SEPTEMBER 1957 / 35c

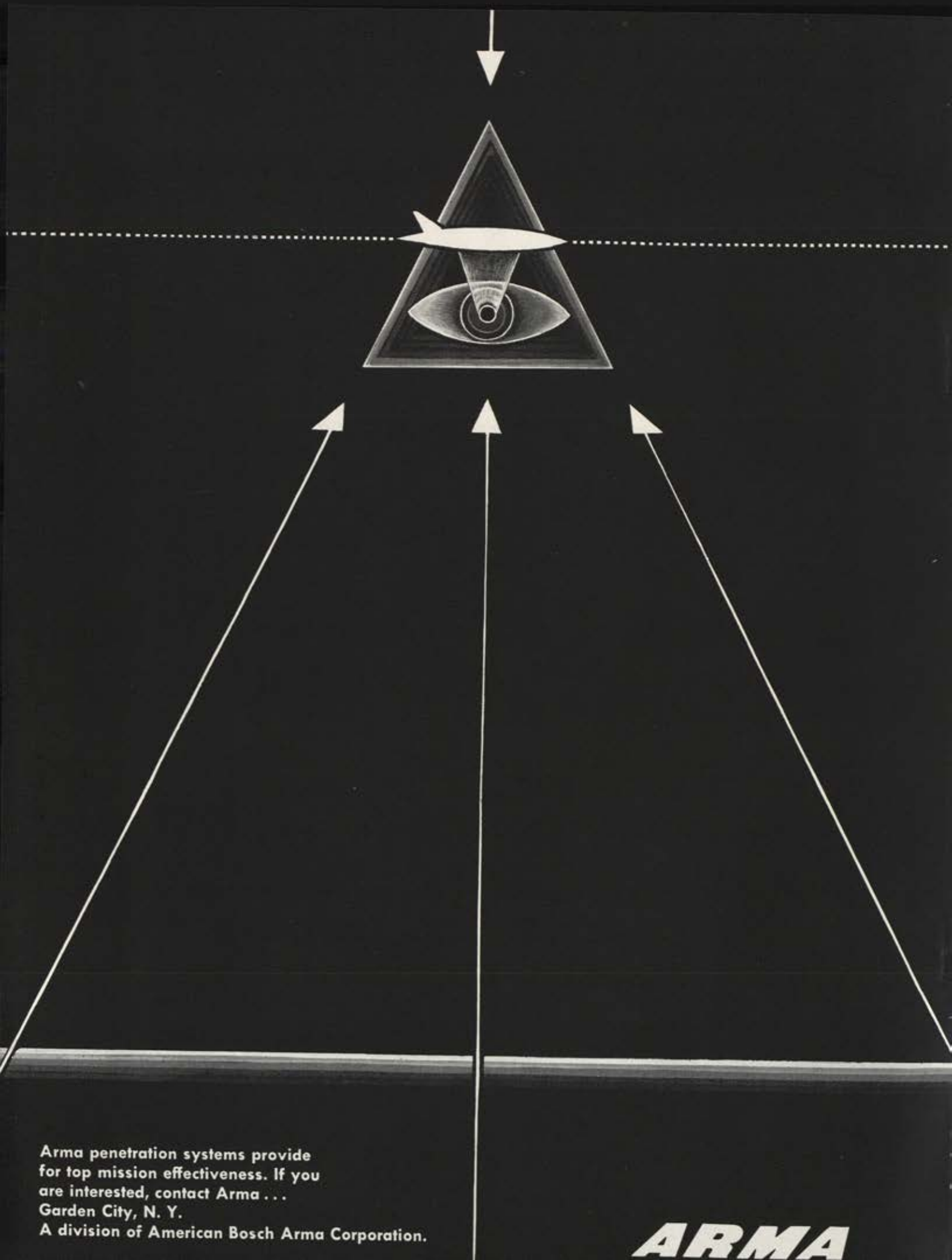
AIR FORCE

• THE MAGAZINE OF AMERICAN AIRPOWER

AIRPOWER'S GREATEST SHOWCASE

a special report on

- AFA's ELEVENTH NATIONAL CONVENTION
- THE USAF's GOLDEN ANNIVERSARY
- AFA's AIRPOWER PANORAMA



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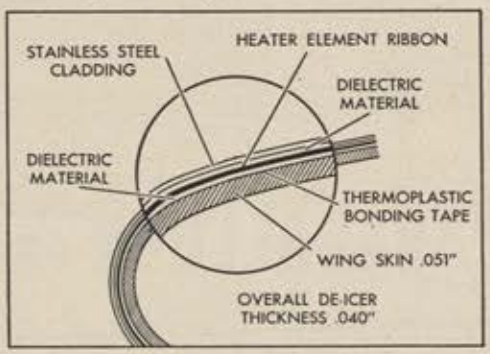

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AIR FORCE

THE MAGAZINE OF AMERICAN AIRPOWER

Volume 40, No. 9 • September 1957

1957 NATIONAL CONVENTION ISSUE

FEATURES

DEPARTMENTS

AIR FORCE MAGAZINE STAFF

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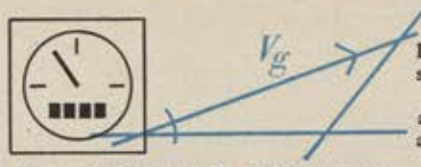

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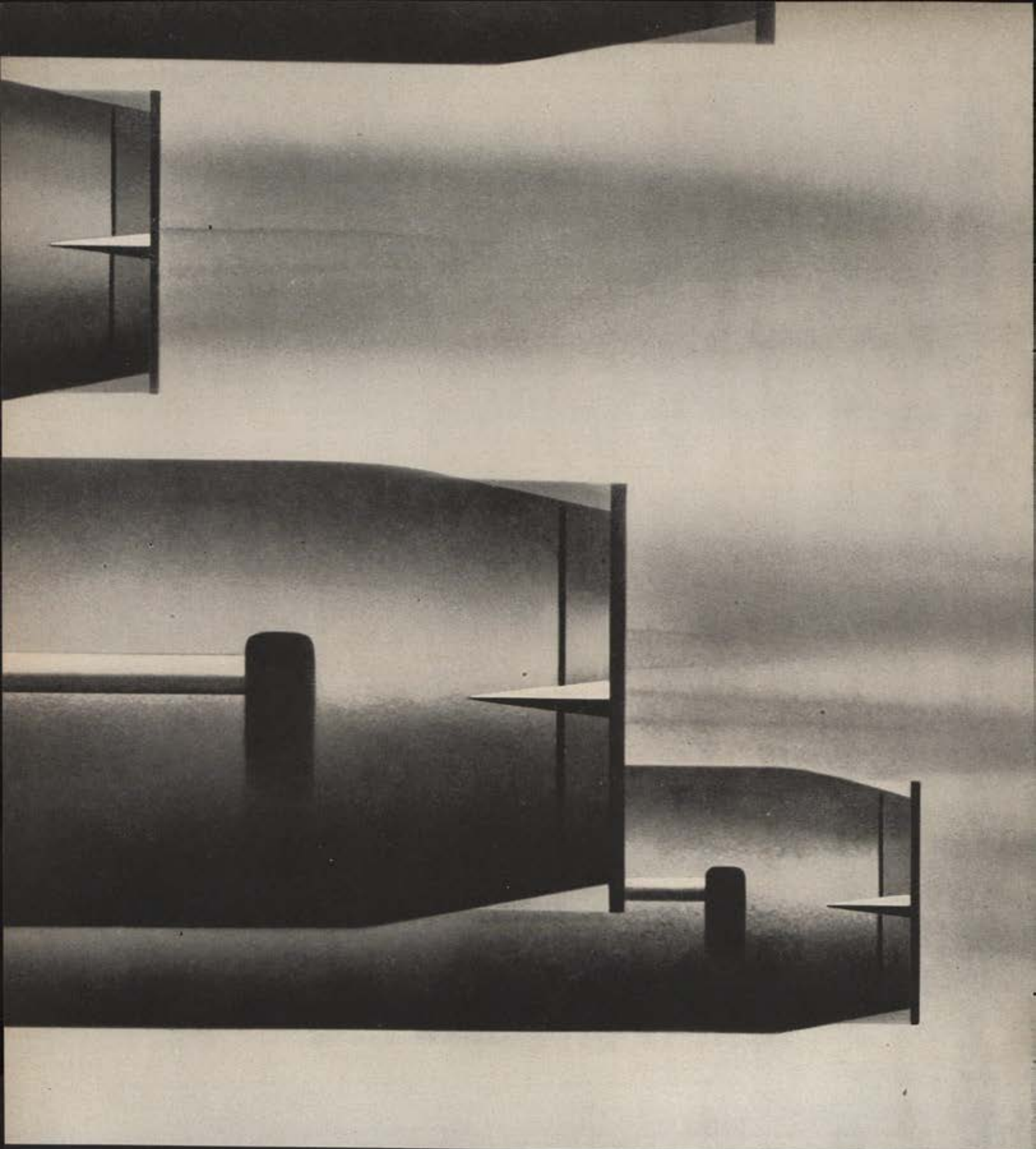

