AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

AUGUST 1954 • THIRTY-FIVE CENTS

AN EXCLUSIVE REPORT

RED PILOTS

never had it so good

Also In This Issue

The Tactical Air Command

The Engine Picture

HAMILTON STANDARD . . . leader for years in propeller design and production, is supplying other equipment for such outstanding new jet aircraft as the Air Force's Convair F-102, interceptor-fighter.

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Boeing brings jet-speed to tanker-transports

The sleek new giant in the foreground is the Boeing Stratotanker, the first tanker-transport of the jet age. Beside it is the famous Boeing KC-97, standard tanker of the Strategic Air Command.

The new swept-wing aircraft, soon to undergo flight tests, was built by Boeing to add jet speed to military aerial refueling and transportation.

This is a prototype model, adaptable to either military or commercial use. The military, *Stratotanker* version, will be capable of high-speed, high-altitude refueling for today's—and tomorrow's—jet fighters and bombers. The commercial, *Stratoliner* version, will bring the west and east coasts within five hours of each other, and will fly nonstop from New York to London in less than seven hours.

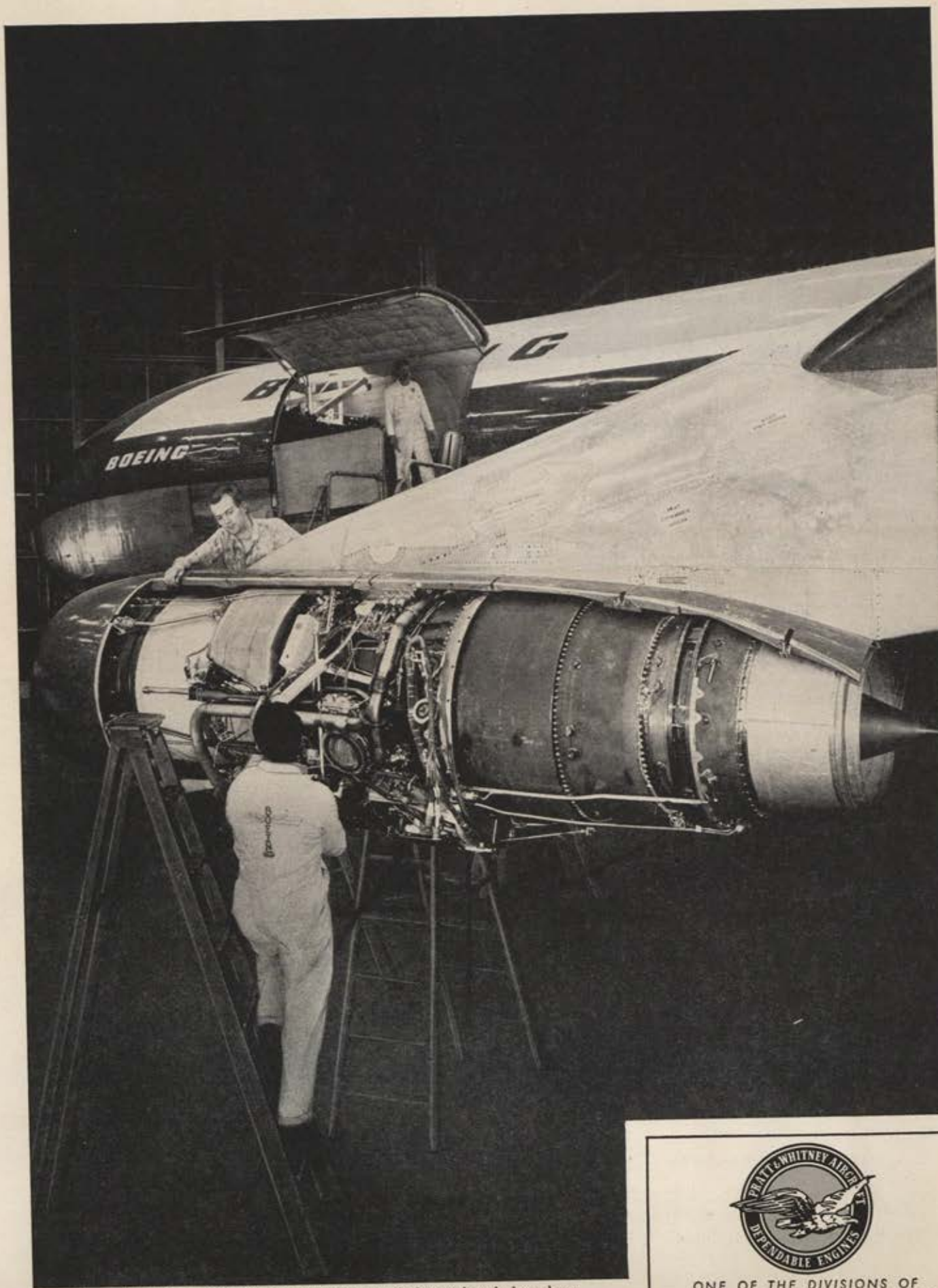
Although it is the newest American jet, the Stratotanker has behind it the world's most extensive experience in designing and building aerial tankers, as well as large, high-performance, multi-jet aircraft.

Boeing is in an excellent position to move swiftly into jet tanker-transport production.

The transition from the present type tanker-transport to the newer jet can be made without interrupting the continuity of production.

The new Boeing jet tanker-transport is backed by the same breadth of research, design and production skill that has made previous trail-blazing Boeing airplanes such outstanding performers in the nation's service.

BOEING



Four slim-waisted Pratt & Whitney Aircraft J-57 turbojet engines in low-slung pods will push Boeing's new 95-ton tanker-transport prototype to cruising speeds of 550 miles an hour and to altitudes in the 40,000-foot range.

PRATT & WHITNEY AIRCRAFT
DEPENDABLE ENGINES

ONE OF THE DIVISIONS OF
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America's first jet transport, the 707, rolled out of the Boeing plant at Renton, Washington, on May 13, 1954. The Pratt & Whitney-powered 707 is a prototype for high-speed military tankers or commercial airliners.

New Boeing Tanker-Transport Powered by J-57 Engines

America's first jet transport, the Boeing 707, has been unveiled. In many ways this event is one of the most interesting in modern aviation history.

Here is a completely new transport designed around the most powerful jet engines now in production in the United States. With its four Pratt & Whitney Aircraft J-57s, the new transport has four times as much power as any commercial American airplane now flying. As a military tanker, it will be able to refuel thirsty jet fighters and bombers at *their* speed and altitude enroute to any distant target. Or it will cruise in the 550 mile-per-hour class carrying 80 to 130 passengers non-stop coast-to-coast or across the Atlantic.

In this great new tanker-transport prototype, as well as in many of the latest Air Force and Navy combat airplanes, Pratt & Whitney Aircraft's J-57 engine is fully justifying the long years and intensive effort required for its development and production.

Pratt & Whitney Aircraft

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AIR MAIL

Those Fringe Benefits

Gentlemen: Thank you for printing J. E. Schaefer's forthright article on fringe benefits in the June issue of AIR FORCE. It is certainly gratifying to know that his interest in the welfare of servicemen is still as sincere as it was when I was stationed with Boeing in Wichita.

His bold contribution of cold logic towards the solution of this grave problem is indeed refreshing. Altogether too many proponents of both sides of this controversy appear to be either men who are motivated by greed and avarice on the one hand, or who lack the courage to clearly state the issues on the other. Perhaps Mr. Schaefer's support will convince some of our spokesmen that these benefits are not a gravy train for which we need apologists, but are actual necessities to compensate for the lack of stability—and therefore, increased cost—of service life.

My own experience since leaving Boeing in 1947 will provide an example which, although typical, is by no means as bad as thousands of others:

1. April 1947—May 1950. Assigned to Far East Air Forces, Japan. Occupied government family-type quarters from August 1948 to May 1950. Rent $90 per month.

2. May 1950—June 1950. Assigned to 14th AF, Warner Robins, Ga. No quarters available. Rented a furnished room for my wife and self.

3. July 1950—June 1951. Assigned to Far East Air Forces, Japan. Dependent travel not authorized. My wife rented an apartment in Washington, D.C.

4. July 1951—June 1952. Assigned to AMC, Dayton, Ohio. Rented unfurnished apartment for $115 a month plus utilities.

5. June 1952—Jan. 1953. Assigned to Rome AF Depot, Rome, N. Y. Rented unfurnished apartment for $98 a month plus utilities.

6. Jan. 1953—June 1953. TDY to Command & Staff School, Maxwell AFB, Montgomery, Ala. Furniture in storage. Rented furnished apartment for $90 a month plus utilities.

7. June, 1953—Jan. 1954. Rome N. Y. Rent $98 a month plus utilities.

8. Jan. 1954—?. Assigned to WRAMA, Warner Robins, Ga. Rent $70 a month plus utilities.

This latest assignment would permit me to save a little money if it were to last for three or four years. However, I shall soon become CO of a Radio Relay Squadron scheduled for overseas duty, which will mean more separation from my wife and children, and more expenses.

It is easy for the critics to say that the government pays for my moves. But we haven't had a home yet in which we could use the same curtains, drapes, etc., and we are fast building up a store of furnishings to compete with Gimbels. Moreover, insurance on our household goods in transit, temporary living accommodations, and many other incidentals run the cost of each move up to anywhere from $300 to $500.

I like the service and plan to remain in as a career officer. I am willing to put up with a certain amount of inconvenience, and I will continue to give Uncle Sam fair return for every dollar the taxpayers spend on me. But, if the trend toward "all take and no give" continues, I may be out to see Mr. Schaefer about a job one of these days.

Maj. Roland S. Strong
Robins AFB, Ga.

Gentlemen: Thank you very much for the extra copies of June AIR FORCE Magazine.

Thanks, too, for the prominence given "Fringe Benefits." I do hope our efforts in behalf of urgent Air Force needs are productive of results.

J. E. Schaefer
Boeing Airplane Company
Wichita, Kans.

Memorial Services

Gentlemen: My thanks to all of you of the Air Force Association responsible for the honor paid to General Fairchild in the Memorial Day services at Arlington Cemetery. Everything was beautifully done.

I appreciate the courteous treatment accorded me by the Association. My very best wishes go out to you all.

Mrs. Muir S. Fairchild
Washington, D.C.

Money Down the Drain

Gentlemen: Up to a short time ago, I had been very seriously considering the AF as a lifetime job. However, I encountered a rather serious setback and a bit of mismanagement on the part of the AF, I believe. After serving some time as an enlisted man in the AF I applied for and was accepted in the Pilot Training Program. I successfully completed pre-flight training, primary pilot training, and five months of basic single-engine jet training. At that time, three weeks prior to graduation, I was eliminated from the program due to my inability to make consistently good formation take-offs in the jet aircraft. Fourteen months of officer training and eleven months of pilot training had been completed. This cost the American taxpayer approximately $50,000.

However, this is all forgotten, and I now am refueling B-25 aircraft with my thousands of dollars of technical training on its way down the drain.

It would seem to me that a feasible program could be set up to "salvage" the men who are unable to fly the jet aircraft and put them in the conventional types and possibly in helicopters, where there also seems to be a shortage. Were mine the only case there would be little cause to complain. However, I personally know a number of young men who are in my shoes at the present time, and many of them were seriously thinking of making the military a career. No doubt some of these men might have become leaders in this organization in the future. It seems feasible to give men in these circumstances a commission. They have completed more officer training than a man who completes OCS and certainly as much practical experience as most ROTC graduates.

I believe it would be a solid investment, both economy-wise and for the future of the AF and the nation, if something could be done for this cause.

James W. Fogarty
Vance AFB, Okla.

Passing the Word Along

Gentlemen: I want to thank you for the cooperation accorded us in permitting reproduction of the AIR FORCE article, "Don't Count Your Missiles Before They Are Hatched" (April 1954).

The reprint run was for 25,000 and they have since been distributed to forty-nine filter centers in thirty-six states, from which they will be redistributed to individual ground observer posts. I feel that

(Continued on page 7)

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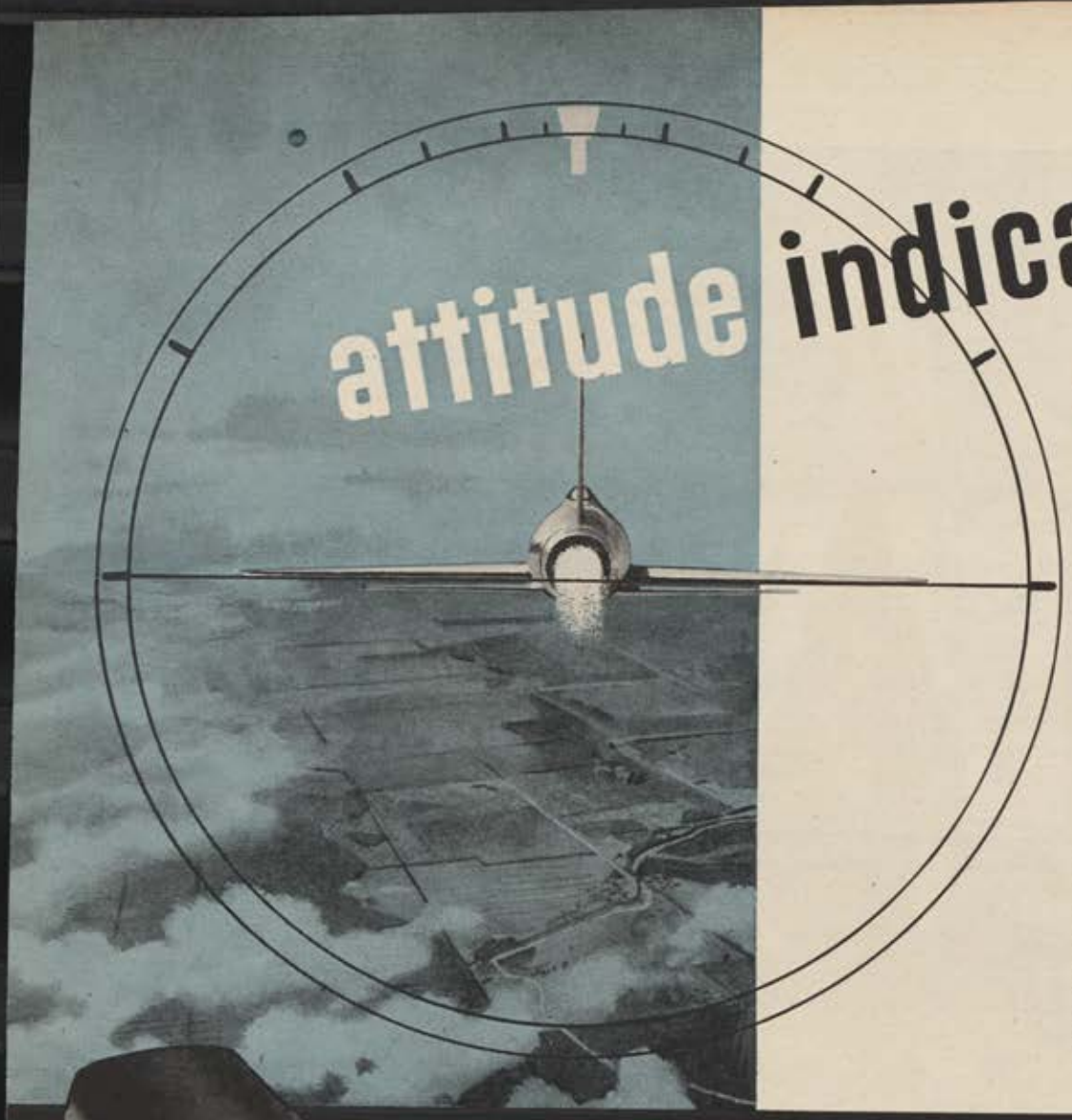

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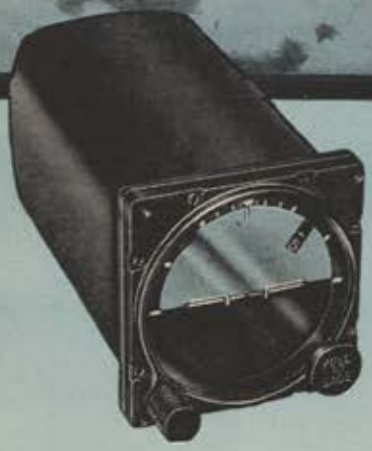

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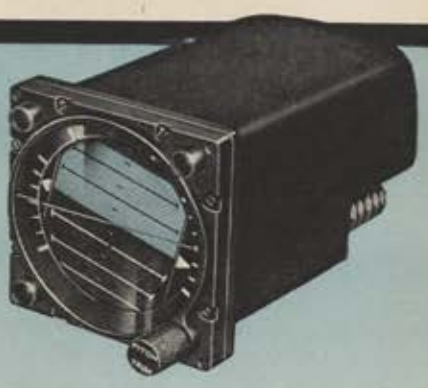

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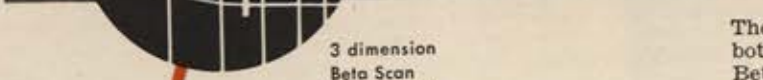

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the information and thinking contained in the article should do much to arrest that false sense of optimism where it is most dangerous—among those actively participating in air defense as volunteer ground observers.

Your help is greatly appreciated. Feel free to call on us any time you think we can be of help relative to the air defense mission.

W. L. Jeff Wilson, Editor
"The Aircraft Flash"
Ent AFB, Colo.

Reserve Program Study

Gentlemen: As a member of the Air Guard I found Edmund F. Hogan's "Every Spring, Just Like the Dandelions" (May '54) a clear statement of some of the problems confronting Air Force Reservists. Mr. Hogan concisely remarked, "There are too many answers to too many questions still to be learned." The author is to be congratulated for stating some of the questions.

However, exposing the problems is not enough. Action should be initiated by interested groups to help resolve the situation. While AIR FORCE Magazine has definitely rendered a valuable service to all Reservists by printing Ed Hogan's article, it has not followed through. Perhaps if AIR FORCE Magazine conducted a seminar on the Reserve forces and published the results, greater light would be placed on the situation.

The October 1953 issue of your magazine presented a fifty-page report on vital issues of national security entitled "The Airpower Future." This issue, a joint effort of outstanding men in airpower, gave a clear picture of the problems and missions of our Air Force and warranted study by all interested parties. I believe that a future issue of your magazine should be devoted to such a seminar on the Air Force Reserve Program. Articles by high-ranking officers and civilians in the Defense Department, on various aspects of the Reserve organization, would warrant study by all.

If you decide to conduct such a seminar, please hold aside a few inches of space so this guardsman can contribute a few ideas.

James McKillop
Brooklyn, N.Y.

Jacks of All Trades

Gentlemen: I would like to make a few belated comments on M/Sgt. Norman Winfield's article pertaining to a professional non-com corps (November '53). On the whole, the article was well thought out and prepared; and without doubt merits the attention of Air Force personnel experts. However, it seems to me that the author missed the importance of one of his statements. I refer to the paragraph that states, "Technical advances have made the non-commissioned officer in today's AF a narrow specialist, confined and devoted to his field. . . ."

In my opinion, this is the largest single factor contributing to the AF's inability to hold its top non-coms. It doesn't realize that a large part of its personnel are specialists (and probably came into the AF in order to be able to specialize), but insists on their being non-coms, or jacks of all trades. Even the non-com should be a specialist—in leadership. Another fact to consider is that most of the top-notch specialists actually don't care about being non-coms. Two radio mechanics whom I knew well recently took advantage of hardship discharges; but the truth was that they were fed up with being half non-com and half specialist.

In regard to this same author's article, "Cause of the Pause" (January '54), I'd like to extend congratulations for a job very well done. It contains excellent and timely suggestions for AF planners.

For one last word, may I also say that Brig. Gen. Dale O. Smith should be highly commended for his article "Let's Educate Our Officer Corps" (April '54). Even more consideration could be given to this subject.

Your magazine has really given full coverage to all the gripes in the last few months; and for the good of the Air Force I sincerely hope you continue to do so. Sooner or later, public opinion will force some changes.

Robert H. Bender
New York, N.Y.

Point of Order

Gentlemen: In your July issue, under "AFA Nominees for 1955," you said John R. McLaughlin was among the first-time nominees for the Board of Directors. But there was no biographical sketch for him. What happened?

Donald R. Franklin
Silver Spring, Md.

• *It wasn't intentional. For the record, Mr. McLaughlin, who's a minister from Englewood, N. J., has been an AFA member for six years. He's now Chaplains' Division Commander and has served on a National Convention committee. His military rank was major. He's 49 and married.—The Editors.*

Let 'em Know

Gentlemen: As a member of some years, standing, I am taking the liberty of addressing you on a subject which I feel is of deep importance.

Among ourselves, through our Association's publication, we are well informed on current Air Force developments, and of Air Force plans, hopes, and desires. We know of our problems and accomplishments, but who else does?

We know of the need for airpower but we have fallen flat on our face in telling the story to the general public. It is in our interest to get this story over to the public. The saga of the US Air Force is a tremendous story.

Nothing would inspire public interest in airpower more than a few well written books about the Air Force's accomplishments in World War II and in Korea. We have men who could tell this story. Tooey Spaatz would be ideal for a book on airpower in action in ETO.

Arthur R. Taylor, Jr.
Southboro, Mass.

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Shooting the Breeze

WHERE was August when the holidays were passed out? It's a month bracketed on one side by July, with its Fourth, and on the other by September, with Labor Day. And there are Halloween in October and Flag Day in June. Plus Mother's Day and Thanksgiving, Easter and Christmas, and all the rest.

But what can you say for August, except that it's the month when baseball gets its second wind and heads for the series, the month of dog days, county fairs, and eggs fried on sidewalks?

We at AFA headquarters and every member and friend of the Association can say something for August. For us it's a month set apart. August is Convention month. And Convention for us means the biggest airpower event of the year. It more than puts August on a par with all the other months.

For those who haven't got the word yet, the dates are August 19-22 and the place is Omaha. Details appear in this issue on pages 50 and 51, and on page 62 there's a convenient blank you can fill in and mail to your favorite hotel in Omaha to make sure you'll be part of the gathering.

Not only is August the month of AFA's Convention, it's also the month we on the magazine side of the business put together the annual September Anniversary Issue of AIR FORCE, this year packed with more timely features and articles we believe you'll find more valuable than ever. This issue appears on the second day of the Convention—just one more reason why we say, "See you in Omaha!"—END

AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

Vol. 37, No. 8 • AUGUST 1954

FEATURES

DEPARTMENTS

THE COVER

No, we're not drumming up trade for Soviet recruiters with our cover and lead article this month, on how good a deal Russian pilots have these days. It's a good deal only if you're a Russian. You'll find why this is so by reading the article beginning on page 21. You'll also learn why many Russian pilots are puzzling ways to stay in service while too many of our own pilots are debating whether they should get out. The cover design is by MacLeod & Associates.

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wing tips

By Wilfred Owen

At Charleston, W. Va., fencing is necessary at the airport to keep deer off the runways.

° ° °

The control tower at Idlewild is eleven stories high. It cost a million dollars, not counting $600,000 worth of radio and radar equipment.

° ° °

Canadian Pacific Airlines is the only air carrier that operates a paddle-wheel steamboat. The sternwheeler "Klondike" is a 300-foot tourist attraction operating from Whitehorse to Dawson City in the best mid-Victorian style.

The same boat which carried gold-hungry prospectors to Dawson City fifty years ago will now carry summer visitors to gold-hungry Dawson City, via four-engined aircraft from Vancouver to Whitehorse.

° ° °

Every day 2,000 transatlantic passengers leave from or arrive at New York International Airport.

° ° °

The airlines operate the world's only world-wide credit plan. Last year 595,494 passengers charged their trips through the Universal Air Travel Plan, which includes sixty-nine airlines.

° ° °

A new easy payment plan inaugurated by Pan American lets you fly to eighty-three countries for a ten percent

down payment and up to twenty months of easy installments. A one-week trip to Bermuda, departing from New York, costs $13 down and $10.82 a month for twelve months.

° ° °

America's colleges and universities are promoting higher education with the help of 111 aircraft. The collegiate fleet is used for lessons in agriculture, aerial mapping, and pilot training. The Universities of Mississippi and Illinois own helicopters.

° ° °

Last year the three US helicopter lines operating in the Los Angeles, New York, and Chicago metropolitan areas flew a total of more than one million miles.

nose for trouble

The big black nose of the CF-100—and what's inside it—is truly a mark of distinction. For it identifies the all-weather interceptor from the day fighter and, in the case of the CF-100, as Canada's Aerial Defender against bomber attack across the North.

The "insides", a complex mass of radar and electronic equipment—is designed to guide the CF-100 Mk. 4 unerringly to its target, lock on and destroy it with a formidable armament combination of rockets and guns. The effectiveness of this search and fire-control system is being demonstrated almost nightly during mock interception exercises by R.C.A.F. CF-100 squadrons based at strategic points. With its twin Orendas, also designed and produced by AVRO Canada, the CF-100 Mk. 4 has a greater range and more power than any other fighter-interceptor in service anywhere. The Orenda also powers the Canadair Sabre 5, the outstanding day fighter in service today.

