, nor the military aircraft already on Spanish bases. Greatest weakness is in all-weather interceptors. There are so few effective French military planes that when the 1953 air demonstration was planned for North Africa, the French air command told the American embassy in Paris that they would be glad to participate, provided the US could lend them a few planes for the show.

Now, the Germans I talked with say they want no more war. They know they lost the last one, and their destroyed cities are constant reminders of what effective airpower can do. So long as their own rearmament might precipitate a Russian attack, the great majority of German citizens were against it.

Here was the basis for the "neutralist" feeling, which ran high from 1948 until 1951. Adenauer's opposition, the Social Democrat Party, actively supported the policy of a neutral Germany as the only way to get the occupation powers to go home and to unite Germany. *"Ohne mich"* ("without me," "count me out") was the word, especially among war veterans and youth.

Throughout 1951 it began to be apparent that talk of a neutral, unarmed, united Germany was a Communist propaganda booby trap. Added to that was the conviction that the Russians will never move westward, and hence will never start a major war, unless they have a favorable balance of airpower. As Dr. Hermann Punder, member of the *Bundestag* from Cologne and chairman of the majority (Christian Democrat) party, explained it:

"This concept put a new light upon our rearming. It gave hope of preventing war and at the same time working toward the restoration of unity through liberation of our eastern areas from Communist enslavement. Under the old concept of 'hold them at the Rhine and finally drive them back,' Germany was destined to be the major battleground for the next—the atomic war.

"We know that the Soviet masters do not fear the land armies of the West, for there they have us outnumbered, in Europe as elsewhere. But we know also how greatly they fear the striking force of superior air strength. As we make our contribution of air strength, the Soviet fear of attacking the free world will increase and the likelihood of war will decrease."

In addition, I learned that the plan for the German air force included, without announcement or fanfare, these additional agreements:

The United States was to step up its air strength in Europe, and especially in Germany, against the possibility of a "desperation attack" by the Soviets when German air training actually starts. This build-up began in late 1952, and increased in tempo throughout 1953, despite failure of France and several other nations to ratify the EDC treaty.

The initial number of 1,500 planes will be subject to increase if conditions require.

West German veterans of World War II may be admitted to the new air force if they meet the usual requirements. This ran counter to the wishes of both the British and French, who vigorously advocated selection of German air force personnel by conscription only from non-veterans.

All German units, including the air force, will be admitted to the alliance on an equal basis with those of all other nations in EDC, and ultimately in NATO. German air force staff officers will integrate all plans with the European Defense Community staff.

The new German air force will be tactical, or defensive, in character. This was not only a concession to French and other allied demands, but was in keeping with the wishes of the German people themselves. Dr. Blank expressed the new policy thus:

"The very acceptance of the idea of the European Defense Community sprang from the conviction that a supranational European army was the best way to avert the revival of so-called German militarism. In our preparatory steps, much labor has been devoted to insuring that the internal structure of the German armed forces will be on a new foundation."

Creation of the German air force would also seem to be in keeping with the new American policy, which Secretary Dullest recently called "a basic decision to depend upon a great capacity to retaliate, instantly, by means and at places of our choosing."

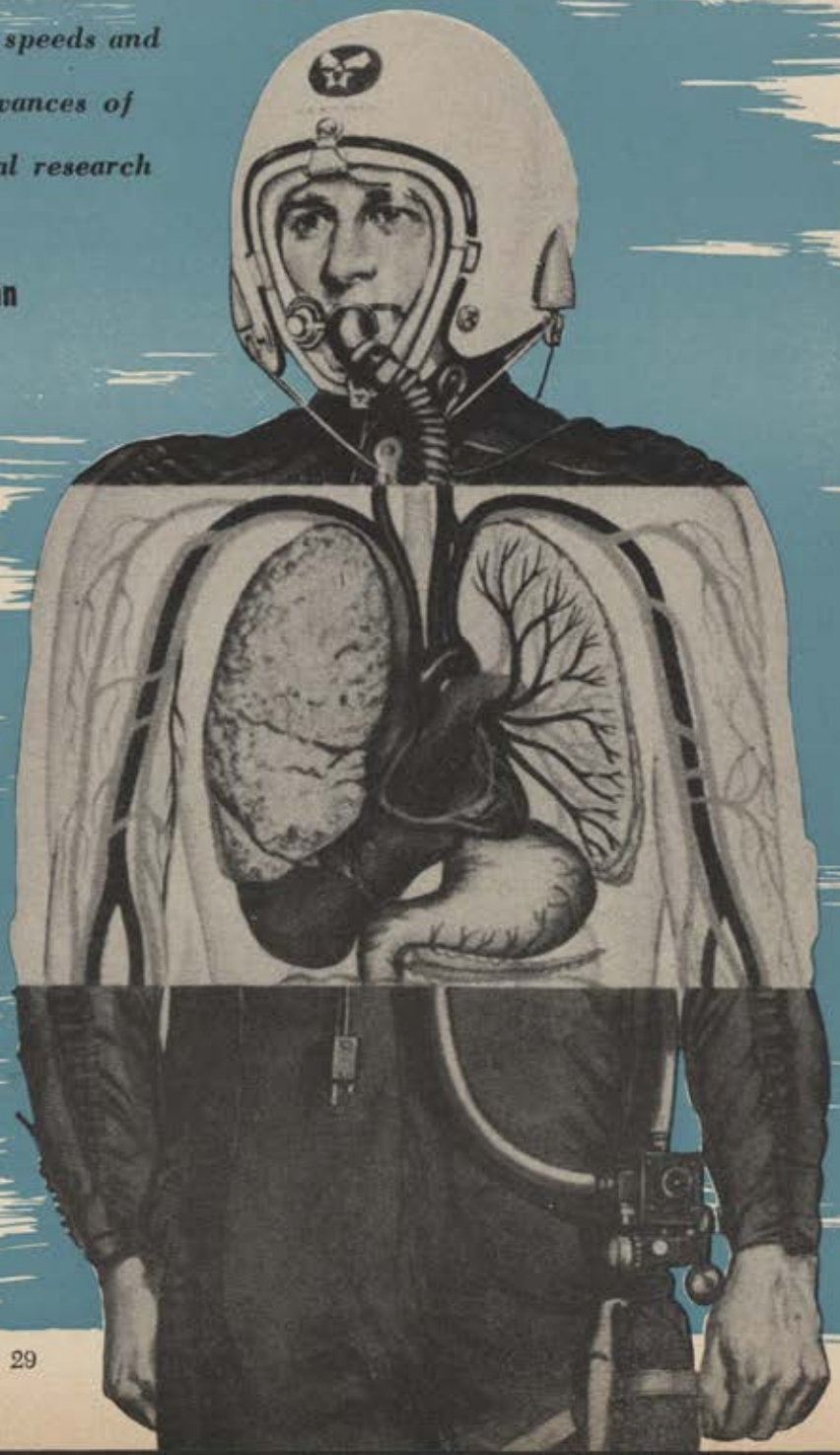
I am certain that this historic basic decision was not based solely upon the feeling of our Department of Defense, State Department, or even on the recommendations of the National Security Council. It would seem that the decision must have been participated in by our allies in NATO. If realistically carried out, it means that airpower must be maintained effective to meet the challenge of future Communist aggression, anywhere on the globe. The creation of the new German air force would be in line with this concept and would be a great step toward making the defense of Western Europe a workable reality instead of a pious hope.—END

Physiology of Flight (Part 1)

WHAT FLYING DOES TO YOUR BODY

Man couldn't fly at today's speeds and altitudes without the advances of modern aero-medical research

By Edmund F. Hogan



ONE NIGHT last winter an Air Force pilot was flying a B-26 at 9,000 feet over the treacherous mountains of Pennsylvania. The weather was so thick he couldn't see his wingtip lights. His map dropped from his lap and slid forward along the cockpit floor. Holding the wheel with his left hand as steadily as he could, the pilot bent down, groped around with his right hand, found the map and straightened up, ready to trim the aircraft and continue on course to Washington.

As he snapped his head back into normal position a sick, dizzy feeling hit him without warning. The altimeter unwound but he was sure he was flat on his back. A veteran of some 4,000 hours, he realized immediately that he had vertigo. In telling about it later, he said, "I knew I had to believe the instruments. I kept hanging on and repeating to myself, 'I've got to believe what I'm seeing.' When I snapped out of it, I was at 4,000 feet and going straight down."

This pilot had two things working for him—experience and altitude. He

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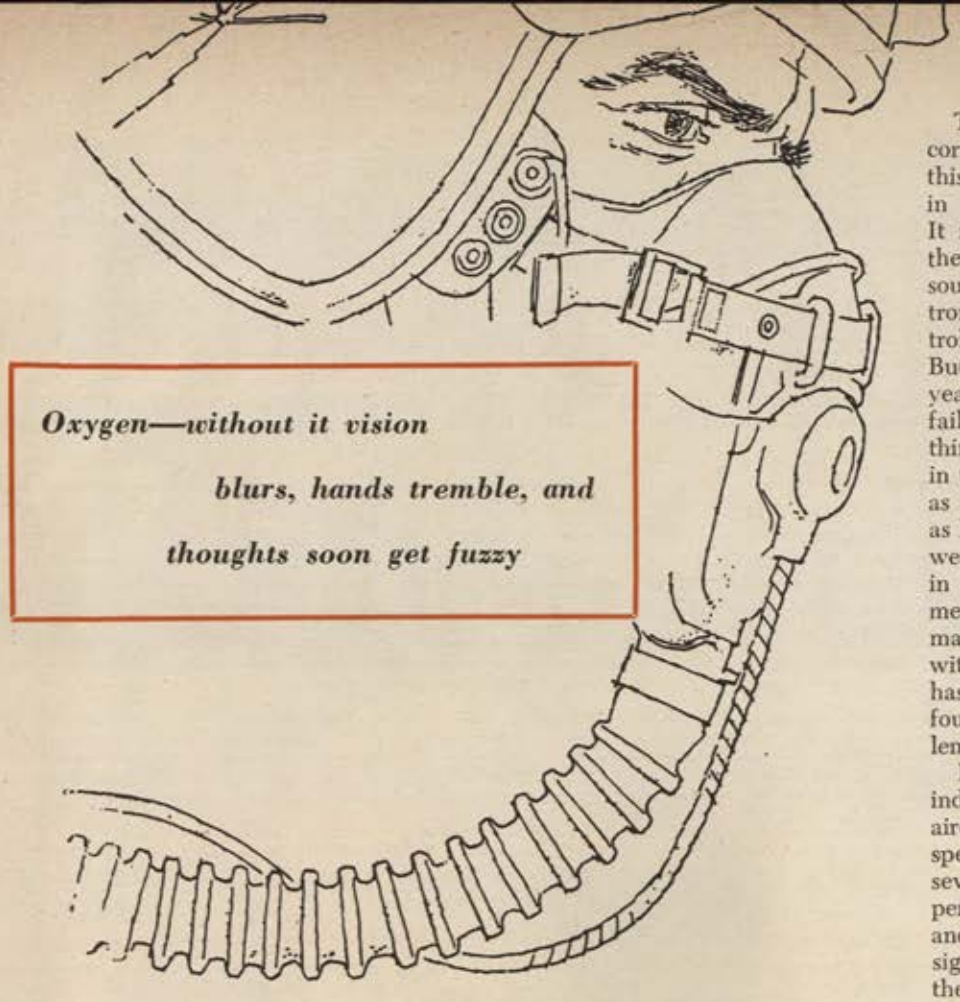


Oxygen—without it vision blurs, hands tremble, and thoughts soon get fuzzy

WHAT FLYING DOES TO YOUR BODY——CONTINUED

knew what was wrong with him and he was able to recover before he ran out of sky. He got home safely. Others have been less fortunate.

Vertigo has been around for a long time and those pilots who have not experienced it are the exception, not the rule. But the need for learning more about it and other physical phenomena which pilots experience has made the Air Force depend more and more upon a relatively new science—physiology of flight.

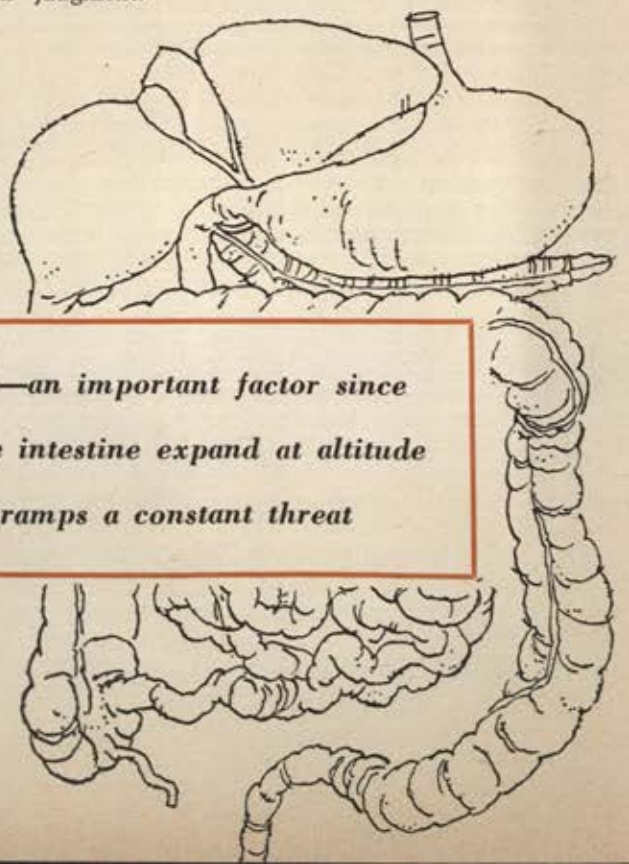
In the days when take-off power, climb power, and cruise power were one and the same, the pilot stood on an equal footing with his machine. Indeed, his stature may have been greater, for the machine lagged behind human reaction. But constant application to lifting the ceiling and boosting speed and range changed this relationship. The machine caught up with the man.

Nine years after V-E Day it has become fashionable to question whether the machine has not in fact outstripped the man and whether the pilot is not obsolescent, if not already obsolete. The proponents of this thesis have science on their side. An Air Force announcement that pilotless aircraft will be sent to Europe is sufficient reason to attract the comment, "See, we don't need pilots any more. We already have aircraft which don't require a man aboard and these will do everything a man can do—and do them much better—because scientific know-how is more infallible than human judgment."

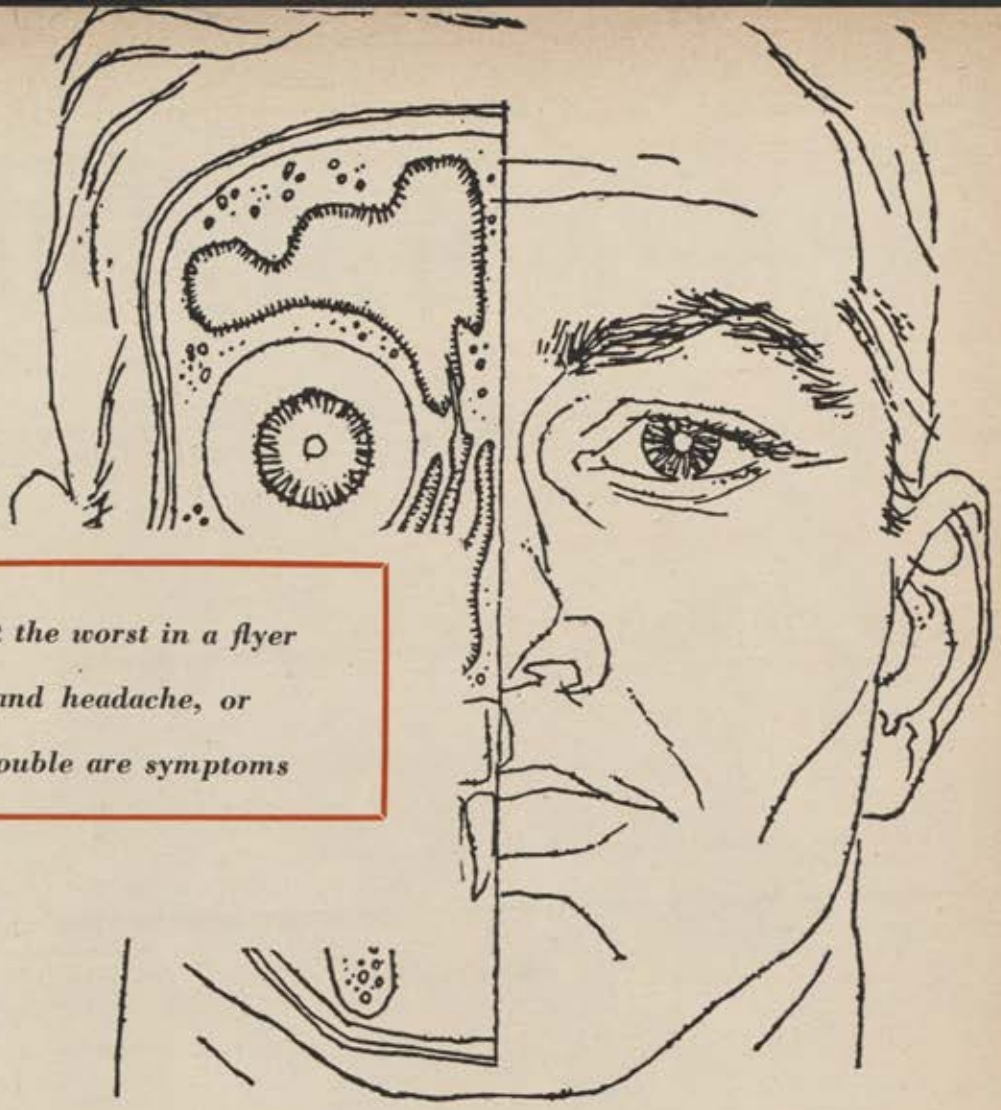
This premise is not 100 percent correct. We have not yet arrived at this advanced stage of development in our quest for peerless airpower. It is entirely possible that one day the scientific brain will replace the source of human reason and electronic impulses will guide the controls that now require human hands. But technical progress in the fifty-year history of aviation has thus far failed to produce a robot which can think. And it is unlikely that it will in the immediate future. Man is just as important to the machine today as he was when the Wright Brothers were making history. The machine is in an advanced stage of development; man is still the same old human being. To keep man compatible with the machine in high-speed flight has meant that answers had to be found to serious physiological problems.

In a brief ten years, science and industry have combined to produce aircraft which operate beyond the speed of sound, which can climb several miles a minute, and which perform at altitudes of 50,000 feet and higher. The human body, designed to exist on earth, cannot make the adjustments required to master such aircraft without the help of aero-medical research which has brought about vital physical aids, such as artificial supply of oxygen and pressurized equipment.

Of all the things that happen to man during flight, none is more important than oxygen—or the lack of it.



Diet—an important factor since gases in the intestine expand at altitude and make cramps a constant threat



Altitude brings out the worst in a flyer —toothache and headache, or sinus and ear trouble are symptoms

The modern flyer speaks knowingly of hypoxia—a condition in which the body suffers from a lack of oxygen—and anoxia, a complete absence of oxygen. Everyone has been told that 10,000 feet is the limit for flight without oxygen but not everyone realizes there is sound scientific reason for establishing this floor.

More pilots have broken the 10,000-foot rule than have kept it. But the practice is not conducive to long life. Physiologists learned early that at 15,000 feet the pilot who is not on oxygen begins to find his vision blurring, his hands trembling, and his thoughts getting fuzzy. More than 100 deaths in Air Force combat operations during World War II are attributed to hypoxia, although it caused at least 10,000 cases of unconsciousness. The one percent who didn't make it home proves that hypoxia can be deadly.

Improved oxygen systems have helped reduce the incidence of hypoxia. These systems have come a long way from the early "pipestem" arrangement, which had a practical flight ceiling of 20,000 feet. This earliest system was a simple tube connected through a valve-type metering device to a cylinder containing oxygen under high pressure—a maximum of 1,800 pounds per square inch. The tube was fitted with a pipestem—giving the system its name—which delivered a continuous flow of oxygen into the pilot's mouth.

The pipestem had three major drawbacks. It could not give adequate protection to the average pilot who breathed through his nose. Oxygen delivered while the pilot was exhaling, about half the total, was wasted. And the pipestem was uncomfortable to hold between the teeth for long periods, especially in unheated cockpits.

The continuous flow system then was devised. This employed a lightweight mask covering the nose and mouth. Attached to the mask was a rubber bag. The bag captured gas exhaled from the upper respiratory system, consisting principally of unused oxygen. But the continuous flow system had its shortcomings, too, and physiologists established an arbitrary ceiling of 25,000 feet for it.

Early in World War II it became apparent that aircraft would operate above 25,000 feet. The continuous flow system, inadequate for higher altitudes, then gave way to the demand system. As its name suggests, this system delivers oxygen only when the user inhales. Extensive physiological and engineering tests proved the pilot would get 100 percent oxygen at high altitudes so long as there was an airtight seal between the mask and his face.

Even the demand system had its limitations and physiologists set its ceiling at 35,000 feet. In the postwar period, however, aircraft began flying even higher. Letting the pilot breathe at the newer and greater altitudes meant working out three problems. Mask leaks had to be eliminated. One hundred percent oxygen had to be delivered to the lungs with every breath for flight up to 40,000 feet. Above 40,000 feet, oxygen had to be delivered at a pressure in excess of atmospheric pressure. The modern pressure breathing system solved all three problems.

By using mechanical means, men of science have kept the pilot breathing—and in the cockpit. And they are still trying to translate the known physiological and engineering principles, which will enable man to get to the limits of the earth's atmosphere, into protective equipment that works.

Protective equipment, however, is not always an external device. It can be man's knowledge of his own body and those things which affect it ad-

(Continued on page 42)

HERE'S WHY THEY LEAVE

An unstable world situation tends to upset military planning.

So does a lack of national sense of urgency in such troubled times.

A decrease in public respect for military leaders harms incentive.

The reduced prestige of officers and NCOs hurts.

A big factor is competition from industry.

Low pay has long been one of the military's thorniest problems.

When fringe benefits go, so do Air Force officers and airmen.

Less attractive retirement policies discourage long service.

The inevitable family problems are a big reason for quitting.

A desire to use veterans' benefits makes some quit.