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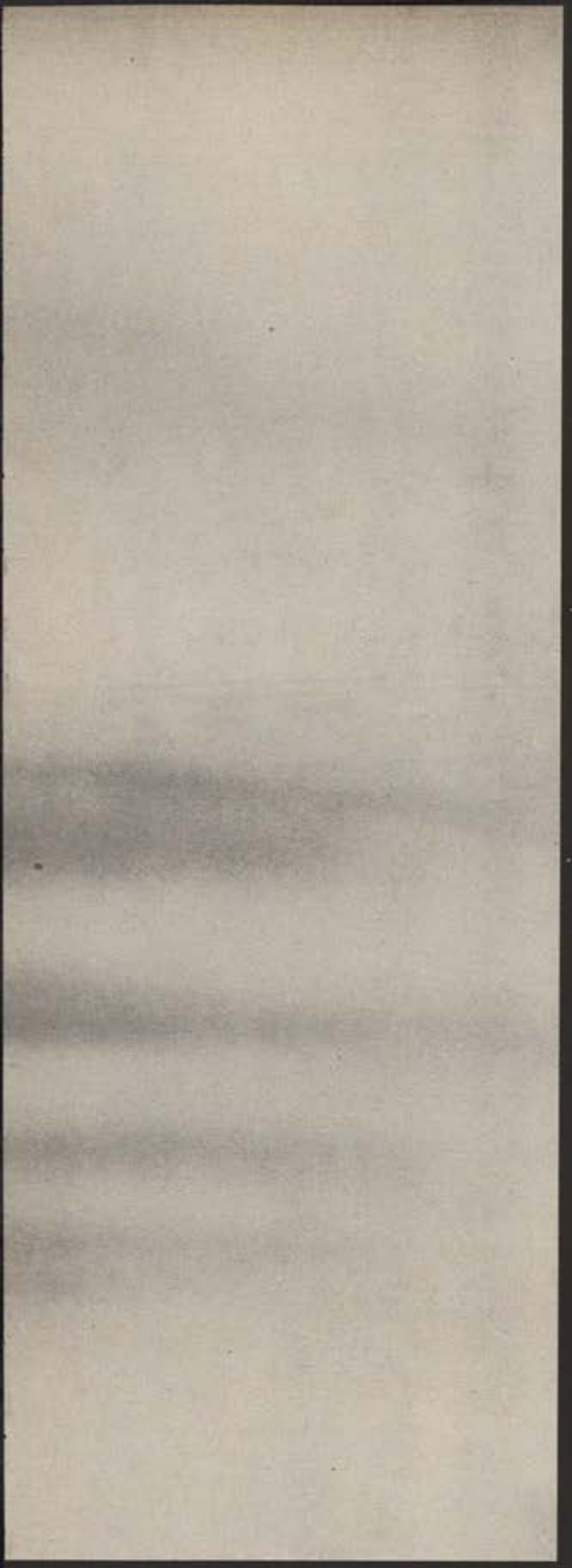

Avco today

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Now, in the lungs of Lycoming's advanced turbines developed under the sponsorship of the U. S. Army and U. S. Air Force, the gas turbine principle finds new usefulness for a variety of military and commercial aircraft applications. New vertical take-off and landing planes, helicopters, and other types of aircraft are capitalizing on the design advantages of Lycoming's low-weight, high-performance T53 and T55 turbines: compactness, versatility, ease of maintenance, ruggedness, long life, and low production and maintenance costs. Lycoming's growing turbine family offers government and industry a centralized source of turbine power in the 800 to 2000 hp range.

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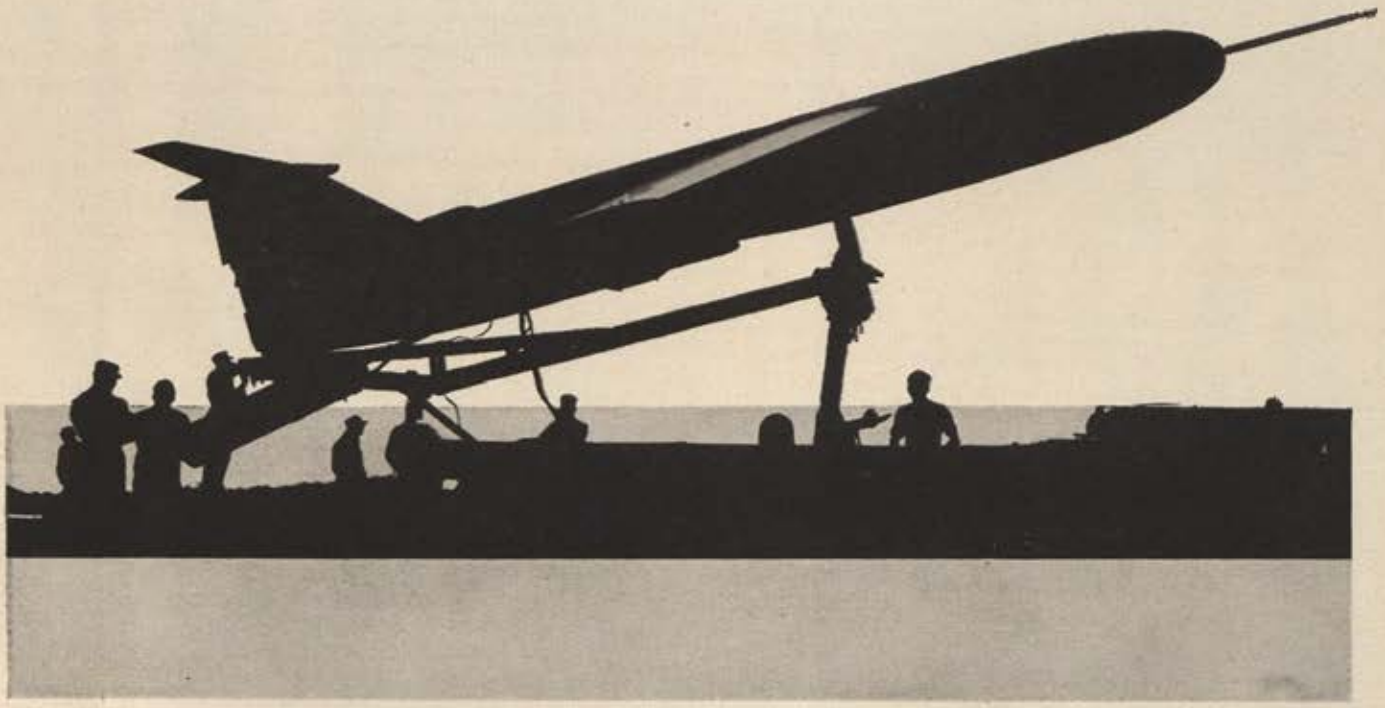

"PAPA" The Martin Matador TM61-B is the fourth generation of a famous family. As the lineal descendant of the first operational tactical missile in service with the Air Force—and the first pilotless bomber having complete interchangeability of parts—the performance, operability and advanced engineering of the Matador give it top rating in our missile arsenal. Today, this important weapon is one of five major Martin projects in the field of rockets and guided missiles that are under development or in production for the Army, Navy and the Air Force. It was the original Martin Matador, papa of them all, that launched the new age of missiles in America.

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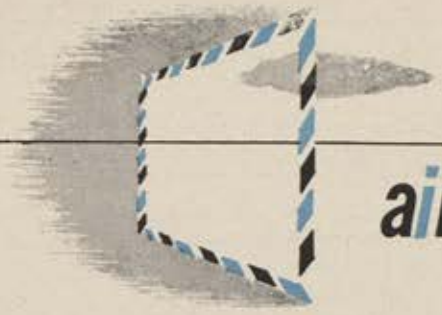


air mail

August Laurels

Gentlemen: Have just finished my first three-hour "browse session" with your marvelous August anniversary edition, and wanted to jump on the congratulatory bandwagon before I put it off. It is sure an encyclopedia of Air Force lore.