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AIRPOWER IN THE NEWS

■ In an analysis of the **effects of a Russian A-bomb attack** on this country, **Dr. Hornell Hart,** Duke University sociologist envisions a picture of doom and destruction. In the June issue of *The Bulletin of the Atomic Scientists,* Dr. Hart points out that an air raid on the US now, or in the next three years, would cause national paralysis. Based on present and future atomic bomb capabilities of Russia and the preventive capabilities of the US, the article says, an **all-out Soviet raid** could:

- Kill nine million and injure eleven million of the thirty million people in target cities.
- Destroy our financial world by killing and injuring key personnel and destroying records, money reserves, and bookkeeping equipment.
- Paralyze transportation by destruction of oil and coal centers, shipping ports, and major railroad, trucking, and air centers.
- Paralyze the national government, leaving the country with no recognized authority to meet the crisis.
- Cause an immediate famine throughout the country by destruction of transportation and warehouses and cutting off the fuel supply to the farms.
- Handicap attempts to combat the disaster by reducing communications to a small fraction of its normal volume.

This is the picture painted, as Professor Hart points out, *before* (1) the announcement that the US has a twelve- to fourteen-megaton, deliverable hydrogen bomb, and (2) the public demonstration by the Russians of a huge intercontinental jet bomber capable of delivering hydrogen bombs to target areas in the US.

■ **Two TAC F-86F wings** will be sent to France this fall, bringing to more than 1,000 the number of first-line American combat planes in Western Europe. The movement—150 of the fighter-bombers will be sent—marks the second time that fully equipped F-86F wings have gone to NATO duty. The two wings are the 21st, commanded by Col. Robert R. Rowland (TAC photochart, p. 40), which will go to Chambley, and the 388th, commanded by Col. James F. Whisenand (see p. 40), to be based at Epian.

■ One of the country's leading scientists in the development of the atomic bomb died on June 22 in New York City. **Dr. Karl T. Compton,** 66, was stricken with a heart attack on a visit from Cambridge, Mass., where he was chairman of the corporation of the Massachusetts Institute of Technology. Dr. Compton, a former chairman of the Research and Development Board of the National Military Establishment, played a big part in directing this country's scientific policy through a period that saw many achievements such as radar, variable time fuses, and nuclear weapons. He defended the use of the atomic bomb against Japan because it had saved thousands of American lives. In 1946, Dr. Compton was awarded the Medal of Merit for "outstanding services to his country." The citation said that he was "personally responsible for hastening" the end of World War II.

■ **Harold C. Stuart,** AFA Director and past President and Chairman of the Board, was recently elected President of the Aircraft Service Association. Mr. Stuart, Assistant Secretary of the Air Force from 1949 to 1951, was elected at TASA's first annual meeting in Washington, D. C. TASA represents aircraft and engine overhaul-modification and service companies.

■ After the Senate and the House had ironed out their differences over the **Fiscal '55 defense budget,** the big money bill as finally presented to President Eisenhower totaled **$28,800,125,486.** Of this, about **$11 billion** is for the USAF, **$10 billion** for the Navy, and **$7.5 billion** for the Army, which took the brunt of the $5.5 billion cut under last year's $34.6 billion budget. The Fiscal '55 figure was about **$1.2 billion less** than the President had asked and the smallest since Korea began. The military appropriation for Fiscal '53 was $49.5 billion, and $62.2 in '52.

■ The strategy of airborne warfare will soon be revolutionized by **large helicopters** capable of carrying big loads of troops and supplies into battle, according to **Gen. Matthew B. Ridgway,** Army Chief of Staff, in a speech to members of the 82d Airborne Division last month. General Ridgway said that great progress has been made in heavy drop techniques and that "we are working toward the development of an effective assault transport—one that can land on and take-off from short, unimproved fields."

■ At presstime, two four-man teams had been named to repre-

Tom Lanphier, left, and AF Gen. Nathan Twining check an Olympics-bound model, held by contestant Carl Wheeley.

sent the US in competition at the **first Model Air Olympics,** to be held July 24-26 at Suffolk Co. AFB, N. Y. The Americans were picked after twenty-seven preliminary and four semi-final meets were held throughout the US. In the Olympics they were to face champions from at least twelve other nations. Invitations had also gone to Russia and four Iron Curtain countries, but as the date for the meet neared, none of the Soviet bloc had replied. The USAF is host for the three-day competition, with Convair acting as sponsor. The competition is conducted by the Academy of Model Aeronautics, a division of the National Aeronautic Association whose president, **Thomas G. Lanphier, Jr.,** is an AFA Director, a past President, and former Board Chairman (see cut above).

■ In an AIR FORCE article ("Has the H-Bomb Abolished Total War?", May '54), **Sir John C. Slessor,** Marshal of the Royal Air Force, maintained that air-atomic power has abolished total war. On June 23, his book "Strategy for the West" (William Morrow & Co.) was released. In it, Sir John elaborates on his convictions. He says the West must have a free hand in the use of atomic weapons and believes that there is a better way to keep the peace than the European Defense Community. He calls for a Berlin Treaty to take the place of the Treaty of Brussels in which Great Britain, France, Luxembourg, and Belgium guarantee each other against external attack. The new treaty, according to Sir John, would include the US, West Germany, and Canada, and the way should be left open for Russia and her satellites to take part. In order to be effective, Sir John believes, the treaty should state definitely that the

(Continued on following page)

An AF award for Civilian Personnel Director Watts.

A new job for Ass't AF Secretary H. Lee White.

assistance offered by the US and Great Britain would include atomic airpower to be used against any aggressor. He holds that this would be a good deterrent against Soviet aggression in Europe.

■ Assistant AF Secretary for Management **H. Lee White** left his Pentagon post last month. In office a year and a half, White maintained that it was good business to spend **money on morale.** He was in favor of swimming pools and libraries at all AF bases because "for every one percent we increase the reenlistment rate, we save $20 million." White supported better military housing, allowances for medical care, and increases in reenlistment bonuses as measures to meet the manpower crisis. His post may be filled by two assistant secretaries—one for manpower and the other for financial affairs. Before he left to return to business law practice, he received an **Exceptional Civilian Service** award from the Air Force.

■ The Soviet Air Force put on the **biggest air show** in Russian history June 20 over Tushino Airport, ten miles from Moscow. One new plane unveiled was believed to be a **MIG-17,** the latest Soviet single-jet sweptwing fighter. A total of 660 military and civil airplanes—including a wing-flapping glider—showed off for a crowd of 250,000. Russian leaders, led by Premier Georgi Malenkov, were present, as was the entire diplomatic corps. Western observers were impressed. In connection with the show, Artem I. Mikoyan, a leading Soviet jet designer, said the performance of new Soviet aircraft was so high that designers were now talking of sending planes more than once around the world without refueling. He also said that wings, as known now, were becoming less necessary and that their principal role at present was in landing.

■ A **budgetary limitation** on flight hours that could have lowered the professional competence of pilots in administrative jobs was defeated in Congress. The successful fight to eliminate the 100-hour restriction on proficiency flying from the Appropriations Act for FY 1955 was led by **Air Force veterans** in the House. The amendment to delete it was submitted by Congressman **John Bell Williams,** Mississippi Democrat, a World War II B-26 pilot. Helping in the effort were Congressmen **LeRoy Johnson,** Republican of California, who won the Silver Star in World War I for aerial combat, and **Lloyd M. Bentsen, Jr.,** Democrat of Texas, a B-24 squadron commander in World War II. The members supporting Williams' amendment felt that any budgetary limitation upon the number of proficiency flying hours would have reduced Air Force capability for rapid expansion during an emergency.

■ According to **Sen. Styles Bridges,** New Hampshire Republican, "our strategic air offensive forces are fully capable right now of carrying out the mission for which they are designed." The statement was made at ground-breaking ceremonies last month for the Portsmouth-Newington Air Base for jet-bombers in his state.

■ Three USAF B-47s recently flew to the Far East to survey several air bases for **possible future SAC jet-bomber deployment.** The trip was the longest non-stop jet flight in history. The 6,700-mile trip from March AFB, Calif., to Tokyo was completed in fifteen hours with three mid-air refuelings.

■ The Air Force has created a new command, the **Pacific Air Force,** with headquarters at Hickam Air Force Base in Hawaii. It will be headed by **Maj. Gen. Sory Smith,** former Director of Information Services, Department of the Air Force. The Pacific Air Force will help prepare emergency war plans with Adm. Felix Stump's United Pacific Command at Pearl Harbor and will have the job of operating the long Pacific supply and communications lines. While the new command will have some air defense squadrons, the Air Force anticipates that the combat units in the Pacific will remain under the **Far East Air Forces** commanded by Gen. Earle E. Partridge in Japan. General Smith's replacement as head of Air Force information is **Brig. Gen. Brooke E. Allen,** former Chief of Staff of MATS.

■ **Robert C. Lanphier, Jr.,** was named Deputy Assistant Secretary of Defense (Supply and Logistics) in June. Lanphier had served since February of this year as Director of Planning and Review in the Office of the Assistant Secretary of Defense. In his new job he will help Assistant Secretary of Defense T. P. Pike and act as Assistant Secretary in Pike's absence.

■ One of SAC's B-47 bombers, based at MacDill AFB, Fla., has flown the equivalent of fifteen times around the world—600 hours—without an engine overhaul. In terms of money, this would mean a **saving of about $90,000 a year** for the one airplane over "normal" maintenance costs. Lt. Col. Glenn A. McConnell, commander of the bomber, said that "attention to the slightest detail involved in precision preventive maintenance is the secret of the crew's success."

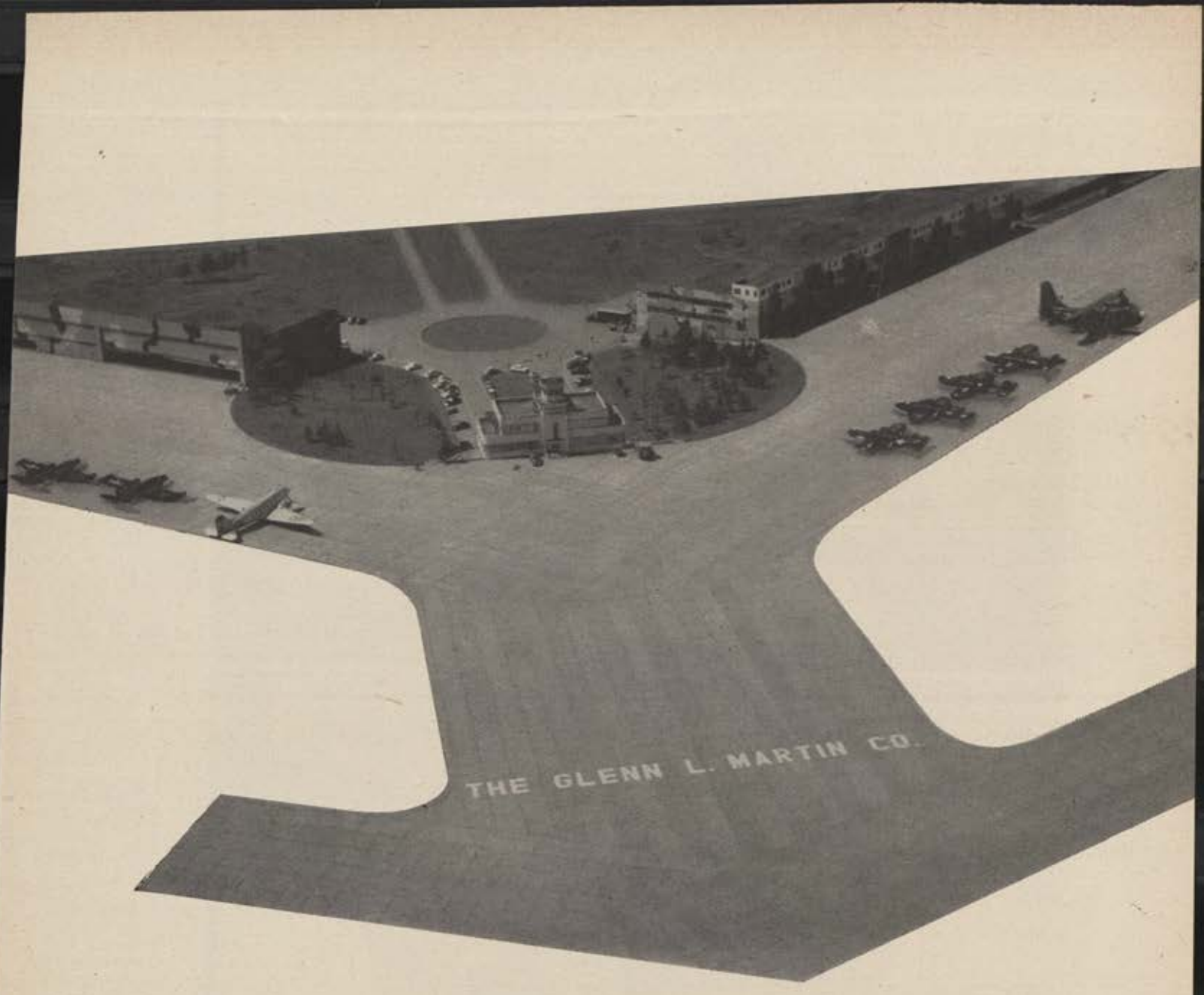
■ "By his unending efforts to promote civil and military aviation interest, he rendered a service to the United States of America deserving of the highest recognition." This was the citation given to **Harry K. Coffey** last year as he received the Exceptional Civilian Service Award from then Assistant AF Secretary H. Lee White. On June 15, Coffey, Board Chairman and past President of the National Aeronautic Association, was killed when a Beech Bonanza he was piloting crashed into a mountain peak near Hood River, Ore. Coffey made his first solo in 1914. He is credited with being a founder of the Civil Air Patrol, in which he held the rank of colonel.

■ Thirty Air Force majors and lieutenant colonels will be trained for important management posts through a new program beginning at **George Washington University,** Washington, D. C., on August 2. The one-year **Air Force Advanced Management program** will lead to a master's degree in business administration. The courses will include managerial accounting, budget formulation, advanced management, management engineering, industrial economics, personnel management, and statistics. The new program is the third that has been developed by the University's School of Government.

■ The USAF has announced that construction of the first **two air bases** to be used jointly by **Spain** and the United States will begin in September. One will be constructed near Madrid—the other near Zaragoza.

■ An object described as a **"flying jellyfish"** and six smaller objects were sighted by the crew of a British airliner on a recent flight over the Atlantic. The captain of the **BOAC Stratocruiser** said the objects followed the plane for eighty miles. He described the larger object as "sometimes wedge-shaped, sometimes like a dumbbell, and sometimes like a sphere with a tail-like projection." The six smaller objects darted around it. All

(Continued on page 17)



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ten members of the crew and those of the passengers awake at the time agreed with the captain's description.

■ The **United States Armed Forces Institute** celebrated its twelfth anniversary on June 16 at Madison, Wis. First established in 1942 as the Army Institute, the name was changed to USAFI when Navy personnel began using its facilities. The Institute relies heavily on civilian educators, offers more than 350 courses to service men and women all over the world, and has more than 22,000 course enrollments each month.

■ The **new Japanese Army, Navy, and Air Force** became official on July 1. Officials in Japan reported that the rush among young men of military age to enlist was so great that the recruiting stations could not handle the load. Some 70,000 youths have tried to get into the Army since January 1, and only 20,000 can be accepted under the present set-up. The Navy reported that they had applications from more than five times the 4,500 they can accept. The Air Force has not yet started recruiting.

■ In March, the **1st Pilotless Bomber Squadron** of the Tactical Air Command was sent to Bitburg, Germany. A second guided missile unit, the 69th, is now training at Patrick AFB, Fla., and will go to Europe later this year. The squadrons, composed of fifty-three officers and 543 airmen each, use the Martin B-61.

For Europe later this year, a second B-61 Matador unit.

■ AWARDS . . . Two well-known Mach-busters have received the **Harmon International Trophies for 1954.** The awards this year go to USAF **Maj. Charles E. "Chuck" Yeager** and **Miss Jacqueline Cochran.** Major Yeager receives the trophy for his record flight last December 12 in the rocket-powered **Bell X-1A** at Edwards AFB, Calif., when he flew more than 1,600 mph. This was a little more than five years after Yeager became the first man to break the sound barrier, also flying a Bell aircraft. That was on October 14, 1947, when he piloted the **Bell X-1,** now on display in Washington, D. C.'s National Air Museum. For his flight in the X-1A, Major Yeager has also received a **Distinguished Service Medal** from the Air Force for his "skill and daring" during the record run. He is a veteran of thirteen years in the AF and had twelve enemy planes to his credit in Europe in World War II.

Miss Cochran's Harmon Trophy is in recognition of her being the **first woman to break the sound barrier.** She cracked Mach one May 18, 1953, flying an F-86 Sabrejet around a 100-km. course at Muroc Lake, Calif., at 652 mph. She is the wife of financier Floyd Odlum.

The highest Air Force civilian award, the decoration for **Exceptional Civilian Service,** was presented to **John A. Watts,** Director of Civilian Personnel, USAF, by Lt. Gen. Emmett O'Donnell, Jr., DCS, Personnel, in June. AF Secretary Harold E. Talbott said that Mr. Watts' efforts had produced a personnel program which is recognized as outstanding.

In June, **Gen. Edwin W. Rawlings,** AMC Commander, was awarded the **Soldier's Medal** for heroism after rescuing an injured pilot from a burning plane in which the general was a passenger at Wright-Patterson AFB. The rescued pilot, Maj. James A. Stephenson, was injured when he jumped from the burning plane onto the concrete runway. Three members of the plane's crew were also awarded the Soldier's Medal for their parts in the rescue.

A **personal commendation** was presented to **S/Sgt. Joseph E. Chichanowicz** by Col. J. C. Bailey, Commander, Iceland Air Defense Force, for the sergeant's actions in helping avert "what could have been a major tragedy." The sergeant was the first man to arrive at the scene of a fire that threatened a commercial airliner at Keflavik Airport, Iceland. He disregarded his own safety in his efforts to extinguish the blaze that threatened the seventy-one persons aboard.

George E. Cooper, chief aeronautical research pilot of NACA's Ames Aeronautical Laboratory, Moffett Field, Calif., will receive the **Octave Chanute Award** for 1954. The citation recognized Mr. Cooper's "outstanding piloting and research at transonic and supersonic speeds resulting in increased understanding of transonic airflows and problems of stability, control, and buffeting." The award is presented each year by the Institute of Aeronautical Sciences to a pilot who has made a notable contribution to the aeronautical sciences.

The American Helicopter Society has presented the **Capt. William J. Kossler Award** to the **US Navy** for "Antisubmarine Warfare Operations during 1953." The award was given to the Navy for leading in the development and use of rotary-wing aircraft for the detection and destruction of underwater craft. It is awarded each year for the "greatest achievement in practical application or operation of rotary-wing aircraft, the value of which has been demonstrated in actual service during the preceding year."

The **Dr. Alexander Klemin Award** has been presented, also by the American Helicopter Society, to **Michael Gluhareff,** chief engineer of Sikorsky Aircraft, for "notable achievement in the advancement of rotary-wing aeronautics."

■ STAFF CHANGES . . . In July **Brig. Gen. William P. Nuckols** left his post as chief information officer at NATO headquarters in France to take command of ADC's 33d Air Division, with headquarters at Tinker AFB, Okla. There he replaces **Brig. Gen. Romulus W. Puryear,** who now succeeds **Brig. Gen. T. Alan Bennett** as commander of the 25th Air Division at McChord AFB, Wash. . . . Also last month, **Brig. Gen. C. Pratt Brown** became Assistant Deputy Chief of Staff for Air Installations at Hq. USAF. He succeeds **Brig. Gen. Stanley T. Wray** who becomes Warner Robins, Ga., AMA Deputy Commander. General Brown's successor as AMC Assistant for Programming is **Brig. Gen. Frederick H. Miller, Jr. Brig. Gen. Ben I. Funk** has replaced General Miller as AMC Inspector General . . . **Brig. Gen. C. H. Mitchell** has taken over AMC's Procurement Division from Brig. Gen. William P. Farnsworth. **Maj. Gen. Lewis R. Parker,** head of AMC's Directorate of Supply and Services, has been replaced by his former deputy, **Brig. Gen. Frederick J. Dau. Col. T. W. Scott** is the new deputy . . . **Brig. Gen. Leo P. Dahl** has been chosen to head a new Air Materiel Area in Spain . . . At Hq., USAF, **Col. William L. Rogers** has replaced **Brig. Gen. Lewis L. Mundell** as Assistant for Development Programming . . . **Brig. Gen. B. S. Kelsey** becomes Director of Research and Development, replacing **Maj. Gen. Donald N. Yates . . . Col. J. P. Newberry** has succeeded **Brig. Gen. William T. Hudnell** as Assistant for Logistics Plans . . . **Maj. Gen. Glenn O. Barcus** has left his post as Vice Commander of ATRC to replace **Lt. Gen. Charles T. Myers** as Commander of the Northeast Air Command. General Myers is the new commander of ATRC, replacing Lt. Gen. Robert W. Harper, who retired June 30 (see AIR FORCE, July '54).—END

Report on a Conference . . .

Partners In Airpower

How Air Force Association's Industrial Associates are pitching in on a problem which, if not solved, may well prove to be the Achilles' heel of our modern Air Force

TO READERS of this magazine there is no need to reiterate the scope of the Air Force's manpower problem. In editorials and articles (see page 21), we have spelled it out many times in recent months.

Simply stated, the Air Force is losing its trained and experienced men faster than it can supply trained and experienced replacements. In the fiscal year which began last month, Air Force recruiters must induce some 200,000 young men to volunteer for duty with the Air Force.

This is a big order. Congress has held the Air Force recruiting funds far below the minimum required for the task. The Defense Department has insisted that Air Force recruiting be conducted jointly with the Army.

Now, at a late hour, the Defense Department has finally agreed to an independent recruiting program for the Air Force, and Congress has increased the money available to the Air Force for recruiting purposes. Both are forward steps. However, it will take some time before the Air Force will be geared up for an all-out recruiting drive, and the money available is still only a drop in the bucket when weighed against the requirement.

The problem—both immediate and long-range—deserves the attention of the professional civilian as well as the professional military man. To a large degree this Air Force dilemma calls for a selling job. Not wild super-salesmanship, but a search for ways to bring the defense requirements and the Air Force story closer to the youngsters and the families of the nation.

With these sober thoughts in mind, the Air Force Association invited representatives of aviation and allied industries to attend an Air Force manpower conference in the Pentagon on June 22.

This conference was one phase of the Industrial Associate program of the Air Force Association. At present, 107 companies are affiliated with AFA as Industrial Associates. They serve as co-sponsors of AFA's annual national Convention and Air Force Reunion (see pages 50 and 51). They help make possible the Association's many projects in aviation education. The Association publishes special reports exclusively for its Industrial Associates to help keep them abreast of the ever-changing structure and composition of the Air Force.

The slogan of the program is "Partners in Airpower," and AFA's Industrial Associates are truly that. Of all the companies engaged in making the tools for our air establishment, they are the ones which actively support public understanding of airpower through their affiliation with the Air Force Association (a list of Industrial Associates is available upon request).

The response of these companies to AFA's call for participation in the Air Force manpower problem was typical of their interest in airpower. At the day-long Pentagon conference, there were ninety-six companies represented.

Air Force spokesmen who briefed the group included H. Lee White, then Ass't AF Secretary for Management; Gen. Nathan F. Twining, Chief of Staff; Lt. Gen. Emmett O'Donnell, Deputy Chief of Staff for Personnel; and Maj. Gen. Glenn O. Barcus, then Vice Commander of the Air Training Command. General Twining stayed with the conferees during the entire morning session and then served as host at a luncheon at the Army-Navy Country Club, near the Pentagon. That night at a reception and dinner given the conferees by the Association in downtown Washington, Gen. Thomas D. White, Air Force Vice Chief of Staff, made the principal remarks.

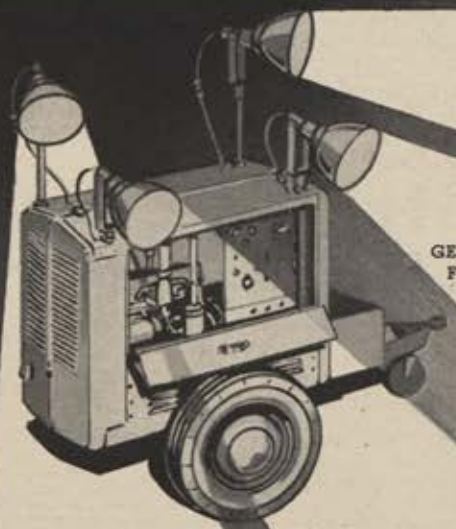
On hand to represent AFA were President George C. Kenney and past Presidents Jimmy Doolittle, Harold Stuart, Tom Lanphier, and C. R. Smith. Mr. Smith served as moderator of the conference and toastmaster at the dinner meeting.