Haphazard personnel policies don't boost reenlistment rate.

EVER hear of the giggle ride? It's no laughing matter, at least not to Strategic Air Command crews who have to spend any amount of time at Mountain Home AFB, Idaho.

A letter from a B-29 radar operator describes Mountain Home as a lovely, lonely spot that offers little off-base recreation. "The main weekday activity," says this lieutenant, "is the giggle ride. We drive halfway between the base and the town until we can see nothing but sand and sagebrush. Then we giggle until we are tired enough to go to bed."

If Mountain Home were the only "lovely, lonely spot" the Air Force had to worry about, a great many of its problems would be solved right off the bat. Unfortunately, there are many such bases which are trouble spots, morale-wise. Some are even lonelier. Some are less than lovely. But the problems facing the Air Force today aren't just those of loneliness and loveliness, or the lack thereof.

Simply and bluntly, the Air Force's biggest current headache is men. How to get 'em and how to keep 'em —and keep 'em reasonably happy. The old saw, "Aren't you happy in the Air Force, soldier?" has grown pretty dull. Because thousands of airmen and officers would answer, "Hell no!" And, if present trends continue, they'll back up their words by refusing to reenlist or by resigning their commissions.

By 1957, under the Administration's "new look" budget, the Air Force will need 975,000 men—men who enlist, not men who are drafted. For you can't staff a modern Air Force with men who will be around for only two years. In fact, Lt. Gen. Emmett (Rosy) O'Donnell, Deputy Chief of Staff, Personnel, says, "It would be the end of the Air Force."

Manning today's Air Force is a tougher job than manning World War II's, or even the Air Force that fought in the skies over Korea. In 1942 you could be a soda jerk one day and an airplane driver nine months later.

Today's jet Air Force is vastly more complex. Its men have to do more and know more about more things than ever before. Today's three-man B-47 medium bomber

THE AIR FORCE

There's no simple answer to the AF's biggest headache—how to get and keep the men needed today. Here are the main reasons for the high turnover

By Everett E. Dodd

One reason: too much extended TDY.

crew has at least the equivalent mission of the eleven men in yesterday's B-29 heavy bomber.

It takes at least two years to train an Air Force technician—engine mechanic, radar maintenance man, flight engineer—and four more years before he really starts getting good.

That means the Air Force gets only two years of productive service from a four-year enlistee. For two of his four years, the airman is along primarily for the ride. In his last two years he starts producing. And then the chances are three to one that he will pick up his pay and head for home. Yes, three-fourtths of the 200,000 airmen whose enlistments expire this year won't re-up.

Why?

They, and a lot of officers, too, just aren't satisfied with the deal they're getting in the Air Force. And you can't blame 'em.

Let's let a recently resigned lieutenant colonel sound off. An extremely able Regular, he's the type the Air Force can ill afford to lose:

"After more than twelve years of active commissioned service, I take this step with great regret," he wrote in his letter of resignation, "and with full awareness of its importance to my family and myself. When I accepted a Regular commission in 1946, it meant the achievement of a life-long ambition. My assignments since then have been progressively interesting and responsible. I owe whatever degree of professoinal competence and reputation I may have acquired to the service, and until fairly recently I have been happy and satisfied as an Air Force officer.

"I did not choose a military career for its financial rewards, well known to be below those of industry. However, when I accepted my Regular commission, I entered into a contract in good faith. This contract included certain retirement and 'fringe' benefits. During my years of active service, I have seen these benefits largely eliminated, without notice, without compensation, indeed with no apparent regard for their effect on me and my family. I have little confidence now in those which remain, since they too can be wiped out tomorrow by a Congressman with a rider. Coupled with the failure of military pay to keep pace with the rising cost of living, the elimination of these benefits has made it nearly impossible for me to provide adequately for my family's increasing financial needs.

"Pride in one's profession, which is important in all walks of life, is of *paramount* importance to the career officer. My sole remaining incentive—professional pride—has also been destroyed. The main reward for achieving high military rank and responsibility has become public scorn. It is open season in the nation's press on 'the wasteful brass' who live 'in unearned luxury' while 'squandering tax funds to build mysterious and unnecessary empires.' Many of our elected representatives in Congress, and even high civilian officials in the Defense Department itself (on whom our future careers altogether depend) have publicly shown their lack of regard for the military profession. Is it any wonder that the uniform I once wore with pride is now regarded by most civilians as a badge of mediocrity, of a parasite unable to earn an honest living 'outside'?"

There's not much the Air Force itself can do about this kind of griping. It's up to Congress—the people's representatives—to correct these things. After all there's little the Air Staff can do to prevent "a Congressman with a rider" from wiping out those fringe benefits "which remain."

But Congress isn't the Air Force's only hairshirt. It has another—itself. Many of Air Force's own policies push airmen and officers toward discharges and resignations. As one officer, now resigned, wrote to a friend:

"I have always been somewhat impatient with the Air Force system of management, which I think is best described as a combination of the British 'muddle through' and the ostrich approach (lock the problem in your safe and it may go away). With the callow enthusiasm of youth, I expected this to get better. But if it has, it is detectable only by the techniques of nuclear chemistry.

"Personnel policies of the Air Force seem to be especially devised to infuriate everyone in it. It is not clear why this is so, except I think it has roots in the professional personnel officer. In any case, promotion policy is not uniform, malassignment is frequent, people are rotated at ultrasonic frequencies (I had a lieutenant who received notice at 8:30 one morning to be on the 12:30 train for sixty-five days temporary duty. Since then he has been transferred, a permanent change of station. I doubt if he will ever find his family, much less his peace of mind)."

The writers of the above letters are probably just a little more articulate than many of their erstwhile contemporaries in blue. There are many more Air Force airmen and officers who've been bitten with the same bug of discontent. But they stay in,

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carrying out their assigments probably less efficiently than they would under better circumstances. This is borne out by the number of letters received at the Pentagon while the Womble Committee was formulating its report.

The Womble Committee was formed largely as a result of Gen. Omar N. Bradley's letter to Defense Secretary Wilson in which the retiring chairman of the joint chiefs expressed his "increasing concern" over the "growing lack of confidence of armed forces personnel in military service as a worthwhile and respected career." The committee was composed of five senior officers of all services—Army, Navy, Air Force, and Marine Corps. It got its name from its chairman, Adm. J. P. Womble, Jr., USN.

By and large the Womble Committee Report bore out the contention that military careers are becoming less and less attractive. All services are faced with the problem, but the Air Force's personnel dilemma is compounded by the fact that it is still building while the other services are reducing their manpower.

The colonel, whose letter is above, spoke of "legislation by rider" and its effect on Air Force fringe benefits. Legislation by rider is a sometimes vicious and wholly devious method of passing legislation that can't pass on its own merits. It's tacked onto a piece of necessary legislation, one that is so important that it passes despite the rider.

Retirement has been mentioned. An appropriations rider makes it virtually impossible for an officer to retire after twenty years of service.

This particular rider also makes it impossible for an officer to retire even after thirty years of service. He can ask. But the Air Force, by law, has to refuse to allow it. For example:

A 54-year-old brigadier general seeks to retire—he's served thirty years. His request is tossed back in his lap. It compromises his chances of promotion. He's passed over or remains in grade for more than five years. He's then forced to retire—tagged with the stigma of non-selection.

No wonder the lights in many a junior officer's home burn a little later. The kids are probably tucked away. But he and his wife are sitting around the kitchen table sipping coffee and talking, and wondering whether an Air Force career's worth it. And why not? His chances of remaining a junior officer are excellent. Another rider, coupled with the one above, effectively freezes this officer's promotion.

This one says that the Air Force can have only 428 generals, 4,349 colonels, 8,401 lieutenant colonels, and 20,916 majors. There are few vacancies because retirements are held up, and few promotions because there are few vacancies.

Rep. Leslie Arends (R-Ill.) has urged that the riders be repealed because, "a new second lieutenant has one chance in 300 of becoming a brigadier general. . . . Under the [limitations rider] a young officer would have to attain the age of 103 before qualifying for promotion to brigadier general."

But retirement isn't the Air Force couple's only concern. There's the question of groceries. About twenty-five to thirty-five percent of the average AF income goes for groceries. The couple used to have the commissary where prices were twenty percent lower than at commercial markets.

But no more. The words, "No appropriation contained in this act shall, after December 31, 1953, be available in connection with the operation of commissary stores," were

TOO MUCH OF THIS

NOT ENOUGH OF THIS

A house isn't always a home, but neither are four walls and a roof always a house. The picture above shows up at too many bases the country over. Congress, which provides funds, can furnish the solution. Wherry housing (lower cut) helps but hasn't whipped the housing shortage or the rent gougers.

added to the FY 1954 Defense Appropriations Act.

Low pay is another factor. Since 1937 the pay and allowances of our officers and airmen has fallen about 315 percent behind the increases achieved by labor. And, in losing commissary and other benefits to boot, the Air Force couple, in effect, has taken a pay *cut*.

Letters to the Womble Committee, and even to President Eisenhower, objected to the commissary rider and its provisions. One service wife wrote that commissary privileges were not a gratuity but like the ten or fifteen percent discount most merchants grant their employees. Another complained that "as long as there is a war, no one complains about commissary stores." But, she said, as soon as there's peace talk in the air, the people who made money out of the war without risking their necks are out "to take all the privileges away."

People, perhaps, like the Norfolk (Va.) Food Dealer's Ass'n, which last year circulated a letter saying, in part, "Things have taken a nice turn in the commissary fight. We have just learned that in Washington there is more than one way to skin the cat. . . ."

Before our Air Force couple turns out the light and calls it a day, they can hash over a few other things, like medical care for the kids. Up until recently it's been accepted practice to give limited medical care to dependents. Not any more. And that, too, is another wage cut.

Most Air Force personnel feel as Secretary of the Air Force Harold Talbott does. Last year Talbott told AFA's Convention in Washington, D. C., "I personally think that if this government is willing to separate a man from his family and send him overseas for long periods, it should be willing to assist his dependents by providing them with decent care and attention."

Yes, "fringe" benefits are important. They caused one veteran sergeant to say that if his son ever attempted to enlist, "I'll break his damned neck." A lieutenant general put it differently when he said, "The only thing they have not taken away from the soldier is his privilege to go to the latrine."

Housing's another sore point. It's up to Congress to provide the funds. Wherry Act housing has helped—but not enough. There are not enough houses and too many rent gougers who insist on charging all the traffic will bear.

Also, for the unmarried airmen there's a shortage of base facilities for recreation. Many are influenced in their decision to reenlist by the adequacy or inadequacy of recreational facilities—tennis courts, theaters, swimming pools, and so on. Where they are adequate, figures show that the reenlistment rate is much higher than at bases where facilities are poor (see chart).

But all of the complaints can't be aimed at Congress. The Air Force can inspect its linen, too. It's apt to find it soiled in places. There's the problem of spotty overseas assignments; too much extended temporary duty; and—the bane of many an AF man's existence—the square peg in the round hole.

TDY and overseas assignments have long been a source of worry to those who think about morale. And it probably will remain so as long as world conditions remain as they are. There's not a lot that can be done. But a balm for those months of separation would be higher pay and restoration of some of the fringe benefits.

And often an overseas assignment means separation from family for long periods of time. A good part of the time it can't be helped.

It doesn't seem impossible for the AF to arrange concurrent travel, especially when quarters are available overseas. But there have been too many occasions, when a military man was not permitted to take his family with him while civilian employees were allowed to do so. A colonel who recently resigned told of an officer and two civilian employees all headed for the same destination. "Dr. W.," he said, "traveled to Paris with his family. Colonel D. was ordered to Paris with concurrent travel denied. Mr. D. went to Paris with concurrent travel. The civilians refused to go without their families. The officer was ordered to do so."

TDY and frequent permanent changes of station—either in the States or overseas—irks many. Especially too frequent permanent changes of station. Moving from post to post is a costly operation for many senior officers, since the weight

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RECREATION AND THE RE-UP RATE

GOOD POOR

RECREATIONAL FACILITIES

67.6% DO 87.3% DON'T

REENLISTMENTS

The surprising thing isn't that there's a connection between recreational facilities and the rate of reenlistments but that the percentages are so high. Given an adequate recreational program, more than two out of three airmen will sign up for another hitch. But when recreational facilities are poor, nearly nine out of every ten airmen will refuse to reenlist!

allowances for household goods have been reduced. The limit for all ranks above major now is 9,000 pounds.

Most senior colonels and generals have accumulated far more than that in their years of service. They now either have to sell furniture to stay within the weight limit or pay for shipment themselves.

TDY sometimes is necessary. But many times a personnel officer has picked a man for TDY merely to fill a square. Filling a quota for the sake of filling it can be a waste of time for the man, for the Air Force, and for the taxpayer.

Perhaps worst of all is what General Bradley referred to as "the habitual slurring of the officer corps by some members of Congress and some elements of the press."

This kind of criticism works up and down. Subordinates view superiors with less respect, and officers on a policy level tend to restrain their viewpoints in talking with civilian superiors.

As another able Regular said in his letter of resignation, ". . . primarily, and overshadowing all others, is the open hostility of the Congress to Regular officer personnel. This attitude is expressed in speeches, in press releases, and in legislation. It alone is enough to make me desire to leave the service." He did.

And officers aren't the only ones whose prestige has waned. The non-com corps suffers this indignity, too. As the master sergeant wrote in AIR FORCE (Sept. '53), "The non-com in today's AF is but a shadow of himself, shorn of dignity, prestige, and authority."

The remedy is up to the Air Force. It should name its NCOs for their command abilities rather than technical knowledge. Technicians' pay should be commensurate with their ability. But the chevrons of a noncommissioned officer should be worn only by leaders.

In April SAC will begin the first classes of a newly established system of non-com schools. The schools will be at SAC's three Air Forces—Eighth, Fifteenth, and Second—plus the Seventh Air Division at South Ruislip, England, where the SAC non-com academy idea was pioneered.

The schools will, said Gen. Curtis E. LeMay, commander of SAC, restore, "The non-commissioned officer to his rightful status in the military sphere and the development of methods to utilize more effectively his ability and experience. . . . The noncommissioned officer is a vital link in the executive-managerial structure of the AF, and I desire he be accorded the authority, responsibility, and consideration to which he is entitled."

And at Mitchel AFB, N. Y., commanding officer Col. James J. Roberts, Jr., said first three graders will now be accorded the same check-cashing privileges as officers and warrant officers. Pay lines will run according to rank, rather than alphabetically. Both practices are being extended to other Air Force bases.

The Womble Report stated, "There is a tendency for fiscal decisions to be taken without due regard for their impact on personnel and combat effectiveness." This tendency is reflected in the low pay, poor housing, poor base facilities, and all the other reasons why airmen and officers refuse to seek the Air Force as a lifetime career.

But overshadowing all is the need for a greater sense of urgency on the part of the American people and their representatives in Congress. The times are perilous and must be recognized as such. Paying for the kind of Air Force we need is not inexpensive. Each budgetary appropriation is, in effect, a premium on this nation's life insurance policy. The question is how much insurance do we want to provide?—END

WHAT'D HE EARN IN SEATTLE?

Competition from all levels of industry has induced many an AF man to doff herringbone twill for denim, shade 84 for grey flannel. Fatter paychecks, better working conditions, and benefits are main reasons.

Jet Blast, King Size

Can 'Wolf-Pack' Interception Pay Off?

RECENT articles, notably "What Can We Do Today?" (AIR FORCE, Feb. '54) have advanced the theory that the air defense of the United States can be greatly improved by the "defense-in-depth concept." This theory stems from the geographic factor that the shortest air route to the US from Russia is over the North Pole. Consequently, it is said that long-range, all-weather interceptors based in Greenland and Alaska would "deepen the defense line to the extent that enemy bomber groups can be attacked thousands of miles away from important US targets, and kept continuously under attack throughout their approach."

People talk about a "running air battle over several hundreds of miles" and "wolf-pack tactics to fly and fight an enemy bomber force over hundreds of miles of sky." Very attractive, if practical.

However, let's look at the specific situation the USAF faces in deploying its airplanes in this way. At present the area covered by early warning and control radars in the US, Alaska, and Canada is not extensive. The all-weather interceptor force consists of F-86Ds, F-94Cs, and F-89Ds. The F-89D is the only airplane which has enough range for "wolf-pack" tactics. The airplane must also take off and land at bases that are now in being.

For this discussion, let us assume the enemy bomber is the TU-4, certainly the easiest target we are likely to meet. It cruises at about 300 knots, at about 30,000 feet.

Given the present state of our radar coverage, an enemy bomber would have to be extremely cooperative to be detected along the line between Anchorage, Alaska, and Thule, Greenland. The planned distant early warning line in northern Canada, isn't there now.

But, to be extremely generous to the "wolf-pack" theory, let us further assume that there *is* a distant early warning radar line between Alaska and Greenland, and that F-89Ds can be based at Anchorage and Thule. If the DEW (deep early warning) line is 150 miles wide, an enemy bomber force could pass through the middle of the line before an interceptor could be scrambled and intercept him, since the interceptor would have to travel roughly 1,000 miles while the bombers were going 150 miles.

Therefore, even if the DEW line were operating, we would have to patrol it twenty-four hours a day with interceptors.

Now let's do a little simple arithmetic. Let's take 150 miles as the effective distance over which the radar line could track enemy airplanes and control our own interceptors. This assumes a radar with a detection range of 100 miles, spaced 135 miles apart, so that approximately fifteen stations are required to provide a line 150 miles wide.

The interceptors take off in pairs from Anchorage, fly 1,800 nautical miles to Thule, refuel and rearm and return to Anchorage. We space the airplanes by something less than twice the width of the DEW line, say 250 miles, for convenience. This means we must have sixteen airplanes in the air every day, twenty-four hours a day. If we are optimistic, we can fly these airplanes ninety hours a month, or three hours per day. Total flying time per day is 16 times 24, or 384 hours. This means we must have 128 airplanes based at Anchorage and Thule in order to maintain our combat air patrol—approximately five squadrons.

What could this patrol accomplish? Let us take, for example, a segment of the DEW line 500 miles long. Within this segment would be two pairs of interceptors. In the best case, the bomber force might cross halfway between the two pairs. Continuing to be optimistic, if the bomber force were detected instantly and the interceptors vectored towards it, then all four interceptors within the 500-mile segment would intercept the bombers. Since their speed advantage is roughly four to three, the interceptions would be made while still within the control zone of the DEW line. The other interceptors in our patrol, however, could not reach the point of crossing before the other bombers had passed through it. They would, therefore, be ineffective in this battle. And the original interception may or may not be successful.

The F-89D does not have the range needed to follow and fight the bomber force since it can barely fly from Anchorage to Thule with reserves for combat enroute. Even if it did, the pilot would have to decide which bomber to follow, if the force split up into several groups. And if he could follow one group the present high frequency communication system would not permit him to tell anyone his position, if he knew it.

This feeble effort is at the expense of five interceptor squadrons in the ZI, a high price for a maximum probability of four interceptions per raid. And the operating cost of the interceptors on patrol is, of course, much higher than interceptors on alert status.

What is the alternative?

If the DEW line is not patrolled, it merely warns that an unknown airplane has crossed the line. This is important, however, because it permits the Air Defense Command to bring a high percentage of its available airplanes into running alert status. Five squadrons might reasonably bring half their assigned aircraft to alert status, with the maximum probability then of about sixty interceptions.

This would appear to be a better way to use our interceptors until we have enough to saturate the battle area. Needless to say, we are far from that happy situation.

Now for the future. We again assume the DEW line to be in place. But enemy airplanes are flying higher and faster. Our interceptors must be able to follow them. The same simple arithmetic would again tell us we would get the most air defense per dollar by basing interceptors in the US, using an area defense system augmented by local defenses for critical targets.

I am not criticizing the DEW line concept, merely the idea of flying an interceptor patrol over it. The DEW line can provide important warning time. If the detected raid turns out to be a spoof, little harm is done. If it is a small raid, the air defense system can cope with it. If, on the other hand, an alarmingly large number of unknowns penetrate the DEW line, there is enough time to alert SAC and evacuate potential target areas.—END

This offering was a little too long, and arrived a little too late, to be included in our regular "Jet Blasts" department. But we thought the ideas herein are worthy of discussion, without implying approval or disapproval on the part of the editorial staff of AIR FORCE. *The author is known to us and is an Air Force officer no longer on active duty. For reasons of his own, he asked that his identity be withheld.—The Editors.*

WEAPONS WE MUST USE

A-bombs are here to stay. Let's not fall in the disarmament trap

By Air Marshal Sir Robert Saundby

ON OCTOBER 9, 1953, the London *Daily Telegraph* published an article called "Ships and Strategy," by Admiral of the Fleet Viscount Cunningham of Hyndhope. This article contained much that reads strangely to a student of three-dimensional warfare. Among other things he wrote "the fallacy of the air theorist lies in two major misconceptions," and he went on to explain what, in his view, these were. For the purposes of this article I am concerned only with one of them, which Lord Cunningham describes as follows: "First, so long as the British Commonwealth is one of the leaders of the democratic world, it is inconceivable that its governments would agree to the use of atomic bombs on the immediate outbreak of war. Quite apart from ethical considerations, it would be folly for any British government to act otherwise; for it is this country which is the most likely initial target."

Coming from the pen of an admiral with so great a reputation as a fighter, I must confess that this was rather a shock to me. For it represents a purely defeatist attitude of mind and one which, if accepted by a nation as a principle for the conduct of any war, could not fail to lead directly to defeat. And I think it shows too how "circumstances alter cases," as the lawyers say, since I cannot believe that Lord Cunningham would advocate restricting the operations of our sea power, on the grounds that our sea communications are peculiarly vital and vulnerable.

This article is printed by arrangement with "The Aeroplane," the British magazine in which it originally appeared. The author, Air Marshal Sir Robert Saundby, was born in 1896. He served in France with the Royal Flying Corps in World War I. In World War II he was the RAF's Senior Air Staff Officer, Bomber Command, in 1941-42. From then to the end of the war he was Bomber Command's Deputy Air Officer Commanding- in-Chief. He retired in 1946.

This idea, that we should forego the use of a weapon or a method of warfare, not banned by international agreement, in the hope that if we do not use it, the enemy will be gentlemanly enough not to use it either, is by no means a new one. Indeed, it stirs several chords of memory.