Capt. William B. MacLaren, Jr.
Syracuse, N. Y.

Gentlemen: Congratulations on the publication of the Golden Anniversary issue of AIR FORCE Magazine.

It is a magnificent editorial production and contains a wealth of historical and contemporary information about United States airpower. You and your staff deserve highest praise for a difficult job beautifully done.

Harry H. Ransom
Harvard University
Cambridge, Mass.

Gentlemen: In your August '57 issue, you mentioned a number of out-of-print books on the Air Force which are referred to as collectors' items. I have little doubt but that this very same issue is already a collector's item. Congratulations!

Irving B. Zeichner
Atlantic Highlands, N.J.

Gentlemen: Congratulations on your Golden Anniversary issue! That is one of the finest looking tributes to good publishing that I have seen, and I want you to know that many people have commented favorably on your magazine.

C. C. Westland, Vice Pres.
McCall Corporation
New York, N. Y.

Gentlemen: I've just finished your Golden Anniversary number. It's a most impressive job—terrific, in fact.

George Haddock, Assoc. Ed.
Nation's Business
Washington, D. C.

Gentlemen: Congratulations go to you for a fine Golden Anniversary number in August. You have depicted in fine manner the growth of the Air Force over the past half century.

We of the original 96th Squadron feel privileged to be in at the start of American military aviation in action at the beginning of the American action in World War I. We were sent up to the front in March, received our Bréguet planes in May and started operations in June 1918. The first planes were training Bréguets used by the French and the Americans and were patched up to go over the lines.

Great credit in American bombing should be given to Lt. André Gundelach, who was both our first teacher and leader. He made a one-plane bombing raid during the St.-Mihiel drive and was shot down on his return. Our mechanics were able to keep the planes going, sometimes working all night, and we did not have a single failure of planes over the lines.

From this modest start other Air Force units expanded operations to our present huge force. I believe that the Air Force goes along with Teddy Roosevelt—"Speak softly and carry a big stick."

Ralph I. Coryell
Farmington, Mich.

Gentlemen: Congratulations to you and the people of the Air Force Historical Division who worked on your August 1957 issue.

It brought to light many little-known facts and interpretations of the early days and decisions. It has proven of great interest and shall be used as a ready reference by this office.

T/Sgt. Edward S. Wieluc
Historian
100th Bomb Wing
Portsmouth AFB, N. H.

Gentlemen: Congratulations on the finest issue of AIR FORCE I have ever seen.

I think that everyone associated with it deserves a great big "thank you!"

J. Chesley Stewart
Trans World Airlines, Inc.
St. Louis, Mo.

Gentlemen: Words cannot express the thrill I received from the magazine issued by our organization for the month of August 1957. It was one of the finest I have ever had the pleasure of receiving. The magazine far exceeds the cost of my yearly membership with the AFA. It contains articles of such lasting interest that I have issued strict orders to my spouse that under no circumstances is the issue to be disposed of, and is to be placed among my other important papers for future reading for myself and my children.

Lt. Col. Alfred B. Hauft
Freeport, N. Y.

Gentlemen: I have just discovered what a tremendous thing the August issue is. Congratulations on the fabulous journalistic accomplishment that it represents.

Col. William Seldon
San Antonio, Tex.

Gentlemen: This is a sort of double-barreled letter to compliment you highly and thank you sincerely.

The compliment is for the brilliant job your outfit did on your Golden Anniversary issue. The thanks are for the thoughtfulness and kindness expressed in your acknowledgments page.

T. Halter Cunningham, Pres.
Lanman Engraving Company
Washington, D. C.

Gentlemen: I have just read most of your Golden Anniversary of the United States Air Force, 1907-1957, issue. I might add that it is not only twice as large as last year's, but twice as good. I have really enjoyed it.

T/Sgt. Bill T. Hickcox
Wausau, Wis.

Gentlemen: Congratulations on a superb job done on the August '57 issue of AIR FORCE. Having long been a proponent of efforts to bring the story of American airpower into its proper perspective, this issue is like a bolt from the blue.

Over the past years of aviation history countless articles and books have been written on one or another phase of the flying age, but seldom a full treatise on the major segments of airpower, or airpower itself.

In proper perspective—if only the

(Continued on following page)

thought of that phrase could be injected into more writings so that the reader, when confronted with such words as "Stratofortress," "Thunderchief," or "Starfighter," could sweep his mind through the evolution that has taken place since Kitty Hawk. Walt Bonney's *Heritage* and Harold Mansfield's *Vision* did it. And now AIR FORCE. I hope the pace has been set.

Lt. Col. Bradford A. Evans
Hamilton AFB, Calif.

Gentlemen: The Early Birds deeply appreciate the courtesies and hospitality extended by AFA in your Washington meetings.

As guests attending your reception and banquet, we heard your speaker, Gill Robb Wilson, express the thought "that cooperation in joint meetings of AFA and Early Birds could often be mutually beneficial." I heard this same expression from many of our Early Bird members.

David H. Young, Pres.
The Early Birds
Wilmette, Ill.

Gentlemen: Since I have been in aviation from 1917 until my retirement in 1954, as a civilian aeronautical engineer and officer, I know personally a great many of the events and people given in the various stories. This is one of the greatest collections of stories I have ever read.

There is, however, at least one missing link, and that is the account of the modifications of airplanes for combat purposes, which were carried on from 1942 to 1945 in nineteen airlines shops, aircraft manufacturers facilities, and facilities built especially for the purpose on instructions from a central office at Wright Field. These activities modified 43,272 airplanes from February 1942 to June 1944, at which time aircraft manufacturers were able to carry on all modifications at their facilities.

Col. LaVergne Cook
USAFR (Ret.)
Clearwater, Fla.

Gentlemen: I had eagerly awaited your Golden Anniversary edition, and it has proved to be a book that I will keep in my library for many years.

However, I was terribly disappointed in the chapter on "The Korean War." While it was an accurate story as far as my memory serves me, it lacked chronological continuity and appeared to be a hasty resumé written by a lazy PIO officer. It left out or ignored major historical efforts on the part of the individual squadrons and pilots. Certainly it could have included new tactics developed and the longest fighter-bomber strikes of the war to Manpojin and Chongjin as well as the jet aces and individuals with outstanding records. The great names of the future outstanding Air Force men have been left out of the records.

The article did not fail to give credit to the units, but the article seemed to be concerned with too much of the struggle with the top brass and Washington. I flew 100 missions with the 49th Fighter-Bomber Wing, which became confused with the 58th and 474th in the latter part of the war, and I think that any officer in our unit could review his records and memory and write a more interesting history.

I do hope that in a future publication you have a more complete history of the Korean War.

Frank G. Ross
Wellington, Kan.

Gentlemen: On behalf of Kiwanis International, and for myself as well, I want to thank you and your membership, sincerely, for honoring our organization with a citation in the "area of humanities." I also want to tell you how much we appreciate the citation which the Air Force Association gave to M/Sgt. Robert F. Anderson, USAF, President of the Kiwanis Club of Mesa, Ariz., for the "best public relations job performed as a member of the Air Force."

We in Kiwanis are gratified not only that our organization is so honored for its work with the Air Force in helping it to prepare America's youth for living in the air age, but also for the honor which has come to one of our individual members, Sergeant Anderson.

It is my hope, as it is of all Kiwanians, that we may continue to merit the esteem with which you and your membership regard our organization.

H. Park Arnold, Pres.
Kiwanis International
Chicago, Ill.

Gentlemen: I want to drop you this note to compliment you on the thought and writing that was incorporated in the Golden Anniversary Banquet at the AFA Convention. That program could have been corny and overmelodramatic. Instead, it was handled with extremely fine taste and a keen sense of the appropriate. I listened to a long conversation during a portion of the convention in which people were honored for their work in connection with the affair. But I don't think that any tribute, any medal, or any award could be made to adequately compliment you on the part you played in putting "The Air Force Portrait" program together.

Jack Shea
Tullahoma, Tenn.

Gentlemen: Hearty congratulations on a wonderful Fiftieth Anniversary celebration of the US Air Force as staged under the tutorship of AFA.

I could only attend the Anniversary Banquet to add my tribute to the event and to the Awards Banquet to applaud a group of grand people. I appreciate being permitted to join in that small way to celebrate with you.

Edwin S. Bettelheim, Jr., Adj. Gen.
Military Order of the World Wars
Washington, D. C.