It was the Air Force Association's mission to bring industry and the Air Force together, in the proper setting, to analyze the manpower problem for possible corrective action. We are proud to report "Mission Accomplished." Concerning the brand new Air Force recruiting program which he heads, Brig. Gen. Arno Luehman has reported: "We are now in business, thanks to the Air Force Association, and I am already getting a wealth of assistance from the industry people who met with us in Washington. Your efforts in our behalf will become more and more evident as time goes on."

A number of companies will sponsor public service advertising, featuring Air Force recruiting themes, in newspapers and magazines. Some estimates indicate that as much as $5 million worth of advertising will be made available for this purpose. In addition, companies are making available billboard advertising, spot announcements on radio and television, and aviation exhibits—all to help solve the Air Force manpower dilemma.

Equally important, over the long haul, will be the wealth of professional advice available to the Air Force. As the first step in this direction it was decided at the conference to form a national advisory committee, made up primarily of industry representatives, to assist the Air Force in its recruiting problems. Regional advisory groups may also be formed.

We take this opportunity to salute industry for its response to our call for help on a problem which, if not solved, may well prove to be the Achilles' heel of our modern Air Force. The Air Force Association has long been proud of its Industrial Associates. That pride is well founded.—END



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AN EXCLUSIVE REPORT

Red Pilots

never had it so good

By John F. Loosbrock

TONIGHT, any night, many an Air Force officer will be lying awake in the wee, small hours—weighing the pros and cons, trying to decide whether to write that long-debated letter of resignation. Halfway across the world his opposite number in the Soviet Air Force has no such worries. If the Red pilot is losing sleep, chances are he's worrying for fear that, for one reason or another, he may be forced to return to civilian life.

The unhappy truth is that the average USAF pilot is a second-class citizen in our economy—in terms of pay, benefits, and prestige, as compared with what he would be able to do on the "outside." His Russian counterpart, on the other hand, literally never had it so good.

The difference in the relative status of these two men is worth the careful thought and attention of Americans and their legislators. It can well mean the difference between survival and extinction in an age of total peril.

The facts on the United States Air Force's manpower situation are gradually becoming well-known. People are leaving the service in droves and it will cost better than $2 billion of the taxpayers' money during the current fiscal year to replace them (AIR FORCE, July '54). Hence, it is a little more than pertinent to take a hard look at how the Soviet Union treats its pilots.

The Russian Air Force has no manpower problem. In the Soviet Union the average civilian wishes he could get in the Air Force. So do a majority of the officers in the Red Army and Navy. And the greatest fear of the Soviet pilot is that he might be demobilized.

(Continued on following page)

The reason for this contrast in attitudes toward military service—and Air Force service in particular—is a simple one. In Russia you're much better off in any of the services than you would be in civilian life, by any standards—pay, prestige, food, housing, clothing, medical care. It is no sacrifice to follow a military career under the Red banner. Rather, it is considered a privilege. And within the Soviet military structure, the Air Force is top dog—the élite corps. And it is treated as such.

Let's look at some examples:

A Russian Army captain, married, with ten years' service, draws the equivalent of $231.75 a month. This includes base pay of $175, longevity pay of $26.25, and so-called "position pay" (which varies according to the kind of duty) of $12.50.

In the Red Air Force he'd get $765

If the same captain were lucky enough to be a flight leader in the Red Air Force, his pay envelope would be more than three times as fat—$765. He would draw the same base pay—$175. But his longevity plus flying pay would net him $90. His job as a flight leader would entitle him to $425 a month "position pay," as a first pilot he'd pull another $50, and other allowances would total another $25.

In contrast, a US Air Force captain, a flight leader, married, with ten years' service, draws a total of $655.80 each month from the treasury of the richest nation in the history of mankind. That's $110 less than his Russian counterpart.

His base pay is higher—$326.04. Longevity brings in another $59.28 monthly. Rental allowance is $102.60. Subsistence adds up to $47.88. And he gets $120 a month flying pay. This last sum makes the only differential between his pay and that of his US Army brother, and most married pilots pour their flying pay into insurance premiums.

Fringe benefits boost a Red pilot's pay

And that isn't the half of it. The Red pilot's fringe benefits add up to a good deal more than the cash he receives. His food doesn't cost him one thin ruble. Neither do his uniforms. His cigarettes are free. Each month he draws vouchers that allow him a fifty percent discount at civilian stores and restaurants. Most important of all, he has access to goods that the civilian populace can't touch with love or money, things that are either rationed to civilians or denied them altogether, like good-quality shoes. And he pays no income tax.

The USAF pilot pays for his food out of his subsistence money. The savings he used to be able to make through buying at base exchanges are either gone by the board or so watered down that it's scarcely worth the trouble. He pays full price at civilian stores and restaurants. And he pays taxes on his income to help foot the bill for his own services. Even the puny $1,500 tax deduction formerly allowed to servicemen is now ancient history.

What does all this mean? The answer is not complex. The American pilot has a great many reasons for wanting to leave the service. The Red pilot has even more reasons for wanting to stay in.

The foregoing information and that which follows has been pieced together from interviews with former Red pilots—men who chose freedom in preference to fringe benefits—plus additional bits of data which filter through the cracks in the Iron Curtain. That these men did not stay in Russia is indicative that there are many things on which a price tag cannot be placed. But the information they provide indicates as well that some of our own price tags may be too low. The information is fragmentary at best. But there is enough to give the broad outlines.

Clothing allowance is overly generous

In Russia the Air Force pilot is a man apart. He is idolized, almost coddled. The press, the radio, the motion picture scripts refer to him as "our hero," the "Stalinist falcon." (This latter phrase has undoubtedly undergone a slight change in nomenclature since these data were collected.) His rations are not only free, they are the best to be had. His clothing is not only much finer quality than a civilian can buy, it also is better and more plentiful than the uniforms of the Soviet Army and Navy. One Red Air Force officer said his clothing allowance was so generous that he got new clothes faster than he could wear out the old ones. An average clothing issue consists of one overcoat and a jacket every two years, a pair of trousers every year, a pair of boots every eight months, plus shirts, underwear, and socks.

Civilians feel the AF earns its privileges

Strangely enough, civilians and men in the Army and Navy don't seem to resent the preferential treatment given the Air Force. They feel these privileges are justly earned, by virtue of the extra risks the flyers take, and the exacting physical and mental tests they must pass before they are accepted for flying training.

As the Air Force is the élite of the Russian military services, the pilot is top dog in the Air Force. Non-flying officers rank a couple of notches down in all respects—pay, privilege, benefits, and prestige. But still they are much better off than officers in the surface forces. The same is true generally of Air Force non-coms and lower-ranking enlisted men, although not to as great a degree.

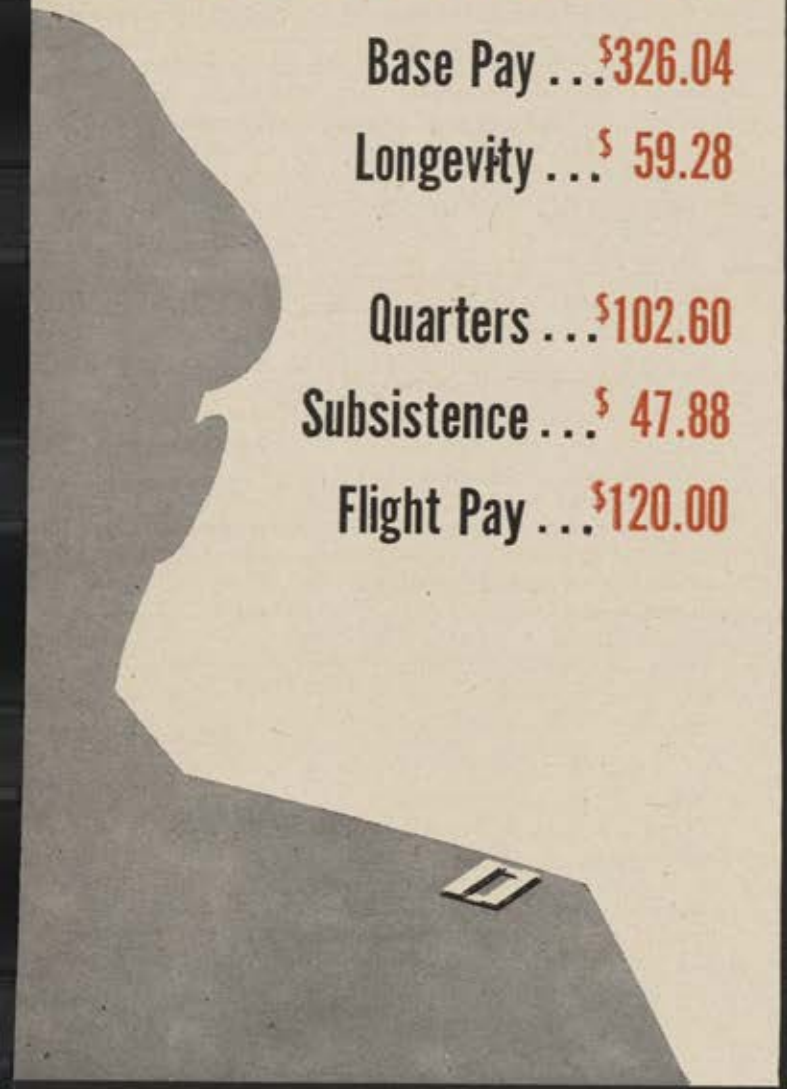
Discipline is tough. An error in judgment that, in the American Air Force might result in a reprimand or possibly a transfer, would send the Russian offender packing off to Siberia. Initiative is applauded and rewarded—but only if it produces successful results.

Red AF internal relations are good

At the same time relations between superiors and subordinates are much more friendly in the Air Force than in the other Soviet services. This is true both in senior officer-junior officer relationships and in officer-enlisted man dealings. And among officers of the same rank there is extremely high esprit de corps.

An interesting sidelight on the pampering of the Soviet pilot by his non-flying comrades is told by a Red flyer who visited an American air base in Italy during World War II. Describing his experiences in an article in a Russian magazine, the Red officer grumbled because he,

(Continued on page 24)



$655.80

Base Pay . . . $326.04

Longevity . . . $ 59.28

Quarters . . . $102.60

Subsistence . . . $ 47.88

Flight Pay . . . $120.00

$765.00

Base Pay . . . $175.00

Longevity . . . $ 90.00
(AND FLIGHT PAY)

Position Pay . . . $425.00
(FLIGHT LEADER)

First Pilot . . . $ 50.00

Other Allowances . . . $ 25.00

PLUS

★ *Free Food Ration, Cigarettes, and Uniforms*

★ *Monthly Vouchers for 50 Percent Discount at Stores and Restaurants*

★ *No Income Tax*

PAY AND BENEFITS

USAF PILOT | **SOVIET PILOT**

The above figures, in both cases, are based on the pay and allowances of a captain, who is a jet pilot and flight leader with ten years' service.

along with his American hosts, had to stand in line for chow. He went on to say:

"The memory of our Soviet airfield service came to mind, the memory of people who, with loving care, were anxious to bring us pilots and navigators everything from a glass of hot tea in the winter to cold kvass* in the summer, brought straight to the plane. . . . I felt guilty for the reproaches I and my comrades had at times addressed to our Soviet personnel, thinking their service poor. . . . I was amazed, having heard so much about the famed American service, that US officers were so badly looked after."

Another factor which is conducive to high morale in the Red Air Force is the practice of paying a man for the job he is doing, regardless of rank. For example, a capable officer may be picked for a command position in which some of his subordinates outrank him. Such selections are usually based on one or a combination of the following —flying skill, technical knowledge, or administrative ability. During this kind of assignment, the officer is paid commensurately with the status of the job, irrespective of what his rank might be.

In wartime, the Reds allowed no leaves

The leave policy in the Red Air Force evidently is not much of a problem, yet it is one more indication of why the Air Force life in Russia is preferable to any other kind of existence there. On paper, leave provisions are generous. In practice, an officer seldom gets, or wants all the leave to which he is entitled. And wartime practice is to allow no leaves at all. At least this was true during World War II. However, this was not the blow to a Red airman that it would be to an American. The Red pilots figured that a trip home was scarcely worth while, since rations were scarcer and poorer there than at the front. And civilians were working around-the-clock anyhow. The flyers could have more fun at the base than on leave.

An indication of the Russian attitude toward strong drink is found in the fact that the Red Air Force officer's ration includes 100 grams of vodka daily. That's about a pint and a quarter, a fairly high specific fuel consumption. The men who don't drink save their ration and sell it to those who do. Although drinking is thus at least semi-officially encouraged, a man must watch his step. The story is told of one plane crash in which the entire crew was found to have been drinking heavily before take-off. The survivors found themselves curing their hangovers with the Red version of a large, economy-size ice bag—Siberia. Excessive drunkenness is watched carefully as an index of morale. The lower the morale of an outfit, the more vodka is consumed.

Benefits for Red pilots' families are few

Perhaps the sorest point, morale-wise, among the Red flyers, is the fact that a pilot's family doesn't necessarily share in all his luxuries. His clothing allowance pertains only to his uniforms. His wife and children must take their chances in the civilian market. The same is true of food and, to a lesser degree, of housing. But the fact remains, even if a Soviet pilot's family is not living as well as he is, they stand several notches above the standard of living of the population in general.

On the question of medical care in the Soviet Air Force the testimony is mixed. Like a great many things in our own service, the quality seems to depend a good deal on where you are stationed. But it may be inferred that medical care for flyers is always as good as possible under a given set of circumstances. Like the US Air Force, the Reds look upon aviation as posing specific medical problems, and Air Force doctors get special training in aviation medicine. Again, medical care in the Soviet Air Force may not be the best in the world, but it always is the best available and better than in the surface forces or in civilian life.

A Red pilot can't resign his commission

It is a good thing for a Red pilot that he is well-treated, for it is impossible for him to resign his commission. And it is not easy to retire until he has lost all usefulness to the service. Retirement pensions for high-ranking officers are comparatively generous, although few are allowed to take advantage of them. When a high-ranking officer is relieved of his command, he usually disappears.

Junior officers' pensions are a pittance. As a result, a low-ranking pilot lives in fear of a crippling crack-up that would result in his being invalided out of the service. Here the heartlessness of the materialistic state catches up with him. His pension is not nearly enough to live on in the civilian economy. He has nothing to contribute to society, so society owes him nothing in return. It is not uncommon to find crippled ex-Air Force officers begging on the Russian streets, wearing their medals.

By the same token, a Red Air Force officer fears demobilization for any reason. A reduction in force in Russia is a major tragedy for the individual concerned. His cash income is automatically cut two-thirds, his fringe benefits are gone, and he must adjust his standards of living radically downward to the civilian level. As long as you're in, you're a king. Once you're out, you're forgotten.

It's a good deal—if you're a Russian

Thus, life in the Red Air Force isn't all peaches and cream. But it is infinitely better than any other kind of life in Russia, with the possible exception of that of top Communist Party officials. Certainly, the Red pilot occupies a much higher niche in his own society than a USAF pilot does in his. Not that the American would want to trade places. This isn't a recruiting brochure for Malenkov. What is important and basic is the difference in attitudes.

The Russians are nothing if not a practical people. Shy on sentiment, perhaps, but realistic. Their treatment of their airmen can scarcely be attributed to altruistic motives. Rather is shows a keen awareness of the need for maintaining top quality and high morale in their key military service. If the Red Air Force is pampered, it is because Russian leaders realize that it pays.

Few USAF personnel would want their standard of living to bear the same relation to our civilian economy that the Red Air Force's does in Russia. Democracy doesn't operate that way. But at least an even break doesn't seem too much to ask. If the reasons for staying in the US Air Force only counterbalanced the reasons for getting out, we'd be way ahead of the game.—END

*A thin, sour Russian beer, commonly made by pouring warm water on rye or barley and letting it ferment.

A Milestone for American Airpower

New Air Academy

A 15,100-acre site near Colorado Springs will be transformed into an Academy to train AF officers

A view of Colorado Springs taken from one of the nearby mountains. The sprawling town is at an altitude of 5,900 feet. The site was described by Secretary Talbott as "admirable for the development of the new Academy."

AF Secretary Talbott points to site he picked for Air Academy.

THE five-year effort to provide the nation with an Air Force Academy similar to the Army's West Point and Navy's Annapolis was climaxed on June 24 with the selection of a site for its construction near Colorado Springs, Colo. AF Secretary Harold E. Talbott made the choice after considering three sites recommended by a selection board (see "Airpower in the News," July '54). The 15,000-acre site of the new Academy is in El Paso County, Colo., six miles north of Colorado Springs and sixty miles south of Denver. Now mostly ranchland, the area ranges in altitude from 6,400 to 7,500 feet, and is in a four-seasonal climate with moderate winters and cool summers. The Air Force has announced that a temporary Academy will be established at Lowry AFB near Denver to accommodate the first class of 300 cadets beginning in July 1955 (see "Airpower in the News," May '54).

The new Academy is expected to become a national showplace on a par with West Point and Annapolis. Shortly after the AF announcement, Frank Lloyd Wright said that he intended to fly to Colorado Springs to look over the new site. Wright is collaborating with one of a number of architectural-engineering groups under consideration by the Air Force to design and build the $126-million project. The 85-year-old dean of American architecture did not comment on the Academies at West Point and Annapolis but believes that the Air Force Academy should be "functional and an integral part of its surroundings." No announcement has yet been made concerning on what basis contracts will be given. The first Superintendent of the Air Academy, though not officially named yet, is expected to be 62-year-old Lt. Gen. Hubert R. Harmon who was recalled to active duty last fall as Special Assistant to the USAF C/S for Air Academy matters. He's a former commandant of the old "West Point of the Air" at Kelly Field, Tex.—END

Gen. Benjamin Chidlaw, ADC Commander, center, congratulates local leaders instrumental in bringing the Academy to Colorado. Prominent in the campaign were, from left, Charles Tutt, Russell Law, AFA Regional Vice President Thayer Tutt, Lt. Gen. O. W. Griswold (ret.), and H. Chase Stone.

—Wide World Photos

Heart of any gunnery meet is the scoreboard, where competing individuals and teams tell at a glance who's breathing down their necks on total points.

Shootin' Match!

Air Training Command marksmen top sharpshooters from 7 other major commands in USAF's first all-jet gunnery meet

AIR marksmen from all over the world, at Nellis AFB, Nev., in June for the USAF's first all-jet gunnery meet, saw ATRC's team win top honors and the Vandenberg Trophy. ATRC's 3,153 points were 398 more than the next team's, SAC's 508th Strategic Fighter Wing. The FEAF team won third. USAFE's England-based 20th F-B Wing placed first in the special delivery competition, a new category. Runner-up was the Korea-based 49th F-B Wing. Individual honors in special delivery went to two men of the 20th, Col. John A. Dunning (high team captain) and Maj. John Kropenick (low-angle bombing, strafing, and high and dive bombing). ATRC's Col. George L. Jones was high team captain in day fighter competition, while another ATRC man, Capt. Charles C. Carr, was over-all high man in this category. Other winners: air-to-air, Korean jet ace Maj. William H. Wescott, ATRC; air-to-ground, Lt. Robert D. Williams, SAC; air-to-ground, high-angle rocketry and dive bombing, Capt. Claire O. Chennault, TAC; and air-to-ground, low-angle skip bombing and strafing, Lt. Col. Roland R. Wright, ANG.—END

Members of the USAFE team check local chart to figure best target approach.

One of the jets ready to receive its .50 caliber ammo before the shooting starts.

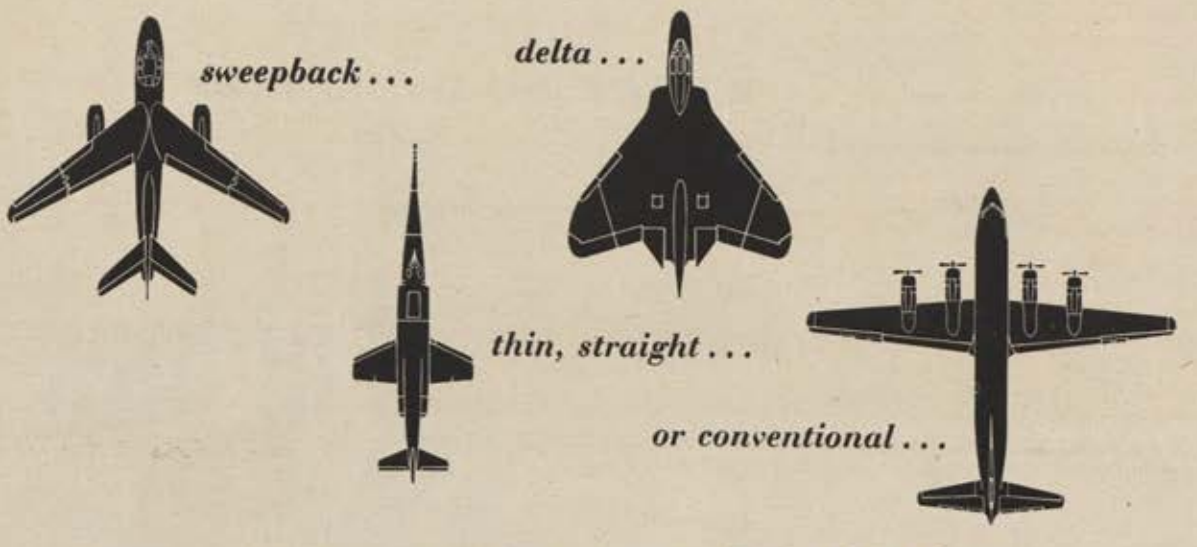
ATRC team members taxi their Sabres out to the runway to take off for the target area.

The Hoyt S. Vandenberg trophy, center, went to ATRC for high over-all scoring.

Official scorers tally the number of hits on one of the 10′ by 10′ strafing targets.

Sabrejets leave smoke and fire in their wake as they pull away from the target.

Name any type of modern wing



it has been built and flown by DOUGLAS

What is the ideal wing planform? Obviously, there can be no all-inclusive answer, for wings—like power plant or size—are designed to meet certain specific tactical requirements.

Thus a sweptback modified delta lets the Douglas F4D Skyray, first carrier plane to hold the official world speed record, come in *slow* for carrier landings. The broad conventional wings of a Douglas C-118A Liftmaster contribute to the range and lift a cargo carrier needs—while the Navy's carrier-based A3D Skywarrior bomber flies at near-sonic speed on sleek, tapering, sweptback wings. Again, the experimental stiletto-shaped Douglas X-3—though bigger than a DC-3 transport—has a wingspan smaller than a DC-3's tail.

Correct design of airframes to meet intended use contributes to Douglas aviation leadership. Building planes to fly farther and faster with a bigger payload is a basic Douglas concept.

Enlist to fly in the U. S. Air Force

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WHERE DO WE STAND?

Engines . . .

IN ITS present state, and even considering the improvements possible when adapting the higher temperatures proposed for the immediate future, the gas turbine could hardly be considered a feasible application to airplanes mainly because of the difficulty in complying with the stringent weight requirements imposed by aeronautics.

"The present internal-combustion-engine equipment used in airplanes weighs about 1.1 pounds per horsepower, and to approach such a figure with a gas turbine seems beyond the realm of possibility with existing materials. The minimum weight for gas turbines even when taking advantage of higher temperatures appears to be approximately thirteen to fifteen pounds per horsepower."

The foregoing, two-paragraph evaluation was made in June 1940 in an official report submitted to the Secretary of the Navy by a special gas turbine committee, composed of six outstanding scientists and engineers, appointed by the National Academy of Sciences.

Obviously, these men were not aware that both Britain and Germany had been actively engaged in aircraft gas turbine work since 1935, and that Frank Whittle's patent dated back to 1930. Further, they could not have known that the world's first turbojet flight had been made a year before, in August 1939, in Germany. Soon after the above report was published, the British accomplished turbojet flight, in May 1941.

Both the British and the Germans early recognized the potentialities of the gas turbine, and work progressed in parallel, but completely independently and without knowledge of the efforts of the other country. In the United States, however, views such as those officially expressed above were prevalent. A Wright Field report of the middle 1930s said that there was no hope of attaining satisfactory efficiencies in an aircraft gas turbine until turbine bucket materials were found which could withstand temperatures of 2,500° F. We are still looking for that material.

In most of the early evaluations of the gas turbine in this country the aircraft speeds considered were those currently attainable with reciprocating engines, around 250 to 300 mph. At these low speeds it is quite true that the turbojet is not competitive with the reciprocating engine and propeller. What was not seen in proper prospective was that the efficiency of a turbojet increases with flight speed, and that the thrusts available at 400 to 500 mph, and higher, are equal to or greater than static thrust. While the efficiency of a conventional propeller begins to fall off at these speeds, the turbojet is just becoming really efficient.

The great potential of vast increases in speed made possible with the gas turbine—an entire new realm of flight—was not realized by the US until others had done the pioneering.