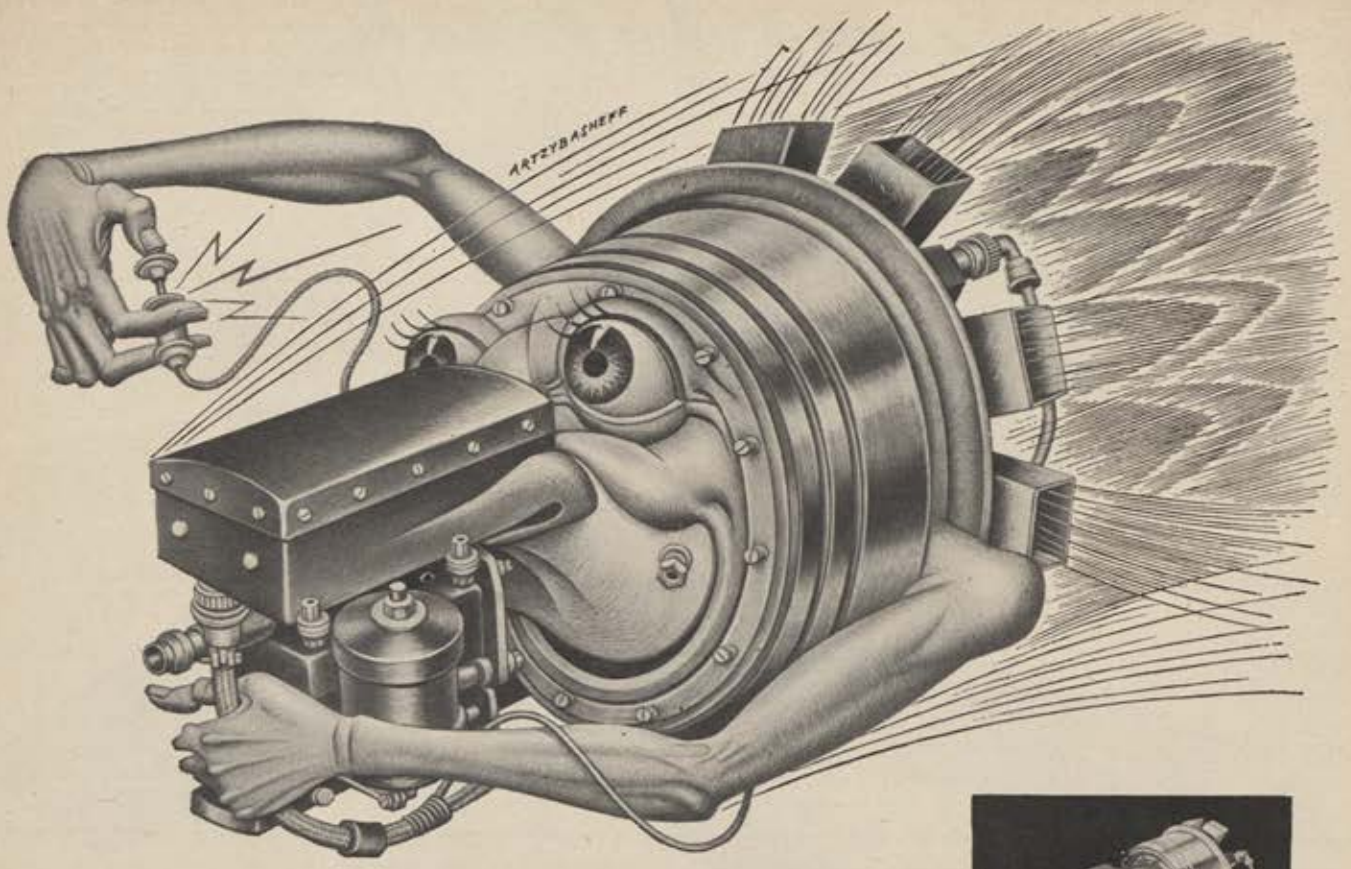
On the outbreak of the last war, the strictest orders were given to the Royal Air Force to avoid the dropping of bombs in any place where they could possibly kill or injure a German civilian, presumably in the hope that the enemy would accept a similar limitation in the operations of his bombers, and this notwithstanding the fact that the first act of the war was the ruthless bombing of Warsaw by the *Luftwaffe* on September 1, 1939. After Hitler struck westwards in May 1940, the destruction by bombing of a large part of Rotterdam did not seriously modify our attitude.

The French, indeed, whose government was rotten with defeatism, carried this idea even a stage further. They were insistent that we did nothing that might provoke the Germans into bombing Paris. When Italy entered the war in June 1940, our bombers were ordered to attack the Italian armies advancing in the Alpes Maritimes. But the French obstructed our airfields with lorries, etc., and prevented our aircraft from taking off, on the grounds that if we bombed the Italian forces, it was probable that they would retaliate by bombing objectives in France.

If their leaders had such ideas, it was small wonder that the French put up no more than a token resistance and were swept away and over-run, not only by the Germans but also by the Italians.

It so happened that the war in the air, as far as this country was concerned, developed rather gradually. Hitler hoped that the occupation of Poland, the fall of France, and the withdrawal of our armies from the Continent with the loss of nearly all their arms and equipment, would convince us that we had no hope of achieving the object for which we went to war. He believed that we should

(Continued on page 41)



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REPUBLIC AVIATION

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be sensible about things and come to terms with him. Even when we showed no signs of wanting to parley, he was convinced that a comparatively mild bombing attack would make us see reason. Not, therefore, until September 1940, did he begin to bomb us in real earnest, and by then we were committed to fighting the Battle of Britain in our own skies, over our own heads.

It was not until after the Battle of Britain that we seized the initiative and carried the battle into the skies over Germany. It is true that our bomber force was small and none too well equipped at that time, since we had given priority in aircraft, radar, and training to Fighter Command, but it is at least arguable that, if we had seized the initiative in September 1939, when Germany was busy subduing Poland, the Battle of Britain might never have had to be fought. The Germans might have been thrown on the defensive in the air, not from the end of 1940, but from the very beginning of the war.

Lord Trenchard, in the debate in the House of Lords on October 22, said: "I say to your Lordships that if we base anything on the last war, and go into this war as unprepared as we did in 1939, if the enemy are ready to hit us in our land and we are not ready to hit them in theirs, the second Battle of Britain will be fought over our heads with the atom bomb and all that that means." Wise words indeed, and yet I think that the fact that the Battle of Britain was fought over our own heads was due at least as much to our moral unpreparedness—our political timidity in the use of airpower—as to the material unpreparedness of Bomber Command.

Since the end of World War II we have had to face the uncompromising hostility of the Soviet-Communist empire. They refuse to co-operate with the Free World. They cut off their citizens from all contact with the rest of the human race, and do their best to make them believe that we are their bitter enemies. Everything that we do is misrepresented, and used to stoke the fires of fear and hatred.

The rulers of Russia and China are determined to extend the rule of Communism by force or fraud to every part of the world. They subsidize and support political unrest, foment industrial strife, foster colonial nationalism, and generally fish in troubled waters. They have instigated an aggressive war in Korea, and encouraged armed rebellions in Malaya, Indo-China, and Kenya. But never, even in moments of supreme tension such as their attempt to blockade Berlin, have they dared to act in such a way as to risk general war. The reason for this is obvious. It is because the United States has a great stockpile of atomic bombs and a well-trained Strategic Air Command capable of delivering the bombs onto their targets.

No one can believe that the Russians or the Chinese fear Anglo-American sea power; it can do nothing that would give them serious concern. And on land the Russian armies hugely outnumber any forces which the North Atlantic Treaty Organization could put into the field against them. And so we come back to airpower. It is airpower, with its threat of the new weapons of mass destruction, that has prevented the "cold war" from becoming a "hot" one.

There is nothing that the Free World could do which would be so likely to bring about a third World War, as to convince the rulers of Russia and China that we should hesitate to use the A-bomb, or the H-bomb if it is available, if we were attacked. If we are to succeed in avoiding war, it is imperative that no one should have the slightest doubt of our intention and capacity to use A-bombs and H-bombs, instantly and effectively, if we are driven to it. And there is no more certain way, if war should come, of ensuring that the second Battle of Britain would "be fought over our heads with the atom bomb and all that that means," than by being unready or unwilling to use our own A-bombs immediately to carry the war into the enemy's skies.

It seems, therefore, most unfortunate that so eminent a war leader as Lord Cunningham should suggest that, if attacked, we would not instantly avail ourselves of the principal weapons of airpower.

There were other instances during the late war of our refusing to make use of weapons or inventions, not because of a hope that if we did not use them the enemy would be kind enough to forbear also, but because we feared that if we used such weapons we would give them away to the enemy, who would then develop them and use them against us. This was based, not on moral and political timidity, but on political and scientific caution.

A few years before the past war, we successfully developed a magnetic mine suitable for laying by air-

The Battle of Britain. Was political timidity to blame?

craft. This new weapon alarmed those responsible for the safety of our vital sea communications, and they argued that, of all countries in the world, we stood to lose most by the production of such a weapon. It was therefore decided that we should discontinue this development, and keep the whole project as secret as possible, in the hope that the German scientists would not hit upon this simple and obvious device. The result was that the Germans, having secretly developed the mine, used it against us from the beginning, and it was many months before we were in a position to retaliate in kind.

Another example of this way of thinking was the development of the device to which we gave the code name of "Window." This consisted of strips of metallized paper which, when dropped from an aircraft, produced a cloud of reactions on the enemy radar screens, confusing the picture and making it impossible to plot the position of individual bombers. It also confused the radar instruments of the German night fighters, and did much to spoil their technique of homing on the bomber.

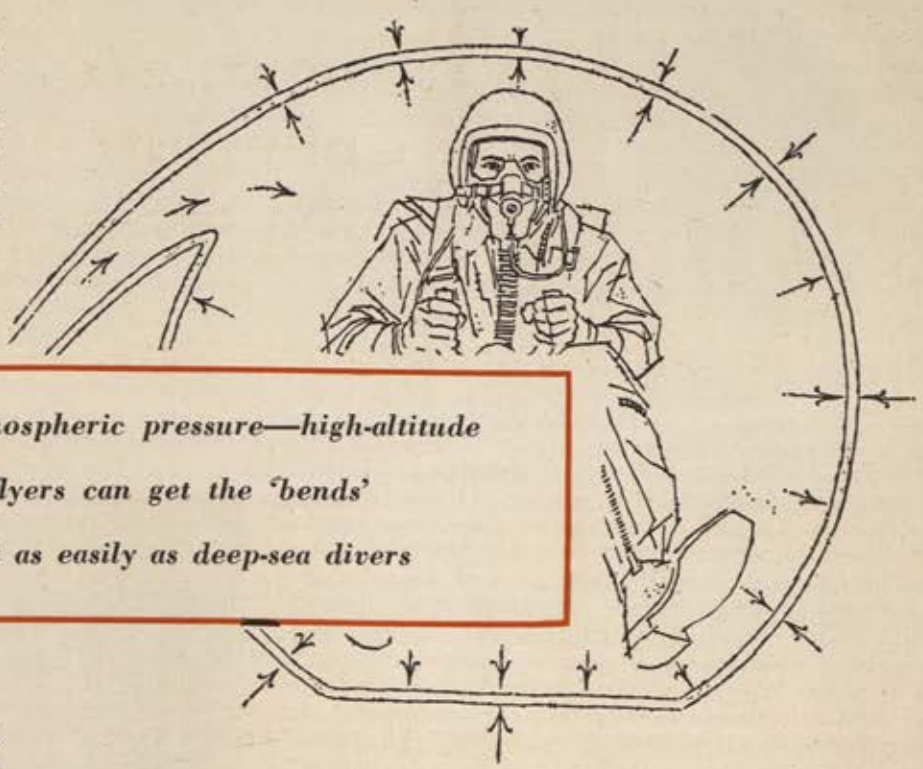
We invented this device fairly early in the war, and also developed a chute by means of which packets of "Window" could be launched satisfactorily from an aircraft in flight. On emergence from the chute the packets disintegrated and a cloud of "Window" strips were left in the sky, fluttering slowly towards the ground. Our tests had shown that this device was very effective in spoiling the technique of night interception and searchlight control. By the summer of 1942 we could have gone ahead with "Window," and needed only authority for its quantity production and operational use.

It was then contended by certain influential people

(Continued on page 63)

versely. The search for this knowledge has led physiologists even into the kitchen.

There was a time when a preflight snack could be a salt pork sandwich, washed down with a bottle of ginger ale. Dietary habits were limited only by the individual stomach's ability to handle what it was fed. Today the situation is different.



Low atmospheric pressure—high-altitude flyers can get the 'bends' just as easily as deep-sea divers

Gases in the stomach and intestine expand with altitude and cramps are a constant threat. At extremely high altitudes gases can expand so much that they will elevate the diaphragm, a condition which can interfere seriously with normal breathing.

Gas pains at high altitudes are not only uncomfortable; they might be fatal. So physiologists caution today's birdmen to avoid such delicacies as cabbage, onions, raw apples, radishes, and cucumbers. Drinking large quantities of fluid, particularly carbonated beverages, is not recommended before a flight. In fact, diet has become so important that physiologists not only advise special menus but the conditions under which the food is eaten.

It is hard to realize that there is an analogy between underwater operations and flying at altitude. But physiologists now know that high-altitude flyers can get the "bends" as easily as deep-sea divers. The condition is produced by the low atmospheric pressures at altitude and is characterized by the formation of gas bubbles in the tissues, blood, and other body fluids.

When these bubbles form, mild pains may appear around the elbows, and knees. These may soon become severe, particularly if altitude is increased. The real danger in bends lies in the fact that severe and persistent pain can cause loss of muscular power.

Formation of gas bubbles in the blood stream has been known to cause a symptom termed the "chokes" by physiologists. The sensation is about the same as that which a sprinter feels at the end of the 100-yard dash. In extreme cases, there is a sensation of suffocation and it is difficult to breathe. A pilot who gets the "chokes" is well advised to descend immediately. Usually, he can get relief by coming down only a few thousand feet.

Researchers have found that one way of reducing the threat of bends and chokes is by breathing pure oxygen immediately before a flight and by staying on oxygen from the moment the canopy is closed.

Flying at altitude often affects the inner ear, sinuses, and the teeth, causing headaches and toothaches. Ear trouble is more common during descents than in climbs because the changes in pressure in the ear do not occur automatically. Swallowing, yawning, or tensing throat muscles will help to equalize pressure during a descent as will the old stand-by method of pinching the nose shut and blowing gently. Pilots who suffer from toothaches at altitude are advised by aero-medical men to see their dentists without delay.

Physiologists have become increasingly concerned with the effects of heat and cold on high-altitude flyers. Climatic extremes in an airplane can be overcome by engineering but their hazards still exist in case of crash, ditching, or bailout.

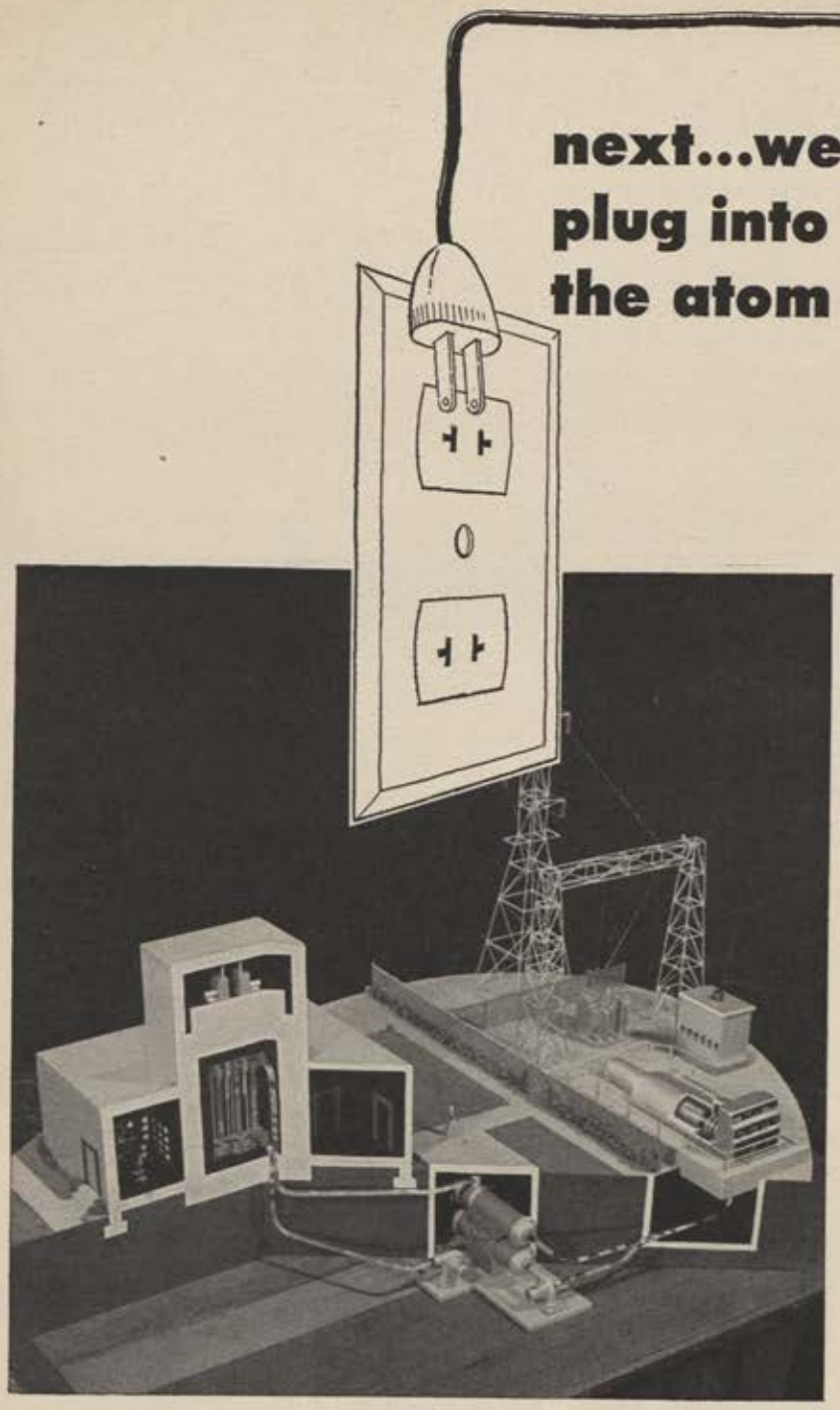
Climatic extremes are known to be responsible for gradual fatigue and lowering efficiency. Engineers have done remarkable work in de-

(Continued on page 45)

OVER THE TRANSOM

Not long ago the mailman brought us a copy of AF Manual 160-30, *Physiology of Flight*, which we liked so well we asked Ed Hogan (see page 17), who's written aero-medical articles for *Flying Safety* magazine to boil it down for us. A second part will appear in April. These illustrations were taken from the manual.—The Editors.

next...we plug into the atom



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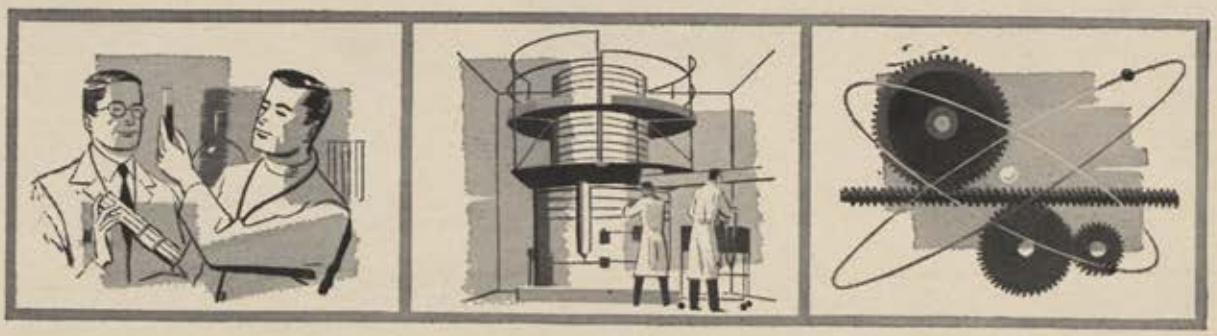

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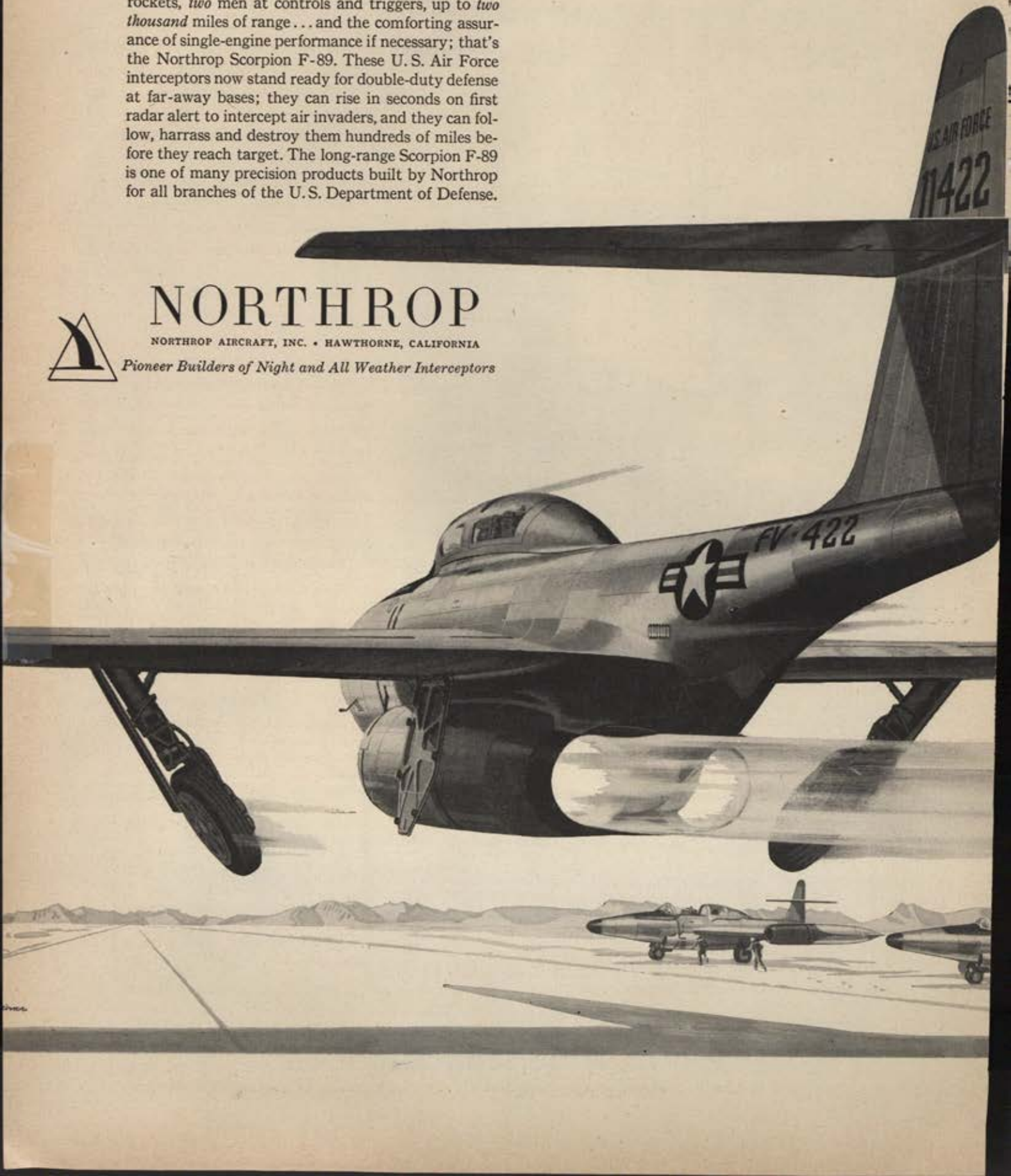

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veloping systems which provide normal climates within the aircraft. Few pilots appreciate the difficulty of the engineering problem. Large volumes of air at high altitudes must be compressed and heated or cooled. Yet the performance of compressors and heat exchangers in the rarified atmosphere is not as good as it is at ground level.