Gentlemen: I was delighted with the luncheon featuring "The Air Force Portrait." In my opinion this was the most impressive piece of showmanship I have ever witnessed at an affair of this type, which will set a very high standard to equal in future years. Congratulations on a job well done.

Robert D. Campbell, Branch Mgr.
Newsweek
Los Angeles, Calif.

Gentlemen: I am still overwhelmed to have been considered worthy of the honor bestowed upon me by AFA with so many of the "greats" in aviation. From the bottom of my heart, I thank all those responsible for including me in such a distinguished group. . . .

After the ceremonies were over, General White said to me, and I believe this is a literal quote, "I have never see any affair more perfectly run and organized than this one." General Twining was there with us . . . and he heartily endorsed General White's statement. I, too, feel it was one of the most perfectly organized affairs I have ever attended.

I congratulate all the officers of AFA for the fine job you are all doing for airpower in this country.

Jacqueline Cochran
New York, N. Y.

Gentlemen: May I express on behalf of the Defense Studies Program our gratitude to AFA for the honor, inspiration, and confidence it has given us.

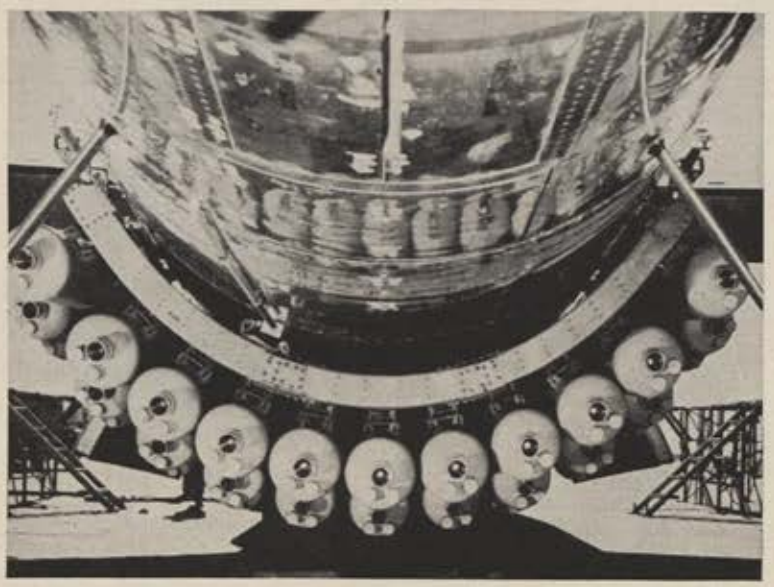
I myself am most appreciative of the many personal courtesies that were paid to me on my recent trip to Washington. If I may say so, the meeting itself was one of the most beautifully thought out and magnificently run programs that I have ever witnessed.

Edward L. Katzenbach, Jr.
Harvard University
Cambridge, Mass.

(Continued on page 15)

Advantages you get with Phillips 66

SOLID ROCKET PROPELLANTS



The M15 JATO loaded on Boeing B-47. The first of its kind to meet rigid Air Force performance tests. (Boeing Airplane Company photo)

- *LOW COST.* Phillips family of solid propellants for rockets is made from readily available petrochemical materials, such as ammonium nitrate, synthetic rubber, and carbon black.

- *VERSATILE IN APPLICATION.* Phillips family of rockets is easily modified to meet various needs.

- *WIDE TEMPERATURE RANGE.* These rockets operate successfully from –75 F to 170 F.

- *INSENSITIVE TO DETONATION* by impact or explosion. Exhaust gases are noncorrosive and relatively low in temperature.

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Rocket Fuels Division

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Similarly, a magnesium bar of equal rigidity to an aluminum bar will weigh only 75% as much as the aluminum bar. At equal weight, the magnesium bar will be over twice as stiff.

From these facts it's easy to see that magnesium can do a structural job equal to or better than steel and aluminum—and with appreciable savings in weight—whenever it's practical to increase section thickness. For more information contact the nearest Dow sales office or write to us. THE DOW CHEMICAL COMPANY, Midland, Michigan, Magnesium Department, MA 1402E-1.

YOU CAN DEPEND ON DOW

Gentlemen: I should like to add to what I am sure must be a myriad of letters commending your fine staff on the outstanding job that you did on the 1957 AFA convention. I considered it a real privilege to attend such an outstanding event and feel sure that significant contributions to airpower and the future of our country were made by the Association.

A. C. Moore, Gen. Mgr.
Aircraft Engine Division
Ford Motor Company
Chicago, Ill.

Gentlemen: Please accept my appreciation for the opportunity of participating in the celebration of the Fiftieth Anniversary of the Air Force. As a guest of AFA I had special reason to enjoy the many ceremonies and forums and to have the opportunity of renewing old acquaintances. . . .

Brig. Gen. F. P. Lahm, Ret.
Huron, Ohio

Gentlemen: I do want you to know that I think it was the best managed and most comprehensive convention we have ever had. I am sure you know that I was greatly honored to have been selected among thirty-five who have contributed something to the advancement of military aviation during our fifty years of existence. It also afforded me a great deal of pleasure to meet so many old friends, many of whom I have not seen for years.

Maj. Gen. Claire L. Chennault
USAF (Ret.)
Monroe, La.

Gentlemen: I have just returned to my office from attending the AFA luncheon featuring "The Air Force Portrait." Like a good many other businessmen, I have been to hundreds and hundreds of luncheons and dinners but never, never before have I ever witnessed such an outstanding presentation as this.

T. E. Aughinbaugh, Mgr.
International Harvester Company
Washington, D. C.

Gentlemen: I want to thank you most sincerely for including me on your list of special guests. Needless to say, I felt greatly honored, and it is an unforgettable event in my life.

Through the years, I have been to countless dinners and conventions, but never have I seen anything like the luncheon you arranged on August 1. It was outstanding in every respect. My congratulations to you for a job exceedingly well done.

Col. Bernt Balchen, USAF (Ret.)
Chappaqua, N. Y.

Gentlemen: It was an honor and a privilege for *Air Force Times* to be associated with AFA in the entertainment of so many distinguished guests.

Congratulations on the success of the meeting this year. . . . every year the AFA convention seems to improve, even though at the conclusion of each the guests wonder how you were able to do it so well.

Don Mace, Editor
Air Force Times
Washington, D. C.

Observant Readers' Department

Gentlemen: The August Golden Anniversary issue is terrific! You have done a magnificent job. My copy will have many thumb-worn years on the bookshelf—if it ever gets there, for the line of interested borrowers is quickly forming.

This issue has done two things for me. It has instilled a renewed feeling of pride in the USAF history and it has reorientated me in USAF missions and organizations. I believe that in order for the AFA to successfully accomplish its mission, the members must remain knowledgeable of current USAF structure and activities, even though it's not so easy with a busy schedule. The August issue will help a great many of us.

I did notice two trivial errors: page 207, top photo, Fleet Adm. William D. Leahy was identified as Adm. Ernest King, and on page 188, the Second Air Force and Fourth Air Force should be swapped on the map.

William C. Knight
New Orleans, La.

• *You're right, Bill—and thanks for bringing it to our attention.—The Editors.*

Gentlemen: I have just finished the great chunk of history of airpower which made up the 50th Anniversary issue of AIR FORCE, and it is certainly material which will be invaluable to researchers, explainers, expounders, and airpower evangelists. But, I did find something which disturbs me on page 160:

"During his lightning drive across France from Brittany to the Moselle, Patton relied on the fighter-bombers of the XIX Tactical Air Command to protect his exposed southern flank along the Loire river. XIX TAC took such a heavy toll of one of the largest German columns retreating from southern France toward Dijon that the German commander surrendered *without ever meeting* ground troops. . . ."

(Continued on following page)

This does a considerable about face with the facts, and tosses away one of the nerviest exploits of a handful of Americans in the 83d Infantry Division, which was also patroling the Loire at that time. The German commander was General-major Eric Elster, and the man who conned him into surrendering was a quiet, self-effacing Lt. Sam Magill, of Ashtabula, Ohio, commander of the I&R Platoon of the 329th Infantry Regiment. Elster was still full of fight when Magill, after going seventy-five miles into enemy territory, stringing out the twenty-four men of his platoon behind him, made a confrontation at the Issoudun bridge. Elster was still determined, though badly chewed up, to make a run for it between the Patton (Third Army) and Patch (Seventh Army) flanks, until Magill "reasoned" him into thinking it would be foolhardy and called up sixteen planes from XIX TAC for a "show of force" as the convincer.