The first turbojet flight of the Germans in 1939 was made in a Heinkel HE-178 airplane with an HeS3b engine, developing 1,100 pounds of thrust with a specific weight of .74 pounds weight per pound of thrust and a specific fuel consumption of 1.6 pounds of fuel per hour per pound of thrust.

The vital statistics on the Whittle W-1 engine, flown in 1941 in the E 28/39 airplane are: 850 pounds of thrust, specific weight of .73, and specific fuel consumption of 1.4.

Certainly these engines were primitive in the light of later developments, but they were the first to fly. And they opened the door to hitherto undreamed-of empires of flight.

Now, to what point had the state of the art in propulsion progressed by the end of World War II? We find that, although the Germans were vanquished, it was not for lack of technical ability, for they were extremely well advanced in the fields of high-speed propulsion and aerodynamics.

By the end of the war the Germans had the ME-262 in combat, powered by the Junkers JUMO 004 turbojet of 2,000 pounds thrust, while the British placed the Meteor in service with the 1,700-pound-thrust Welland. And late in 1945, the Meteor IV flew with two special Derwents, each of 4,000 pounds thrust.

In addition to the JUMO 004, which was the only German turbojet in service in the war, several other turbojets were in various stages of design and development—BMW 003, Heinkel 011, BMW 018, and Junkers 012. There were several turboprops in develop-

Where are we going?

We have come a long way in fifteen years in the propulsion field and even more fantastic horizons lie ahead of us

By Robert Gates

ment—BMW 028 with 12,000 horsepower, and Daimler-Benz 021 with 4,000 horsepower, at 500 mph and 25,000 feet. Further, the Germans had conducted high-speed propeller tests, and had done some work in high-temperature alloys, ceramic turbine blades, and cooled turbine blades. Tail pipe burning had been used on the JUMO 004, experiments had been carried out with liquid injection, and most German turbojets had adjustable tail cones.

In addition to the Welland and Derwent, the British were developing the Goblin, F-2, and Nene. These engines, with the exception of the F-2, had centrifugal compressors, whereas the Germans had gone to the axial design. Some design work had begun on British turboprops, such as the Theseus. The British engines were in general lighter than the German designs and had lower fuel consumption.

In spite of almost being left at the post, there were several active gas turbine projects in the United States by the end of the war. In the turbojet field, we had the General Electric I-16 (based on the Whittle engine, the importation of which was initiated and personally managed by Gen. Hap Arnold), the larger G.E. (later Allison) I-40 (J-33), G.E. and Allison TG-180 (J-35), and the Lockheed XJ-37. Of these, the latter two had the potentially more efficient and higher pressure ratio axial compressors. Turboprop projects underway included the G.E. TG-100, the Pratt & Whitney PT-1, and the Northrop Turbodyne.

In the years after the war gas turbines became a big business in both Britain and the US. Engines continued to increase in size and power output. Extensive research was improving compressors, combustion, turbines, and accessories. New methods of design and manufacture permitted lower specific weight. With these advances, engines also were becoming more complex. Water injection, afterburner, inlet screens, de-icing provisions, and elaborate controls added to the complication and cost of engines.

The race was on—both among engine manufacturers, and between Britain and America. Within the US, the contenders were Allison, General Electric, Pratt & Whitney, Westinghouse, and Wright. The chief British firms were Rolls-Royce, Armstrong-Siddeley, Bristol, de Havilland, and Napier.

The importance of test facilities was realized—both for component development and for full-scale engine test. In the United States, the NACA Lewis Flight Propulsion Laboratory at Cleveland tackled basic research on the aerodynamics, thermodynamics, and structures of gas turbines. Similar work was underway at the National Gas Turbine Establishment in England. The engine companies set up development and test facilities on their premises, outstanding among these being the Wilgoos Laboratory at Pratt & Whitney. Because of the extremely high cost and power requirements of such facilities, the Air Force undertook to provide centralized facilities at the Arnold Engineering Development Center, to serve industry's development problems and to make possible USAF evaluation testing.

The table below indicates how far we have come in turbojet progress since the first German and British successes. By the end of World War II, engines of 4,000 pounds of thrust were in operation with significant decreases in engine weight and fuel consumption. In the nine years since then, engines of some 10,000 pounds thrust have come into operation, with further increases in structural and aerothermodynamic efficiency. Instead of the "minimum weight of thirteen to fifteen pounds per horsepower," turboprops were in operation developing one horsepower for each 0.4 pounds of weight. The experts were off by a factor of about thirty-five!

But has the gas turbine really progressed to a high degree of refinement? It is good, yes, in the light of the advances that have been made since 1940. But what about possible future advances? Future technology may provide us with engines which will render the Pratt & Whitney J-57 and the Rolls-Royce Avon as primitive as the Heinkel HeS3b now appears from today's vantage point.

One area promising significant improvement in gas turbine performance is that of increased turbine inlet tem-

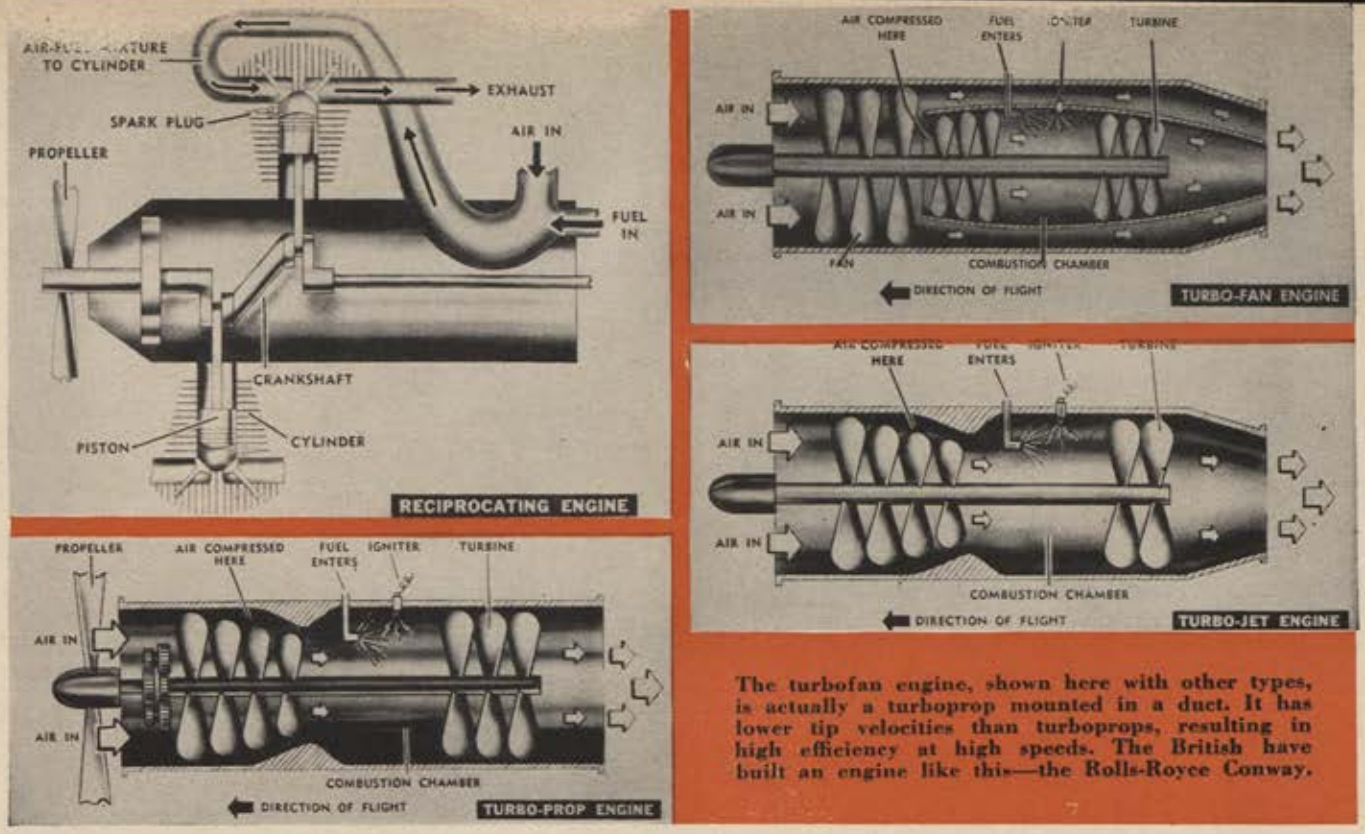
(Continued on following page)

SERVICE TURBOJETS

	1940			1945			1954*		
	Thrust	Sp. Wt.	SFC†	Thrust	Sp. Wt.	SFC	Thrust	Sp. Wt.	SFC
GERMANY	1100	.74	1.6	2000	.90	1.25	—	—	—
GREAT BRITAIN	850	.73	1.4	4000	.35	1.00	8300-9500	.30	.90 and lower
UNITED STATES	—	—	—	4000	.45	1.18	7200-10,000	.35-.40	.90 and lower

† Specific fuel consumption

* Composite values



The turbofan engine, shown here with other types, is actually a turboprop mounted in a duct. It has lower tip velocities than turboprops, resulting in high efficiency at high speeds. The British have built an engine like this—the Rolls-Royce Conway.

ENGINES — CONTINUED

peratures. Consider flight at supersonic speeds at which the high airplane drag requires large thrusts. To get these high thrusts afterburners are used, because, at present turbine temperatures, the size of a non-afterburning engine would have to be tremendous to provide the required thrust. However, if the turbine temperature can be increased appreciably over current values, thrusts presently achieved only with afterburners can be approached with non-afterburning engines, at a large increase in over-all efficiency—fifty percent or more above present values. This would have a direct effect on the range obtained with a given amount of fuel.

The barrier to higher and higher turbine temperatures consists of a materials problem. By the end of World War II no country was able to exceed temperatures of about 1,400° F. The maximum temperature in the I-16 was 1,350° F. Metallurgical research resulted in turbine bucket materials that would withstand 1,490° F in the I-40. Current production engines are capable of operation at somewhat higher temperatures.

As temperatures significantly higher than current values are desired, 2,500° F, for example, the problems become even more difficult. Ceramic blades are a possibility, and work in this field was being done in Germany during the war. But the most promising technique for achieving really high temperatures probably lies in turbine cooling. Germany was also conducting research in turbine blade cooling as long as ten years ago, using air, water, and sodium to remove the heat. A cooled turbine wheel is naturally more expensive and complicated than a conventional uncooled wheel. However, the potential in increased efficiency, and hence, range or endurance, particularly at supersonic speeds, points to the need for greater effort in this area.

Another area showing great promise is in compressor design. Since a compressor blade, like a propeller, behaves in much the same manner aerodynamically as does an aircraft wing, the same phenomena that occur with a wing at increasing flight speeds may be expected to occur to a compressor blade at increasing air velocities relative to the blade. And this is exactly what happens. As the velocities, or Mach number, relative to the blade increases, the efficiency, or the lift-drag ratio, decreases.

Going to higher relative tip Mach numbers allows both an increase in airflow through the compressor, hence more working fluid, and an increase in pressure ratio, for a more efficient cycle—if the compressor blading is designed to operate efficiently at these high relative speeds. For the blade to operate efficiently and maintain its high lift at high tip velocities, it must be designed like a wing; that is, it must be a thin airfoil. Yet it must be strong enough to withstand high centrifugal and bending forces.

More aerodynamic and materials research is required to obtain compressors of this type. When perfected, the results will be greater airflow for a given engine frontal area, higher pressure rise per stage, and eventually lighter and shorter engines.

Another area for the improvement of gas turbines is in engine weight reduction. The first turbojets to fly had specific weights of .74 pounds per pound of thrust. This figure, to date, has been reduced by a factor of at least two, and almost three in some cases. For example, the specific weights of the General Electric J-73 and the Wright J-65 are about .40. In England, the specific weights of the Sapphire and Avon are .30, or lower. And there is little evidence that we have reached the point of diminishing returns in reducing engine weight. New lightweight metals, such as titanium, have hardly been exploited. The previously mentioned high turbine temperatures and improved compressor design will decrease engine weight for a given thrust. Ingenious design can eliminate a great deal of excess weight from the engine itself and from its control system and accessories.

The British are thinking in terms of lighter weight engines, as evidenced by the Armstrong-Siddeley Viper, with 1,900 pounds of thrust and a specific weight of .19. And this is not a new design. This is supposedly a short-life engine; however, a great deal of running time is being accumulated on them. There is no reason why many of their lightweight features cannot be applied to larger engines.

Large advances have been made in increasing the efficient use of fuel in gas turbines. The specific fuel consumption of the first turbojets was

(Continued on page 33)

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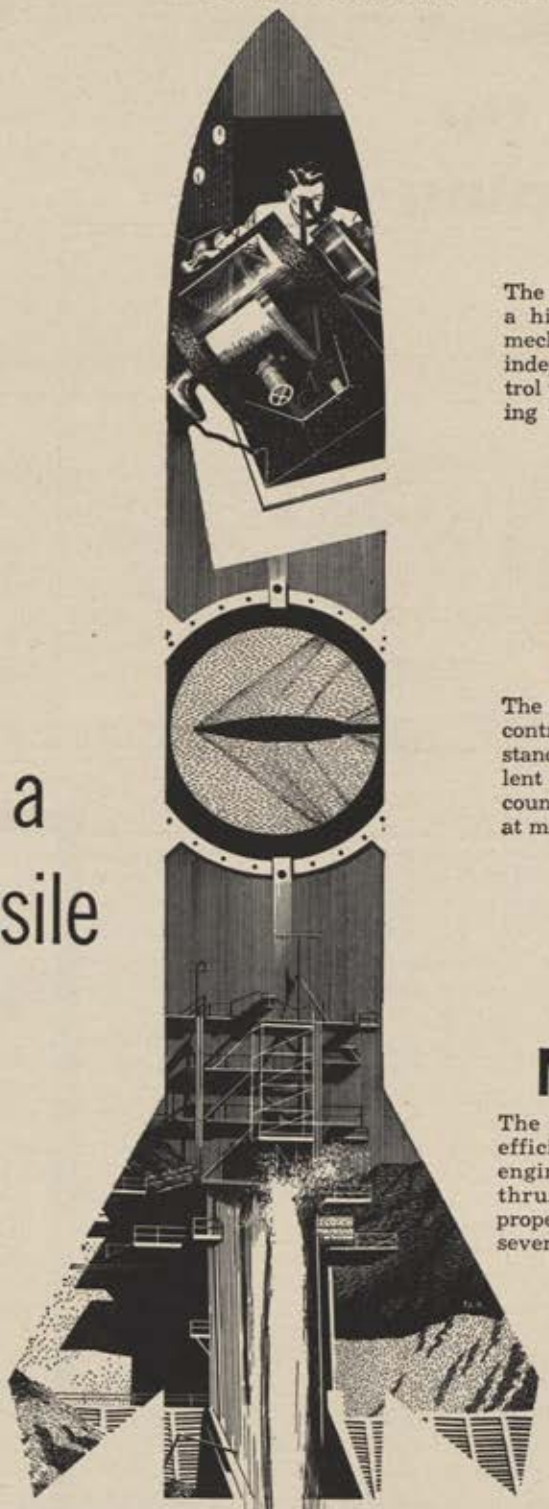

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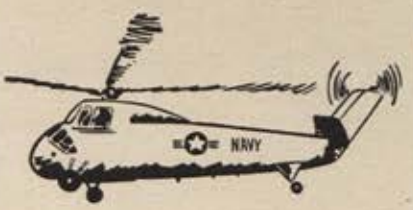
Why do most types of 'copters fly with Lycoming-built engines?

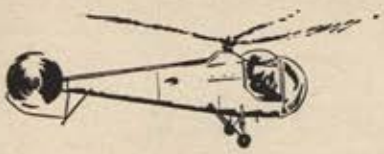


Lycoming-powered® Sikorsky S-58 Anti-Submarine 'Copter

Lycoming-powered® Piasecki H-21 Matériel and Troop Transport

Lycoming-powered Kaman HTK-1 Military Trainer

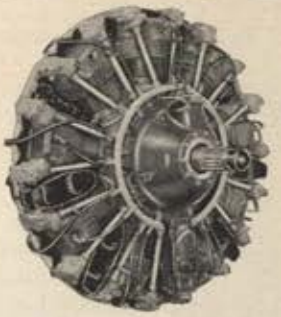
Lycoming-powered Doman L-Z5 General Utility 'Copter



Lycoming-powered Brantly Model B-2 Personal 2-place 'Copter

Lycoming-powered Glenview FlyRide Personal 2-place 'Copter

4-, 6-, and 8-cylinder opposed air-cooled engines.



*7- and 9-cylinder radial air-cooled engines.**

LYCOMING TURBINE ENGINES

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*Wright-Cyclone engine, built by Lycoming under license from Curtiss-Wright Corporation, Wright Aeronautical Division.

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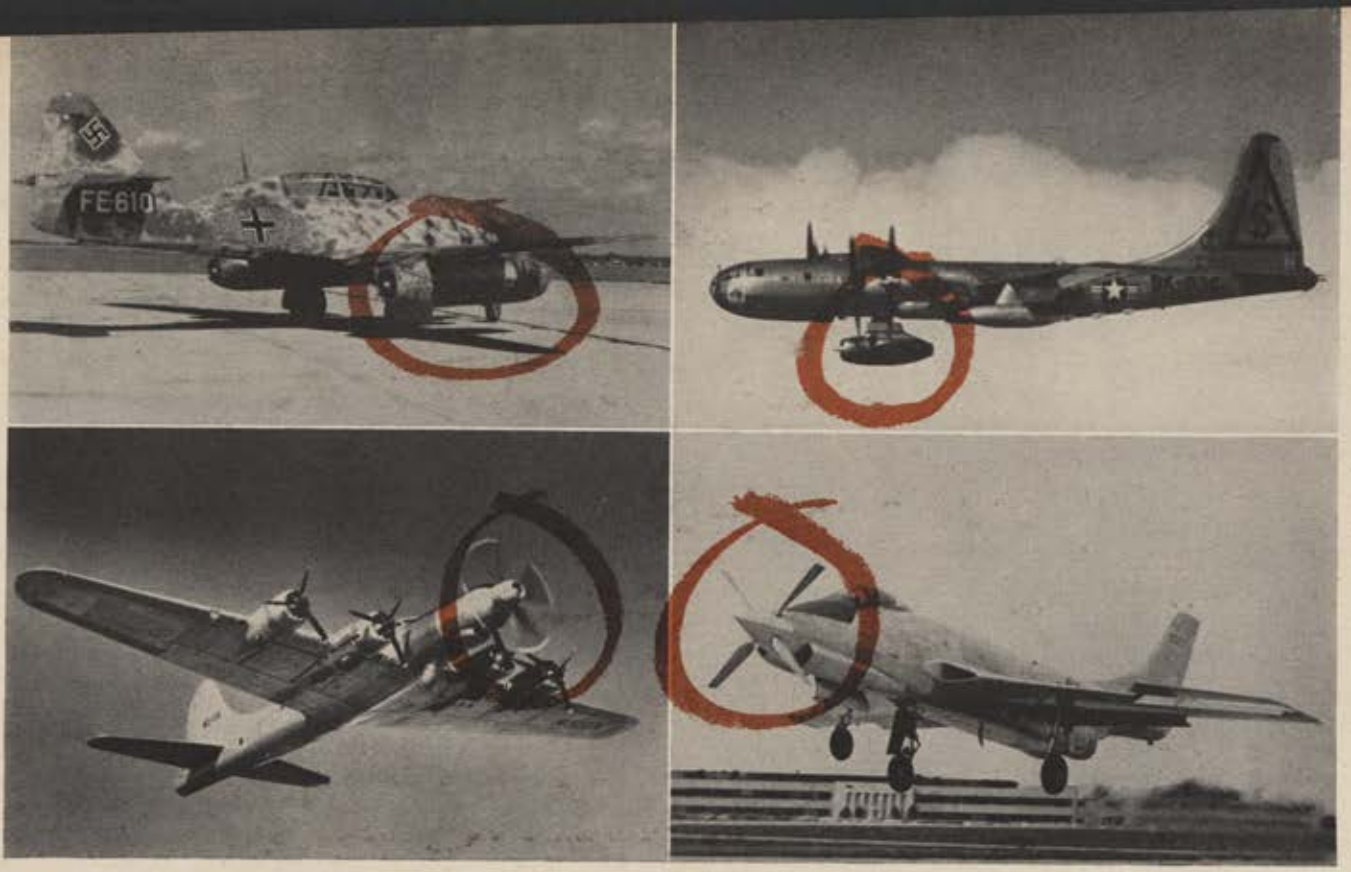
Manufacturing plants in Stratford, Conn. and Williamsport, Pa.

AIR-COOLED ENGINES • PRECISION PARTS • TURBINE RESEARCH & DEVELOPMENT



Upper left, the German ME-262—first operational jet. American experiments in engine development, shown clockwise: J-57 being tested on a B-29; T-38 turboprop on a McDonnell XF-88B; and a T-34 on a B-17 Flying Fortress.

ENGINES — CONTINUED

around 1.5 pounds of fuel per hour per pound of thrust. Thermodynamic and aerodynamic research has resulted in specific fuel consumption around .90 for such turbojets as the J-65, J-71, J-73, Sapphire, and Avon, and probably even lower for the two-spool J-57 and Olympus.

However, there are ways of using the energy of the hot gases more efficiently than in a high-velocity jet. One of these methods is by the use of the by-pass, ducted fan or turbofan principle to decrease the exhaust velocity, and hence increase the propulsive efficiency. While the thermal efficiency of the machine would be the same as that of a turbojet, higher over-all efficiency would result for the turbofan.

This concept is not new by any means. Indeed it was first pointed out by Whittle in his early work. The Campini jet, flown in 1940, was a ducted fan type, except that a reciprocating engine powered the fan instead of a gas turbine. The Germans made early design studies of the turbofan, and had projects included in their twelve-year plan, for the period 1938-1950, which didn't quite reach completion.

The turbofan system consists simply of a large diameter fan, in a duct, powered by a gas turbine. All of the air goes through the fan; it then splits, part going through the central gas generator and the remainder passing through an annular duct. Both air streams are exhausted out the tail pipe, either separately or mixed. It is actually a turboprop mounted in a duct, with the basic advantage that, since the air is slowed down by the duct before entering the fan, lower tip velocities and consequently high efficiencies can be maintained at high speeds. There is the further advantage that additional fuel may be burned in an afterburner, resulting in extremely high thrust augmentation both at the static condition, for take-off, and in flight conditions for acceleration and supersonic performance.

The British have actually built and are running a turbofan—the Rolls-Royce Conway. It by-passes forty-five percent of the total airflow, and has somewhat better fuel economy than comparable turbojets. However, within certain limits the greater the amount of air by-passed, the better the fuel economy. Simple cycle calculations show that a turbo-fan which by-passes two-thirds of the total flow has fifteen percent better specific fuel consumption than a comparable turbojet.

Of course, the lowest specific fuel consumption of modern engines, up to Mach numbers of about .80, is obtained with the turboprop. RAND studies, and many others, have shown that the turboprop is the most desirable power plant for transports on the basis of cost per ton-mile, of all of the possibilities. This is particularly true of large-sized, high-payload, long-range transport aircraft.

The British have accumulated far more experience with turboprops than we have. After the war, when the British decided to go all-out to capture the world's civil transport market, they placed great emphasis on the turboprop as the most desirable power plant. They had several turboprop projects in various stages of development, so many, in fact, that their development efforts were spread too thin. Some of these were dropped, and the program was consolidated around the Mamba, Proteus, Python, Dart, and Eland—from 1,500-hp of the Dart to 3,750-hp of the Proteus. There were also coupled versions of the Mamba and Proteus. In addition to commercial application, some of the turboprops were scheduled for Royal Navy anti-submarine aircraft.

During this time (1946-1948) there were several turboprop projects and proposals in the US, some in development stages. However, the economy era was upon us, and something had to go. The turbojet appeared to be most promising in the highest-priority military applications. So, turboprops were sacrificed to permit maximum emphasis on the turbojet. The Navy continued development of the Pratt & Whitney T-34 and Allison T-38 and T-40, but at a slower rate.

Because the British continued to devote a sizeable amount of their money and effort to the turboprop projects, they had several prototype

(Continued on following page)

aircraft flying with turboprops around 1950, or before. The first airplane to see extensive service is the Vickers Viscount, with two Dart turboprops. This airplane has been on regular route service throughout Europe with BEA and Air France for more than a year. Some 50,000 engine hours have been accumulated with great success, little trouble, and apparently at a profit to the operators. The time between overhaul of the Dart is 500 hours, compared to 600 hours on the Comet Ghost turbojets before they were grounded. Three Viscounts, with an option on thirty-seven more, have been ordered by Capital Airlines for domestic use (see page 62).

Still scheduled to go into service with BOAC is the Bristol Britannia, with four Proteus turboprops. This is a large 100-passenger airliner, and it is possible that it will be placed in service on some of the ill-fated Comet routes.