Despite this fact, engineers have been able to devise systems which will take air as cold as sixty-five degrees below zero, compress it to one-fifth its normal volume, and in the process heat it to 170 degrees above zero. The air is then passed through a heat exchanger and expansion turbine to cool before entering the cockpit. It may come as a surprise, but the amount of air supplied each minute at normal flight altitude to a fighter cockpit would fill a five-room house.

Elaborate electronic devices and motor-driven valves control the temperature. Under certain conditions the system is not perfect but without it, cockpit temperatures at times might soar to 250 degrees Fahrenheit.

The problem of the pilot's comfort under all conditions has been of constant concern to the physiologists in the decade since jet propulsion has sent the machine higher and faster. If flyers wore only lightweight clothing, the ventilation problems would end with perfect air-conditioning of all aircraft.

But arctic operations require that aircrews wear heavy clothing for protection in case they have to bail out. For overwater flights, waterproof garments have been developed to protect the flyer against immersion. Many flights begin in a torrid climate, span an ocean, and terminate in the frigid north. These conditions have meant that climate must be built into clothing and that a single garment must protect the flyer against all climatic extremes.

The strategic importance of the Arctic has presented serious problems to the physiologists. But they have learned that the hazard that is most to be feared in cold regions is sweating.

Heavy clothing is issued to make the flyer as secure as possible against the cold. This is designed to keep a man warm while sitting still at twenty degrees below zero. But this clothing is too insulated for walking any distance, or for any strenuous exertion which causes perspiration. A flyer sweats in the Arctic and he becomes a fast casualty of frost bite.

At the other end of the scale, flyers operating in extremely hot regions face the hazard of collapse from heat exhaustion or heat stroke. Under extreme conditions of heat, blood temperature rises. Vital nervous centers are harmed in the process and, to complete the disintegration, sweat glands fail. Physiologists describe the vicious circle as man being "literally cooked by his own body heat."

For years flyers have been impressed with the necessity for knowing how their aircraft operate. Many pilots are as familiar with plenum chambers and hydraulic systems as line chiefs. Survival in the modern air age has imposed a new requirement: complete understanding of how the human body functions under the special conditions imposed by flight.

Aero-medical research has made giant strides in producing the mechanical aids that insure the flyer will retain the efficiency required to bring off the mission successfully. The alternative to understanding the factors which limit the adjustment of the body to flight is trouble—to the man himself and to the continued application of airpower.—END

(The second and concluding article in this series will appear next month.)

JET BLASTS

SUNDAY OUTING, YES—WAR, NO!

Rigid airships, fine in World War I and still a pleasant way to travel today, have no military use in the jet age

The article appearing in the January issue (Jet Blasts) entitled "The Rigid Airship," by Edwin Kirschner, is interesting. Had it been written in the twenties or early thirties it would have been factually correct by 100 percent. However, in 1954 we are faced with an entirely different situation.

I was one of the strongest proponents of the rigid airship; did much promotional work in connection therewith; wrote hundreds of articles and produced a series of motion pictures entitled "The Romance of the Airship," which was shown in schools and theaters all over the United States.

The rigid-type airship served the Germans well during World War I. With a fleet of the L-33 type known as their training airship, they flew over and bombed England at will at high altitudes and, during the entire period of the "big fuss," lost but one ship. Before we entered that war, the average altitude they flew over was around 15,000 feet. They were perfectly safe at that altitude, for heavier-than-air craft could not get up above 5,000 feet, and it would take close to an hour to reach that altitude. But as ground flak reached higher altitudes and heavier-than-air craft were able to penetrate higher and faster, they simply moved up higher and were again out of reach. At the end of World War I, they were flying at 25,000 feet. From the wreckage of the one L-33 shot down in England came two structurally inferior airships, *viz.* the British R-34 and the US Navy *Shenandoah*. What all concerned apparently did not know was that the real German airship was the LZ-123, which was made to take it.

As of this date we are faced with an entirely different situation. Jets can climb to 70,000 feet in a matter of minutes, hence could shoot down the slow-moving airship at any altitude. So from the military point of view such ships would be more than useless. However, as a platform for radar and weather in safe territory undoubtedly they could serve a very useful purpose. Or as cargo or troop carriers within the confines of the United States they could be useful, but here again we compete with such mighty troop carriers as the Douglas C-124 Globemaster.

Kirschner stresses the fact that the rigid airship has great advantages as a commercial carrier. It has, providing speed is not a factor. It must be remembered the airship offers tremendous head resistance. Consequently, the best speed the Graf Zeppelin was able to make in its trip around the world averaged approximately 150 miles an hour. With strong headwinds speed can be reduced to as low as sixty miles per hour. Another thing to remember, these babies can out-pitch and out-roll any ocean liner in rough weather. Heaven knows they roll plenty in mild weather. The roll and pitch, however, could be well controlled in these days with any of the modern instruments available. Nonetheless, the use of helium, which, incidentally, has but approximately eighty percent of the lift of hydrogen, makes for safe travel, and for the traveler who is in no great hurry such ships make for ideal flying. The Germans proved this during the years they operated the *Bodensee* and the *Nordstern* between Berlin and Lake Fredrickshafen. Moreover, they operated the line profitably.

Yes, the airship has a place in aviation within its limits. It would do no harm to explore its potentialities to ascertain how it would fit in with present day aeronautical planning and thinking.

H. J. Odenthal
Arlington, Va.

Cracking the Fortress

From the vast somber enigma that is the Soviet Union come whisperings that the Soviets do not even believe that a natural fortress, the world's greatest, is enough to give them the security that they desire.

Through the Baltic states the Soviet colossus is fashioning a new military wall destined to put all other fortified zones to shame. From Wismar to Leningrad this Baltic wall is receiving the primary attention of Soviet defensive efforts, but it is not the only effort to sheer up the fortress. The Baltic wall is linked with the West wall stretching from the Baltic shore to the Black Sea.

With a sea frozen most of the year and five million square miles of tundra and boreal forest protecting her on the north, and the world's greatest mountain ranges and vast deserts ringing her on the south, the Soviet Union now lies secure in the knowledge that an attack on her east would be lost in the vast Siberian wastes where a decision could never be reached. With a new West wall the Soviets are snug, indeed.

If the Infantry concept, that land must be occupied to conquer it, is valid, only one course lies open to our national planners: aerial invasion. With the Navy only able to deliver troops to the remote border of this defensive perimeter, and naval-based planes unable to reach the core of the Soviet industrial complex, conventional planning must be revised. A 1,500-mile walk from the edges of this empire to its center, against a massive army and tremendous physical obstacles, is inconceivable.

Massive air transport of an invasion army into this fortress at least to breach the walls seems to be the only logical answer. Crete, the Berlin Airlift, and various air drops have shown the possibility of sustained air operations of this type. The surface has only been scratched. We must revamp our military thinking in line with the military and geographic realities confronting us. Planning for past wars is futile. Never before have we faced a foe so well entrenched. Neglecting air transport, the one element which could penetrate the Soviet heartland, could be our undoing.

Gordon F. Shea
College Park, Md.

LET'S HAVE YOUR JET BLAST

In "Jet Blasts" you can sound off on any subject you want. Each month we'll pick the letter or letters we feel will interest our readers most and pay $10 for each one printed. Please keep letters under 500 words.—The Editors.

An Open Letter

With due respect to him, may I remind M/Sgt. Norman Winfield, "The Cause of the Pause" (AIR FORCE, Jan. '54), that we do not enter the Air Force, Army, or Navy for privacy. Thinking in terms of millions of soldiers—how could you have privacy?

What time do you have for lamps and chairs in the barracks? When I was a WAC I worked from seven to seven in the hospital. Later I worked only eight hours a day with occasional night duty. When not giving the soldier his penicillin shots, pills, or feeding and bathing him, or taking his temperature, pulse and respiration, I went out dancing. So why add a lamp and a chair to the area to be dusted each day?

Now for Air Force mess halls. Nothing in civilian life can equal them during a war. There is food in most of them and plenty of it, and it was good. You can't have seconds? Why should you? Eat the whole planned meal and be healthy. Don't be a food faddist.

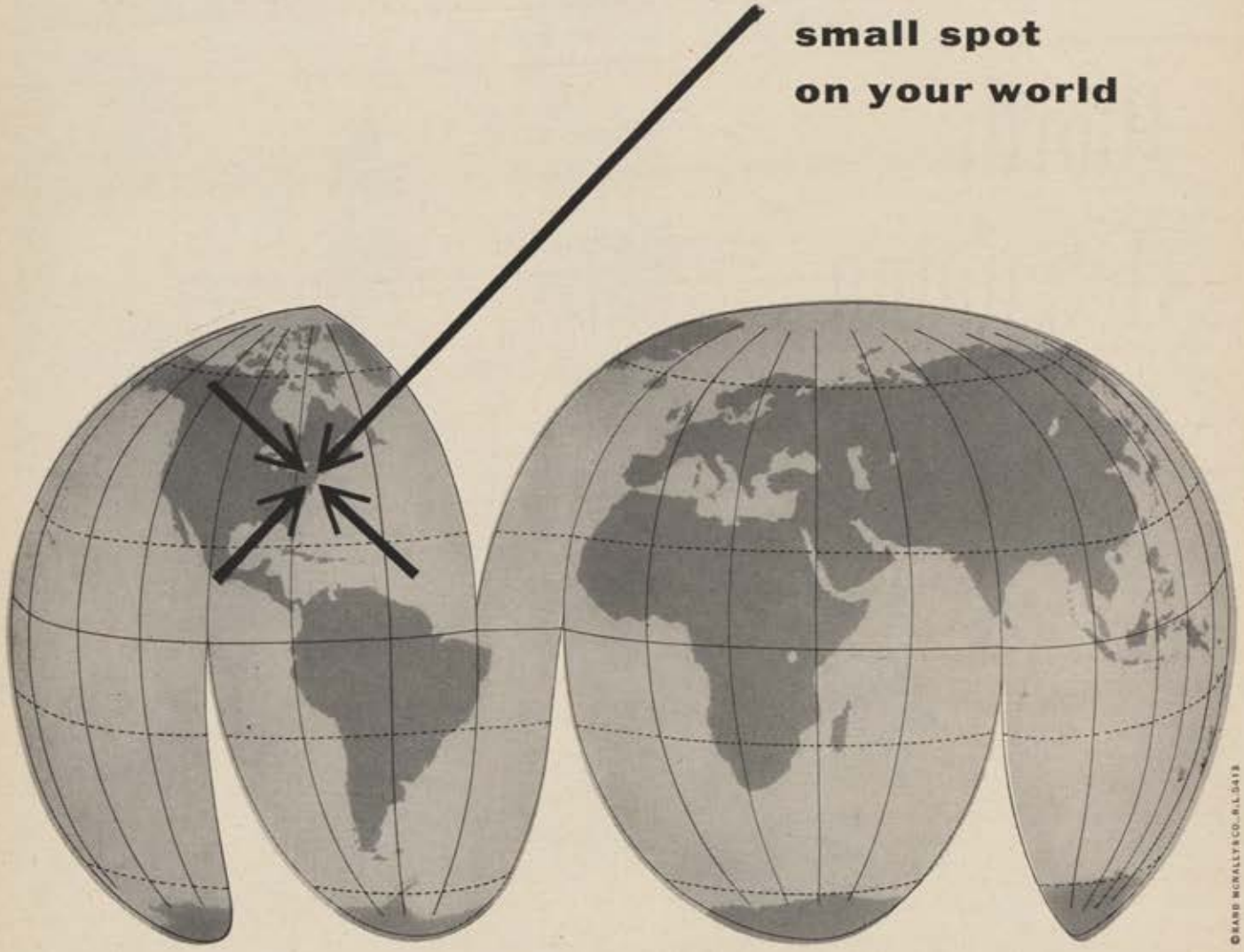
A PX is simply a store near you for your convenience.

Medical care! Brother, on our post we had a ward for the wives of service men. It was a complete little hospital in itself for the wives to have their children in. I know because I was ward master there. Doctors were so busy sometimes they had to sleep on an operating table a few hours after doctoring all day, waiting for the stork to come along at 3 a.m. You can't expect hand-holding by the nursing staff. They are too busy. Neither can you expect courteous coddling that you must pay for in a civilian hospital.

In my own personal private little

(Continued on page 49)

something big is happening at a small spot on your world



It commenced less than eight years ago, when a team of top scientists and engineers gave the final nod to one of the most significant development programs in the recent history of our industry.

The place: Baltimore, Maryland.

The event: Inauguration of a completely new technology for the design and production of weapons systems—known as Martin Systems Engineering.

This is a science and a method of developing aircraft, guided missiles and electronic weapons not as today's flying vehicles but as coordinated and controlled space-borne systems of tomorrow.

Most of the Martin story is in the top security classification, but part of it is this:

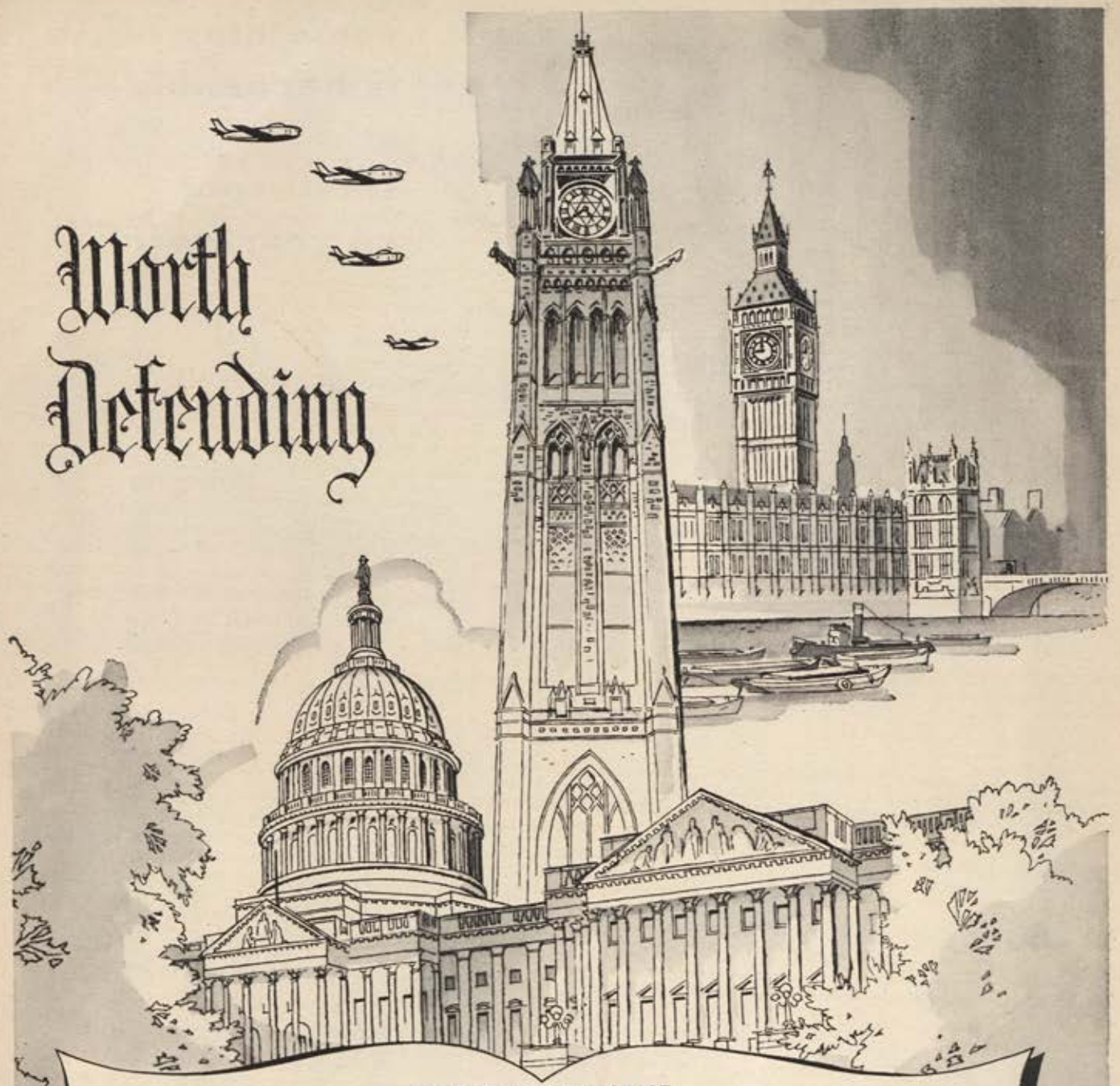
The complete integration of the major branches of aeronautical science through Systems Engineering now makes possible airpower that is being tailored to previously undreamed-of specifications.

You will hear more about Martin!

Martin AIRCRAFT

THE GLENN L. MARTIN COMPANY
BALTIMORE · MARYLAND

Worth Defending



SELF-GOVERNMENT

"... that government of the people, by the people, for the people, shall not perish from the earth."

The whole point of democracy is the happiness and freedom of all citizens . . . not the glorification of rulers, races or creeds.

The responsibility of the government to the people is the cornerstone of democracy and the biggest obstacle in the path of totalitarianism; that's why self-government is *worth defending!*

CAS4-SUST

CANADAIR
— AIRCRAFT MANUFACTURERS —
LIMITED, MONTREAL, CANADA

One of a series dedicated to the survival of freedom — Reprints on request.

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opinion—families should stay home and not accompany hubby on his Army, Navy, or Air Force trek.

• Unnecessary transfers—I agree with Sergeant Winfield. However, without transfers, how could some little Caesars retain their power?

Frequent and prolonged temporary duty? I agree with Sergeant Winfield on this.

Security? An Army jury should advise Congress on that point.

Long-term Air Force, Army, and Navy men deserve a large special bonus every three years.

Resignations must be at the Air Force's convenience, not yours.

Advancement should be changed. I agree with him on that.

Lillie Leonard Gough
Ex AAF WAC
Lavallette, N. J.

Reserve Officers

The following is submitted with the hope that legislation can be enacted to correct the lot of the Air Force Reserve officer:

1. Reserve officers and enlisted men are handicapped in obtaining positions because of uncertainty relative to being called to active duty. Some long-range planning should be made to prevent unnecessary hardship, especially where children are involved.

2. Officers injured in line of duty are pensioned the same as enlisted men, and not on percentage of officer base pay. Enlisted men may retire after twenty years of service. Reserve officers must have over twenty years' service and be over sixty years of age.

3. Top grade enlisted men have minimum responsibility, but in many cases have far greater privileges than junior officers, including pay and allowances.

4. Disabled veterans have a great handicap obtaining good positions and in many cases cannot draw Social Security or unemployment insurance. This is an extreme hardship on the injured veteran and his dependents.

5. During the time Reserve officers were being called to active duty just prior to World War II, only about 30,000 were fit for full active duty, and most of these were junior officers. These were consistently given assignments requiring responsibilities far greater than their rank warranted. Promotions were not made to compensate for this, and in most cases they were replaced by newly commissioned and inexperienced officers of greater rank.

6. Slowness in correcting the harm resulting from incompetent senior grade officers did much harm in public relations, and undermined the morale of many good junior officers. A few poor officers in key spots are of great help and comfort to the enemy.

Capt. John M. Barnes, AFR Ret.
Oakland, Calif.

TECH TALK

BY EVERETT E. DODD

New tests for Firebee.

Ryan's Firebee, a ground-controlled, jet-engined target drone for jet pilot trainees, entered a new phase of its operational suitability tests, acquired a new face (see cut). Instead of being launched from a 60-foot rail, the drone now takes off from a **Douglas B-26.** Two of the 1,800-pound Firebees are attached to the Invader's especially designed wing racks and launched by the bomb salvo switch. Ground control takes over immediately and puts the subsonic jet through its aerobatic paces. The tests are being conducted by Air Proving Ground Command's 3225th Drone Squadron at ARDC's Holloman Air Development Center, White Sands, N. M. ARDC is also running tests. Ordinarily suitability tests follow ARDC's research, but an urgent need for the drones forced a departure from the rule.