If he lives long enough, Magill will get credit for what he did, I suppose. His story has been twice told on "This is Your Life," and a producer has it optioned for a movie.

Col. Barney Oldfield
Ent AFB, Colo.

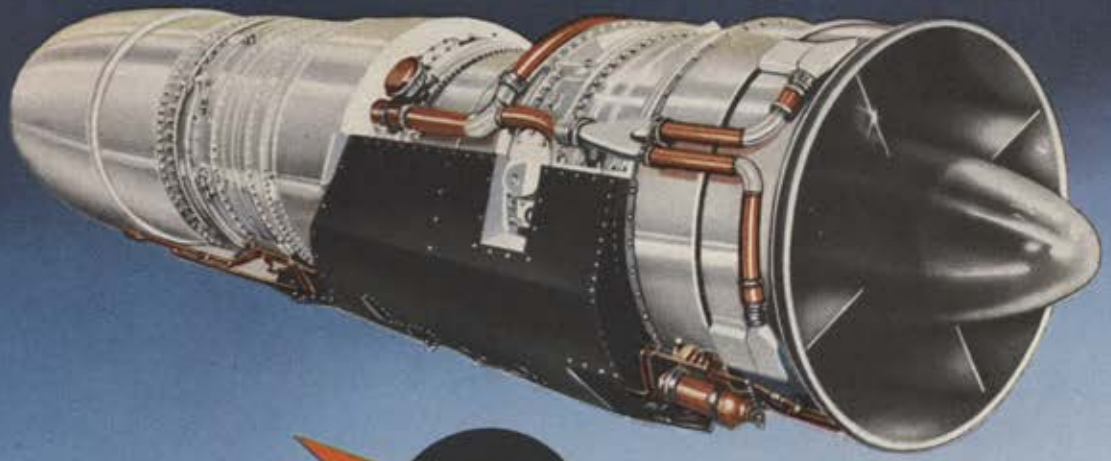
Last Time Around

Gentlemen: I don't know who is in charge of your "Guide to Air Force Bases," but he is apparently a stubborn cuss. Two years ago I wrote to point out that the information regarding Tinker AFB re the loss of General Tinker was incorrect. A year later, when the data was not changed, I wrote to the historians at Maxwell just to make sure the official record was straight. It was. According to their Historical Division, "General Tinker was desirous of throwing the enemy further off balance by attacking him on his own ground. He therefore had LB-30s ready for a long-range strike against Wake. . . . After a stop at Midway for refueling, General Tinker's flight headed southwest toward Wake Island on the night of June 7. About forty minutes later, the General's plane began to fly erratically and then angled into the overcast. . . . A week-long search failed to produce a clue to the fate of the lost LB-30 or its crew."

Maj. Harold E. Swinney
Denver, Colo.

● *We're not stubborn—we just didn't get the word. Thanks for the correction. We've made sure the error won't appear next time.—The Editors.*

FLIGHT TESTING THE NEW IROQUOIS AT MALTON



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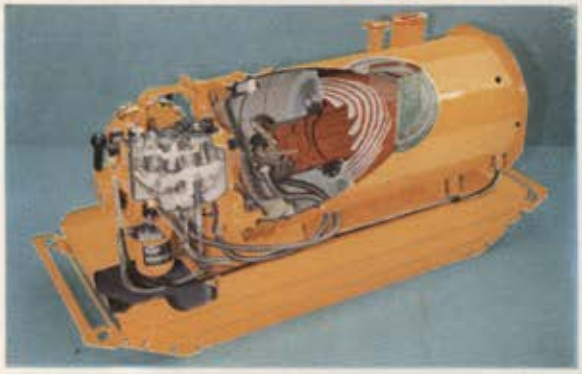

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wing tips

By Wilfred Owen

Last year's air cargo volume reached a record total of 717 million ton-miles, a twenty-one percent increase over 1955. American Airlines was the top cargo carrier with one-tenth of the total business.

° ° °

The entire Belgian Congo is being photographed from the air. Maps of the area, which is one-third the size of the United States, are being used by real estate agents, mining interests, and foresters who are becoming expert in the use of aerial photography to measure prospects in previously unknown areas.

° ° °

The landing fee for a four-engine intercontinental airliner stopping in the United Kingdom is about $160. The International Air Transport Association estimates that the charge for international jet aircraft will be at least twice this figure.

° ° °

The world's smallest gas turbine engine is being designed for a one-man helicopter. The Solar Mercury engine will weigh fifty-five pounds and stand twenty inches high. Its rotors will spin at 57,000 revolutions per minute.

° ° °

Before Pratt & Whitney's J-57 and J-75 power plants won CAA approval for commercial use, they had to sur-

vive a special test feeding that consisted of rocks, lunch pails, screw drivers, wrenches, hats, jackets, and ice.

° ° °

The gypsy moth is the target of a record-breaking aerial extermination campaign conducted by the US Department of Agriculture. This year 3,000,000 acres in the New York-New England area were sprayed by a fleet of sixty aircraft.

° ° °

Although no DC-3s have been built for twelve years, these planes are still the most numerous of all models in the US airline fleet, accounting for one out of every five planes in service.

° ° °

A survey of the 65,000-member Aircraft Owners and Pilots Association reveals a median income of $10,906 per flyer, which is more than twice the national average. The "composite man" flying his aircraft for business and pleasure can also boast an average of one and a half cars and a fifth of a boat.

What's New With ★ RED AIRPOWER

Here's a summary of the latest available information on Soviet air intelligence. Because of the nature of this material, we are not able to disclose our sources, nor to document the information beyond the fact that the sources are trustworthy.

Soviet Aviation Day, originally scheduled for June 23, was canceled this year because of unseasonably bad weather over Moscow. It rained most of the day over the Soviet capital.

Before the twenty-third, and for several days after, the skies were cloudy, or filled with broken cumulus clouds that made difficult the skilled formation flying the Russians had promised this year.

This forced cancellation of the show even for June 30, and with visitors from satellite countries and other foreign delegations unable to stay for yet a third date, the show finally was canceled altogether.

Whether or not the shakeup in the Soviet government contributed to the cancellation of the show is only speculation.

• • •

The Russians were going to display several new aircraft, according to their own statements or what is known from private Soviet sources: Another new turboprop transport, the Moskva or IL-18 designed by Ilyushin and presumably somewhat larger than the Ukrainia four-engine turboprop transport designed by Antonov and announced earlier this year. Antonov and Ilyushin were competing for the honor of building the first turboprop civil transport in the USSR, and while Antonov won the race, Ilyushin nonetheless was to have his day. There was to be a somewhat larger version of the TU-104, the TU-104A, capable of carrying seventy passengers, and a four-jet TU-110 transport, also designed by Tupolev and apparently patterned after the Bison.

The Russians also were preparing to show a new helicopter, the Kamov-15 (KA-15), a two-place craft with coaxial rotors and two small vertical fins behind the pilot. A new four-jet supersonic bomber was believed scheduled for the show. A delta-shaped affair, it mounts its engines next to the fuselage, two on each side and atop each other. Also, a new interceptor of the MIG series was said to be ready.

• • •

Russia's sudden splurge of turbojet and turboprop transports is going to force that country to get busy on an airport program. Many fields as yet do not have hard surfacing of any sort and those which do have only short runways—not long enough for jet transport operations.

• • •

It is only a prediction, but don't be surprised if there are shakeups in some of the USSR's air commands. Even before Party Boss Khrushchev's moves to clean house of Stalinists and other undesirables, Chief Air Marshal Pavel Zhigarev was moved from the top air command to the job of running Aeroflot, Russia's principal airline.

This probably was done by Marshal Zhukov, Minister of Defense, since Zhigarev had been closely identified with Stalin in the past. Marshal Vershinin moved into the top air force spot for the present. He was an important air commander during World War II who had worked with Zhukov. Vershinin commanded Soviet air units during the battle of Stalingrad, but later fell out of favor with Stalin.

• • •

The Russian high-altitude pressure suit looks much like that built by B. F. Goodrich for the US Air Force. Soviet pilots wear a helmet that attaches to a metal collar on the suit. Most of the helmet is plastic, with a flat, round glass window in the front through which a pilot can look without distortion.

• • •

Previously in production on the MIG-15, Poland now is putting the MIG-17 into production.