In contrast to the British experience with turboprop aircraft, relatively little time has been logged in this country on turboprop-powered aircraft. Some hours have been flown by the Convair Turboliner with two T-38s; the R3Y, A2D, and XA2J with T-40s; and the YC-124B with T-34s. The T-56 is scheduled to power the Lockheed C-130.

Just as important as improvement in power plants are the potentialities which lie in high performance fuels. Conventional hydro-carbon fuels have heats of combustion around 18,500-19,000 BTU (British thermal units) per pound. An investigation of the characteristics of other elements and compounds reveals potential "fuels" with considerably higher heats of combustion.

The highest is hydrogen with a heating value of about 51,000 BTU per pound, almost three times that of conventional fuels. Of course, it has an extremely low specific weight—only nine percent of the weight per unit volume of jet fuel.

Also present as possible fuels are certain other compounds, with heats of combustion up to fifty percent greater than hydro-carbons. Some of the light metals, such as magnesium, have high heats of combustion. Of course, most of these fuels present difficult containing and handling problems. However, the chemical laboratory can be a source of significant improvements in aircraft performance. The range of a given airplane, other things being equal, is directly proportional to the heating value of the fuel used.

Any discussion of high-performance fuels leads directly into nuclear propulsion, which can provide virtually unlimited range or endurance. The limiting factors in the endurance of a nuclear-powered airplane might only be either radiation limits or fatigue of the crew.

One of the large problems associated with nuclear power consists of the large shielding weights necessary to protect the crew and equipment from radiation. A great deal of study and research will be necessary to reduce shielding weights to sizes consistent with reasonably sized airplanes. Significant improvements along these lines have already been made, and a feasible shield today would be considerably lighter than the 50-100 tons predicted just five years ago.

There are a myriad of problems to be solved before nuclear-powered flight is practicable. However, the performance capabilities are so fantastic that vigorous pursuit of the solution to these problems is essential.

In nuclear propulsion schemes for the foreseeable future, the nuclear energy must be degraded to a thermal basis before it can be utilized. Somewhere off in the hazy future, it may well become possible to use the tremendous energy of nuclear fission directly. Today, however, many feel that this possibility is too fantastic to think about—just the way gas turbines were "impractical" only fifteen years ago.

In this realm of radical power plant developments, we should include Project Y in Canada, utilizing the Coanda effect in connection with a flying-saucer-like aircraft. In this, air directed downward through ducts builds up pressure beneath the "saucer." If this can be successfully developed, a high-speed, high-altitude, hoverable VTOL aircraft will be a practical realization.

Today's great need is for engine designers who do not fear unconventionality. Almost every successful discovery and invention throughout history has at one time been considered completely unorthodox and therefore unacceptable. Fortunately, there are always a gallant few who refuse to believe that a new idea "could hardly be considered a feasible application. . . ." It is upon these brave souls that we depend for "the giant step." —END

• *Mr. Gates has been in Development Planning, Hq. USAF, more than two years. An MIT graduate in aeronautical engineering, he's also worked for Convair at Fort Worth.—The Editors.*

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The top half of the facing page shows tactical air's three classic tasks—air superiority, close support, and interdiction. Lower portion of illustration shows other jobs—troop carrier, tactical reconnaissance, and medical evacuation

Tactical Air Command

At Langley Air Force Base, Va., TAC forges the policies and doctrines that guide Air Force participation in joint operations

WHEN you talk about tactical air, you inevitably talk about Korea. For, from the airman's point of view, Korea was a tactical war. And a strange one at that, hedged about with ground rules and restrictions upon the full exploitation of the weapon which, above all others, chafes at artificial limitations.

As we pointed out in this magazine last month, technological advances of the past few years have immeasurably enhanced the ability of tactical air to perform its three classic tasks—(1) to whip the enemy's air force; (2) to cut off his supplies and communications; (3) to support friendly ground forces by direct attacks on the enemy army. By and large, these advances boil down to a vast increase in destructive power through the use of nuclear weapons and a great extension of the combat range and mobility of tactical aircraft. In Korea, neither of these prime advantages could be exploited. The Yalu stood as a diplomatic "off limits" sign to UN planes striking at Communist airbases and supply dumps. And national policy forbade the use of nuclear weapons.

Korea was a bitter pill for airmen to swallow, but swallow it they did and in the process proved that airpower is still the most flexible of the instruments of war. For airpower did its job in Korea insofar as it was allowed to, and the fact that an uneasy armistice is thus far the only fruit of its labor is not an indication of shoddy workmanship but rather of a faulty policy blueprint.

And there is little indication that Korea is to be the end of the line for this kind of war. As long as the deterrent force of the Strategic Air Command combines with the capability of the Air Defense Command to price the Soviet Union out of the "easy victory" market, it is the more important that the Tactical Air Command be in a position to fulfill its mission—"to command, organize, equip, train, and administer the forces assigned and attached to participate in tactical air operations." On TAC's success along these lines will depend to a great degree our ability to fight and win the "little wars" which thus far the Soviets are pursuing as alternatives to all-out conflict.

It would be difficult to find a more experienced hand for the throttle than that of Gen. Otto P. Weyland, TAC's present commander. It was Weyland's

(Continued on page 39)

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the new LEAR-ROMEC B-18B type submerged FUEL BOOSTER PUMP

DELIVERY IS FAST: Newest of the USAF type B-18B pumps for high performance jet aircraft, the Lear-Romec RR-11050 is available for fast delivery. Lear-Romec has reserved substantial production facilities for the RR-11050, and shipment of samples can be made at once, with production schedule to meet requirements. The RR-11050 meets Spec. MIL-P-5243 and MIL-P-5238. (B-26 type submerged fuel booster pumps also available for fast delivery.)

PERFORMANCE TO SPARE: Extra performance, even when working in boiling fuel, qualifies the RR-11050 as an ideal transfer pump, as well as a booster pump. It can deliver 13,000 pounds of fuel per hour — more than double the rated flow of 6,000 pph required of B-18B pumps. Complete reports, available on request, show comparable performance margins in pressure loss and pump-down. Yet the RR-11050 weighs only 9.25 lbs., 3.25 lbs. below specified maximum, and is only 8½" high, against an allowable 10". Motor is 0.47 hp, 27 volts dc, 8,000 rpm, 20-21 amperes at rated load. Radio interference filter optional.

DESIGN FEATURES ARE SPECIAL: The RR-11050 is vertically mounted and totally submerged in the bottom of the fuel tank, with only electric leads and plumbing connections exposed. The shaft seal, located under the motor, is drained to assure dry, vapor-free motor operation. In addition, the motor-pump shaft, carrying both the main centrifugal type impeller and the vapor separating impeller, runs on two ball bearings, this design permitting safe dry-running, if pump is inadvertently allowed to run on a dry tank. An exclusive feature is the provision for removal of the inlet screen with the sump cover for cleaning, obviating the necessity for removing the entire pump.

QUALITY IS PRIME: Benefitting from a half century of specialization in pump design and manufacture, Lear-Romec engineering, production, inspection procedures, and test facilities assure deliveries of B-18B pumps of highest quality, precision, and dependability. For complete engineering and test reports, address inquiries to: LEAR, INC., LEAR-ROMEC DIVISION, Elyria, Ohio.

LEAR

LEAR-ROMEC DIVISION

RO-6

cilities and a more practical location. A medium troop carrier wing of the Eighteenth will move into Pope as the Ninth moves out.

Since one of TAC's big problems, with the advent of Korea and its then new stature as a major combat command, was the scarcity of trained people versed in tactical air doctrine, it set up the Air Ground Operations School at Southern Pines, N. C. Here 120 officers a week, from the Air Force, Army, Navy, and Marine Corps, get a short but intensive course in ground operations (AIR FORCE, Dec. '51). TAC is the one AF headquarters in the US charged with operating and training with surface forces so a common meeting ground of doctrine and terminology with all services is essential. The Air Ground Operations School helps plug this gap.

Although formal training at the school is predicated on the Joint Training Directive of September 1950, which was agreed on by TAC and Army Field Forces, points of disagreement between all services are matters of heated discussion. It's an open secret that the Army is not entirely satisfied with the way the Air Force handles tactical air. And TAC officers, likewise, are suspicious about what they regard as a back-door approach on the part of the Army.

The Army would still like to control its own close support and is now busily engaged in promoting a doctrine called the "Support-Supported Concept," which would put all elements supporting a given commander under the direct control of that commander. Thus, a ground commander would control those air units charged with his support. AF tactical air experts regard this as a back-door approach to having air units organically assigned to ground units which, in AF opinion, proved unsound early in World War II and would destroy the unity of control which is basic to the flexible use of airpower.

There are TAC officers, too, who look askance at other evidence of Army's foot in airpower's door—that the only AF representative in a forward air control party now is the forward air controller himself, the driver and radio man being Army personnel; that an Army requirement now calls for a high-performance aircraft for fire control purposes, "and while he's out there we might as well hang a few rockets on it"; and, in general, that the Army's air fleet is growing by leaps and bounds. The Tables of Organization for a field army, for example, now list between 900 and 1,000 Army aircraft, as against the 500-600 Air Force aircraft in its associated tactical air force. One result of this multiplicity of aircraft over the battlefield is a simple air traffic control problem. With the ether full of search radar, homing beacons, and other electronic navigational and control aids, we are approaching a point where, as a TAC officer ruefully put it, "we have our own built-in ECM" (electronic countermeasures).

Still another method of making TAC doctrine available to more persons is the Joint Air Ground Instruction Team (JAGIT). This traveling team gives short courses in air-ground operations with models, lectures, and firepower demonstrations. TAC also supervises the Air Liaison Officers who are on duty with ZI Tactical Army units and with the Tactical Air Control Squadrons of both the Pacific and Atlantic Fleets.

A series of manuals and training

(Continued on page 44)

There's only one AF representative in a forward air control party. The others are Army.

Air traffic control problems are greatly increased when Army air must be spotted too.

Rockets are important tools in the threefold mission of TAC. Here warheads are placed.

The job TAC does in close support of ground forces is spectacular and often dangerous.

XIX Tactical Air Command in World War II which supported the late Lt. Gen. George E. Patton's Third Army in its dash across France. In 1950 he became CG of TAC for only a few weeks when he went to Tokyo as Vice Commander of the Far East Air Forces. In April 1951 he returned to TAC headquarters at Langley AFB, Va., as Vice Commander but stayed scarcely long enough to unpack. In June of the same year General Weyland moved into the top spot at FEAF and ran the air war in Korea as long as it lasted. Since April of this year he's been Commander of the Tactical Air Command.

To do its job, TAC has two numbered Air Forces—the Ninth, a tactical air force with headquarters at Pope Air Force Base, N. C., and the Eighteenth, a troop carrier air force with headquarters at Donaldson Air Force Base, S. C. In addition several units are assigned directly to TAC headquarters—the USAF Air Ground Operations School, Southern Pines, N. C., the 405th Fighter-Bomber Wing at Langley, the 4400th Tactical Bombardment Group, and a number of smaller tenant units. Langley fits nicely into the picture as a headquarters base since it is next door to Army Field Forces at Fort Monroe and also close to the important Navy headquarters around Norfolk, Va.

Ninth Air Force consists of fighter-bomber wings, night intruder wings, tactical reconnaissance wings, pilotless bomber (Matador) squadrons, and tactical control groups. These are the same kind of units you would find in a typical tactical air force in a theater of operations, although it must be noted that the role of the Ninth Air Force is not a truly operational one. The Ninth's composition reflects, rather, the fact that, unlike SAC and ADC, Tactical Air Command is essentially a training command charged with training individuals, crews, and units into combat-ready organizations and deploying them to overseas theaters, where they pass to the control of the theater commander.

Eighteenth Air Force consists of heavy and medium troop carrier wings, assault troop carrier groups, and units which support the troop carrier mission, such as aerial port operations squadrons and aeromedical evacuation units.

Ninth Air Force is slated to move to Shaw AFB, S. C., early this fall. The relocation will provide better fa-

(Continued on page 42)

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Langley AFB, Va.

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2 **Deputy Commander**
Maj. Gen.
Earl W. Barnes

3 **Chief of Staff**
Brig. Gen.
Ernest K. Warburton

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Col. James B. Tipton

6 **Information Services Officer**
Lt. Col. Frederick J. Betz

7 **Command Chaplain**
Col. Howell G. Gwin

8 **Manpower and Organization**
Col. Robert S. Day

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Brig. Gen.
Major S. White

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13 **DCS/Communications**
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14 **DCS/Plans**
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15 **DCS/Materiel**
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16 **DCS/Operations**
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17 **DCS/Intelligence**
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18 **DCS/Personnel**
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19 **USAF Air Ground Operations School Southern Pines, N.C.**
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20 **405th Fighter-Bomber Wing Langley AFB, Va.**
Brig. Gen.
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James Ferguson

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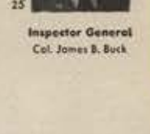
Col.
Stephen B. Mack

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



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Col. James B. Buck

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Capt. Billie H. Krouse

27 **Staff Chaplain**
Lt. Col. John F. Nolan

28 **Surgeon**
Col. Nicholas F. Atria

29 **Staff Judge Advocate**
Lt. Col. Sam F. Carter

30 **Adjutant**
Col. Ben F. Mariska

31 **DCS/Comptroller**
Col. John French

32 **DCS/Materiel**
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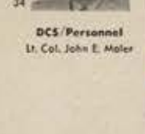
33 **DCS/Operations**
Col. Edwin S. Chickering



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Col. Robert L. Delashaw

36 **21st Fighter-Bomber Wing George AFB, Calif.**
Col. Robert R. Rowland

37 **366th Fighter-Bomber Wing Alexandria AFB, La.**
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38 **363d Tac Recon Wing Shaw AFB, S.C.**
Col. John R. Dyas

39 **388th Fighter-Bomber Wing Clovis AFB, N.M.**
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40 **461st Bombardment Wing (L) Hill AFB, Utah**
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41 **450th Fighter-Bomber Wing Foster AFB, Tex.**
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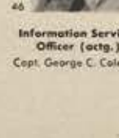
Brig. Gen.
Edward H. Alexander

44 **Chief of Staff**
Col. Hoyt L. Prindle

45 **Inspector General**
Col. Theodore G. Kershaw

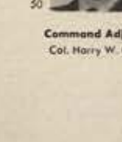


46 **Information Services Officer (actg.)**
Capt. George C. Coleman

47 **Staff Chaplain**
Lt. Col. John S. Garrentse

48 **Surgeon**
Col. Raymond T. Jenkins

49 **Staff Judge Advocate**
Lt. Col. James L. Kilgore



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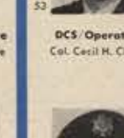

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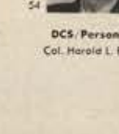

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56 **63d Troop Carrier Wing (H) Donaldson AFB, S.C.**
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58 **64th Troop Carrier Wing (M) Donaldson AFB, S.C.**
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59 **463d Troop Carrier Wing (M) Ardmore AFB, Okla.**
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Col. Troy W. Crawford

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The TACTICAL AIR COMMAND

An ***AIR FORCE*** Magazine Chart
(Corrected as of July 15, 1954)

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Like many commuters' trains

THE RESERVE SPECIAL IS LATE

By Edmund F. Hogan

RESERVISTS who have been waiting three months for announcement of the "annual, new, long-range, Reserve program" (AIR FORCE, May '54), will have to wait a little longer. Like many commuters' trains, it's running late.

The program is part of a complete "new look" for all Reserve components—Army, Navy, Marines, and Coast Guard, as well as the Air Force. It was drafted in the Pentagon, approved by the Defense Department and Office of Defense Mobilization. But the National Security Council and the President have not endorsed it, which means that there can be no Congressional action until the new Congress meets next January.

Chairman Leverett Saltonstall of the Senate Armed Services Committee expressed publicly his "disappointment" at the Administration's failure to move the program to Congress in time for action before adjournment. His committee had planned priority hearings, had the program been moved to Capitol Hill. Now, says the Senator, the "new look" will be near the top of the list on his committee's schedule after the first of next year.

The delay had been forecast freely by competent political observers in the nation's capital because the proposed program is based in large part on a modified version of Universal Military Training. And UMT traditionally is anathema to Congress in an election year—which this happens to be.

The program, as presently constructed, calls for the draft and the modified UMT plan to operate simultaneously. Local Selective Service boards would determine which young men would be drafted and which would be given UMT.

Those drafted would be required to serve two years on active duty, followed by six years of compulsory Reserve service. Those selected for UMT would be required to undergo four months of training, to be followed by seven years and eight months of compulsory service in the Reserve unit nearest their homes.

The program does not outline the procedures by which local draft boards will determine who gets two years of active duty and who gets four months of basic training. But presumably this would be done by some kind of lottery. If the program is approved and this provision stays in, Congressmen can be prepared for a barrage of screams from injured constituents whose sons get nailed for two years while their next-door buddies are required to do only four months in the active service.

It is no secret that the Air Force, in particular, does not cotton to the element of compulsion. The Air Force prides itself on being a service of volunteers, and this concept is subscribed to by both the Reserve and the Air Guard. Indeed, this concept is the very core of the mammoth Air Force recruiting campaign aimed at attracting almost 200,000 people in the coming year. Conceivably, the Air Force campaign could suffer if required to compete against a program which offers four months of basic training and seven-plus years in a hometown unit.

The program was outlined in tentative form by Assistant Secretary of Defense John A. Hannah. But neither Dr. Hannah nor anyone else in a position of responsibility has discussed what may well be the key to whether there will be a "new look" Reserve or whether the "old look" will be given a new paint job and made do for another season. The key is cost. How much money must be spent to make it work?

The Air Force portion of the program is reliably reported to call for a Reserve of some 300,000 officers and men but so organized and equipped that it will be truly an M-Day force. This will require vast expenditures for modern equipment, facilities, and training aids.

Some Pentagon sources say a true M-Day Reserve force will carry an

(Continued on following page)

initial price tag in the neighborhood of $4 billion and that when the level-off period is reached the investment still will be about $2 billion annually.

Such reports have caused considerable head-scratching. It will take a serious worsening of the world situation to pry that kind of money loose from Congress for the Reserve at a time when the lawmakers are thinking in terms of reducing military expenditures. Reserve leaders are understandably concerned that the "new look" may be priced out of business before it ever becomes a commodity.

That the Reserve program desired by the Air Force will cost considerably more than the one in existence is an undeniable fact. Emphasis must be placed on unit training—and units at full T/O&E strength having at least forty-eight drill periods and fifteen days of active duty field training each year. Obviously, anything less cannot produce M-Day units.

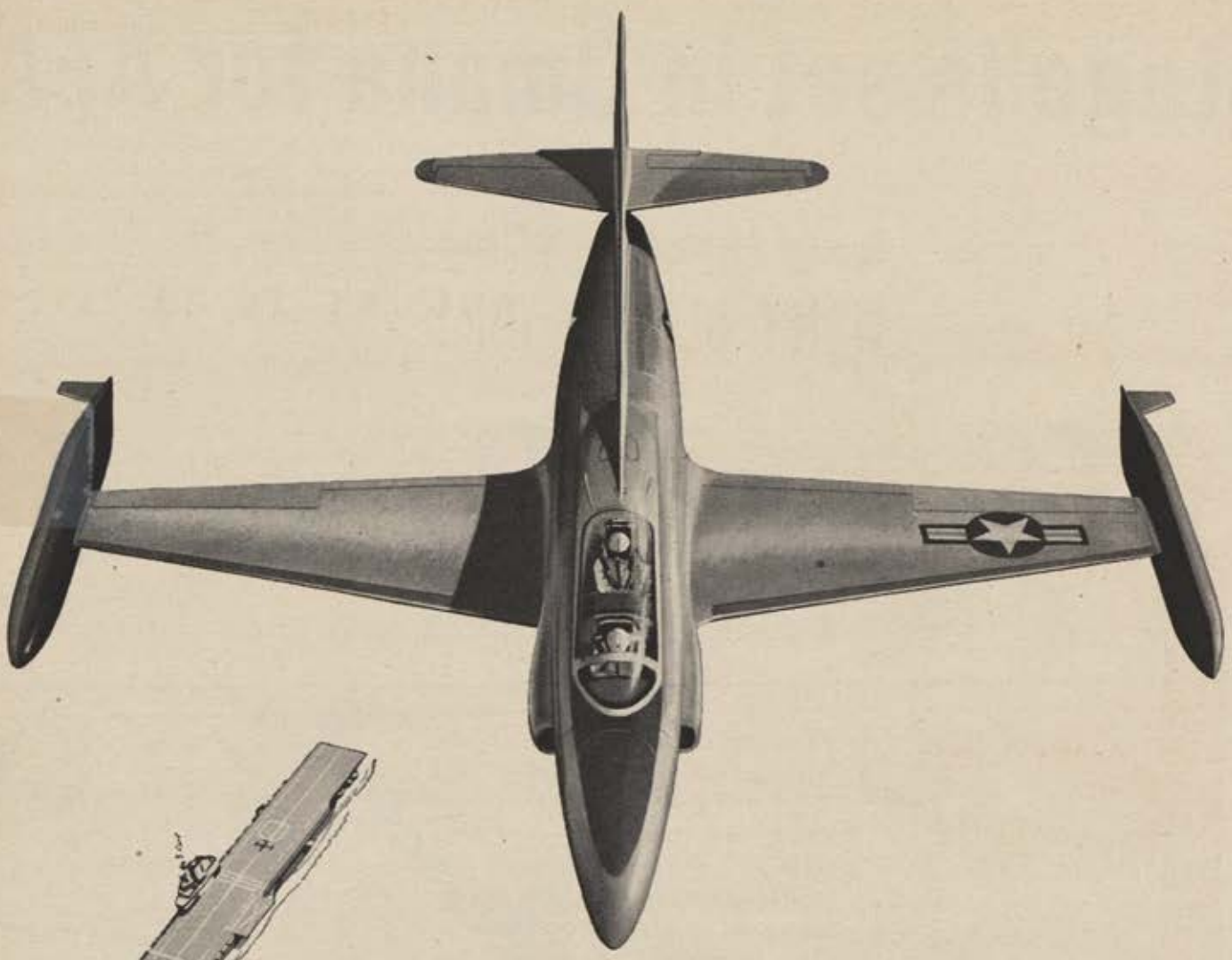
It is obvious, too, that a "new look" for the Air Force Reserve would feature a large boost in flying activity. This would result in greater expenditures for fuels and lubricants, maintenance, and replacement of equipment. All this will be necessary to guarantee units and people who can fight on M-Day. The premium for such an investment in future security will be large and the question arises on whether Congress will be willing to dig into the national pocket deep enought to pay it.

Therefore, there are problems. But essentially, these are not new. They have accompanied every attempt to build a sound Reserve program since the days following World War II. There has always been a shortage of frontline equipment and facilities, or money, or all three. The Reservist who is getting his flying time in a C-46 or an F-51 looks hopefully toward the time when he can meet his requirements in a C-121 or an F-100. But this metamorphosis can occur only when sufficient funds and facilities are at hand.

There are skeptics who have added up all of the negatives contained in the "new look" program and foresee Congress conducting a burial service some six months hence.

But it is too early to write the obituary. It's possible that the entire program, or at least those portions which will produce a more effective Reserve, can be salvaged.

There still is merit in the old saw of "better late than never." Only most Reservists wish the program weren't running so far off schedule.—END



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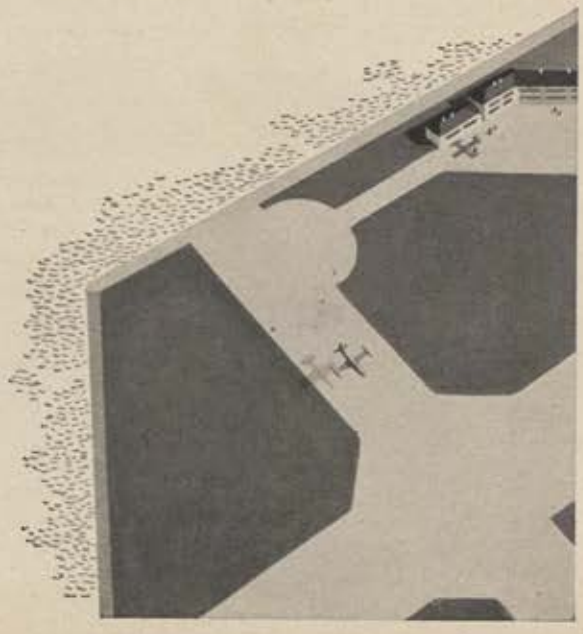

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REGISTRATION FEES . . . AFA Members and All Ladies—$15.00. Non-members (male)—$20.00.

FEE INCLUDES TICKET TO . . . Western Wing Ding . . . Airpower Banquet . . . Brunch . . . Fashion Luncheon (ladies).

SYMPOSIUM LUNCHEON . . . Ticket not included in registration fee—$6.25 each—$50.00 tables for 8.