Walt Kelly, who draws the popular comic strip, **"Pogo,"** needn't feel that it's attempted plagiarism for a staff sergeant from the 3225th Drone Squadron, Eglin AFB, Fla., to paint I-Go-Pogo inscriptions on Ryan Firebees (see above.) The sergeant rides in the aft sections of the B-26 that launches them, observes their behavior. His name, Mr. Kelly? S/Sgt. Antoni A. Pogozelski.

The sound range covered by a carbon microphone ordinarily used in aircraft is little more than an octave of the musical scale. Higher harmonics are lost, fidelity is poor. To correct this deficiency **Remler Co., Ltd.,** San Francisco, has built a **transistor pre-amplifier** for carbon mikes. It more than triples the range. By more accurately reproducing the voice, it eliminates much of the confusion in letters like "b" and "v." It can be used either in aircraft, control towers, or public address systems. Rewiring for installation isn't necessary, and the mike uses the same power supply as the ordinary microphone. Already one of the major airlines has used it in regular service for more than 1,000 hours. Temperature, humidity, and altitude changes affect the Remler microphone's performance only slightly.

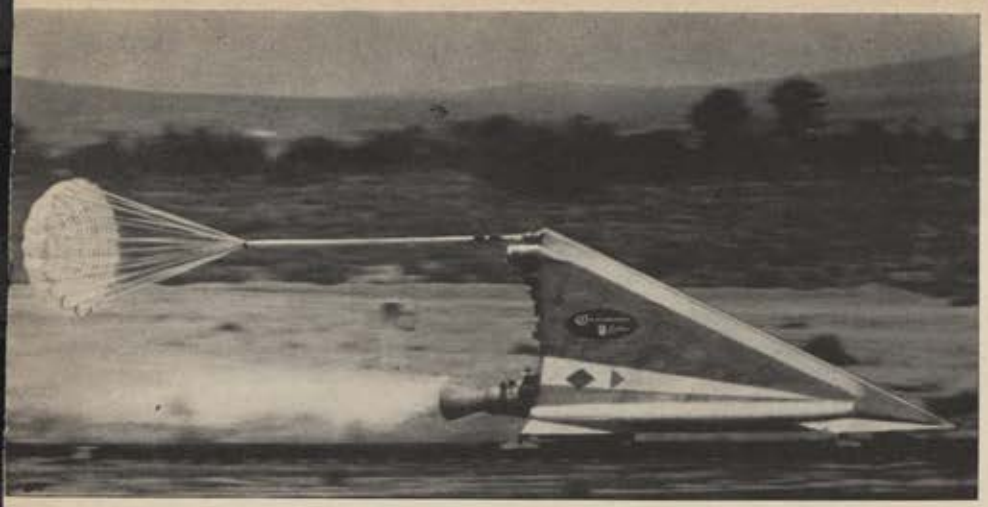
New transitor pre-amplifier for mikes.

Many a pilot has died because he didn't know how high he was. **Raytheon's new radar altimeter** should greatly reduce the hazard. It was developed for the Navy's Bureau of Aeronautics. By electronically measuring radar waves, which bounce off the earth at the speed of light and converting them to feet, the altimeter records the plane's exact altitude. Accurate to within inches, the altimeter has a warning light which flashes when pilot goes below a pre-set altitude. When a false signal is intercepted, indicator needle "masks out," reappears at true reading. This obviates errors caused by faulty tubes, weak signal, or radio interference. The altimeter weighs approximately thirty pounds. Its transmitting and receiving antennas are flush-mounted under the wing.

North American's F-86F Sabrejet, whose pilots taught Red flyers a lesson in the skies over Korea, may go to school. To USAF advanced flying schools, that is, where they'll aid future aces in their transition from slow to faster jets. Recently a **two-place F-86F** had its first test hop, and the nation had its first transonic —in a dive—trainer. A tandem cockpit has been added, plus dual controls, a duplicate instrument panel, and an intercom system. Two structural modifications were made—the fuselage section, between nose and wing roots, was extended sixty-three inches, and the wings moved forward eight inches. Safety features include separate ejection controls for both canopy and seats, and seat belts that open automatically after ejection. Either arm rest on pilots' seats operates ejection controls.

Newest Navy fighter is McDonnell Aircraft Corporation's **F3H-1N Demon.** A needle-nosed, swept-wing, swept-tail, high-speed, all-weather interceptor, the

Two-seated F-86F becomes nation's first transonic jet trainer.



Testing drag chutes on the "world's fastest railroad" at Edwards AFB.

Before drop—Skokie prepared for take-off.

Demon is McDonnell's successor to the F2H-3 Banshee. Armament is a 20mm cannon—and externally mounted air-to-air rockets can be used. Power-actuated leading edge wing slats and trailing edge flaps lower F3H's landing speed. The Demon's wings—folding for carrier storage—span thirty-five feet, four inches; over-all length is fifty-nine feet; and height, nearly fourteen feet. Present engine is a single **Westinghouse J-40** turbojet—7,200 pounds thrust. Later they'll be powered with **Allison's** more powerful J-71 with afterburner. Speed of Demon is in "600 mph class."

McDonnell's Demon joins the fleet.

Twenty-nine thousand employees now make **Republic Aviation Corp.** New York City's largest manufacturing employer. Republic, manufacturer of **F-84** series, paid its people more than $137 million in wages last year, paid $23 million in taxes. During 1953, employees used 323,564 pounds of rivets, 2,150,310 pounds of stainless steel, and more than eleven million pounds of aluminum.

Parachutes are tested from the ground up at Edwards AFB, Calif., by **ARDC and Cook Electric Co., Ill.** On the ground they're billowed from the rear of the "world's fastest railroad" (see cut). In the air, drop-tested from a B-29. Chutes are packed in three of four tail fins of a rocket-shaped missile—called **"Skokie."** The other fin contains a camera to snap chutes as they're released. Skokie's insides are filled with cameras, electronic gadgets, a sixteen-channel tape recorder, and nearly a mile of wiring. They provide a permanent record of the drop. The missiles are tipped with chrome-steel-spiked noses, which keep them upright on landing. This lessens landing shock, protects instruments from damage. Dropped from above 20,000 feet, the missile's first chute opens at a predetermined altitude and speed. The cameras and instruments record the chute's characteristics—drag, ability to keep missile in straight line, and oscillation. A powder charge then blows it clear. The second and third chutes are used to slow down. The latter—a large-size chute—brings Skokie in to a smooth, one-point landing. The "railroad" or sled is used to determine design and construction of drag chutes for jet fighters and bombers. The sled mounted on a 10,000-foot track, is powered by a **North American Aviation** rocket motor—capable of 50,000 pounds thrust and potential speeds as high as 1,500 mph. When the chute is popped, cameras on the sled and along side the track record its characteristics, and electronics equipment registers its effect. The sled is halted by a water brake that scoops water from a trough between the tracks, bringing it to a halt at "the end of the line."

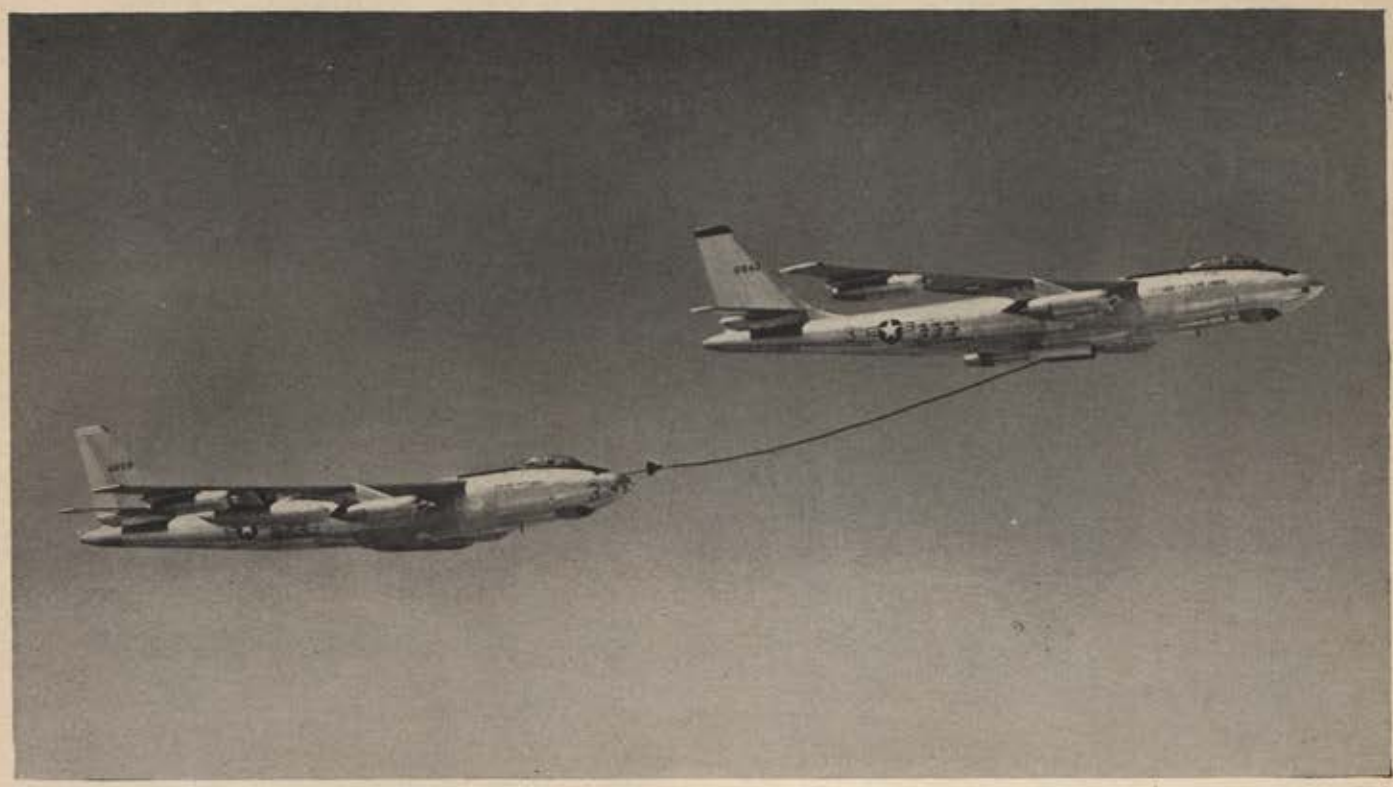
Boeing's B-52 Stratofortress is a going ship—once it gets going. And that's the task of Boeing's **502 gas turbine.** Really two units in one, the 502 includes two of everything—engines, compressors, fuel tanks, batteries, starting systems, and instrument panels—on a single dolly.

Shrouded in chute after the drop.

One of the 140-hp engine-compressors is used to pressure-check the B-52, the other provides the necessary "kick" to start each of the B-52's eight **Pratt & Whitney J-57s.** Unlike smaller jet engines, 10,000-pound-thrust '57s are just too large to start any other way.

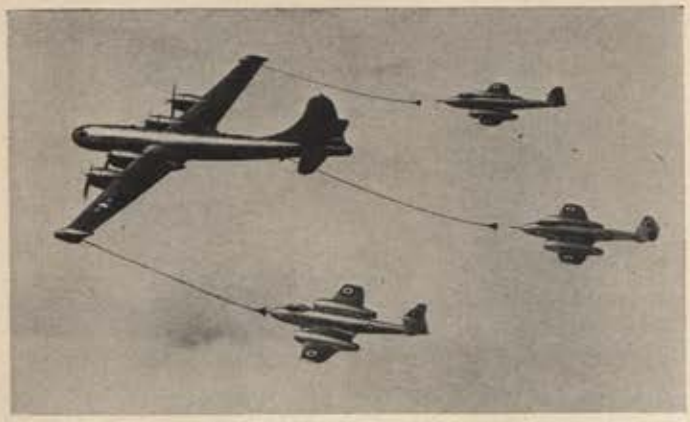
A $100,000 rocket research laboratory has been completed on the Lafayette, Ind., campus of **Purdue University.** Boilermaker graduate students will use the laboratory, said director Dr. M. J. Zucrew, "to investigate such problems as the combustion characteristics of rocket fuel, cooling, and rocket combustion."

Boeing 502 starts '57.



First jet-to-jet refueling, accomplished with Probe and Drogue equipment built by Flight Refueling Inc.

PROBE and DROGUE REFUELING



Automatic, light in weight, FR equipment requires no special crew member, permits simultaneous refueling of several fighters.

FR package equipment, quickly mounted in bomb bay, turns bombers into tankers, gives carrier-based fighters far greater range.

The latest, simplest, most adaptable in-flight refueling method is Flight Refueling's Probe and Drogue system perfected after twenty years of experiment and development.

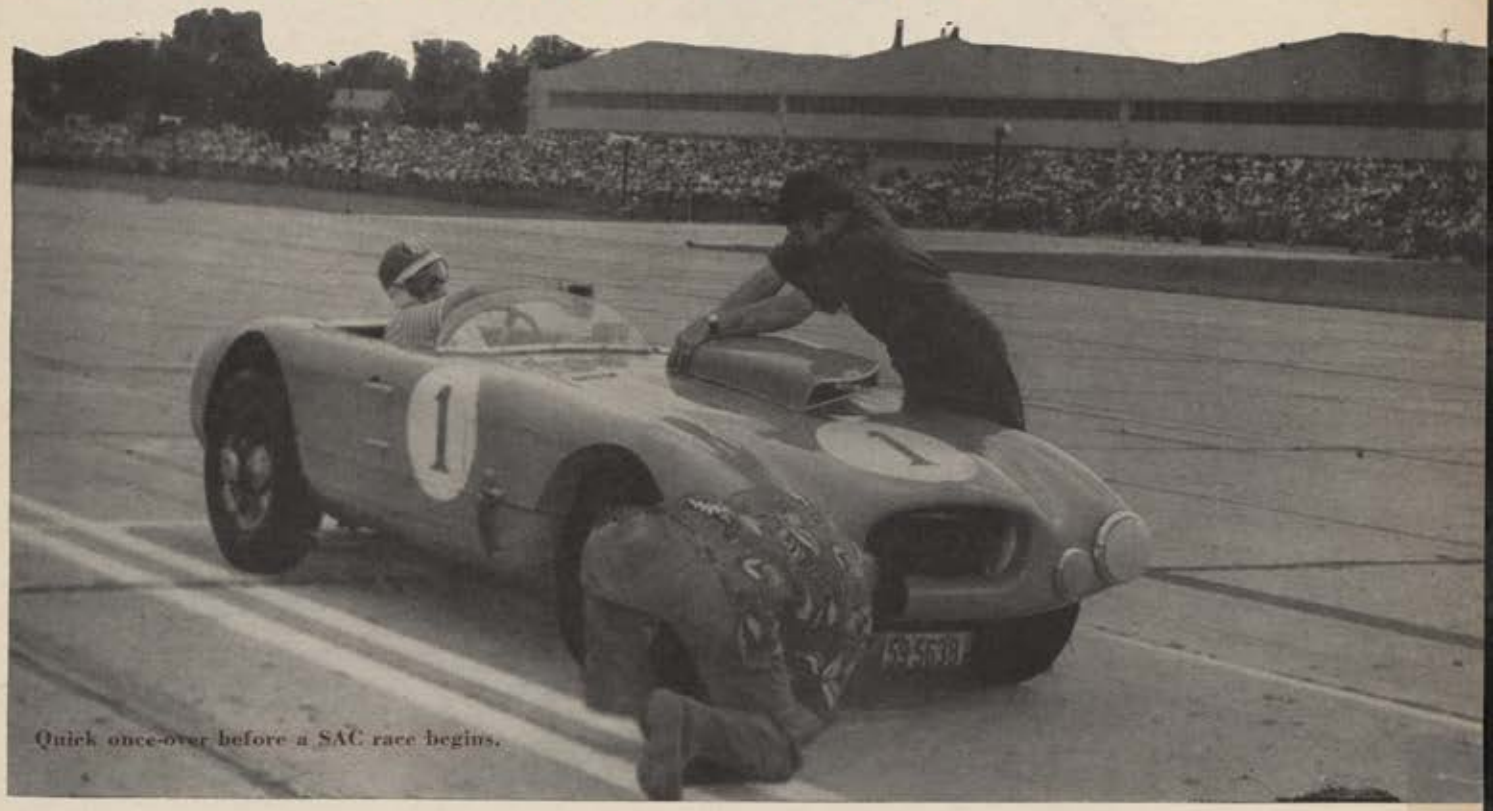
Pioneering in refueling—which adds great range to the swiftness of jet flight—has been the singular task of the Flight Refueling organization. FR equipment made possible the first non-stop round-the-world flight, the first non-stop trans-Atlantic jet flight, the first refueled combat operation and now the first jet-to-jet aerial refueling.

To meet increased requirements, a new modern plant is nearing completion at Baltimore's huge Friendship Airport and will soon be producing FR Probe and Drogue equipment at a greatly accelerated rate.

FLIGHT REFUELING
INCORPORATED
Friendship International Airport Baltimore 3, Md.

Sports Cars Pay Off

ALL OUT FOR THE SAC RACE



Quick once-over before a SAC race begins.

SAC's sports car program has hit the jackpot. Pleasanter barracks life for airmen of the Strategic Air Command is the result

DURING the past year, screaming tires and the staccato snarl of highly-tuned sports cars have produced almost a quarter of a million dollars to put some of the comforts of home into airmen barracks of the Strategic Air Command. It all came about through a cooperative effort of the Sports Car Club of America, a non-profit amateur group, and SAC.

The happy partnership began in October 1952 with an experimental race at Turner AFB in Albany, Ga. Sports car racing had been selected as a possible money-making scheme, for its drawing power, the suitability of broad air base runways for speedy —but safe—racing, plus the fact that all profits could go to the airmen improvement fund of the base involved.

After a seven-race agreement for 1953 was signed, basic rules for the conduct of the races were set up:

- They would be held on a weekend or a holiday so there would be little interference with the bases' normal operations.
- Stringent safety rules for participants and spectators would be enforced.
- Ample insurance would be provided to protect the United States government against possible damage suits.
- No expense to the government would be involved.
- The air base would provide runways and volunteer personnel for crowd control and safety measures. The Sports Car Club, on the other hand, would assume all responsibility for the conduct of the race.

In more than 250,000 miles of racing there have been no accidents involving spectators. One driver has been killed—in practice driving.

A typical race, like the one held at Offutt AFB, Omaha, Neb., on Sunday, July 5, involved 2,000 volunteer airmen. On race day they handled traffic and crowd control and ticket sales, set up race track facilities, sold programs and refreshments, assisted drivers as mechanics, and helped with the timing and scoring. They also cleaned up the air base after the races.

An incident at Bergstrom AFB, Austin, Tex., illustrates how SAC airmen pitch in. During the practice driving the day before the races, driver George Moffett of New York City cracked up his OSCA and injured himself. Bobby Said, his co-driver, took a look at the damage and said he thought the speedy Italian-

The sports car program earned five pool tables for Offutt AFB airmen.

made car could be repaired in time for the races the next day.

Six Bergstrom airmen worked all night to help Said get the OSCA past technical inspection. Next day he won his race in a bitter two-car battle with a West Coast driver.

Here's how M/Sgt. Fay Moore, stationed at SAC headquarters, looks at the race program. "I'm married and live off the base but I don't mind working on the races. The barracks at Offutt have TV sets, pool tables, drapes, beds, lounge chairs, bed spreads, chairs, lamps, chests of drawers—all bought with race money.

"The airmen get all the benefits from the race program. That's why we've supported it and made almost $250,000 during the first year."

The Offutt race is the biggest money maker to date—$56,537.90. Turner made $50,000 from two races; MacDill AFB, $30,746; Bergstrom AFB, $24,337.06; Lockbourne AFB, $45,617; March AFB, $23,000, and Stead AFB, $3,200.

In each case, a committee of airmen met with the base commander, got their requests approved and spent the money.

With the exception of Turner's dance pavilion and Lockbourne's barbecue pit and dance patio, all the furnishings purchased by race bases went into barracks, day rooms, and Hobby Shops.

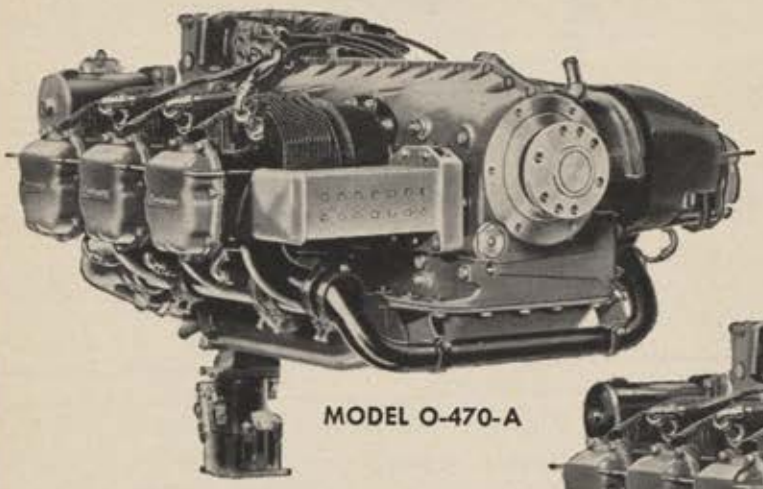
Out of this boost in airmen living conditions, SAC gets a very tangible dividend. For peak efficiency, the turnover of personnel must be cut to the bone. And surveys disclosed that one of the big reasons why airmen don't re-enlist is the unattractive living conditions at the average base.

What does the Sports Car Club of America get out of the races?

A full-scale racing program nationwide at no expense; increased public interest in sports car racing; a series of varied and adequate, yet safe, courses; adequate volunteer manpower not otherwise available; and an opportunity for members to compete in national events at less cost to themselves.