• • •

The East German airline, which has taken the same name—Deutsche Lufthansa—as the West German airline, is now providing domestic service. When it first began operations last year, the East German airline flew only to other satellite cities and to Moscow, using IL-14s provided by Russia. Now it is offering service between East Berlin and such East German cities as Rostock, Dresden, Leipzig, and others. The East German and West German airlines do not interconnect at any airport; neither operates into the other's part of Germany.

• • •

The Academy of Sciences in the USSR is having a complete, definitive history written of aviation developments in Russia. The first volume, covering the period up to 1907, already has appeared. It runs to several hundred pages, and includes such things as early hot-air balloon experiments in the USSR.

• • •

Latest Soviet statistical yearbook makes clear that Aeroflot, the Russian airline, is going to have to scramble to meet goals set for it by 1960.

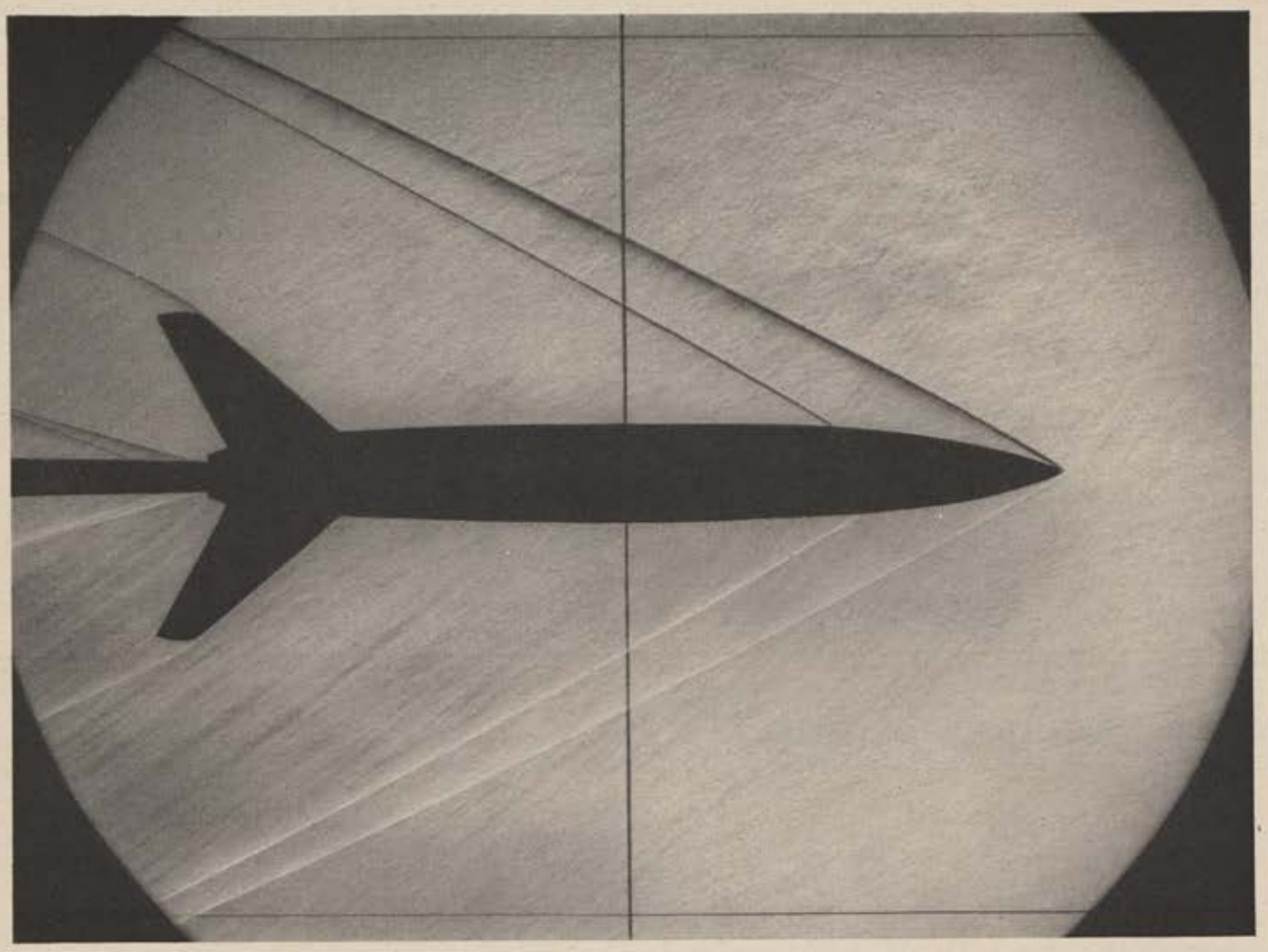
As usual the Russians don't state things in absolute figures, but rather as percentages of some earlier, mysterious base period. The base year they are using on air passenger traffic (defined as ticket sales) is 1940, when they say the airline accounted for 0.2 percent of all passenger traffic in the USSR. (The railways accounted for 92.2 percent that year.) By 1950, the airlines accounted for 1.5 percent of all passenger traffic; in 1954 they got 1.6 percent and the same in 1955. (In 1955, the railways got 83.1 percent.)

However, in the same fifteen-year span, airline passenger traffic grew from an index of 100 in 1940 to 674 by 1950; 1,393 by 1954; and 1,593 by 1955. That means that in fifteen years it grew to almost sixteen times as large as it was in 1940.

However, the goal is to have it grow to twenty-two times what it was in 1940 by the time 1960 rolls around.

• • •

A cosmic ray research station has been established in southern Russia near Alma-Ata. It is atop a mountain that is almost 12,000 feet high.—End



Schlieren photograph of supersonic flight patterns in wind tunnel.

There is a formula behind America's supersonic might

The fate of freedom cannot hinge on trial and error. Our future security depends on making major supersonic advances at a quickening tempo...on developing aircraft, manned and unmanned, to fly at far beyond today's speeds and altitudes.

North American Aviation's experience in the design and production of supersonic aircraft—by far the greatest in the Free World—is focused full upon this vital problem. The new aircraft and weapons systems now in progress will be as remarkable tomorrow as these achievements of today:

Supersonic capability of North American's brilliant F-100 Super Sabre series has given the Air Force its most dependable supersonic fighter. In 1953, the first production-line F-100 flew faster than the speed of sound on its first flight. In 1954—two years before any other supersonic airplane became operational—the Air Force had F-100s in wing strength. There's still no Air Force operational airplane that can match its tactical and combat versatility.

Supersonic history will be made by North American's X-15 experimental rocket-powered airplane. It will carry man faster and higher than he has ever flown before. It is setting the pace for the Air Force of tomorrow.

Other major supersonic projects at North American: a long-range interceptor for the Air Force at the Los Angeles Division, and the A3J, a carrier-based attack weapon system for the Navy, at the Columbus Division.

From the P-51 through the F-86 and the F-100, North American has designed planes with growth potential to use more power as it became available. It has translated this ideal performance into wing-strength reality—accurately, rapidly, and at lowest possible cost.

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A. H. Schwichtenberg
Command Surgeon, Air Defense Command

• "You just don't realize the importance of the plan until your flight pay suddenly ceases. It becomes a part of your pay that is counted upon monthly. When you have lost $190.00 a month it puts a strain on the family budget which is awfully hard to overcome.

"The benefit received for the minimal cost is like winning the Irish Sweepstakes with no income tax to pay on the pot."

Joseph Levinson
Captain, Arty

Here's how you can protect YOUR FLIGHT PAY

You know—and we know—men who have gone broke, or gone into debt because they were grounded and lost flight pay. They worry. Their families suffer. Efficiency drops. Everybody loses. AFA, with the whole-hearted cooperation of the Aetna Insurance Company, has worked out a solution which provides protection against loss of flight pay at a rate which puts the protection within the reach of *every* flyer. Here's how it works:

First—Any person who receives incentive pay for flying can qualify—active duty, ANG, Air Reserve, Army, Navy, Marine—provided that he is, or becomes, an AFA member.

When you sign up for protection you pay a premium of one percent (1/100th) of your annual flight pay, figured at the current rate. For example, if your current flight pay amounts to $1,800 a year, you pay only $18 for Flight Pay Protection.

(To get your current rate of flight pay, multiply your present monthly flight pay by 12.)

Protection against loss of flight pay due to grounding as a result of accident goes into effect on the last day of the month in which you apply for the protection and pay your first premium.

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There's a waiting period before payments start—90 days for groundings due to disease or ordinary accidents, 180 days for groundings due to aviation accidents—**because unless your**

• "Your check for $450 covering my indemnity for February and March . . . was received. I want to express my appreciation for the prompt, efficient manner in which my claim was handled.