DON'T MISS 1954'S BIGGEST

See page 62 for Room Reservations

'54 Convention

Secretary Talbott

General Twining

Air Force Secretary Harold E. Talbott and Chief of Staff Gen. Nathan F. Twining are among the many top military and government leaders who will address the delegates and guests to AFA's eighth annual Convention.

THURSDAY, AUGUST 19

10:00 AM	AFA Directors Meeting	Fontenelle
12:30 PM	AFA Commanders Luncheon	Fontenelle
3:00 PM	Opening Business Session	Fontenelle
8:00 PM	Second Business Session	Fontenelle

SATURDAY, AUGUST 21

9:00 AM	Third Business Session	Fontenelle
12:00 N	Unit Reunion Luncheons	
2:00 PM	Final Business Session	Fontenelle
6:00 PM	Tour of Boys Town	
7:00 PM	Airpower—Awards Banquet	Boys Town

FRIDAY, AUGUST 20

9:15 AM	Airpower Symposium	Fontenelle
12:30 PM	Symposium Luncheon ($6.25)	Fontenelle
	Ladies Fashion Luncheon	Paxton
3:15 PM	SAC Briefings	Offutt AFB
7:00 PM	Reunion Cocktail Party	Peony Park
7:30 PM	Western Barbecue	Peony Park
9:00 PM	Airpower Ball	Peony Park
10:00 PM	Hollywood Wing Ding	Peony Park

SUNDAY, AUGUST 22

10:00 AM	Airpower Brunch	Fontenelle

NOTE: AFA Ladies Auxiliary business meetings at Paxton Hotel, 9:30 to 4:30, Friday and Saturday, August 20-21.

WESTERN WING DING . . . Eight-hour reunion at beautiful Peony Park . . . outdoor steak barbecue . . . music . . . dancing . . . swimming . . . refreshments . . . stars . . . stage show . . . Hollywood entertainment.

CHAPLAINS REUNION . . . Chaplain John C. W. Linsley, Hq., SAC, Offutt AFB, Nebr.

MEDICS REUNION . . . Brig. Gen. Lloyd E. Griffis, Hq., SAC, Offutt AFB, Nebr.

NIGHT FIGHTERS REUNION . . . Mr. Gil Nettleton, Northrop Aircraft Co., Hawthorne, Calif.

AIR COMMANDOS REUNION . . . Lt. Col. R. E. Moist, P. O. Box 72, Mitchel AFB, N. Y.

AIRPOWER SYMPOSIUM . . . Industry, government, and military discussions . . . briefings by General LeMay and Staff . . . SAC aerial demonstrations.

Convention Chairman Art Storz displays steak treats in store for everyone attending the Western Wing Ding, Aug. 20.

AIRPOWER MEETING

JET BLASTS

SELECTIVE METHOD OR GRAB BAG?

Let's find the best way to pick the young men who will become the future leaders in the Air Force

Newspapers recently devoted much space to efforts by Army's distinguished football coach, Col. Earl Blaik, to obtain appointment of an Ohio athlete to West Point. In an astute editorial on the subject, the *Cincinnati Enquirer* said, in part:

"The controversy over whether a young Cincinnati football player should go to West Point only serves to emphasize the absurdity of having such cadets appointed by Congressmen and Senators at all.

"The purpose of the US Military Academy is to provide the Army with the best young officers this country is able to produce. To turn out such, the Academy should get the best material available.

"Only two criteria should apply to that. First, the prospective cadet should want a military career. Second, he should exceed any rival for his appointment when the best available tests to determine their qualifications for careers as officers are applied to them both. Qualifications, of course, are not mental alone. Emotional stability, physical fitness, and possibilities for leadership are things to be included.

"The right to compete for such a place should be open to every American boy—from one coast to the other, from top to bottom of the economic scale, and without regard to his race, creed, or color."

Now that the Air Force will soon have its own Academy, one wonders whether its students will be selected by the same methods which are traditional with the Military and Naval Academies. Will Air Force Academy cadets also be selected by, at best, non-scientific methods or, at worst, from purely political motives?

Present methods of appointing the Academies' cadets and midshipmen are really a carry-over from the ancient and somewhat discredited philosophy that professional commissioned officers are from and in a social class distinct from and above that of enlisted personnel. The officers, in this old philosophy, are "gentlemen"; enlisted persons are merely "men."

A famous Canadian militia regiment symbolized this old distinction by an impressive annual ceremony. Once a year, with formal rites, the colonel and the sergeant-major drank from the same loving cup in the presence of all officers. The host of a visiting American officer explained: "The officers and men, of course, can never associate socially. Once a year, though, we have this ceremony to show that we and the men are really one!"

Whether or not we have or should have such a caste system in US Armed Forces is outside the scope of this brief article. However, such evidence of older attitudes serves to highlight the essential purpose of our new Air Force Academy. That purpose is *not* to preserve the status of "gentlemen," but to *produce with available funds the greatest possible number of best-qualified career officers of the Air Force.* Achievement of this objective requires not only operation of the best possible training facilities, but *selection of students with the most likely qualifications for becoming outstanding leaders in military aviation.*

The Army and Naval Academies now take mostly young men fresh from school or college without evidence of ability other than good physical condition and completion of certain academic requirements. (In some cases, outstanding athletic prowess eases the way for an applicant!) However, neither academic scholarship nor skill on a football field assures that later the men will develop the wisdom, character, and leadership to make them outstanding officers.

Under present methods, the Academies put a veneer of established manners and practices on each successful student. The candidate learns to conduct himself "by the book." He learns to conceal the excelsior beneath his shirt if that is all he has there, and to keep his nose clean. Willy-nilly, he usually becomes a dependable officer. And sometimes, under the pressure of combat or challenging tasks, he may later become a genuinely fine leader.

But why be satisfied with veneer? Why not do the best we can to pick our candidates so that each one will have the strongest possible structure of personal character, ability and leadership?

How to do this? That is the big question. And the answer is *not* by picking young civilians direct from school or college!

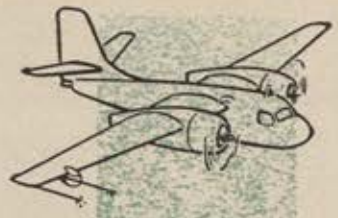
Why not pick our candidates from the very arena in which they must later perform? Why not choose only such men as have proved that they have the necessary personal qualities? Why not pick only men from the Armed Forces who have demonstrated their potential military leadership by earning promotions in the ranks?

This I propose: *Students for the Air Force Academy should be selected only*

(Continued on page 55)

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.



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The **J65 JET DEVELOPS HIGHER POWER** than its announced rating of 7220 lbs. thrust and **USES 6% LESS FUEL.**

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fighter bomber for the U.S. Air Force

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photo reconnaissance fighter for the U.S. Air Force

MARTIN B-57 "Night Intruder"
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NORTH AMERICAN FJ-3 "Fury"
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from men with at least two years of service in non-commissioned grades in the Armed Forces.

(Oh, if you want to be technical, I'll not argue about the "two years." Maybe it should be more, maybe less.)

Of course, there is much more to my proposal than its mere statement. Space isn't available here to explore the many pros and few cons, or the administrative and operational problems involved. But isn't the idea worth some serious consideration?

Lt. Col. Wm. A. Cahill,
USAFR, Ret.
Cincinnati, Ohio

Sailplanes

If the last war taught anything at all, one of the primary lessons is that control of the air is the first step to victory. In the continuing cold war the only successes we have had are in the field of air transport. The Berlin Airlift still represents the greatest Western victory over Soviet advancement. Before the Airlift was started, how many people thought that an industrial city of three million people could be supplied for eleven months by air transport alone? Time after time the Air Force has come through, delivering the goods. And still the surface of air potential has only been scratched. There is a lot of exploring to be done in the atmosphere yet.

We are going to get our Air Academy in its fullest sense. It will rank along with West Point and Annapolis. The cadets coming from this institution will be the men who control our skies, in a military sense. The training that these men receive will to a large extent determine our success or failure in the future.

I am a gliding enthusiast and would like to plug for the organization of a gliding club to be operated in conjunction with the Air Academy cadet training program. The organization of such a club is based on the assumption that the curriculum of the Academy will be similar to that of West Point and Annapolis. I have over twelve years' service as an enlisted man in the Air Force. Most of this time has been in the Aircraft Maintenance field. Three years ago I was sent to England and became interested in private flying. After about two years I took a ride in a sailplane and was sold. I joined the University of Cambridge Gliding Club and became interested in the British gliding movement. I have no knowledge of American gliding activities or civilian flying, but there is to be found in this English club and movement an illusive quality—the element of basic airmanship. From reading American aviation magazines I believe there is something lacking in our aviation program; the Spirit of Flying could be hiding in a sailplane.

A gliding club could be considered as an Air Force or commercial air com-

(Continued on page 57)

pany in miniature. In gliding you are dealing with the elements of operations, engineering, ground and flying safety, meteorology, and above all else, basic airmanship. Motor transport and packing and handling of aircraft even play an essential part. Theory of flight taken from the classroom on Friday morning and put into practice on an off Saturday afternoon. This is a gliding club. The perfect combination of practical education and relaxation.

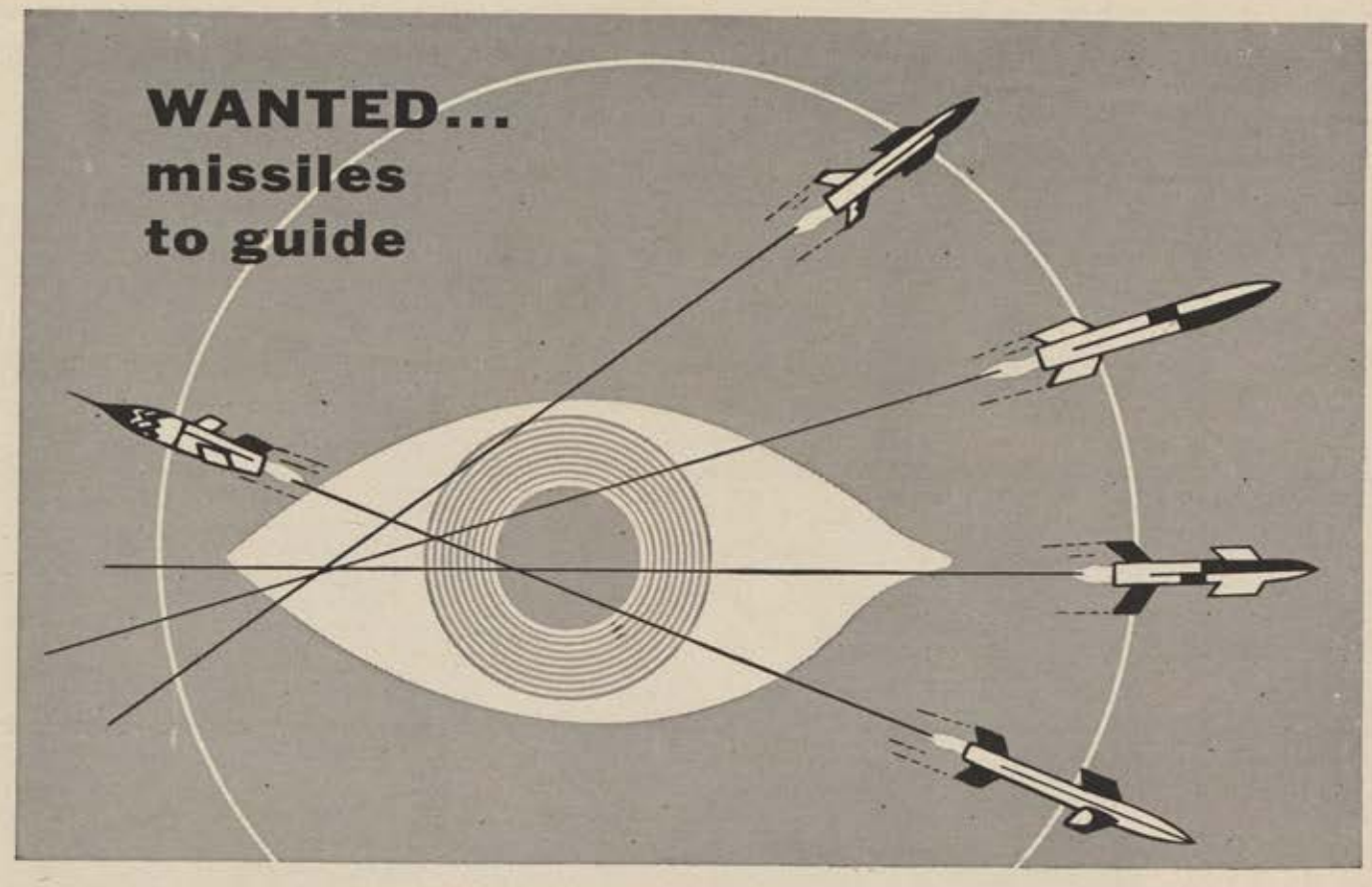
No one can put a sailplane into the air by himself. It takes the concentrated effort of four or five people at least. All ground operations involve manhandling of the aircraft, except the take-off run. It is a strenuous business. A high degree of teamwork is involved in the launching and retrieving of sailplanes. The rigging and derigging of ships teaches many of the basic elements of engineering. The direction of operations involving more than one craft requires skill in leadership. With all the mental and physical effort that is put into it, gliding is still essentially an individualistic sport. Individual airmanship is at the end of the whole series of activities.

Any idiot can push a throttle and go up a thousand feet. There is no skill or sense of accomplishment involved. In a powered aircraft, a pilot is more of a flying engineer than an airman. In a sailplane you have to fight with gravity for every foot you get above the earth. If and when you get to five thousand feet, it is an accomplishment and you can have the satisfaction that goes with it. Sailplane flying is the most exhilarating and exciting thing in the world. Silently floating above the earth is an experience that defies description. You are not constantly being beaten to death by engine and propeller vibrations.

Gliding builds a sense of esprit de corps among airmen that has ceased to exist among powered pilots, because it is a sport and not a commercial enterprise. England and the European countries have long been aware of the military potential in a gliding corps. As a medium of training, the American Air Force seems to have completely forgotten the sailplane.

Man's first conquest of the air in a controlled heavier-than-air craft was in a sailplane. Then someone hooked an engine and propeller to it. Since then it has been a race, with national survival depending upon the development of a more efficient power plant. With the advent of the engine and propeller, the engineer took over the field of aviation as we have it. Flying has been reduced to the level of truckdriving, with a mess of government rules and regulations covering all phases of operations. The government can't regulate thermals and the direction of the wind. This permits the man in a sailplane to be the most independent thing in creation when he is in the air.

S/Sgt. Charles B. Lanigan, Jr.
c/o PM
New York, N. Y.



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This *could* be a flyer and his base

One of the main differences between the civilian scene above and most of the long-distance telephoning *you* do is a matter of record-keeping. The military runs its own business—but home-front calls are between the subscriber and his local utility. And there's an interesting lesson in the way telephone companies nowadays are keeping records of such toll service.

In many cities (someday in *all*) telephoning cross-country right from a dial in the home is a daily occurrence. Rates are normal—and nobody ever hears an operator's voice. Then how, do you suppose, will your local telephone company know who you are, whom you called, how long you talked and thus how much the call cost?

We have one answer, called the Stromberg-Carlson XY Toll Ticketing System. With magnetic tape, electronic tubes and some other devices which rival magic, this equipment receives your call, places it, times it and computes it—and lays a coded, printed ticket on a billing clerk's desk!

You may never need to worry about Toll Ticketing in *your* military life. But it's good to know that the company which developed this ingenious device makes hundreds of other products for the armed forces and their problems of communication. If there's a Stromberg-Carlson label on some of your equipment, you can be sure you have the best!

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The READY ROOM

RESERVE AND AIR GUARD NEWS

A Reserve Forces forum will be a major feature of the annual Air Force Association Convention in Omaha this month. The forum will be held at 1:00 p.m. on Convention opening day, Thursday, August 19. It will feature the appearance of **Maj. Gen. William E. Hall,** Assistant Chief of Staff for Reserve Forces; **Lt. Gen. Leon Johnson,** commander of the Continental Air Command; **Brig. Gen. Winston P. Wilson,** Chief, Air Force Division, National Guard Bureau; and **the Hon. John I. Lerom,** Deputy Assistant Secretary of the Air Force for Reserve and ROTC affairs.

The forum, to be monitored by **Edmund F. Hogan,** AFA's Assistant for Reserve Affairs, is designed to encourage maximum participation by Air National Guard and Air Force Reserve members.

The forum will cover subjects ranging from the proposed "new look" for the Reserve to the status of ANG installations. It will be followed by meetings of AFA's Air Reserves and Air National Guard Councils, preparatory to bringing resolutions to the floor of the Convention.

Planners see the forum as giving Guardsmen and Reservists the opportunity to raise discussion on problems affecting their respective components directly to the persons charged with creating operational policies.

Reserve participation in airpower is threaded through the entire AFA Convention. The **Earl T. Ricks Memorial Trophy** will be awarded to the Air Guardsman who wins AFA's first annual cross-country jet race. The presentation probably will be made at the Airpower Banquet by Mrs. Ricks. Reservists who take part in the forum will be invited to participate in the Airpower Symposium on Friday, August 20, and attend a SAC briefing at Offutt AFB the same day.

° ° °

Information Service Flights are being organized in the AF Reserve. Four already are in business—in Washington, D. C., Atlanta, Ga., Nashville, Tenn., and Lubbock, Tex. Three more will be organized soon in Cleveland, Chicago, and New York.

These flights were recommended in the report of the board headed by General Johnson of ConAC, which met last year and made specific suggestions for improving the Reserve program. By the end of next year, between forty and fifty will be functioning.

These flights are aimed at providing a force of information services specialists who would be available immediately for mobilization. In peacetime, they would serve as sources for background on the importance of the Reserve program and the need for adequate airpower, which includes a stable and effective Reserve. Further, they would act in an advisory capacity to Air Reserve Center commanders, Reserve unit commanders, and to the active Air Force on matters pertaining to information services programs.

The Washington flight, commanded by Col. Ted E. Enter, already has undertaken a tour of the Air Training Command and inspected the operation of that command's Office of Information Services.

Word from the Pentagon indicates that specific guide lines for the operation of these flights will emerge from Hq., USAF in the immediate future.

° ° °

The most unique organization in the Air Guard is **Detachment 2 (Officer Training), Hq. DCANG.** It is composed of more than 3,500 second lieutenants.

This is the detachment set up to administer the ROTC graduates who accepted Air Guard commissions ("The Ready Room," AIR FORCE, July). The commander is Maj. William R. McCall, a D. C. Air Guard flyer, who has been given a four-year contract tour of active duty. Two other Guard officers will be called to active duty under similar contracts to serve with him.

Headquarters of the detachment is located in the huge D. C. National Guard Armory where plans are being made to get the entire ROTC contingent active duty assignments between September 1 and June 15 of next year. Many of the new second lieutenants will be assigned to Air Force bases for on-the-job training. Others will be sent to schools to qualify for specialties.

One bright note for the ROTC group is contained in the recent announcement that Joint Travel Regulations are being amended to provide for transportation of dependents and shipment of household goods for those ordered to training for one year or longer.

° ° °

National Guard Bureau is planning to assign C-45s to the various states to replace C-47s as the **executive-type transport.** With the assignment of each C-45, air technician detachments will be increased by one senior airplane and engine mechanic.

The Bureau also is planning an augmentation in the medical support of certain tactical squadrons. One officer and three airmen will be added to the medic section of each tactical squadron, based separately, which is creating a replacement training squadron.

° ° °

NGB is amending **ANGR 14-01,** which has to do with granting federal recognition to officers. The boards will have five members, two of them alternates, and one of whom must be from the active Air Force.

These boards will be empowered to grant temporary federal recognition under provisions of Section 704, Armed Forces Reserve Act of 1952. After the temporary recognition is granted, the paperwork will move through prescribed channels to the Bureau where the recognition will be confirmed or upset.

Net effect of this temporary recognition is that the officer can draw the pay and allowances to which he is entitled from the date of his appearance before the board. In the past there was always some questions as to whether an officer, who appeared before a board for promotion to the next higher grade, could draw the pay of that grade in the period between board proceedings and final action in the Pentagon.—END

TECH TALK

The Century Series of aircraft is growing. The Air Force in July announced that **Lockheed's new XF-104** had been successfully test flown. The XF-104, which test pilots have nicknamed the Gee Whizzer, is an "unusually fast," lightweight day fighter unofficially reported to be capable of speeds up to 1,500 mph. It first flew at Edwards AFB, Calif., in February and is still being tested there. **Curtiss-Wright's J-65** turbojet, rated at more than 7,220 pounds thrust, powers the new fighter.

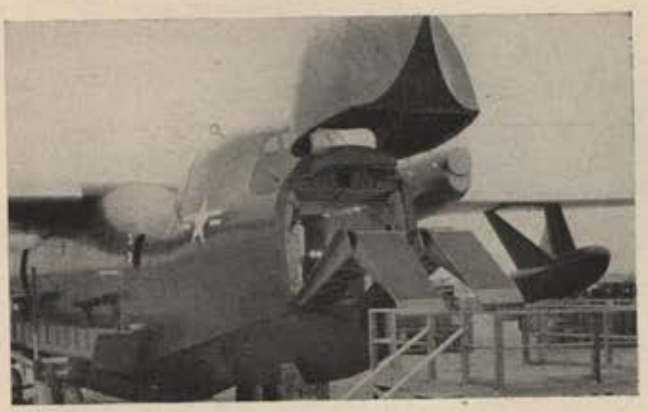
Servo Corporation of America and the USAF have developed a flying lab that can "**smell**" **enemy aircraft** and missiles. The equipment measures and analyzes infrared radiations created in flight by the heat of power plants, the friction of air molecules against the vehicle's skin, or the reflection of the sun's rays. Planes of the future, officials at Servo feel, won't be able to risk using radar, so detection will depend on the inescapable radiations. Next problem will be to reduce this fatal form of "body odor" in friendly aircraft.

With wind tunnel facilities boosting their speeds into the transonic zone, stronger blades had to be developed. In their transonic test facility at Seattle, Boeing has installed **laminated glass fan blades** that must withstand a force equal to nineteen tons. Weighing about fifty pounds each (see cut), the glass blades replace spruce blades, which couldn't stand the high speeds and temperatures.

The Navy has developed a method of **bleeding air from the jet engine** of a plane and blowing it over the trailing edge of the wing to make the flow of air steadier at slower speeds, thereby increasing lift. The stream of air flows through holes in the duct and tends to make the normal flow of air hug the wing skin rather than "burble" when the plane is at near-stalling speed. Future carrier-based planes, using this system, will be able to land more slowly and carry more armament than now possible.

A bow like a speedboat's is one of the design modifications on the improved version of the **Martin P5M-2 Marlin,** delivered to the Navy in June. The new Marlin has a bow that throws spray out horizontally on both sides of the plane. Previous seaplanes have had high, sweeping bows that caused spray to be thrown up and back at the engines and wing surfaces during take-offs. Other changes include a high "T" tail (see cut) for better control at slow airspeeds, and larger Wright turbocompound engines.

(Continued on page 62)

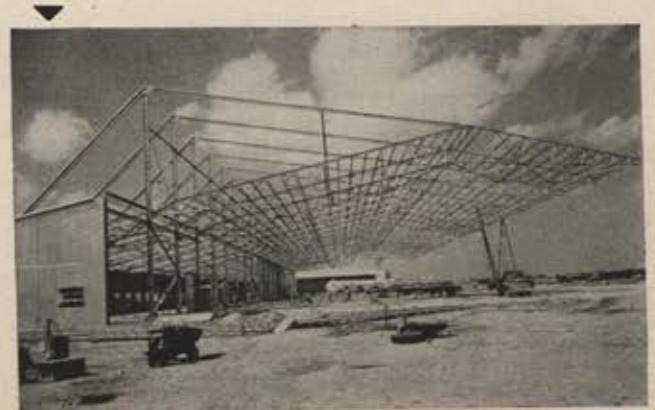


The ramp on Convair's R3Y-2 unfolds, showing how the "Flying LST" will land men and guns on assault beaches.

Speedboat bow and high "T" tail better suit the new version of the Martin Marlin for anti-submarine work.

A Boeing engineer checks the laminated glass fan blades now being used in the company's transonic wind tunnel.

Below, the skeleton of Temco's new hangar whose design offers an increased amount of unobstructed work space.



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Eastern Air Lines (in common with most of the world's airlines) derives multiple advantages from the use of Vickers Hydraulics. First, it has the best aircraft hydraulic equipment available. Second, it obtains the many benefits of standardization. Third, it has the undivided responsibility of a single source.

Vickers Hydraulic Equipment has proved by hundreds of thousands of hours in the air its claims of longer life, greater dependability, better performance and lower maintenance.

The interchangeability resulting from standardization means a smaller and more flexible inventory of spare parts. It minimizes the number of test and inspection fixtures. It makes for quicker and easier training of maintenance personnel through the need for familiarization with fewer products.