SCCA and SAC plan to continue joint sponsorship of the program, and a list of future race sites and dates is being considered.—END

THREE MORE GOOD REASONS FOR CHOOSING THE PLANE WITH CONTINENTAL POWER



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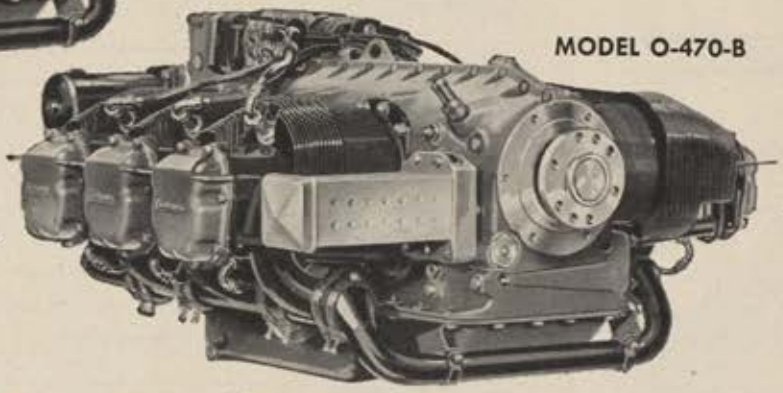

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Here's What They Provide:

DEPENDABILITY

. . . reflecting more than 50 years' engine-building experience.

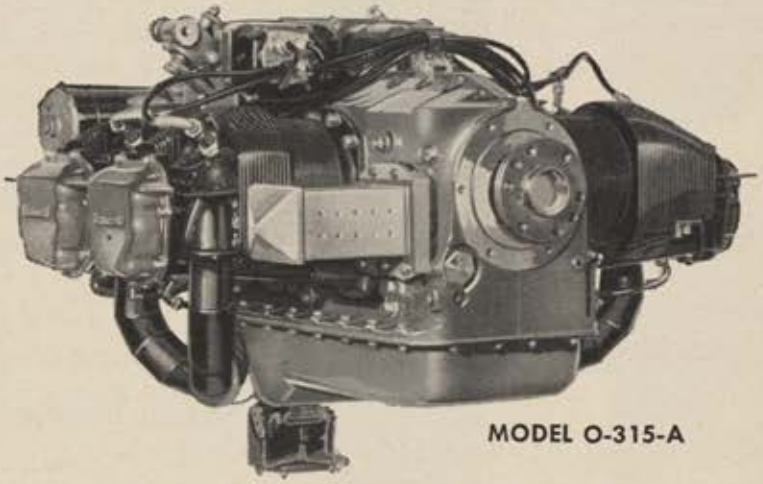
SIMPLICITY

. . . for maximum ease of installation, adjustment and repair.

COMPACTNESS

. . . adapting them to modern air-frame design.

. . . and like every Continental, they're backed by *established* parts and service facilities all over the world.



MODEL O-315-A

Write for free bulletins with full specifications, performance curves and installation diagrams.

Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

The Washington Monument, a white marble obelisk, was erected in 1884. It is 555 ft. high.

World's Most Reliable Radar

Gilfillan Surveillance Radar has been in operation continuously at the Boston International Airport since 1949, and has established a world record for reliable performance.

For example, during 1953, Gilfillan Surveillance Radar was on guard 24 hours a day, every day—a total of 8760 hours—with only 7⅓ hours of involuntary outage. *This is less than 9/100 of 1%!*

If hours were inches, this would be equivalent to a 7⅓-inch chip in a tower 175 feet higher than the Washington Monument!

The Boston record is due to dependable, day-in day-out *proven* performance of *perfected* radar equipment—and, equally important, *superb* CAA maintenance.

It is only one instance of the combined efficiency of Gilfillan Surveillance Radar and CAA maintenance personnel at major civil airports in the U.S.

In GCA, Radar and Electronics Research, Design and Production

The FIRST Name is... *Gilfillan*

Los Angeles

GCA

MOBILIZATION NEWS

BY JAKE CULPEPPER

AF-ROTC — About 275 Assistant Professors of Air Science and Tactics will be replaced in AF-ROTC program during next academic year. There are vacancies at virtually all of the detachments. Tour of duty is three years. Some of the requirements for applicants are: college graduates desired, but two years of formal college mandatory; minimum age of twenty-four years with at least three years of active commissioned service; a Foreign Service Selection Date within four years of beginning. . . . AF-ROTC training in FY '55 will be held at 188 institutions. Average student strength for the year is set at 55,000 freshmen, 35,600 sophomores, 14,150 juniors, and 10,970 seniors.

BUDGET — The $28 million requested for the Reserve in FY '55 budget is $13 million more than last year's appropriation. From it, AF proposed to end FY '55 with 14,500 Reserve officers (4,346 in rated specialists) and 21,000 Reserve airmen, all in pay categories—an increase of 13,000 over planned June 30 '54 strength.

OFF THE PRESSES — In line with current efforts to expand its program of mobilization assignments for AF Reservists, SAC last month introduced a bimonthly "Reservist News Letter" designed to acquaint more Reservists with the SAC M-Day program. Reservists can get on the mailing list by writing to the Mobilization Section, Directorate of Personnel, Headquarters SAC, Offutt AFB, Neb. Those wanting information about SAC M-Day assignments should contact the Reserve Section at their closest SAC Base.

PILOTS — AF pilot production rate to be reached in late 1954, as provided by the budget, should be 7,800. . . . Late AF figures show sixty-two percent of Regulars and forty-eight percent of non-Regular officers (on active duty) are on flying status. Of active duty pilots, thirty-six percent hold senior pilot ratings, with two percent designated as command pilots. . . . There will be no money, says AF, for ordering Reserve pilots to EAD now or in foreseeable future.

RETIREMENT — AF Reserve officers may now be retired in commissioned status before their sixtieth birthday under new regulation (AFR 36-50). Voluntary retirement applications "normally" will be approved if one of these conditions is met: (1) if applicant has thirty or more years of active federal service, at least ten of which were active commissioned service; (2) if release from AD was due to reduction in force; (3) if continued AD will result in undue hardship; (4) if officer's over-all record indicates that retirement is in AF's best interests; or (5) if the following grade, age, and length of service scale is met unless "circumstances" warrant applicant remaining on AD—(a) colonel, age fifty-five or over, or completion of thirty years service, (b) lieutenant colonel, age fifty-three or over, or completion of twenty-eight years service, (c) major and below, age fifty or over, or completion of twenty-five years of service. Under above set-up, age at nearest birthday will be considered while service is same as that used in computing officer's basic pay. Moreover, any AF Reserve officer completing at least twenty years of active federal service, ten of which was commissioned active service, is eligible to apply for retirement in commissioned status, subject to discretion of the Secretary of the Air Force.

(Continued on the following page)

MOBILIZATION NEWS — CONTINUED

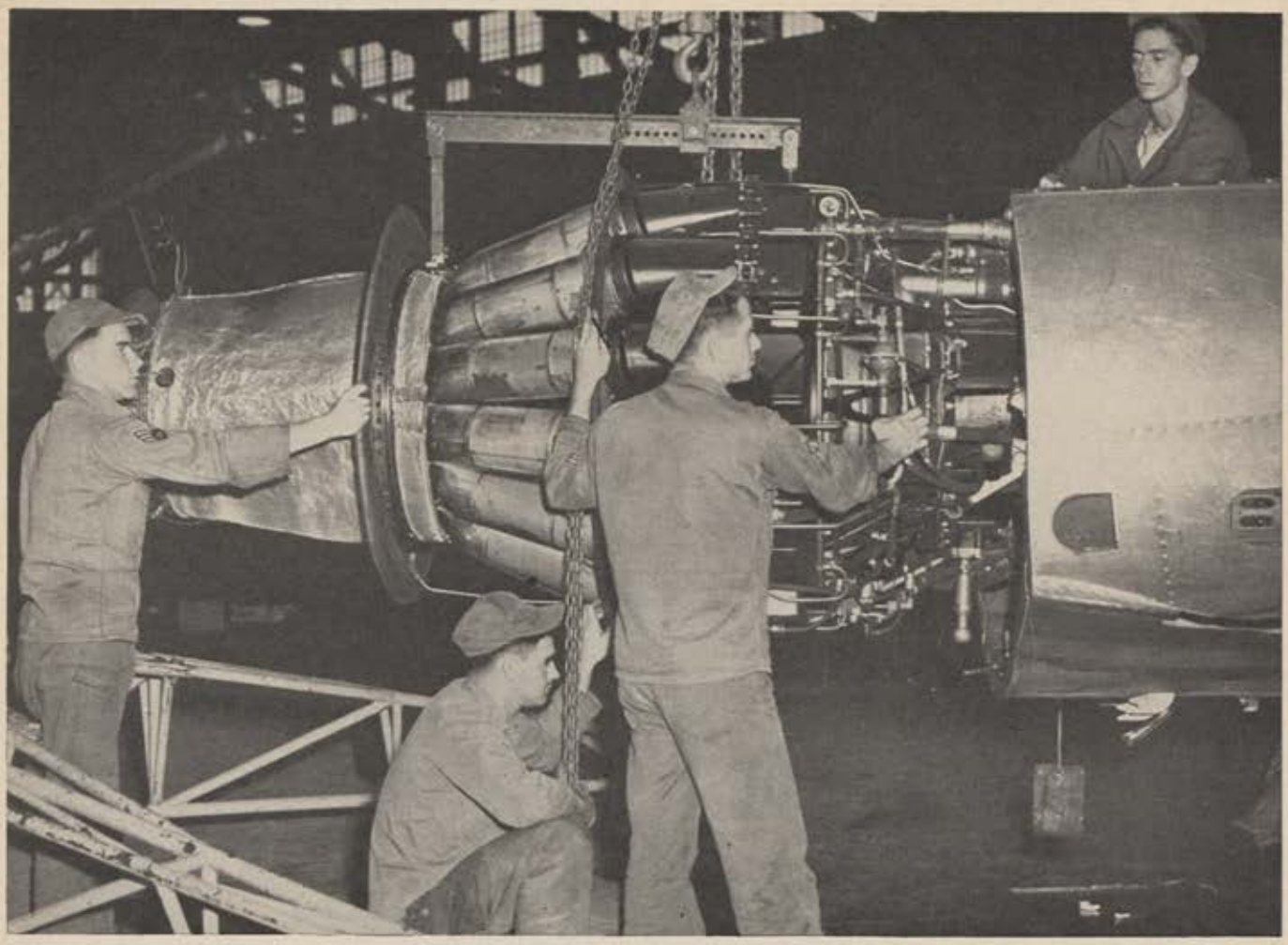
BENEFITS — Reserve and Guard officers and airmen with more than eighteen years longevity pay service must file AF Form 806 by April 30, 1954 if they want to take part in the annuity plan set up by Uniformed Services Contingency Option Act of '53. (Plan enables a participant to share retirement pay benefits with his survivors.) Other officers and airmen must submit the form before reaching eighteen years if they wish to take part.

AIRMEN TRAINING — Active duty airmen with Reserve commissions now may take part in training, on a non-paid basis, in Air Reserve Center units (formerly Specialist Training or VART programs). Policy change permits these airmen to work for promotion in their officer grades. These members, however, are not eligible for special or short active duty training tours in commissioned status.

CONTRACT TOURS — Written agreements can now be offered to AF Reservists for AD tours of from one to five years. Number of contracts to be issued for each specified time period in each fiscal year is left up to AF Secretary. Detailed regulations and instructions on the tours will be published by the AF soon.

SHORT TOURS — ConAC has announced sites and dates of two-week periods during July, August, and September when AF Reserve's twenty-five wings will get annual active duty training. Regular AF wings from ATRC, AMC, and TAC will be designated as advisory units to appropriate Reserve wings during the summer training. Training locations and dates run as follows: 1st AF—512th Troop Carrier, New Castle County Airport, Del., July 18-Aug. 1; 375th Troop Carrier, New Castle, Aug. 7-21; 302d Troop Carrier, Clinton County AFB, Ohio, Aug. 13-27; 514th Troop Carrier, Mitchel AFB, N. Y., Sept. 12-26; 445th Fighter-Bomber, Clinton County, July 3-17; 89th Fighter-Bomber, Clinton County, July 24-Aug. 7; 8709th Fighter Pilot Training, Floyd Bennett NAS, N. Y., Aug. 13-27; 88th Air Depot, Robins AFB, Ga., Aug. 14-28. 4th AF—403d Troop Carrier, Larson AFB, Wash., Aug. 15-29; 349th Fighter-Bomber, Hamilton AFB, Calif., July 18-Aug. 1; 452d Tactical Recon., Long Beach Mun. Airport, Calif., Aug. 1-15; 77th Air Depot, Norton AFB, Calif., Aug. 8-22. 10th AF—437th Troop Carrier, Atterbury AFB, Ind., July 19-Aug. 2; 442d Troop Carrier, Atterbury, Aug. 2-16; 434th Troop Carrier, Atterbury, Aug. 16-30; 438th Fighter-Bomber, Selfridge AFB, Mich., July 17-31; 439th Fighter-Bomber, Selfridge, Aug. 8-22; 440th Fighter-Bomber, Minneapolis-St. Paul Int. Airport, Aug. 8-22; 8711th Pilot Training, Atterbury, July 5-19. 14th AF—435th Troop Carrier, Miami Int. Airport, Fla., Aug. 8-22; 8708th Pilot Training, Hensley Field, Tex., July 4-18; 8710th Pilot Training (ME), Memphis AFB, Tenn., July 11-25; 8706th Pilot Training (ME), Ellington AFB, Tex., Aug. 1-15; 8707th Pilot Training, Brooks AFB, Tex., Aug. 15-29; 94th Tactical Recon., Dobbins AFB, Ga., July 18-Aug. 1.

BRIEFS — New AF Regulation 145-12 designates individuals and organizations authorized to use commissaries. . . . 1953 AF Aid Society campaign collected $928,334, compared with $912,452 year before. . . . On January 1, 1954, there were nearly 100,000 AF Reservists and Guardsmen on active duty. . . . Korean war AF veterans now number about 405,000. . . . New AF career Field, Airmen Training Devices, has been set up as a result of expanding use of flight simulator and other electronic training devices in crew training.



Pulled for Time— at 1200 hours

Two separate Air Force activities have demonstrated the increase in life and dependability of Allison Turbo-Jet engines.

An Allison-powered Lockheed T-33 Jet Trainer at Webb Air Force Base has flown 1200 hours without even minor repairs to the engine. Line maintenance by the men of the 3561st Maintenance Squadron backed up Allison engine design and manufacture to set this remarkable performance record.

An Allison-powered Lockheed F-80 Shooting Star flew 1200 hours in combat and combat-alert service in Korea without major overhaul. That flight time adds up to more than 600,000 miles under tough combat conditions. The record represents a splendid job on the part of the 6160th Maintenance Squadron at Itazuke AFB, Japan.

Records like these are made by planes and engines—but it's the men behind the planes who make them possible. A hearty salute to the 3561st and 6160th Maintenance Squadrons for these splendid achievements.

GM GENERAL MOTORS

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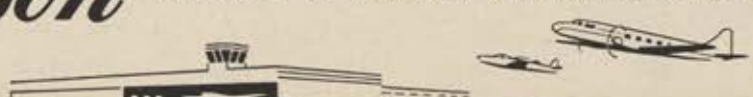

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RENDEZVOUS

Where the Gang gets together

STALAG LUFT III REUNION: On Saturday, May 1, 1954, alumni of Stalag Luft III will hold their ninth annual reunion celebrating their liberation from German prison camp. The Van Cleve Hotel, Dayton, Ohio, will be the scene of the festivities, which begin at 6:00 p.m. Ladies have attended in the past and are cordially invited this time, too. The program consists of cocktails, dinner, reminiscences, and a lot of laughs. For further information or reservations contact *David Pollak, Pollak Steel Company, Marion, Ohio.*

403D TC WING (M) REUNION: A reunion of all former members of the 403d Troop Carrier Wing, Medium, will be held at Portland Air Base on Saturday, March 13, 1954. Anyone who wishes to attend should get in touch with *Col. Robert W. Sheets, Portland AFB, Portland, Ore.*

442D BOMB SQDN. REUNION: A reunion is being planned for some time this summer, so anyone who was a member of the 442d Bomb Sqdn., 320th Bomb Group, from the time is was organized to V-E Day, contact *Otto Vanderburg, R.R. 1, Mukwonago, Wis.*

AIR EVAC SQDNS.: I'm interested in contacting Air Evacuation Squadrons which served in World War II. A dinner-dance reunion is being planned for April in New York City. *Mary Oldehoff Stehle, 134 E. Clay Ave., Roselle Park, N. J.*

THE OLE' GANG: All the ole' gang from Tuskegee, Godman, Mather, Selfridge, Oscoda, Freeman, Walterboro and Lockbourne Air Force Bases (99th, 100th, 301st, 302d, and 477th), are planning a "Ten Years of Short Snortin' " reunion in Chicago some time during 1955. Want to start a file and all names and addresses are welcome and needed. *Ahmed A. Rayner, Jr., Chairman, 4141 Cottage Grove Ave., Chicago 15, Ill.*

WHERE'S MAJOR LOWE?: Maj. Herbert Lowe, 555th Bomb Sqdn. (M), 386th Bomb Gp. (M), Ninth Bomber Command, knows all about the extremely detailed history of that organization. In fact, he had it compiled. I would like to locate Major Lowe, whom I last saw in St. Trond, Belgium, in 1945. *Alfred M. Faries, 1889 Camino de los Robles, Menlo Park, Calif.*

To be sure your Rendezvous item appears in the May issue, we should have your request by March 15.— THE EDITORS.

ANG Angles

THE GUARD BUDGET

The proposed $160 million supports an Air Guard increase to 65,700

If anyone doubts the Air Guard has become a robust eight-year-old, let him dwell on the sum contained in the budget now before Congress for support of the Air National Guard in the fiscal year beginning July 1. It amounts to $160 million. Last year Congress authorized the ANG $147 million. A sharper contrast might be drawn by going back to 1947. For the fiscal year which began on July 1 of that year, Congress appropriated $134 million for the entire National Guard—Army and Air.

The $160 million budget is designed to support a boost in ANG strength from 50,700 on July 1 to 65,700 on July 1, 1955. In addition, eighty-one replacement training squadrons will be organized and the number of tactical units will be increased by eighteen. The majority of the new units will be support-type.

So, at least $13 million more than was appropriated last year is needed to pay for more flying time, a greater number of drill checks, and continuation of a construction program.

• • •

The time for organization of the scheduled eighty-one replacement training squadrons is almost at hand. These squadrons will have twenty-five officers and seventy-five airmen. They are designed to increase utilization of ANG aircraft and to provide a source of trained people who can be assigned to the parent unit to raise it to war strength in the event of mobilization.

NGB has published the rules governing the creation of these replacement squadrons. Any tactical squadron which served on active duty during the Korean war must reach eighty percent of its authorized strength before it can request authority to form the replacement unit. Tactical units not called to active duty during Korea must reach ninety percent of their authorized strength. Replacement units must have twenty percent of the officers and airmen they are authorized before they can qualify for federal recognition. And they must attain eighty percent of their strength in three years.

Headquarters USAF has waived the usual inspection for federal recognition of these squadrons. Instead, federal recognition will be granted whenever the Air Instructor of the parent unit certifies that the required twenty percent strength is present and assigned.

• • •

Notes on the back of a Form 175 . . . There's a new National Guard resident member of the Air Force Section 5 Committee. He's Col. John D. Nottingham of Texas, who succeeds Col. Orrin Lane of Georgia. Colonel Nottingham was recalled for Korea, served with 5th Air Force Headquarters in Seoul, then moved to Orlando, Fla., with the Photo and Charting Service . . . ANG has been allotted five spaces in each upcoming class in the Fighter Gunnery Instructors Course at Nellis AFB. Next class starts March 12. NGB hopes that one pilot from each fighter squadron will graduate from this course . . . One ANG officer not on active duty will be selected to attend the next class of the Air War College at Maxwell AFB, which begins in August. The course lasts ten months. Applicants must be colonels, under 46 years old on June 1, and cleared for top secret . . . The Comptroller General has handed down a decision of interest to Air Guardsmen. He says that ANG people attending an Air Force service school in a pay status are on *active* duty and therefore entitled to leave at the rate of two and one-half days per month, the same as anyone else on active duty . . . ANG pilots are warned against landing at Portsmouth, N. H., Municipal Airport. Extensive construction at the airport prohibits the use of the runways . . . USAF's Flying Safety people are urging the Guard to have a rated pilot in towers at Guard installations during periods of bad weather. Decisions relative to landings or diversions to alternates can't be delegated to nonrated people, according to Flying Safety. Bases where control tower facilities are under jurisdiction of CAA are excepted from the policy. **By Capt. Edmund F. Hogan, ANG**

that if we used "Window," the Germans would pick up the strips, and it would not be long before they discovered their purpose. They would be able to copy the device quite easily, and would then be in a position to confuse our night defenses. This, of course, could not be denied, and so we could not get permission to use "Window."

Here I cannot resist quoting Sir Arthur Harris's remarks in his book "Bomber Offensive." He writes, "The main objection to the use of 'Window,' which proved to be the most important and effective of all the weapons used against enemy radar, continued to be the fear of its effect on our own defenses. It was hoped that our own radar would be developed to the point where the strips of paper would not cause any very serious interference, but even so, defensive radar might never be quite so effective after its introduction as before. . . . There can be little doubt that if we had been able and allowed to use this weapon in the first months of 1943 we should have saved hundreds of aircraft and thousands of lives and would have much increased the accuracy of our bombing."

The ban on its use continued until July 1943, when Bomber Command, after a long struggle, obtained permission to use it during the great series of attacks on Hamburg. These very successful attacks, which were carried out with small losses, clearly showed the efficacy of "Window" in confusing the enemy's air defenses.

The point here, surely, was the fact that by the middle of 1942 German air attacks on this country had almost ceased, while we were attacking Germany in full strength on every suitable night. The Germans were rapidly turning over the whole of their aircraft industry to the production of fighters for the defense of their homeland, and trusting to automatic "V" weapons to enable them to resume the air offensive. We had much to gain from the use of "Window" ourselves, and very little, relatively, to fear from the German use of it. And, as we now know, the Germans did in fact know all about the effect of metallized paper on defensive radar long before July 1943, so that we should actually have given nothing away had we got it ready and used it at the earliest possible moment.

I am not, of course, advocating that we should always rush to use a weapon as soon as it has been developed. In World War I we did just that with the tank, and the Germans did the same with gas. In both cases, what might have been a war-winning weapon if withheld until it could have been used in sufficient strength, was thrown away. But that is quite different from denying ourselves the use of a weapon because we fear that the enemy, once aware of its possibilities, will use it against us. It is more than probable, anyhow, that the enemy scientists have been thinking along much the same lines as our own, and that they are already aware of the weapon or device.