"You can be sure that I will be a strong advocate of the program. In the future I will add to the memorandum alerting me for instrument card renewal and annual physical a note to 'Renew Flight Pay Protection with AFA!'"

George S. Arbuthnot
Lt. Col., USAF

• "Reference your letter of 24 June 1957, accompanying your check for indemnity under the Air Force Association Flight Pay Protection Plan.

"Naturally I am thankful that I took advantage of the insurance plan in November of 1956, although at that time I was a member of the 'It can't happen to me' clan!

"I feel sure that I will return to full flight status in the near future. However, during the past few months, which included a change of station to the Pentagon, only . . . flight pay coverage kept my family finances above the red line."

Ralph R. Anderson
Major, USAF

• "I want to thank you sincerely for your first check for 3 months' pay which I received last month. . . . The absence of red tape, the speed with which you handle claims, and your all around 'nice people' attitude makes dealing with you a double pleasure (the first being monetary, of course)."

Henry C. Segal
Captain, USAF

• "The AFA plan for Flight Pay Protection has my most hearty approval and support. . . . The loss of flying pay is quite a severe shock to the family budget and your plan provides an adequate period of financial readjustment. . . . The plan will be a great boon to our flying safety program."

Edward J. Tracy
Command Surgeon, Air Materiel Command

grounding exceeds these limits you can collect back flight pay from the government by putting in the required flight time.

But if your grounding exceeds these limits, the AFA plan not only thereafter provides regular monthly indemnities for lost flight pay, but **indemnifies you for lost flight pay retroactively covering the 90-day or 180-day waiting period, in the first payment, at the rate reported on your insurance certificate.**

One colonel, grounded, got $1,225 lost flight pay in his first check. The Flight Pay Protection Plan is sponsored by AFA as a service to members—that's why the rate is low. A little simple arithmetic will show you that it's a top-notch buy for rated personnel. You could pay for coverage under the plan for 30 years, for instance—and get more than your money back if you were grounded and received indemnity for as little as 120 consecutive days during that period.

Of course, this coverage does not apply in case of war, declared or undeclared, or hostile action, civil war, invasion, or the resulting civil commotion or riots. **There are also other exclusions, which may never apply to you, but you are entitled to know them. They are as follows:**

The plan does not cover persons whose primary duty is parachute jumping.

The plan does not cover losses due to a criminal act of the AFA member, or resulting from bodily injury occurring while in a state of insanity (temporary or otherwise); or from officially certified "fear of flying"; or caused by intentional self-injury, attempted suicide, criminal assault committed by the member, or fighting, except in self-defense; or from failure to meet flying proficiency standards unless caused by or aggravated by or attributed to disease or accident; or accidents caused while riding or driving in any kind of race; or by alcohol, drugs, venereal disease, arrest or confinement; or by willful violation of flying regulations resulting in suspension from flying as a punitive measure; or sentence to dismissal from the service by a general court-martial; submitted resignation for the good of the service; or suspension from flying for administrative reasons not due to accident or disease; or voluntary suspension. The plan does not cover losses to any member resulting in whole or in part from a pre-existing disease or disability or recurrence thereof, for which a waiver has been authorized by appropriate medical authority. Loss of life shall not be deemed a loss for purposes of this plan.

In the event you receive the total limit of twenty-four (24) months indemnity, your coverage is automatically terminated. You may thereafter reapply for insurance coverage in the same manner as a new member. Coverage, and the payment of indemnities, also end with the termination of membership in AFA, or with resignation, retirement, or pensioning from the service, or at age sixty.

The insurance is renewable at the option of the Aetna Insurance Company.

Policy Form No. 1-620-3A

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SIGNATURE OF APPLICANT _____ DATE _____

☐ I want to join AFA. $5 dues enclosed.

Application must be accompanied by check or money order for annual premium. The annual premium charge is one percent (1/100th) of ANNUAL flight pay.
Send remittance to Air Force Association, Mills Building, Washington 6, D. C.

airman's bookshelf

We don't subscribe to the belief that the current crop of youth has lost the spirit of adventure, is afraid to challenge the unknown, has less vision and guts than past generations.

But the fact remains, today's young men are not inclined to take to the air, are not attracted to a career in aviation as they should be. A lad's decision to fly must come from deep within, out of a desire inexplicable in terms of money, welfare, position, or security. No small part in this decision is played by a small body of literature which speaks for the air as 2,000 years of writings have spoken for the sea.

Too little great aviation writing is being done. Perhaps the air is too new, with few writers actually understanding it sufficiently themselves to accomplish anything more than factual reporting. Perhaps we ourselves have been negligent in properly urging integration of air literature into school curricula.

Whatever the case, two new books help bridge a gap in this area for all levels of air-age education.

One is by pioneer airman Gill Robb Wilson. Combining a lifetime in the sky with a literary talent and rare philosophical perception of the air age, he has shaped a career in letters that has influenced American aviation. In a volume of original verse, *The Airman's World* (Random House, $2.95), he expresses the meaning and feeling of flight.

The book contains thirty-two dramatic, inspiring photos of the air, of the ground from the air, and of the airman in his element. Each has a narrative interpretation in prose or verse that spells a wisdom and philosophy gained through a career spanning the air age—from the Wright Flyer to the jet. Together, in words and pictures, Gill Robb captures the lore of the air in lyrical terms.

It is this kind of literary presentation that must leaven technical reporting on aviation if we are to grasp the imagination of our young people and make them look to the sky for their careers.

The second volume is one of the best anthologies of recent years—a collection of writings about aviation, airpower, and the USAF, *The Sound of Wings: Readings for the Air Age*, by two AF officers, Maj. Joseph B. Roberts and Capt. Paul L. Briand (Henry Holt, $5).

The authors, both English professors at the Air Force Academy, make a unique selection of prose and poetry by the world's great writers and organize it into a chronological literary-history of flight. Their work spans from Ovid's "The Fall of Icarus," to Jonathan Leonard's description of a rocket firing. It is divided into five sections.

"The Early Years"—from ancient times to 1914—features such writers as Samuel Johnson, Milton, Poe, Whitman, Hart Crane, and Dos Passos; in "World War II," Nordhoff and Hall, Yeats, Faulkner, Conrad, and Hardy turn toward the skies for inspiration; "Between the Wars" includes works by Thurber, Teasdale, Saint-Exupery, Benet, and Anne Lindbergh; "World War II" produces some of the "finest literature of flight" by men like Magee, Steinbeck, Jarrell, Ciardi, Irwin Shaw, and Bob Crawford; while the present, "Korea—Today and Tomorrow," includes the products of contemporaries Michener, Robert L. Scott, Carlos Baker, Jeffels, and Stephen Mooney. The sheer volume of writing today and the lack of a time perspective to properly assay it causes this section to slip.

Selections wisely fall into historical place not by date of composition but by the era into which their subject matter fits. For example, a chapter from Ward Taylor's Pacific air war novel *Roll Back the Sky* (published in 1956) is found in the World War II section. In this way the reader derives benefit from historical knowledge as well as the literary excellence in which it is couched. Such organization also lends itself to a lightened, attractive format and variety of presentation—a well-mixed diet of prose, interspersed with poetry, song, and saying.

The Airman's World and *The Sound of Wings* are certainly two books that will be welcomed by flyer and layman alike. They should be made a part of the literature of air-age education for every youngster. They can do much to inspire dedicated careers in the sky.

• • •

Of the many books written since 1953 about Korean prisoners of war and communist brainwashing, none can approach the objective treatment found in William L. White's *The Captives of Korea: An Unofficial White Paper on the Treatment of War Prisoners* (Charles Scribner's Sons, $4.95).