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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Here's an artist's impression of how the British-built Vickers Viscount will look on duty with Capital Airlines.

Above, during its initial flight, the Douglas RB-66A, the US Air Force's new twin-jet reconnaissance bomber.

The skeleton view of a **radical new hangar** (below) at **Temco Aircraft Corp.** illustrates a design that eliminates the need for all but a few vertical supports. The hangar, designed and built by the Newman Construction Co., Houston Tex., has a cantilever roof, supported overhead by suspension trusses. Vertical clearance in the main area averages thirty feet. Clearance goes up to forty-five feet inside three "doghouses" at the edge of the overhanging roof to admit high vertical tails. The main working area is 435 by 121 feet. The lighting system of 1,671 fluorescent lamps is multi-directional so, Temco says, a workman inside the building casts no shadow.

The AF's new twin-jet reconnaissance bomber, the **Douglas RB-66A**, shown above, has made its first flight. The sweptwing plane, whose design is based on the Navy A3D, is powered by **Allison YJ-71** turbojets.

TECH NOTES . . . Scheduled to go into service on Capital Airlines' domestic routes early next year, the British-built **Vickers Viscount** turboprop transport will carry forty passengers at a cruising speed of 300 mph (see cut above) . . . The world's first "flying LST"—**Convair's R3Y-2**—has a main deck of extruded magnesium for strength without weight. It's eighty-eight feet long and more than nine feet wide . . . The Navy's new primary trainer is the **Beechcraft T-34** . . . The 2,000th **Buick-built Wright J-65** turbojet has been delivered to the AF, less than eight months after the first one was approved for tactical flight use . . . The **Piper Tri-Pacer** has its sea legs. A seaplane version has been equipped with Edo Model 2000 floats . . . A single-engine **de Havilland Otter** has been ferried from Canada to Norway. The fourteen-passenger transport will be used by a Norwegian airline.—END

RESERVE YOUR ROOM NOW FOR AFA'S CONVENTION AND REUNION

CONVENTION HEADQUARTERS — FONTENELLE HOTEL

Two headquarters hotels have been reserved for AFA's 1954 meeting in Omaha. The Fontenelle is Convention Headquarters, and the Paxton is AFA Ladies Auxiliary Headquarters. Convention delegates and visitors will stay at both, as neither is large enough to house the entire Convention. Send your room request to the hotel of your choice. State whether you want air conditioning.

LADIES AUXILIARY HEADQUARTERS — PAXTON HOTEL

Rates	Single Room	Double Room	Twin Room
Fontenelle	$5.50-10.00	$9.00-12.50	$10.50-14.00
Suites: 1 Bed Rm.: 25.00-32.00		2 Bed Rm.: 36.50-43.50	
Paxton	5.50-9.00	7.00-9.75	8.00-10.75
Suites: 1 Bed Rm.: 16.00-17.00		2 Bed Rm.: 26.00-27.00	

AIR FORCE ASSOCIATION CONVENTION ROOM RESERVATION REQUEST FORM
August 19-20-21-22, 1954

(Please Print)

NAME_____

ADDRESS_____

CITY_____ STATE_____

ARRIVAL DATE_____ HOUR_____

DEPARTURE DATE_____ HOUR_____

NAME OF PERSON(S) SHARING ROOM:

_____

_____

*Room available at rate nearest that requested will be assigned.

MAIL DIRECTLY TO:
Reservations Manager
(Name of hotel of first choice)
Omaha, Neb.

(Please list two choices of hotels)

CHOICE: HOTEL DESIRED

First_____

Second_____

TYPE ROOM DESIRED

☐ Single ☐ Double ☐ Twin

☐ Suite—Number of Bedrooms_____

Desired rate per day: $_____*

☐ Desire Air Conditioning

Where's "Charlie"?

The "bird" will find him!

As it rockets along at supersonic speeds—high above the earth—its guidance system directs it unerringly to target "Charlie."

Electronics makes today's accurate missile guidance a reality—and *electronics* is the past, present and future of RCA.

For years, RCA has been working with the Armed Forces on design and engineering of more accurate, more effective missile-guidance systems. The same RCA engineering facilities—from original planning to final production stages—are available for development of complete electronic systems of all kinds. For additional information, write to Government Department, Engineering Products Division, Radio Corporation of America, Camden, N.J.

GOVERNMENT DEPARTMENT

RADIO CORPORATION of AMERICA

ENGINEERING PRODUCTS DIVISION

CAMDEN, N.J.

RENDEZVOUS

Where the Gang gets together

MORE REUNION: We will hold the 9th annual reunion of former Hobbs Army Air Force Base members and their wives in Seattle, Wash., on August 21, at the New Washington Hotel. All those interested in attending, please contact *Granville Shannon, Sec'y., 6855 N. Atlantic Ave., Portland, Ore.*

22D BOMB GRP. REUNION: All former members of the 22d Bomb Group who are interested in attending the 6th annual reunion, please get in touch with *Walter Gaylor, 338 Rahway Ave., Elizabeth, N. J.*

"STATIC" REUNION: It is requested that all former Instructor (Static) Officers stationed at Pyote AAB, Tex., during World War II contact me at once in regard to a reunion in 1955. *Dr. William S. McMurry (Capt., AFR), 414-16 Commerce Bldg., Okmulgee, Okla.*

HOSPITALIZED VET: I have been a patient in the vet's hospital for over six years and would like to hear from some of you fellas who were in my former 8th Air Force outfits—the 389th Bomb Grp. (H); the 566th Bomb Group (H), under Col. Jack Dieterle; the 2d Division, under Gen. Kepner; and the 2d Bomb Wing (H), under Col. Jimmy Stewart. *Martin A. Schulte, U.S. Veterans Hospital, Knoxville, Iowa.*

LOST AGAIN: When I was in Japan you helped me locate my buddy, A/1C Cleophus Downey, AF18321726. Since then I have again lost track of him. Anyone know where he is now? *T/Sgt. James M. Turner, Hq. USEC, Office of the US High Commisioner for Germany, P.O. Box 810, APO 80, c/o PM., New York, N.Y.*

457TH BOMB GRP. (H): Anyone know if a history of the 457th Bomb Group (H) has ever been published? *Roy S. Dintman, 906 Main St., Vancouver, Wash.*

ANTHOLOGY: I am interested in collecting an anthology of airmen's verse, either published or unpublished. While there are many poems available in print, I am sure there must be many airmen who have put their thoughts on their world—the sky—into verse. In addition to USAF personnel, I would like to hear from British and French flyers. *Marjorie S. Van Sickle, 811 Fifth St., N.W., Minot, N. D.*

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

Bull's-eye in the stratosphere...

In the picture above, you see what a pilot sees with an enemy plane in his sights.

Today's pilot centers the ring of light on his windshield on target. He trips the trigger... bull's-eye! It's an automatic "kill."

That can, of course, be a tough job, but it *looks* simple and it *is* remarkably simple by comparison with earlier sighting methods. And behind that apparent simplicity lies one of the most complex electro-mechanical devices ever produced. It's the A-4 Gun-Bomb-Rocket Sight, produced in quantity for our fighting planes by AC.

This is just one more example of AC's proved ability in defense production. Perhaps AC's unique facilities for research, product development and volume production in the electro-mechanical field could help you with a similar problem. Why not give us a call?

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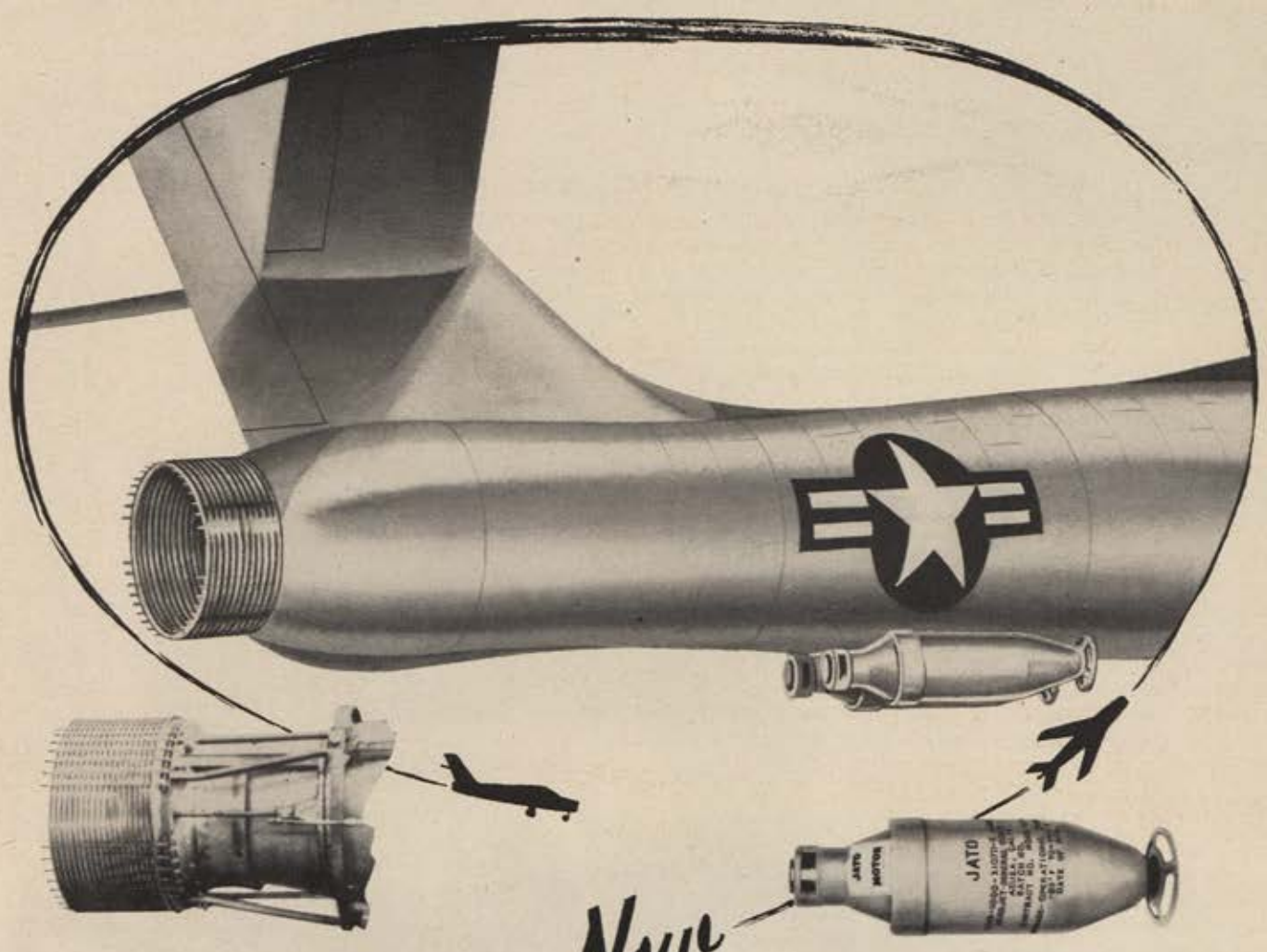

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SAFETY AT *BOTH* ENDS OF THE FLIGHT WITH AEROJET-GENERAL EQUIPMENT!

- SOLID- AND LIQUID-PROPELLANT ROCKET POWER PLANTS FOR AIRCRAFT AND MISSILE APPLICATIONS
- AUXILIARY POWER UNITS AND GAS GENERATORS
- ELECTRONICS AND GUIDANCE
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- EXPLOSIVE ORDNANCE AND WARHEADS
- UNDERWATER PROPULSION DEVICES
- ARCHITECT-ENGINEER SERVICES FOR TEST FACILITIES

During the past twelve years, Aerojet-General has produced over 300,000 rocket power plants for assisted-takeoff of piloted aircraft.

Now Aerojet-General is active on the other end of the flight — producing a thrust reverser for Turbojet engines. Light weight, fail-safe, and operationally proved by many hundreds of hours of actual flight, the Aerojet-Snecma Thrust Reverser permits continuous varying of thrust with *less than one second* required to switch from forward to reverse or braking thrust. The installation can also be used as a dive brake and for directional control.

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THE GENERAL TIRE

AZUSA, CALIFORNIA
CINCINNATI, OHIO
SACRAMENTO, CALIFORNIA

Bolling AFB Honor Flight airmen on a free weekend in New York get their bearings from the top of Rockefeller Center.

WEEKEND AT THE *Waldorf*

New York City picks up the tab for four Honor Airmen from Bolling AFB on a big weekend in the Big Town

LIVING literally "high on the town," four Honor Airmen from Bolling AFB, Washington, D. C., recently got VIP treatment that included breakfast in bed at the Waldorf on an all-expense weekend in New York City. The four—A/1C Ken Hulet, Pittsburgh, Penna.; A/1C Charles Markel, Uniontown, Penna.; A/2C Robert Savanya, Warren, Ohio; and A/2C Guenter Schroeder, Daytona Beach, Fla.—were named for the trip under a recently revised system of honoring airmen who exhibit above-average capabilities. The Honor Flight system—more than two years old at Bolling—encourages high performance standards and morale among the lower four grades. Under the revised set-up, airmen are chosen monthly by an Honor Flight Selection Board—eight NCOs and an officer advisor. Earlier, boards had included four officers and four NCOs. The free weekend proved mighty easy to take. It included tickets to "The Girl in Pink Tights," and introductions to Jeanmaire, the star of the show . . . dinner at the famed Latin Quarter night club . . . tickets to "Cinerama" . . . a tour of New York . . . a songfest with Eileen "Bake a Cake" Barton . . . and, as a grand finale, a jazz concert.—END

Home was seldom like this; the barracks, never. It's breakfast in bed, compliments of the Waldorf-Astoria.

Jinx Falkenberg relaxes with Bolling airmen after finishing her broadcast from the Waldorf's Peacock Alley Lounge.

In Rockefeller Center's Rainbow Room, 65 floors up in New York's wild blue yonder, the airmen keep a date and chime right in with singer Eileen "Bake a Cake" Barton.

THE AIRFRAME'S THE SAME —THE POWER'S TURBO-PROP

Here is the Convair YC-131C Military Transport, a conversion to Allison Turbo-Prop power of the Model 340 Convair-Liner. Modified under an Air Force contract, the YC-131C is now flying powered by two Allison YT56 Turbo-Prop engines driving Aeroproducts propellers.

With this installation the Air Force is leading the way in testing the practical operating usefulness of Turbo-Prop engines—paving the way for the change from reciprocating to Turbo-Prop engines in transport and logistic aircraft.

Allison Turbo-Prop design and performance characteristics can help today's transports meet tomorrow's advanced operational requirements of:

- **Increased Payloads**
- **Higher Cruising Speeds**
- **Lower Fuel Cost**
- **Less Maintenance Time and Cost**
- **Shorter Take-offs and Landings**
- **Greater Passenger Comfort**
- **Reduced Ground Handling Time**
- **Reduced Crew Fatigue**

Since December 1950, Allison has conducted extensive flight tests with its own Turbo-Liner to exploit the advantages inherent in Turbo-Prop power for transport service. In addition, the Navy is accumulating experience in the Douglas A2D Skyshark and the Convair R3Y Tradewind—also powered by Allison Turbo-Prop engines driving Aeroproducts propellers.

Today that pioneering is paying off in the availability of Turbo-Prop engines and propellers which will enable military and commercial aircraft to carry bigger payloads, farther, faster and more economically.

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Division of General Motors, Indianapolis, Indiana

Lansing Squadron Honors AF-ROTC

TOP AWARD GIVEN MICHIGAN STATE CADETS IS AIR FORCE ASSOCIATION SILVER MEDAL

SQUADRON OF THE MONTH

Lansing Squadron
Lansing, Mich.

CITED FOR

its Airpower Awards Banquet, when Awards are given to outstanding AF-ROTC cadets, and public recognition is centered on the development of this phase of the AF's Reserve Program. AFA salutes Michigan's first chartered Squadron.

Each spring many AFA units sponsor community functions to honor **outstanding AF-ROTC cadets.** These functions also give public recognition to the award ceremonies held annually by practically all the 190 colleges and universities that sponsor AF-ROTC detachments. The awards are made for individual cadet scholarship and military proficiency.

One such program was held in May by the **AFA Squadron in Lansing, Mich.** There 250 people attended an Airpower Banquet honoring Michigan State College cadets. Brig. Gen. Felix Vidal, commander of the 439th Fighter-Bomber Wing, was the principal speaker and presented the top award—the Air Force Association **Silver Medal**—to Cadet John T. Abell, who is a Michigan State senior. This medal has become the most sought-after award on campus.

Squadron Commander James G. Vignola and John L. Bagg were co-chairmen for the banquet. Local companies that sponsored the attendance of more than 150 cadets included Oldsmobile Division, Reo, Motor Wheel, Lansing Forge, Lindell Forge, Melling Forge, Manufacturers Life Insurance, John Bean Corp, Industrial Metal, Francis Aviation, United and Capital Airlines, Abrams Instrument Corp., Howard Sober, Inc., and the 9622d Air Force Reserve Squadron.

AFA's **Wright Memorial Squadron** of Dayton, Ohio, and the **Dayton Soaring Society** joined late in May in sponsoring the sixth annual Wright Memorial Glider Meet. A total of 12,000 people gathered at the South Dayton Airport during the five-day meet that attracted a record number of entrants. The top award—the Lane Trophy, for over-all superiority—went to Larry Gehrlein of Erie, Penna., who took first place in three major events—distance, absolute altitude, and endurance. Trophies for these events were presented by General Electric, Convair, and Northrop Aviation.

The Wright Glider meet is run in two divisions—a senior division, this year with seven events, and a junior division, with five. The winner of each event gets a trophy, and high scorers become the over-all winners. Champion in the junior division was Air Force Lt. David McNey of Youngstown, Ohio, who received the Republic Aviation Trophy. The Purdue University team won the Northrop Collegiate trophy.

The fact that the number of entries in this glider meet continues to grow each year is a tribute to the sound planning of the sponsoring organizations.

At an Airpower Banquet on June 4, AFA's **Fruit Belt Squadron** of St. Joseph-Benton Harbor, Mich., presented its airpower trophy to Elisha "Bud" Gray for his accomplishments in area aviation. He is president of the Whirlpool Corporation. AFA **President George C. Kenney,** the principal speaker at the banquet, spoke to a packed house of more than 300 people. Richard White is the Fruit Belt Squadron Commander.

Two new AFA Wing Commanders have been appointed by their respective Regional Vice Presidents, and both appointments confirmed by AFA President Kenney.

In **Wyoming,** Vice President Thayer Tutt has completed the first phase of his organizational plan with the appointment of **Robert N. Maupin,** Cheyenne, as Wyoming Wing Commander. This had been the only state in Tutt's Region without a Wing organization.

Maupin is manager of the Wyoming Industrial Finance Company. Still active in flying, he is the Wyoming Air National Guard Commander and holds a command pilot's rating.

Meanwhile, Ashley Green, Northwest Regional Vice President, has named **Robert H. Mitchell** of Portland, Ore., as **Commander of the Oregon Wing.** Mitchell is active in the Air Force Reserve and now commands the 65th Squadron of the 403d Troop Carrier Wing. He was an enlisted man in World War II and also saw duty in Korea. In civilian life he is a government engineer.

(Continued on following page)

Miss Shirley Oney, Dayton Glider Meet queen, holds the coveted Lane Trophy.

In Ogden, Utah, Wing Cmdr. Paul M. Fisher, left, and Regional V-P Thayer Tutt, right, talk AFA with AMC's Gen. Edwin W. Rawlings.

From left, Fruit Belt Sqdn. Cmdr. Richard White; award winner Elisha Gray; General Kenney; Grp. Cmdr. Stanley Mull; Reg. V-P George Anderl; Wing Cmdr. Glenn Sanderson; Director Stanley McWhinney.

AFA President Kenney and Col. J. W. Dieterle review Penna. State Univ. ROTC, with Penna. Wing AFA'ers and "Old Main" behind them.

AFA NEWS — CONTINUED

The **Michigan Wing Convention** was held in Flint on June 13, at the Durant Hotel. The hosts were the officers and members of the Flint Squadron, whose Commander, Roy Kanaby, served on the convention committee.

The Wing's Airability Trophy went to Floyd L. Evans, a veteran of more than thirty years of Air Force service and formerly Director of Aeronautics for the state. The award was presented by Stanley McWhinney, AFA Director.

James Vignola, Lansing Squadron Commander, presented the Squadron's award to the Michigan Wing of the **Civil Air Patrol** for its work during the aftermath of a tornado in the Flint area last year.

Robert F. Emerson, Lansing, was elected Wing Commander. He is a former Commander of the Lansing Squadron.

The principal speaker was **Roscoe Turner**, who related some of his early barnstorming experiences. He also remarked that the early pilots were instrumental in keeping alive an interest in aviation when most of the nation was ignoring it.

George Anderl, Great Lakes Regional Vice President, also spoke at the banquet. Other guests were National Auxiliary President Marietta C. Miller and Donald W. Riegle, the Mayor of Flint.

Two new Squadrons—Detroit's **Gen. Hoyt S. Vandenberg Squadron** and the **Dearborn Squadron**—received their Charters, as did the **Saginaw Flight.**

Glenn Sanderson, retiring Wing Commander, served as toastmaster.

The Auxiliary National Board of Governors held a meeting during the recent Michigan Wing Convention. **National President Marietta C. Miller** presided. The primary subjects of discussion were the problems of Auxiliary membership and the formation of new units.

During the convention, the Michigan Wing Auxiliary elections were held and Mrs. Frances Karr, Lansing, was elected President.

The Board of Governors meeting coincided with the Wing Auxilary's first birthday, and the ladies were hosts to the AFA Wing at an informal reception after the last business session of the day.

The **Wisconsin Wing's** second annual convention was held in Milwaukee June 27, at the Wisconsin Hotel. Ninety members and guests attended the luncheon held between business sessions.

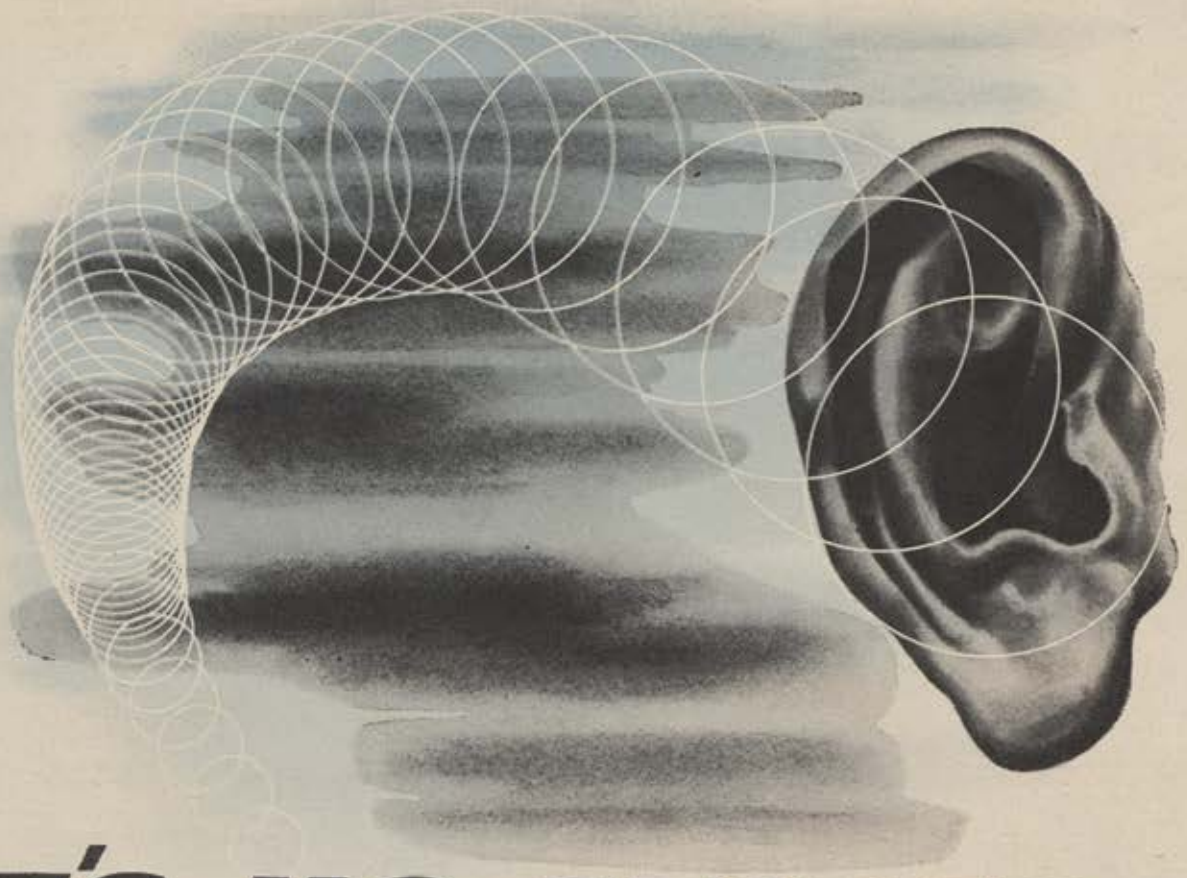
Gerald T. Hayes, Jr., 735 N. Water St., Milwaukee, was elected Wing Commander, replacing John Whitmore, Madison. Other officers elected were Mary Jane Rosenqvist, Vice Commander; Francis Hyland, Secretary; and Bernard Schmidt, Treasurer. Regional Vice President George Anderl installed the new officers.