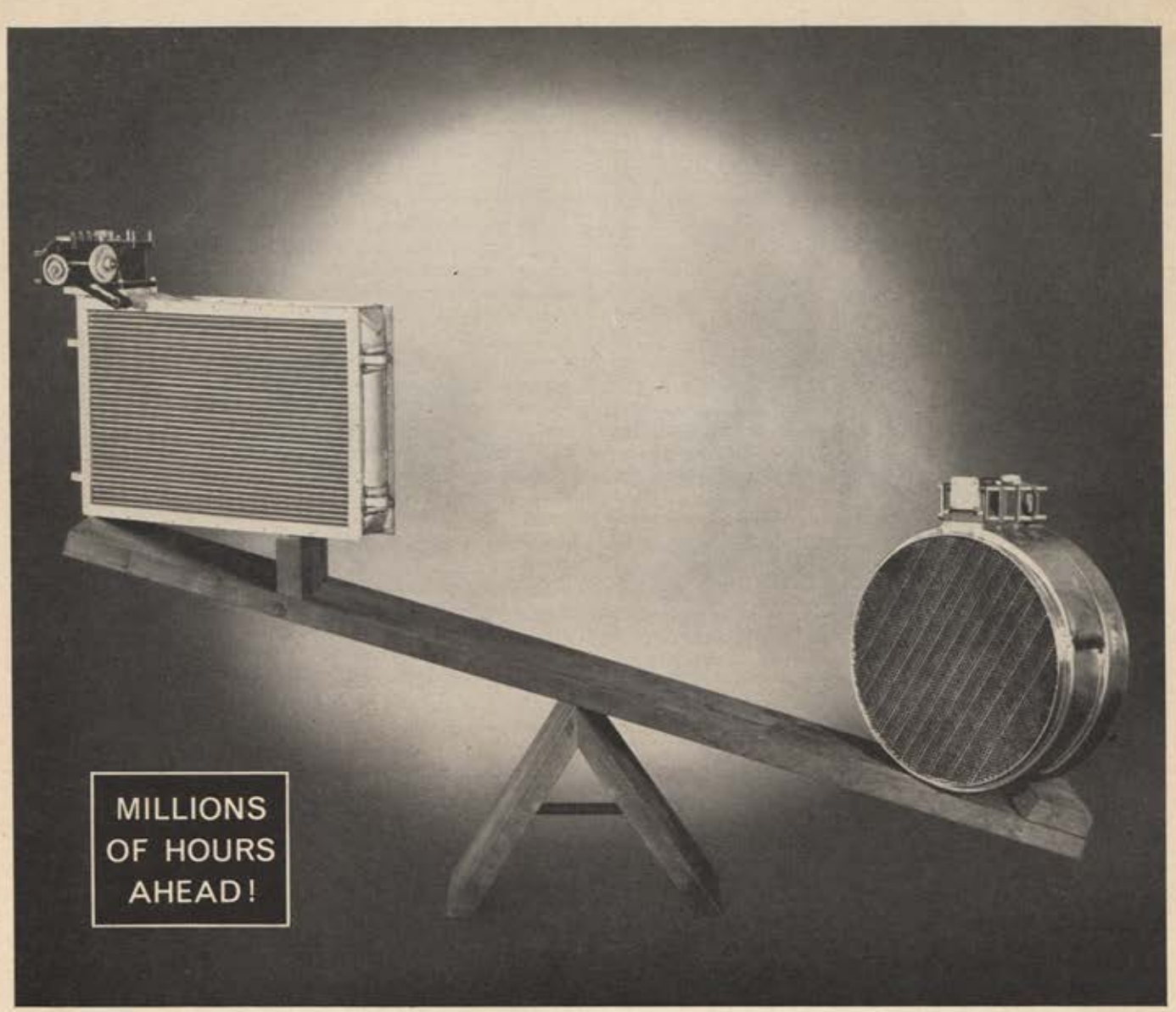
To sum up, an enemy either has got it, or he has not. If he has got it, and does not use it, that will only be because he believes that its use by us will be a serious disadvantage to him, and we should simply be playing his game by denying ourselves its use. For instance, I can imagine the Russians embarking on a third World War, trusting to their vast land forces to gain them victory and conscious of their inferior stockpile of A-bombs, piously announcing that they do not intend to use the bomb, and calling upon us, in the name of humanity, to follow their example. Such a plan would enable them to exploit their greatest asset, their huge armies, and, at the same time, if we were foolish enough to fall into the trap, knocking from our hands the only weapon which could enable us to avoid defeat. If an enemy has not got it, we will have the advantage of its use until he can capture, analyze, and copy it. This would probably be a matter of several months and may be even much longer.

The only occasion when I can see any justification for not using a weapon or device is when we are so placed that its use would unmistakably confer a greater advantage on an enemy, which would normally occur only if we were in a defensive posture, and—most important—when there is good reason to believe that an enemy is unaware of the practicability and use of such a weapon. The latter is a very difficult condition to fulfill, for it is seldom that our intelligence service can be confident that the enemy scientists are not as fully aware as ours of the military possibilities of any particular piece of applied science.

In principle, it seems to me always wrong not to use a powerful weapon, not banned by international agreement, in the hope that the enemy will not use it either. With regard to the policy of not using a new weapon because we fear to give away the idea to the enemy, this is very seldom justifiable.

All that we can hope to do in war, from the point of view of scientific development and weapon production, is to keep ahead of an enemy. If we decline to use the new weapons our scientists have given us, the probable result is that we shall lose our lead, and the enemy will be the first to make use of them, with any advantages that may accrue. In the case of weapons of such tremendous power as the A-bomb and the H-bomb, now presumably at the disposal of all the great powers, it would be sheer madness for us to hesitate to use them if attacked, and madness even to let potential enemies believe that we should so hesitate.

Let us do our best to ensure that it will not be said of us, by historians and archaeologists digging in the ruins, "*Quos Deus vult perdere prius dementat*—Whom God wishes to destroy, He first deprives of reason.—END



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AiResearch manufactures oil coolers which range from a capacity of below 100 BTU's to many thousand BTU's per minute. These units — and all other AiResearch heat exchangers — excel in efficiency in relation to size and weight.

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Some shells can be disarmed and moved. But not this Chinese 120mm mortar shell, Capt. Raymond Caricofe and T/Sgt. Percy Henery decide. Above, they plant a TNT charge to destroy it.

The sergeant strings the arming wire to a safe distance while Caricofe, a veteran of eleven years of bomb-disposal work, holds one end near the enemy shell.

Bomb-Disposal Units Harvest a Bumper Crop

Caricofe uses a galvanometer to check the circuit before the wire is attached to the blasting charge.

PART of the job of clearing away the aftermath of war in Korea is locating and getting rid of unexploded bombs and shells. To the men of EOD teams—Explosive Ordnance Disposal—falls this touchy business. These men are all graduates of the three services' EOD school in Maryland. In Korea they're called on regularly to deal with both UN and Communist explosives that failed to go off. One team neutralized some 700 pieces of enemy ordnance in a three-month period, says Capt. Raymond Caricofe, EOD officer of the 18th Fighter-Bomber Wing in Korea. Why he chose bomb disposal work? "Why," he says, "it's one job where you aren't bothered by anybody looking over your shoulder."—END

"Ready on the right—ready on the left." Then, "Fire!" and the sergeant twists the knob that sets off the TNT and explodes the shell.

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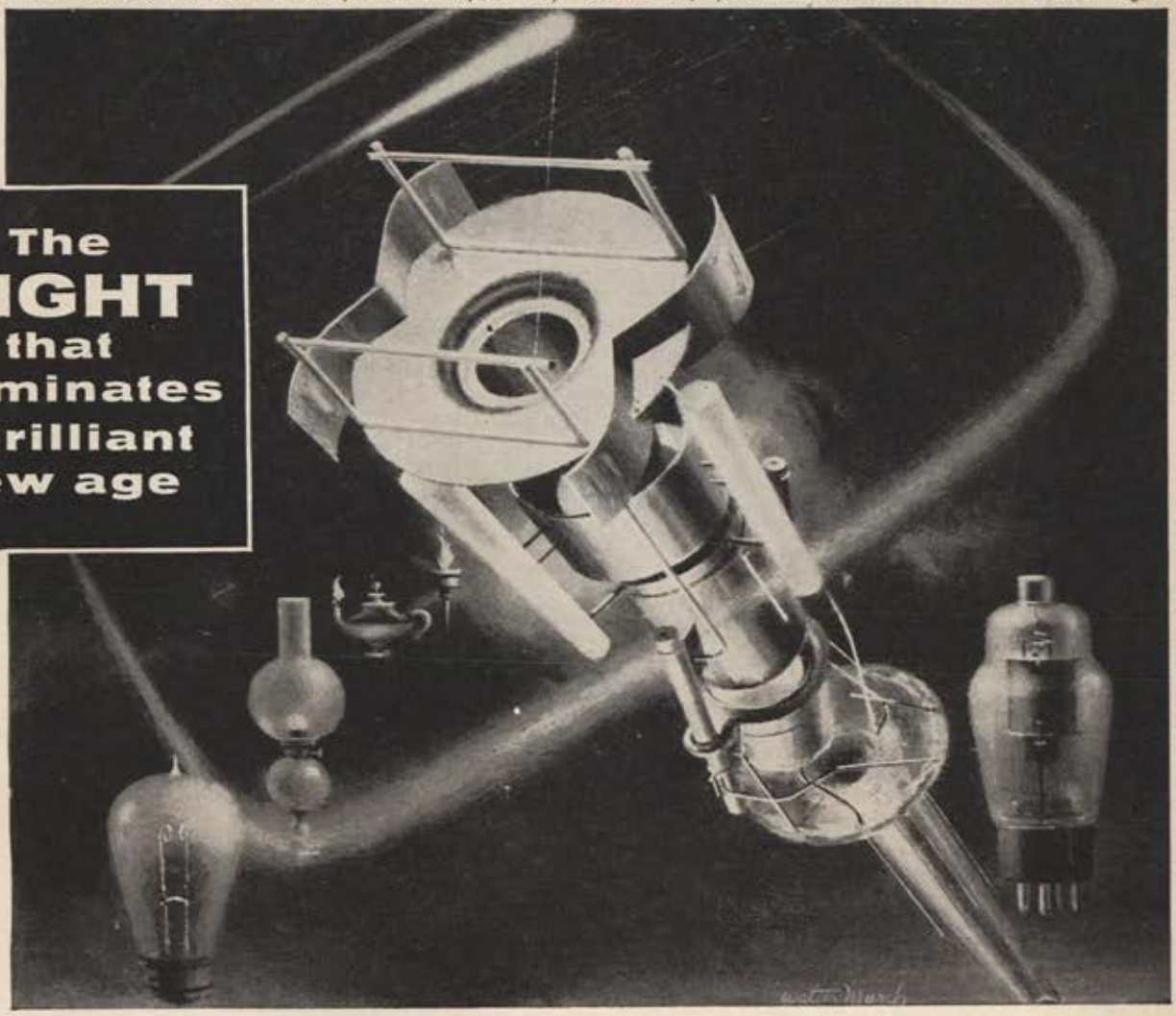

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INSTRUMENT DIVISION — Cathode-ray oscillographs, electronic instruments.

AFA HONORS FOR JIMMY STEWART

Star appears at AFA functions in Miami and Washington at showings of his latest film, 'The Glenn Miller Story'

Greater Miami and the **Miami Beach** Squadrons combined in January to welcome film star **Jimmy Stewart** and his wife. Stewart, an AFA founder and past National Director, was in Miami for the world premiere of his newest picture, "The Glenn Miller Story," a Universal-International film in which Stewart plays the famous orchestra leader.

The two Squadrons sponsored a reception at the Lord Tarleton Hotel. Honored guests included Mayor Harold Shapiro of Miami Beach, Mayor David Hendrick of Coral Gables, and Maj. Gen. Charles E. Thomas, Jr., Commander of the 14th Air Force.

Francis M. Brady and Alex G. Morphonios, Commanders of the Miami Beach and Miami Squadrons, respectively, presented Stewart with a mahogany model of a Convair B-24 Liberator, the type of bomber he flew in WW II.

Later, in **Washington, D. C.,** the Stewarts, accompanied by Jimmy's father, were guests of AFA and Universal-International at a private screening of the motion picture. The screening was attended by some eighty guests including Undersecretary of the Air Force James H. Douglas, Assistant Secretary Roger Lewis, Maj. Gen. R. W. Burns, USAF Assistant Vice C/S, and Maj. Gen. Sory Smith, Director of the Office of Information Services, and his deputy, Brig. Gen. Arno H. Luehman.

Representing AFA were National Directors Carl A. Spaatz and John R. Alison, Regional Vice President George D. Hardy, and members of the National Headquarters staff. At a reception afterward, General Spaatz presented AFA's Citation of Honor to Universal-International for their production of the film. Stewart accepted the Citation in behalf of the studio.

The **San Francisco** Squadron—AFA's 1953 Squadron of the Year—has been accorded a special honor by the Press and Union League Club of San Francisco. At a recent **"Gang Dinner,"** the Squadron was cited for its contributions to the community and its role in the development of airpower education.

The "Gang Dinners" are a regular program of the Press and Union League Club, and a crowd of 300 paid tribute to the AFA Squadron at this one. AFA's

(Continued on following page)

SQUADRON OF THE MONTH

San Francisco Squadron
San Francisco, Calif.

CITED FOR

activities that resulted in the Squadron's being honored at a "Gang Dinner" given by San Francisco's Press and Union League Club, an honor reserved for outstanding service. AFA salutes the achievements of this Squadron.

At left, at Washington, D. C., showing of "The Glenn Miller Story," Gen. Carl Spaatz; Miss Olivia Twining, AFA's Miss Airpower; and Jimmy Stewart. Above, in Miami, Francis Brady, Miami Beach Sqdn. Cmdr.; Stewart and his wife; Stewart's father; and Alex Morphonios, Miami Sqdn. Cmdr.

Speaker's table at San Francisco Press and Union League Club "Gang Dinner" includes, from left, Maj. Gen. Walter Todd, Cmdr. Western ADF; Tom Stack, AFA Director; Western Air Lines' Clay Bernard, "Gang Dinner" host; AFA's Board Chairman Arthur F. Kelly, the speaker; and Maj. Gen. Alfred Kessler, Jr., Cmdr., 4th AF. On table is Tombstone, the club's famous black cat.

Civic airpower promotion in Chicopee, Mass. Mayor Walter Trybulski, seated, proclaims 50th Anniversary of Flight day. At left, Raymond Tomchik, Chicopee Sqdn. Cmdr.; Stanley Zamachaj, Vice Cmdr., Western Mass.; and Councilman Edwin Leclair.

Board Chairman Arthur F. Kelly delivered the principal address of the evening, speaking behind "the black cat," a symbol used to indicate that all remarks are off-the-record.

Key participants from the Club were George Rhodes, *San Francisco Call-Bulletin's* aviation editor; Grant Robbins, Bank of America; and Clay Bernard of Western Air Lines. Eight airlines—Western, TWA, PAL, United, American, PanAm, Southwest, and Japan—joined in the tribute to the Squadron. Seven of the region's eight USAF general officers attended the dinner.

Several Wings are forming **new Squadrons. Flint, Michigan's** Charter was approved by President George C. Kenney on January 28. Edward R. Kanaby was elected Commander. Other officers are Jack Anderson, Vice Commander; Edythe Aldrich, Secretary; and William Sharpe, Treasurer. Raymond Percival, Alan Maule, and John Koby are Councilmen.

Florida also added a new unit—its fourth—with the formation in Leesburg of the **Lake Sumter Squadron.** Principal organizer and first Commander is Dr. James B. Hall, a director of the Lake County Health Department, Tavares. He was assisted by M/Sgt. Walter Swaim, USAF Reserve specialist in the area.

Other officers are Beaufort Hester, Vice Commander; Marion Bradley, Secretary; and Richard Pace, Treasurer. Elected Councilmen were A. L. Holtz, William Butler, and Glenn Smith.

AFA's Air Force **Widow Rehabilitation program** has been adopted as a full-time activity by the Greater Los Angeles Squadron Auxiliary. A Rehabilitation Committee has been formed to develop the program in the Southern California area. Miss Janielou Haney is Chairman, assisted by Mrs. Nicholas Gyopyos and Mrs. Charles Brown.

Organizers of the **Dallas Advertising League's** Fiftieth Anniversary of Powered Flight meeting in December were AFA Past Directors Tom McHale and Al Harting of Dallas. The main speaker

(Continued on page 71)

Ed Morrell, past Regional V-P, now a member of the Albany, N. Y., Sqdn., stands before the Squadron's exhibit honoring 50th Anniversary of Flight.

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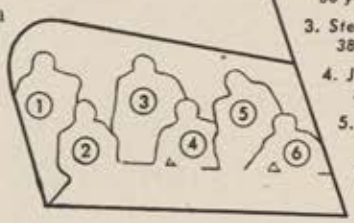
4. *John Lee* 36 years
5. *John Mattison* 25 years
6. *Harry Schaefer* 38 years



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At a December meeting of AFA'ers with former ARA Chapter in Chicago are, from left, Col. J. Schroeder and Col. J. Gulledge, 2400th AFR Trng. Gp.; Adm. Dan Gallery who showed films of how one of his WW II task forces captured a German sub; J. O'Connor, sec'y of the ARA unit; Col. D. Speer, USAFR; Illinois AFA Wing Cmdr. George Wilson; and Col. W. Bausch, USAFR.

was AFA's Executive Director, **James H. Straubel.** He outlined current airpower problems for the 200 civic and industrial leaders from the Dallas-Fort Worth area who gathered in Dallas' Hotel Adolphus for the luncheon meeting. Present were National Director James W. Aston and Past Director Rex V. Lentz.

A feature of the program of the **California Wing's** 1954 Wing Convention in Santa Monica April 23-25 will be an Airpower Symposium.

The **Pennsylvania Wing** has chosen May 22 for its meeting at State College. The Nittany Squadron will be host. A tour of Penn State College and a review of the AF-ROTC Corps will highlight the program.

Flint, Mich., will welcome all Michigan AFA delegates to that Wing's 1954 Convention on June 13. And **Illinois** has again chosen Chicago for the 1954 edition of its Wing Convention. The Sheraton Hotel will be headquarters for the more than 200 delegates and visitors on June 6.

Since the merger of the Air Reserve Association with the Air Force Association, all active Chapters of ARA have been asked if they wish to **affiliate with AFA.** Chapters may either merge with an existing AFA Squadron in the community or form a new Squadron.

All Chapters who have replied to date have promised their whole-hearted support of the aims and purposes of the "new" organization. Most indicate a desire to continue operating as AFA Squadrons.

Some of the Chapters that will become **Squadrons** are Long Beach, Calif.; New Orleans, La.; Kansas City, Mo.; Chicago, Ill.; New York, N. Y.; Orlando, Fla.; West Palm Beach, Fla.; Dallas, Tex.; Montgomery, Ala.; Charlotte, N. C.; Lubbock, Tex.; Louisville, Ky.; Enid, Okla.; and Atlanta, Ga.

Chapters deciding to **merge** with AFA Squadrons include Long Island, N. Y.; San Fernando, Calif.; Seattle, Wash.; Portland, Ore.; and Fresno, Calif.

Members of California's **San Fernando Squadron** were guests of the Valley Chapter of the ARA recently at the formal merger of the two local groups. Representing the former ARA Chapter were John L. Albright, President, and Frank W. Owens, Vice President and one of the unit's founders.

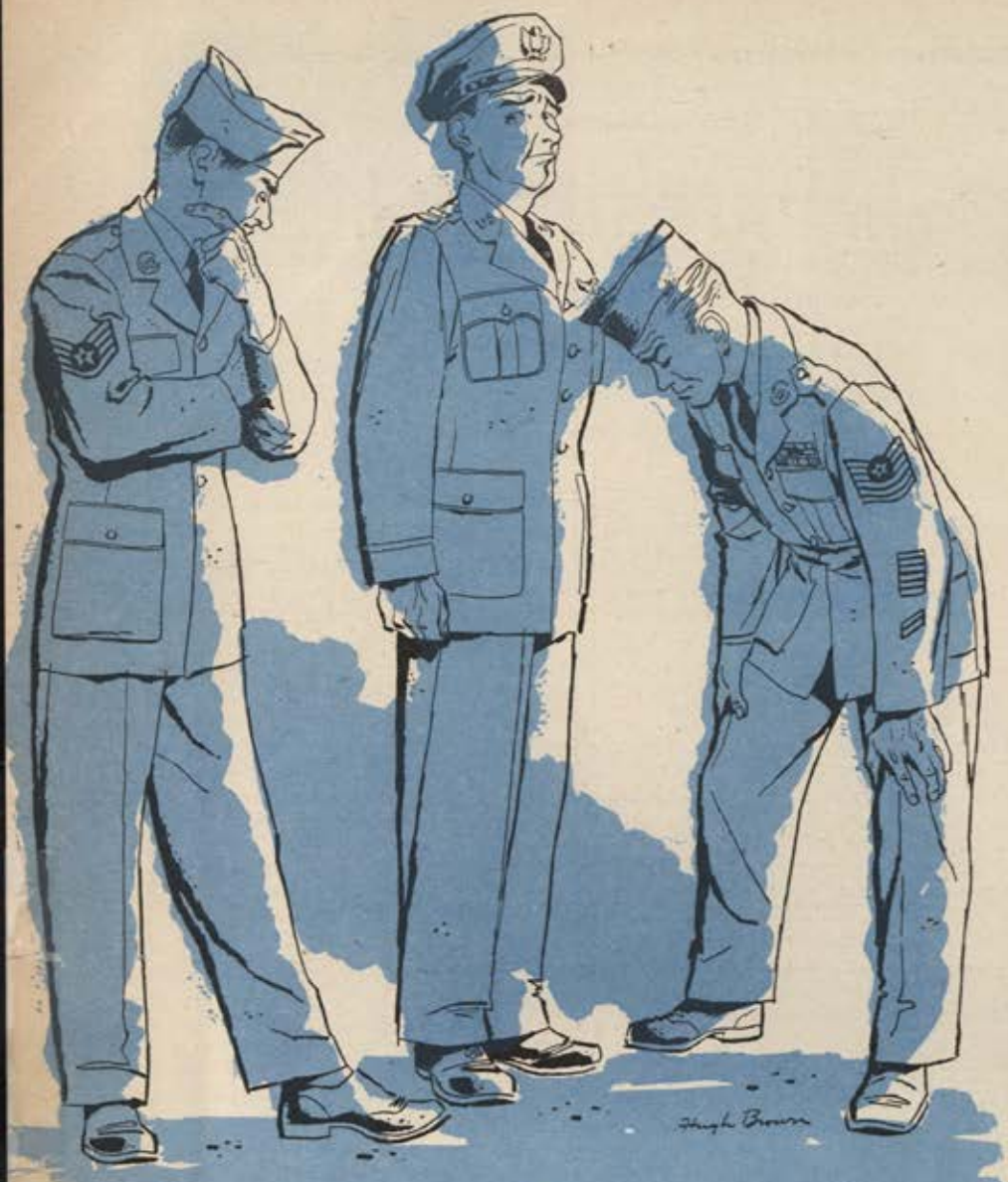
Principal speaker was James H. McDivitt of San Gabriel, AFA Far West Regional Vice President. Commander of the San Fernando Valley Squadron is James S. Ellis.

CROSS-COUNTRY . . . Illinois Wing Quarterly meeting will be in **Chicago's** Sheraton Hotel Sunday, March 7 . . . San Francisco Squadron is preparing a 1954 **AFA Directory,** listing all members in the Bay Area . . . **New AFA Squadrons** are being formed in Joliet, Ill.; Springfield, and Kansas City, Mo.; Dallas, Tex.; West Palm Beach, Sarasota-Bradenton, Orlando, and Gainesville, Fla. . . . **Omaha** membership campaign is still going strong with 1,397 members enrolled at this writing . . . Modesto, California's **Stanislaus Squadron** held a dinner for members in February. Sqdn. Cmdr. "Red" Hanson was Program Chairman.

Remember . . . . . **PLAN YOUR VACATION**

8th ANNUAL AFA CONVENTION

OMAHA, NEBRASKA • AUGUST 19-20-21-22



How A Non-Com Sizes Up His Officers

Here, for the commissioned side of the family, are some of the 'thou shalts' and 'thou shalt nots' that are so familiar to enlisted ears

By M/Sgt. Norman Winfield

POUND for pound, yard for yard, probably as much has been written about the care, feeding, and manipulation of the military man as about any other single subject. What with regulations, by-laws, and local ground rules, plus the customs of the service, the subject is pretty well covered.

Especially well covered are the conduct and behavior expected of the enlisted side. Here the "thou shalt nots" and the "thou shalts" come thick and fast, most accompanied by punitive provisions stated in bare-knuckle English.

But what about the other side of the family? What can a non-com expect in the way of performance or deportment from an officer?

In answer, I'd like to report that an enlisted man can expect superior performance from his superiors. Unfortunately, I can't. To make such a statement would be playing footsie with the truth. Like other mortals, an officer is not a superman—but he can grow into a reasonable facsimile of one if he devotes some attention to the matter. Given enough effort, the specifications for an officer, as laid down in the rule books, will show through.

The heart of the matter is contained in the remark, oft repeated, if somewhat derisively, "An officer and a gentleman by act of Congress." Distinctive haberdashery, a smattering of specialized training, and due process of law do not an officer make. This only begins what must be a lengthy process of growth and maturity.

Above all, an enlisted man expects an officer to be a gentleman, for unless he is a gentleman he can never become an officer regardless of how technically competent he becomes. A man sporting a commission must look like an officer, must talk like an officer, and must behave like an officer. The rank establishes his responsibility but it does not endow him with *license*.

Vulgar expressions, sloppy appearance, poorly cut and cheap uniforms only mean that the man, somehow, got in on a pass.

No hocus-pocus or laying-on of hands will absolve a man of these sins. Suffice to say, an officer never wallows in four-letter words, regardless of how colorful or appropriate these tidbits may seem. Later, when his hair has turned to silver or skin, he can safely slip in or out of any role he chooses. By then he has acquired authentic, fade-proof color—or he can fake it with the dignified aplomb fitting to his years and service. No novices need apply.

A non-com expects an officer to be

(Continued on page 75)

"Gunner to Pilot . . . two fighters . . . turning in!"

No TIME to repeat this message. He must get every word right the first time.

In today's higher-speed, higher-altitude bombers, crewmen must quickly grasp every code-word passed. Speed of intercommunication has to keep pace with speed of operation.

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NEW PROTECTIVE COATING CHEMICAL FOR ALUMINUM

ALODIZING

Alodizing with "Alodine,"* a new technique in the protective coating of aluminum, was made available for production-scale use in 1946. Since that time Alodizing has largely supplanted the more elaborate, costly and time-consuming anodic treatments in the aircraft and other industries.

Continuous and successful industrial use has clearly demonstrated the simplicity and economy of the Alodizing process as well as the effectiveness of the "Alodine" amorphous coatings, particularly as a base for paint. In fact, the paint-bond that Alodized aluminum provides has been found to be superior to that possible with chromic acid anodizing.

The corrosion-resistance of unpainted aluminum Alodized with "Alodine" Nos. 100 or 300 is excellent, easily meeting the requirements of Specification MIL-C-5541. However, a need for protection of unpainted aluminum, even better than that obtained with chromic acid anodizing, has long been recognized.

NEW IMPROVED "ALODINE" DEVELOPED By ACP RESEARCH CHEMISTS

Several years of intensive research have now led to a new type of "Alodine," designated as "Alodine" No. 1200. This new protective coating chemical forms an amorphous mixed metallic oxide coating of low dielectric resistance that provides unusually high corrosion-resistance for unpainted aluminum. In addition, it forms an excellent paint bond that approaches closely the high quality obtained with the earlier types of "Alodine."

After having been tested for conformance with Specification MIL-C-5541, "Alodine" No. 1200 is now about to go into production.

PROCESS DETAILS

"Alodine" No. 1200 is the only essential chemical needed to prepare the coating bath and the final rinse bath. One of its unique features is that it can be used in tanks in an immersion process, or, in a multi-stage power washer in a spray process, or, with a slight adjustment of pH, with brush or portable spray equipment in a manual process. This means that even where the simple production equipment is not available, or where touching up of damaged coatings previously Alodized or anodized is required, excellent protection and paint bonding can still be obtained with practically no equipment.

All three methods of application easily meet the requirements of Specification MIL-C-5541.

Process sequence for all three methods of application is the same as for other standard grades of "Alodine" such as Nos. 100, 300, and 600, viz.: 1. Pre-cleaning. 2. Rinsing. 3. Alodizing. 4. Rinsing. 5. Acidulated rinsing. 6. Drying.

Coating time in an immersion process ranges from 2 to 8 minutes and in a mechanized spray process is about 30 seconds. "Alodine" No. 1200 baths are operated at room temperatures (70° to 100°F.) and heating is required only if the bath has gotten cold after a "down" period.

RECOMMENDED USES FOR "ALODINE" No. 1200

"Alodine" No. 1200 is specifically recommended for coating wrought products that are not to be painted or are to be only partially painted; and for coating casting and forging alloys whether or not these are to be painted. "Alodine" Nos. 100 and 300 are still recommended for coating wrought products such as venetian blind slats, awnings, etc., that are invariably painted.

RESULTS OF TENSILE TESTS

This new "Alodine" not only retards visible corrosion and pitting, but as shown in the table below, the loss of ductility with "Alodine" No. 1200, both brush and dip, after 1000 hours salt spray was less than for chromic acid anodizing after 250 hours, and for "Alodine" No. 100 and a conventional chromate treatment after 168 hours exposure.

PROCESS	SALT SPRAY EXPOSURE	COMPLIANCE WITH TENSILE REQUIREMENTS OF MIL-C-5541
CHROMIC ACID ANODIZING	168 hrs.	passes
	250 hrs.	passes
	500 hrs.	fails
	1000 hrs.	fails
BRUSH "ALODINE" No. 1200	168 hrs.	passes
	250 hrs.	passes
	500 hrs.	passes
	1000 hrs.	passes
DIP "ALODINE" No. 1200	168 hrs.	passes
	250 hrs.	passes
	500 hrs.	passes
	1000 hrs.	passes
DIP "ALODINE" No. 100	168 hrs.	passes
	250 hrs.	fails
	500 hrs.	fails
	1000 hrs.	fails
CONVENTIONAL CHROMATE TREATMENT	168 hrs.	passes
	250 hrs.	fails
	500 hrs.	fails
	1000 hrs.	fails

*"Alodine" Trade Mark Reg. U. S. Pat. Off.

CHEMICALS ACP PROCESSES

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well barbered and immaculate at all times. A haircut every week and a shoe shine every day are musts. Omitted, they are damning indictments. An officer should be clean and neat—just like a bartender going on duty.

Summer uniforms deserve special mention since they are regarded by many as a heartbreaking problem. "Ten minutes after you slip into a set of suntans," people say, in anguished tones, "they look like a slept-in bed."

Face it, a set of khakis will not keep fresh for more than twenty-four hours or one wearing. The cure—get enough sets of khakis to allow for one set—a matching set with shirt and trousers of the same color and fabric—per day with two spares. Damn the expense, Gridley. Authenticity as an officer is directly tied to appearance.

On the rare occasions when an officer is required to wear fatigue clothes he should regard these clothes in the same way he does a dress uniform. On an officer, dirty, torn, or misfitted work clothes are a serious affront to the eye and a shattering blow to discipline and control.

For some reason, certain officers delight in concealing their rank when garbed in herringbone twill. Why an officer should be coy about displaying his pay-day hardware is hard to understand, but I can recall one memorable horse's neck who delighted in appearing incognito and then, at the dramatic moment, revealing what he fondly believed to be his true status (in reality, it was only his commissioned rank he displayed) to an embarrassed non-com in charge of a detail. Some fun, eh, kids?

Next in importance, so far as the non-com is concerned, is an officer's professional ability. The very least to be expected is that an officer know what he is talking about. Ideally, he should be able to do the job. This is especially true in the mechanical and technical trades in the AF where great store is placed on "know how" rather than "say how." A faker here is quickly unmasked and no amount of blustering will recover lost face. And if an officer is revealed as a phony, he might as well quit, for his non-coms will run his outfit just as sure as God made perceptive sergeants.

Lack of specific knowledge is not so disastrous in the other AF work areas—administrative, supply, etc.—since these allow for a certain amount of "interpretation," a word almost unknown in the rigid, technical world of mechanical or scientific things. In both areas, if an officer finds himself in beyond his depth, a frank confession of his shortcomings, *without craven servility, please,* will in most cases mitigate the penalty—lost prestige and the initiative of leadership.

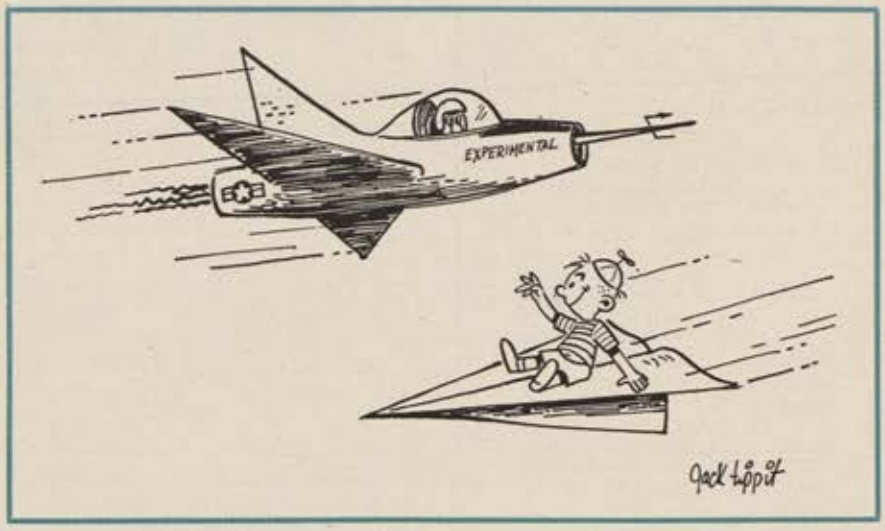
No non-com wants to serve with an officer who is a cry baby and there are many, many cry babies in the AF. Within ten minutes after a new issue of *Air Force Times* arrives, the crying towels are sopping wet. The tears flow deepest and swiftest when items concerning promotions are published. In one extreme case of this kind I saw a major belaboring the blasé ears of a totally uninterested airman second class. "Why I was in flying school with that dumb bastard and now he's an L/C—permanent, too—and I'm still a lousey major," was the theme.

If the tears were confined to such topics as promotions, which are sometimes funny to listen to, the damage would be slight. But such is not the case. Eyes fill up for a variety of reasons and one of the worst, and at the same time most common, amounts to little less than outright slander and often borders on insubordination or worse.

I wish I had a buck for every time I listened to a confidential (sixteen other enlisted men and myself) description of the "Old Man." At each hearing I am surprised to discover that that nice, fatherly, white-haired gent is really a monster in uniform—a regular wild man who should be locked up, or at least turned out to pasture before he hurts someone. According to these alarming reports, the least thing wrong with him is that ". . . he's living in the Old Army—he don't know which end is up." In addition, he's nuts, and the boys quote chapter and verse to prove it.

Stuff like this might be OK in the sympathetic atmosphere of the Officer's Club, but never where enlisted ears can catch what amounts to overtones of mutiny. In fact, it is an officer's responsibility to silence any attacks on the reputation and character of his superiors.

Since we are on the general subject of slander and character assassination, it might be news to some that this delightful game is not confined to wrecking the reputation of higher-ups. Nothing is more democratic than slander. Enlisted men are tried, sentenced, and damned to the gentle tintinabulation of ice in a cocktail shaker. Like women hanging over a fence, one officer, in breathless, outraged tones, tells another of the troubles he is having with Sergeant Balky.



Before long, Balky is a marked man, viewed with suspicion and distrust by everyone who comes into contact with him. As far as the brass are concerned, Balky is bull-headed, stupid, and determined to undermine the whole officer corps—or at least that's the word in the ruling circles. Unfortunately, Balky is the last one to learn that the heat is on. By the time he discovers that not everything is hunky-dory, he might be in serious trouble and far down the road to complete disgruntlement.

If an officer would take his courage in his hands and challenge Balky at the first clash of opinion, that, in

(Continued on following page)

all probability, would be the beginning and the end of any friction. If such action were taken more often, it might be that Balky would be known to members of the officer corps as a helluva fine non-com and a pretty nice guy to know.

Since Balky is a sergeant, it is better than even money that he has a certain amount of brains and technical savvy about his job. If a difference of opinion should arise, it is always just possible that Balky is not 120 percent wrong. Balky might very well be right. At any rate, prompt and thorough understanding, on the spot, is necessary to prevent a serious employer-labor difference.

A non-com expects his officers to go "first class." He wants the boss to pay his own way in hard coin of the realm. Scarcely a man is alive today who does not recall the officer who sneaks into enlisted mess, under one pretense or another, and omits paying the regular separate ration charge. Or the officer who brazenly wears organizational equipment forbidden to enlisted men and really not authorized for the officer. Certain types of flying clothing come under this category. Free-loading in any form is *so obvious*.

A non-com expects his officers to support him in every legitimate situation. When issues are clear-cut it helps no one—the AF, the non-com, or the officer—to settle for a vague, weak-kneed solution. In most cases, when a non-com registers a complaint with his officer, it is only after he has exhausted every other means at his disposal. And in most every case, he has a gilt-edged reason for taking what is to him the most drastic step—reporting the situation to the officer in charge.

This support is expected in every dimension, too—upward, as well as downward. It should be a *source of pride* to an officer to take the legitimate complaints of his men to the highest authority. Moreover, he should do more than make token representation, but should fight his case with all the vigor at his command, compatible with military courtesy and tact. A little guts in the presence of the Presence is not mutiny or insubordination—it's Personnel Management in action.

Above all, an officer should never try to kid his men out of a legitimate complaint. To laughingly brush aside as exaggerated or imaginary a condition that senior non-coms have brought to his attention is a serious breach of trust and a dereliction of duty. Telling the troops that conditions are much worse in Korea is ridiculous, if for no other reason than that even the dumbest man, stationed stateside, knows he is not in Korea.

Championing the underdog has been fashionable of late and worthy as this cause might seem, not every complaining enlisted man is a downtrodden victim of the "system." He might very well be a victim of a very well developed instinct to holler cop every time the game goes against his private concept of the rules. A non-com expects his officer to carefully evaluate his testimony against that of the so-called "underdog." A word of caution—the underdog sometimes bites the hand that feeds him.

In supporting his subordinates, an officer should get all the facts from all the people concerned, relying not on one source alone. Glib presentation should be carefully evaluated, for practice in pleading special interest, as in most anything else, makes perfect. A smooth-running tongue often means that the man has an equally smooth-running mind capable of setting the words to the right kind of music, and these two in harmony can often make the facts do tricks.

A non-com expects an officer to stand on his own two feet. Nothing is sadder to behold than an officer who whines to his troops, "Now fellas, this ain't my idea but we gotta stick around Saturday afternoon until we get the area policed up. It's another of the Old Man's goofy ideas." You've heard it. I've heard it, time and again—and every time I hear it, it still sounds like hell.

If an officer has an unpleasant duty to perform, or nasty information to pass on, let him do it with dignity and vigor.

And the word "vigor" leads us into another area in which the non-com expects his officer to set the tempo.

A non-com working for an officer expects him to devote a reasonable amount of time and attention to the project. The officer should provide whatever spur is needed to keep the job galloping; he should have the *determination* and *stamina* to finish the task, and he should use the full power of his rank and authority to clear bottlenecks beyond the powers of his non-com in charge.

Since supervision is an officer's prime function, it is easy for him to go overboard and over-supervise. In an excess of zeal he can easily antagonize his non-com. Most non-

(Continued on page 79)

Travel Time is

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Here are a few of many reasons why training movements of National Guards, Organized Reserves —in fact, all military groups—should be by rail:

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B-25

F-84-F

B-29

T-28

T-6

PIPER CUB

U. S. AIR FORCE

coms prefer to run the job themselves, coming to the officer only for advice and guidance. And unless conditions plainly indicate otherwise, advice should be just that and not a cast-iron ukase handed down as an ultimatum. A competent non-com can recognize a good idea when he is brought face to face with one. Also, a non-com should have the option of junking any unsatisfactory suggestions without any complicated folderol.

Because he is usually better educated, an officer is expected to be well informed in a general way on many things. Especially on matters concerning pay, leave, taxes, voting, and legislation concerning the AF. While he is not expected to be an oracle, an officer can reasonably be expected to know a lot of miscellaneous things—and where to find out specific facts about them.

Finally, but by no means least in importance, a non-com expects an officer to be able to control his family. Daddy's rank is his alone and it is not conferred in any way, manner, shape, or form on his wife or children. The colonel's lady and sister O'Brady are still sisters under the skin—children are merely kids. Synthetic rank is not so great a problem in the States since the military community is so diluted by the surrounding civilian population, but it is a problem on isolated stations and overseas.

That's what a non-com expects from his officers. For those who came in late, let me summarize what has gone before. An officer should be a gentleman but not a fop; he should be human but not a buffoon; he should be a friend to his subordinates but not at the expense of his superiors; he should be vigorous but not a tyrant; he should be tolerant but not a "Good Joe" who winks at every breach of conduct; finally, whether he be Regular or Reserve, he should be professional in all of his dealings.—END

THIS IS AFA

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• To assist in obtaining and maintaining adequate airpower for national security and world peace. • To keep AFA members and the public abreast of developments in the field of aviation. • To preserve and foster the spirit of fellowship among former and present members of the United States Air Force.

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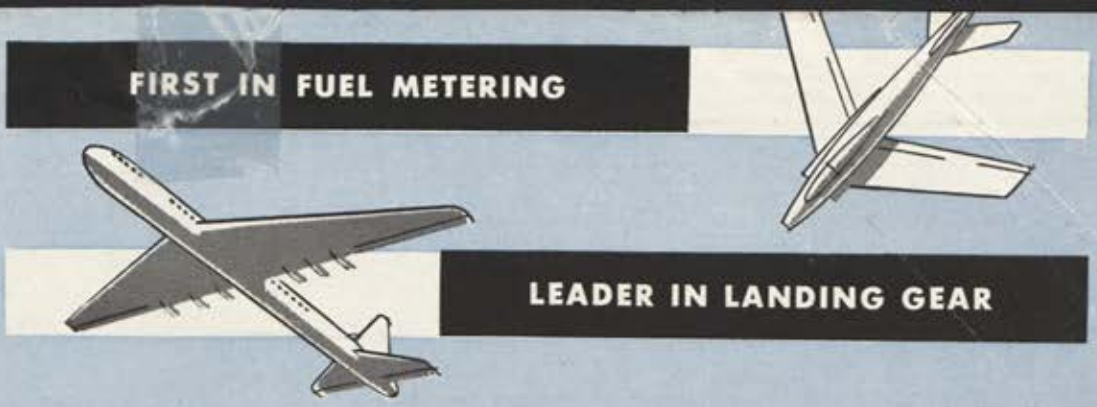

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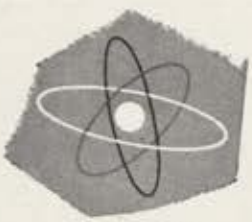
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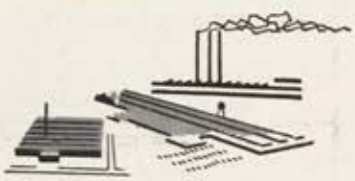
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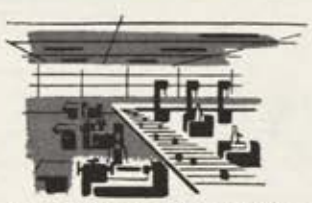
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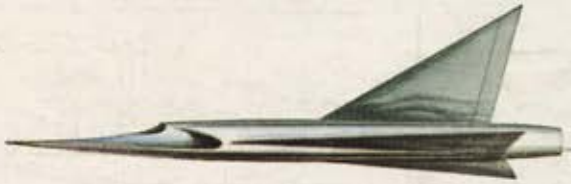

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