Lt. Col. Charles L. Miller, a veteran of World War II and Korea, outlined the principles of jet warfare and training.

Convention chairman was Leonard Dereszynski, Milwaukee Squadron Commander. Leroy Kwiatt, Chicago Group Commander, was a visitor, as were fourteen other Chicago AFA'ers.

(Continued on page 73)

At the Lansing Squadron's Airpower Awards Banquet, Brig. Gen. Felix Vidal, center, chats with Cadet John T. Abell, left, the winner of AFA's Silver Medal, and Col. Graeme S. Bond, the PAS&T at Michigan State.



IT'S NO SECRET...

At this time our company is working on electronic projects for the defense departments of our country. Missile guidance systems . . . firing error indicators . . . and special communications equipment about which the strictest security must be maintained . . . but what we're privileged and proud to reveal *IS NO SECRET.* The competence which makes these achievements possible is in our engineering staff.

Members of this group average more than ten years of experience in this complex, diverse field.

Whenever you face a problem which may be solved by the use of electronic, electro-mechanical, hydraulic or pneumatic equipment, we feel sure these men can help you . . . LET'S TALK IT OVER.

WE REPRESENT OVER ONE HUNDRED TOP MANUFACTURERS OF MAJOR AVIATION PRODUCTS. A NEARBY BRANCH WILL BE HAPPY TO SERVE YOUR NEEDS. DO MORE BUSINESS . . . REALIZE MORE PROFIT WITH AIR ASSOCIATES EQUIPMENT.

J. E. Cashman
PRESIDENT

AIR ASSOCIATES, INC.

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Carrier Based Jets to have Radar Guided Missiles

NAVY'S AIR-TO-AIR SPARROW 1 IN PRODUCTION

THE STORY BEHIND THE STORY:

■ On May 12, newspapers from coast to coast carried headlines like the ones above, announcing the Navy's newest weapon of defense—Sparrow I—and the beginning of volume production for operational use in the fleets.

■ Ahead of these headlines were 7 years of intensive cooperative effort shared by the Navy's Bureau of Aeronautics and Sperry.

■ Originally designated project HOT SHOT, Sparrow began back in 1947 when the Bureau of Aeronautics assigned to Sperry the full responsibility of creating an entirely new air-to-air missile system. It had to be light and compact – so multiple units could be carried by fighter-type jets. It had to be deadly accurate – capable of outmaneuvering the swiftest bombers an enemy could produce. And it had to be practical—suitable for large-scale production.

■ The rocket-powered, radar-guided Sparrow I, coming off the production lines here and at the new Sperry Farragut plant in Bristol, Tennessee, meets these requirements—and more. It embodies the proved features of more than 100 different missiles designed, constructed and tested during a 7-year period – and the finest brains of an organization that has devoted more than 40 years creating and manufacturing automatic flight control and fire control systems.

SPERRY GYROSCOPE COMPANY

DIVISION OF THE SPERRY CORPORATION • GREAT NECK, N.Y.

AFA NEWS——CONTINUED

More new AFA units are being organized. **Lake Charles, La.,** was granted a Squadron Charter on June 1. The Commander is a local attorney, Everett R. Scott, Jr., P.O. Box 573. Other officers include L. R. Savoie, Vice Commander; Ernest Price, Secretary; David Ryan, Treasurer; and Charles Hebert, Raymond Jones, H. Ralph Liles, and Ralph Rundle, Councilmen.

The **Lincoln, Nebr.,** Squadron Commander is Glenn Yaussi. Other officers are R. R. Cook, Vice Commander; Miles Johnson, Secretary; and Walter Black, Treasurer. Councilmen are Donald Coy, Ralph Reed, Robert Jeffrey, Byron Dunn, and Robert Wekesser. In Michigan, the new **Dearborn Squadron** is led by Berge Manoogian, a former member of Detroit Squadron #1. The Commander of the new Flight in **Saginaw, Mich.,** is Charles W. Brennan, Bridgeport. Other Officers are Keith Farrell and Ronald Heinlein. John Hildebrand, Raymond Parker, and Francis Adams are Councilmen.

A new **Auxiliary** unit has been formed by the ladies of **Chicago's Squadron 101.** The President is Mrs. Hazel Sarnecki, 1438 Artesian Ave., Chicago 22. Vice President is Mrs. Marge Batz; Secretary, Beatrice Jones; Treasurer, Sophie Rzany. The Council includes Agnes Amey, Doris Dawson, and Florence Quirk.

Another auxiliary group is in **Passaic-Bergen, N. J.,** with Emma Binns as President. Phyllis Gajdos is Vice President; Mamie Kinsley, Secretary; and Janet Currie, Treasurer. Helen Stires, Myrt O'Connell, Dorothy Canova, and Mary Currie are on the Council.

CROSS COUNTRY . . . Jerry Joseph is the **San Francisco** Squadron's Blood Bank Chairman . . . **New York City's** oldest Squadron has changed its name from WAC to WAF . . . The **Denver Squadron** is organizing an Auxiliary . . . AFA Director **Morry Worshill,** Chicago, is recovering in Florida from a heart attack . . . Top new-member-getter in the Santa Monica Squadron is **Jim Czach** who received a desk set from the Squadron for his efforts . . . AFA's Executive Director **Jim Straubel** is back at his desk after recent hospitalization.—END

Lobster Tale

BY JOHN A. POPE

I SHOOK my head to be sure I had heard right.

"OK," I said, "say again—but slow."

Major Lowell pointed out of the window. "I said that you are to take that C-47 from here to Majuro. Locate the weathermen who just boated in and set up a mail and PX supply schedule."

"Yeah, yeah," I said anxiously, "and what else?"

"And take this sack and fill it with lobsters for the general." His expression didn't change.

"Lobsters for the general?" I asked meekly.

Lowell nodded. He was the perfect operations officer. He could make any mission sound legitimate.

"Just how in blazes do I get the lobsters?" I challenged.

"Look, Ace, when the general gives an order, he don't worry his head about details. Bring back a bag full of lobsters, that's all."

"Begging your pardon, kind sir, I got some kind of crew maybe?" I asked.

"Jacoby's your co-pilot," he answered. "So on your horse. The general will be down at 0900."

I walked over to the snack shop to get some G.I. coffee for a bracer, talking to myself all the way.

This was 1952 and we were on Kwajalein to prepare for a series of tests for the Atomic Energy Commission. And when the general wanted something, you jumped. If the general wanted lobsters, that was it.

Jacoby was in the snack shop staring dolefully at a cup of coffee. Beads of sweat glistened on his bald head. Jake was probably the oldest living captain in the Air Force.

"You heard?" I asked glumly.

"Uh-huh," he replied without enthusiasm. "They won't take a substitute for me either. I tried."

"Know anything about lobsters?" I asked hopefully.

"Lots," he grinned and my eyes lit up. "They live in restaurant windows and they're green. Cost about two bucks a pound and they turn red when you cook 'em. With Cantonese sauce or drawn butter – delicious." He smacked his lips.

"That's nice," I said. "Very handy information. Find me a restaurant window and we're in business." I showed him the large bag.

"Let's go, lobster pot," he said, "We can't fill it standing around here."

We went over to Ops, made out our flight plan, checked the weather and got briefed. At least the weather looked good. I signed for the chutes and dinghy and we rode out to the airplane.

Colonel Kent, the general's chief of staff, was leaning casually against the tail assembly waiting for us.

"Going for lobsters?" he asked gaily.

My grin was weak. He knew the answer.

"Thought you might need some help," he suggested.

"Are you coming?" I grabbed his arm. "Don't go away! I'll get another chute."

"I'm not going anywhere, Pope," he snapped. I couldn't figure out how else he could help.

"When you get to Majuro," he went on, "Look up Ben Gates. He's the head man there for the Trust Territories of the Pacific. He'll steer you straight—to the lobsters, that is."

Colonel Kent leaped back and hit a brace as the general's car drove up. The door opened and a large cardboard box fell heavily on the ramp. The general climbed out, replacing the hearing aid that had pulled loose from his ear.

Colonel Kent bellowed my name into his receiver.

"Ah yes, Captain Poke. Got something for you here." He pulled a rubber face mask, a pair of flippers, and a home-made air gun from the box.

"This should give you some protection." He handed me the gun. I looked at it unhappily. I couldn't hit a bull with a banjo.

"Oh yes, Captain Pulp," he said, "If you see any nice sea shells, pick them up for me, too, will you?"

"Go to blazes," I whispered.

"Eh?" he said.

"Shell do," I punned. I guess we were on the same frequency because he smiled.

"Shell do, yes," he grinned. "Very good. Well, have a good trip, Pook." He patted me on the back, stumbled over the box and climbed into the car. His freckled face was serious when he stuck it out of the window. "And fill the damn bag with lobsters," he rumbled in farewell.

I arched my back, threw a snappy salute and watched him drive off. As I boarded the plane, Jacoby hollered, "Captain Cope, sir, you forgot the damn bag for the damn lobsters."

The two-hour trip was uneventful. When the western edge of Majuro rose up out of the ocean, I eased back on the throttles and began a gentle let-down over the lagoon.

There wasn't any control tower so we buzzed the coral strip as briefed. After we landed, a welcoming committee of ten natives spilled out of an ambulance that had roared up from the settlement on the other side of the island. The honor guard just stood there, staring and smiling happily at us. Jake made a face and they roared hysterically. Carried away by this display of emotion, he was about to stand on his head when a jeep drove up.

"Hi! I'm Ben Gates," said the well-tanned middle-aged driver. I was glad to see he hadn't waited for us to track him down.

I shook hands, introduced Jake and told Gates about our official business.

"Yes," he said, "the weather people got here a day or so ago and are still setting up shop. They weren't expecting you and they don't have any transportation as yet. Jump in and I'll drive you over."

Majuro is shaped like a boomerang. The airstrip lay on the east-west portion with each end of the runway ending at the sea. The main settlement nestled in the center of the north-south half with the open end of the wide V facing the lagoon. After we had driven in silence for a few moments, I mentioned the lobsters.

"Lobsters?" Ben asked.

"Yep," I said and held up the bag. "Somebody told the general that he could get some here and I've got to fill this lousy sack with them."

Ben saw we weren't kidding. "There should be some out by the reef. Occasionally one gets washed up by the tide but never a bag full. Guess you'll have to go after them."

I really didn't think there'd be an easy way.

"We've got a rubber dinghy," I said hopefully.

Ben agreed this would do better than anything he could dig up. He explained that, while the natives were helpful, they wouldn't be interested in beating their brains out for lobsters for the general.

Our business with the weather people didn't take long. Then Ben drove us to the shore and pointed to a clean spot of beach on the ocean side of the island.

"Drop me off at my office and use my jeep. I'm way behind on my paper work," he said apologetically. I couldn't blame him for not wanting to get involved.

We scooted back to the plane and unloaded the dinghy and the general's equipment.

On the beach we stripped to our drawers and made ready. The dinghy was packed into a neat, square, bright yellow bundle. We studied it silently for a moment.

"You're supposed to blow 'em up with a CO Two bottle," I told Jake.

"Hope so," he answered, "I've lived fast and I'm short on wind."

Jake found a string with a knob on the end. He jerked hard and the dinghy expanded magically at our feet. When it stopped hissing, we sealed it tight and loaded our equipment.

"We ought to christen it," Jake suggested.

"It'll get christened soon enough," I said, pointing to the surf. The submerged reef, far out from shore, took most of the strength out of the waves but they were still three feet high when they broke on the beach.

Our initial attempts at launching showed the results of clean city life. We capsized six times, were swamped three, and almost lost the damned thing altogether twice. Our valiant struggle against the sea had attracted attention. A crowd had gathered near the beach to shout encouragement. We couldn't understand a word. There was considerable laughing, back slapping, and pointing.

On the fifteenth try, we finally floated the dinghy beyond the line of breakers to the accompaniment of wild whoops from the spectators.

The water was crystal clear and we could see bottom. Ben had warned us that it would taper downward slightly and drop off abruptly at the edge of the reef. When I thought we were in the right position, I pitched the sea

(Continued on page 77)

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anchor overboard. I donned the rubber mask and draped myself over the side. My first sight of Pacific underwater life was terrific.

The multi-colored coral made a perfect background for the playground of thousands of fish. They seemed to be playing an endless game of tag. A small octopus danced crazily by.

We took turns leaning over the side until the thrill wore off. Then we began a systematic search of the ocean floor. Jake suggested moving about to take in a wider area. Taking turns looking and paddling, we traveled in a small circle. At long last, I spotted something that looked like a lobster. I pulled on the fins.

"I'm going to try one, Jake, old buddy. Keep an eye peeled for sharks and whales."

I dove into the tepid water and circled warily over my target. It lay motionless on the coral but I didn't know where to grab it. I surfaced, hung on to the raft and asked Jake.

"How do you tackle a lobster?"

"With a little fork after you've spilt him open with a nutcracker."

I took a deep breath and went under again. Taking a chance, I grabbed it atop the hard shell of its back and surfaced. The general could never say I didn't have guts, and I wondered what kind of a medal I'd get.

When I popped out of the water, I held it high and yelled happily.

"I got the old blankety-blank!"

Brother lobster objected to this slur on his ancestry for he reached around and nipped me. Jake thought this was exceedingly funny so I pitched the lobster at him. He ducked and it sailed over his head and hit the water with a splash.

I was cussing Jake when he silenced me with a wave of his hand.

"I think I see something."

"What do you see?" I asked.

"Thought I saw a shark fin."

"A what?" I screamed. I almost flew aboard.

"Where?" I asked. Before Jake could answer I saw it. Its triangular backfin stuck out of the sea not ten feet from us. It rolled over playfully, opened its wide jaw and displayed its bridgework—not a single cavity. It breezed past us and out of sight.

"No more lobsters?" asked Jake.

"Not unless you want to try." I offered him the flippers and mask. He didn't answer.

We headed for shore and shortly scrambled out onto the sandy beach laughing like two idiots. But the dinghy hissed and lay in a shapeless mass at our feet. A quick post mortem showed where coral had ripped the bottom to shreds.

"Lousy piece of equipment," Jake shouted, picking it up and hurling it into the sea.

A tumultuous cheer broke from the Marshallese and Jake clasped his hands over his head, prizefighter fashion, to acknowledge his victory over the sea.

Exhausted, we dropped under a shady palm and considered our next move.

"What'll the general say about an empty bag?" Jake asked glumly.

"Besides a professional chewing out that would make *From Here to Eternity* read like a Sunday School lesson, I can see a long list of choice assignments—followed by a firing squad."

"Yeah," said Jake sadly, "that's the way the ball bounces."

As we pondered our fate Ben Gates approached. He carried a paper sack and as he came closer, we could hear a familiar clink.

"Thought you might need a drink," he said as he squatted besides us.

Jake examined the label on the pinched bottle of Scotch.

"No mixer?" I asked politely.

Ben shouted some gibberish and the natives scurried towards the palms. Soon we were holding coconuts that had been chopped open at the top.

"Try one of my island specialties," said Ben. "Scotch milk."

"Scotch milk?" we asked simultaneously.

"Uh-huh. Pour a shot into the coconut and see how you like it," suggested Ben.

To our surprise, it was delightful.

"How about the lobsters?" asked Ben.

"Not a one," I answered ruefully. "We're just not cut out for the job."

"I don't know what to tell you boys," Ben confessed. "Your answer's probably with the Marshallese but I don't know how you'd get them to help."

"Just how bright are they?" asked Jake.

"In a native way, they're alert and capable," said Ben, "but from a Yankee standpoint, not so hot. They have trouble figuring us out. What are you thinking of?"

"Really don't know for sure." Jake pursed his lips and rolled his eyes. It looked like the Scotch milk was affecting him.

"Well, if you're working on some scheme with these boys, I'm going to give you just one piece of advice and tip-toe away," said Ben. "This generation comes from a long line of rough customers and I don't want any part of a plot. See you." With that, he left.

I studied Jake for a hint as to his sobriety but saw a blank face. I knew enough about Jake to know when he was working on an angle so I didn't press him further. As an expert on angles, Jake had no peer.

Two drinks later, he had it all squared away.

"Did you know, sir, that certain species of lobsters grow pearls on their claws?" he asked calmly.

"Oh, no, Jake," I moaned, "you're not going to try that one?"

"Yep, I just invented such a creature."

I didn't have time to argue with Jake. He had joined the native group, singled out their leader and was giving him the pitch. It took him fifteen minutes. When he joined me, he was grinning.

"How?" I asked.

"I told them we were Fish and Game Wardens from the Great White Father and that we were on the lookout for a new species of lobster. I offered my watch as a reward for the first one caught." He held up the watch that made the dollar famous.

"They believed you?" I asked in astonishment.

"A couple of guys gave me a bad time but a task force is about to go to our rescue." He beamed with pride.

We watched as four outriggers were launched. Each carried a crew of three and their speed and skill was amazing. Shouting and jabbering at each other, they fanned out over the area and began diving overboard. Evidently, they had no fear of the sharks for they pursued their activities with abandon.

Presently, the first rigger returned with two lobsters. The divers offered them to Jake for inspection.

"Nope," he opined. "These ain't the

(Continued on following page)

kind." He shook his head sadly as he placed them carefully into the sugar sack. Dejectedly, the divers returned to the rigger to try again.

As the riggers came and went, Jake went through the same routine but I noticed that there was a definite change in attitude among the natives. They began to huddle and argue noisily while making menacing gestures in our direction.

The bag was almost filled and I choose this moment to make the best suggestion of the evening.

"Something tells me that we ought to get the hell out of here."

Jake took one look at the natives and beat me to the driver's seat by two feet. As we roared away, I heard a wild shouting and turned to see the whole crowd chasing us. Something gleamed brightly in the fading sun and I gulped when I recalled the machetes they used on the coconuts.

It took us a minute and a half to make the mile and a half back to the plane. Twenty seconds later, we had stowed lobsters, locks, chocks, and pins and were beginning to start up. Forty seconds later we were moving down the runway. No run-up, no preflight!

Just as the screaming natives arrived at the strip, we broke ground. We circled low and watched them wave goodbye with clenched fists.

Jake was excited all the way back. Every ten minutes, he would get out of the seat for another look at the catch.

"We ought to be in for a feast," he sad gleefully.

"We?" I asked.

"Why not? We're bringing home the lobsters. Who has a better right?" he demanded.

"Hm," I hummed, "guess you're right." It wasn't hard to sell me. My mouth watered.

"Lobster boat am a-comin'," sang Jake off key. "They're big and they're small. Lobster boat am a-comin', I'll eat till I fall."

When we entered the control zone, Jake called in.

"We'll be in in forty minutes. Tell the good old general that the lobster boat am a-comin'," he told the controller.

"Lobsters?" asked the voice at the other end.

Jake sang a fast chorus into the mike.

"I'm sorry I asked," came the reply.

To make the return trip a complete success, I made a good landing. We opened the cargo doors triumphantly. There was no band. No general. Colonel Kent was giving the transient alert man a hand with the chocks. The warm look was absent from his face and I guessed that the general had been worrying him about the mission.

"Let me see the sack," he commanded. Proudly, we handed it over and watched as he clucked his approval.

He started to move away and Jake spoke up.

"Is there anything else, sir?" He puffed his chest and grinned widely. "Anything we can help you with?" he hinted.

The colonel looked at us both curiously, snorted and wheeled away without another word.

"Help you eat them maybe?" Jake said hopefully at the retreating back.

"Clean the scraps off the plates?" I volunteered as the staff car drove off.

The hamburgers we ate tasted like sawdust. I was too tired to care.

I slept loud and long and if Sergeant MacIntosh from Supply hadn't awakened me, I might have set a new record. The bright morning sun hurt my eyes and I had my usual before-breakfast disposition.

"Sign this," Mac kept saying into my ear.

"What's in the fine print?" I asked.

"Statement of charges, $263.14, for one-each dinghy," was his business-like reply.

"Have you seen Captain Jacoby yet?" I asked.

"Yes sir," said Mac with a puzzled expression. "Saw him outside the dispensary. Mumbled something about getting ready to enjoy a nervous breakdown."

I took the papers from Mac and dressed and shaved. I went to Major Lowell's office.

"What about 'em?" he asked after examination. "You checked in one dinghy short. Produce it and I'll square things."

That was impossible. I shrugged my shoulders in defeat and started to leave.

"Check the schedule before you go. Seems to me you're on it," said the major.

Two and two were beginning to make four. I ran my finger down the operations order and confirmed my suspicions. It was there all right.

"Pilot: Pope

Co-Pilot: Jacoby

Mission: Kwajalein to Majuro, special orders from the Commanding General."

My last sane thought had something to do with the way a ball bounces.—END

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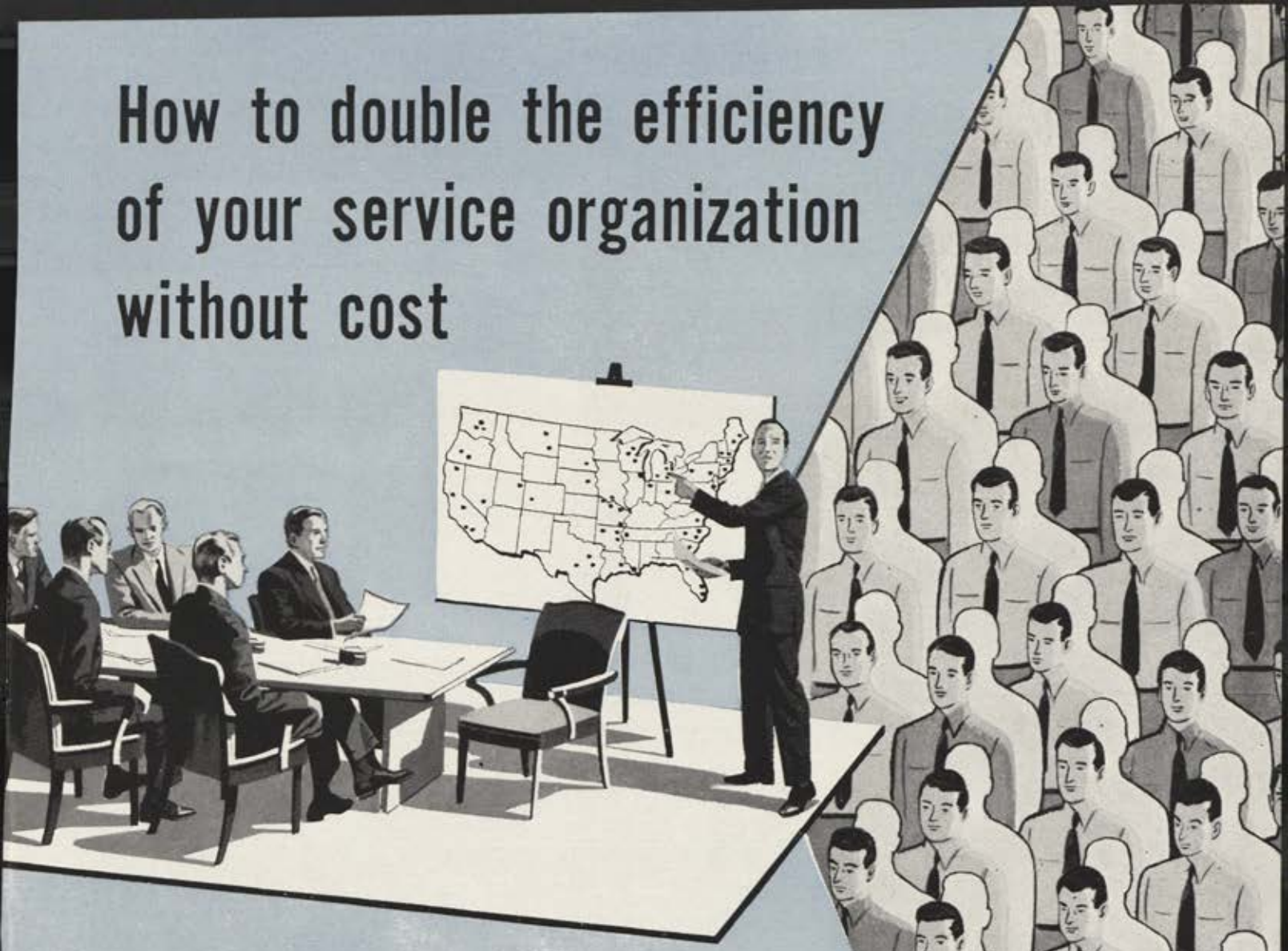

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