White travels both sides of the road on this issue. His account of how we treated communist prisoners shows

(Continued on page 27)

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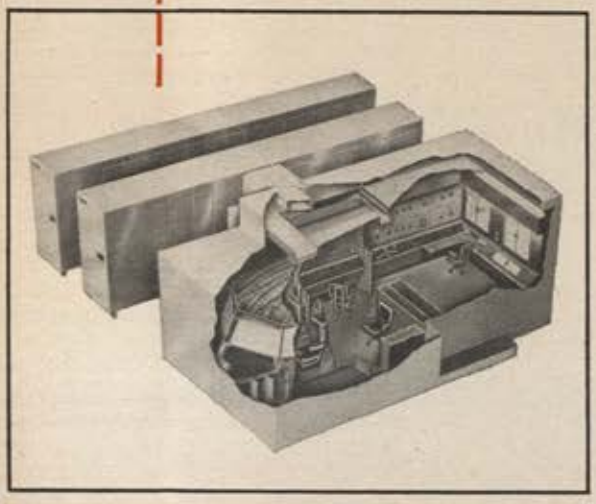

The recent globe-circling feat of the SAC, B52 in the amazing time of 45 hrs. 19 mins. could have been 5 to 6 hours less — if the all jet KC-135 had been in operation to perform the refueling. Very soon the KC-135 will become fully operational and the crews of these giant 500 mph. tankers will be *fully trained* — thanks to the ERCO Flight Simulator. ERCO — one of the recognized leaders in the field of synthetic training devices was selected to design and build the KC-135 Simulator.

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the contrast between our approach and how our POWs were treated at the hands of the North Koreans and Chinese. It must be especially bitter to those Americans whose homes and lives have been marred by a POW tragedy.

Much of White's narration of what happened to our boys is told in the words of the "Big Switch-Little Switch" returnees. Fifty-eight percent of Americans captured never returned. Reported by the communists are but twenty-one individuals who defected to communism. On our side, we can account for 88,000 communists who refused to return to their homeland.

The once much-feared communist brainwashing is claimed here to be a booby trap that backfired and achieved only isolated success.

The book is written with a dramatic suspense and individual cases are related in absorbing detail. History will probably have more to say as further source materials come to light and time makes possible a more rational approach to this subject. But until then, W. L. White's book will serve as an impressive documentary.

• • •

Bringing out his second military study within a year Air Vice Marshal E. J. Kingston-McCloughry, RAF, is fast gaining stature as a noted military analyst.

The Direction of War, published last year, studied the organization of command in modern war. His recent *Global Strategy* (Frederick C. Praeger, $4.50) deals with the much broader area of strategic military concepts of land, sea, and air services, of theaters, of nations, and of the Western Allies as they relate to each other.

The book preceded by several months Prime Minister Macmillan's official pronouncement last spring of the British "new military look," with emphasis on airpower and, specifically, guided and ballistic missiles. Kingston-McCloughry, although not an official spokesman in this volume, analyzes the world geographical, political, and military situation with the same sort of rationality and logic that must have prevailed in high British inner circles where the recent "new look" found shape and substance.

The author begins with a discussion of the evolution of war and the transition from traditional to modern strategy. He puts war into four classes: "total war" is without limit in its nature, geography, or weapons used—a global war fought with instruments of mass destruction, atomic, hydrogen, biological, or chemical; "limited war" is any kind of conflict which does not involve weapons of mass destruction, but is not limited geographically. He classes World War II a "limited war"; "local war" limits both weapons and geography, with Korea as an example; while in "cold war" military forces do not oppose each other but are primarily concerned in supporting local police and security forces or opposing subversive action. Typical are Malaya, Indochina, and Cyprus.

He divides the world into three geographic areas—the Pacific Ocean-Far East, Western Europe-America, and the Middle East. American and British strategic requirement for Western Europe and the Pacific are "the most intimately linked and related." It is in the Middle East where he sees danger that the "whole structure of Western strategy can be most

(Continued on following page)

easily rent in two." For it is here British and American strategic concept differs. Fundamentally, Britain looks at the Middle East as a vital lifeline, a highway of commerce, and an artery of communication to the world. While to the US it is merely the southern flank of Western Europe, a place for air bases—the main highway of commerce and communication being the Pacific Ocean. The US, the author claims, sees the Middle East as a vulnerable route in war, a secondary alternative in peacetime. But he does find reassurance in recent events which are drawing the two English-speaking nations to a "closer understanding" of the Middle East.

Though the combined Western strategy is based today on American nuclear-air capability, he believes it exists more in lip service than in actuality. To be completely effective, a sound strategy must stem out of a "unity of interest and purpose arising from a consciousness that the common danger is so strong, so imminent and diverse, that none may stand alone." Nothing less will permit survival. He deplores the fact that such is not the case today but he holds hope the belief will emerge and lead to a united or federated supreme government of the Free World.

A single combined strategy for the west must be preceded by a single joint national strategy within each of the nations of the alliance—regardless of the desires and views of the various individual services—land, sea, and air. The weakness today comes from adapting modern forces and weapons to roles which no longer exist. It is the *function* and not the *service* which matters. Nothing, he believes, should be allowed to stand in the way of a complete understanding of the job to be done in modern war, how it is to be done, and who is to do it. Even though this requires complete revolution of traditional military structures, it forms the only basis of a sound, one-service strategy. Each nation must face up to the serious responsibility to create a single purpose strategy and a force that dovetails into a common Western strategy. To this end Kingston-McCloughry undertakes a detailed discussion of land, sea, and air strategy.

Britain's destiny, he says, is tied to American nuclear-air capability and the Western alliance. Total war allows her no defense. She cannot exist alone, nor enjoy the luxury of time to mobilize traditional forces. Battle lines are no longer drawn by geography but by contours formed by course and sequence of events. Western strategy therefore must be a common-purpose strategy as it applies in theory and action to all areas of the world in both *military* and *political* situations. As it stands today the West cannot reach common agreement in situations involving either political or military actions. And here is where the whole thing breaks down—the point of easiest penetration for the Soviets. We fool ourselves in believing that such a loose alliance deters war—it only invites it.

Global Strategy is a book for the professional military man as well as the informed layman. It will not receive unanimous endorsement by any means, even among airmen. The author cares little where the chips fall, but he certainly provokes thought and provides stimulating ideas that are always the beginning of progress and change so urgently needed in the era of revolution in weapons and military concepts.—JAMES H. SUNDERMAN

H-13J

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AIRPOWER IN THE NEWS

■ If the Soviets' claim that they have successfully fired an ICBM which, in the words of their announcement, can be "directed into any part of the world," then—momentarily, at least—they have shot ahead of us in the crucial arms race.

The Soviet announcement gave few details. No maximum range for their claimed ICBM was given nor was the type of warhead discussed. But the implications for the West were obvious—intensified effort to perfect and produce as soon as possible a similar "ultimate weapon" to match and surpass whatever new capability the Russians now claim.

The new Chairman of the Joint Chiefs of Staff, USAF Gen. Nathan F. Twining, is congratulated by President Eisenhower.

■ The nation's defense "board of directors" took on a new look in mid-August as USAF **Gen. Nathan F. Twining** (*see cut*) was sworn in as new Chairman of the Joint Chiefs of Staff, replacing retiring Chairman **Adm. Arthur W. Radford.**

First airman to hold the high post, General Twining's accession came as the Defense Department readied its top office for Defense Secretary designate **Neil H. McElroy** (*see cut*), Procter and Gamble chief, who will replace retiring Secretary **Charles E. Wilson.**

After the brief White House ceremony in which General Twining took his oath on a Bible held by the President, the new JCS Chairman pledged himself to impartial administration of roles and functions among the services and told the world, through newsreels and TV, that the US and its allies "must not fail" to keep the peace.

Toward that end, the fifty-nine-year-old airman had already indicated in interviews that the nation's basic military policy is maintenance of the strongest possible deterrent forces to keep a war from starting.

Airpower, in today's jet age, is still the keystone of US military power, but as the general put it, realistic force levels must also be maintained in the Army, Navy, and Marines.

The new Chairman pledged continuation of research and development programs "at about their current levels" unless a breakthrough not now foreseen should occur. He pointed out, too, that although guided missiles now can duplicate functions of manned aircraft, we must develop *both* until missiles are effective enough to take on the entire job.

On the continuing problem of high costs and tighter budgets, General Twining acknowledged that the cuts "are going to hurt and are hurting now" but that the best is what the services will have to do with funds available.

Proudly looking on as an airman assumed the high JCS post for the first time was Air Force's first Chief of Staff, **Gen. Carl A. Spaatz.**

Neil H. McElroy, designated Secretary of Defense, to replace retiring Charles Wilson, has been head of Procter and Gamble Co. since 1948.

■ Soviet jet airliners will land this month in the US for the first time. The Russians have asked for and received permission to fly their UN delegation into the New York area aboard two of their TU-104 jet transports. Because of restrictions against jets at fields under the New York Port Authority, the two planes will probably land at a military base in the area. Their twin-jet **TU-104,** carrying about fifty passengers on flights of up to 2,000 miles, averages about 500 to 600 mph and has been in service between Peiping and Prague since 1956. A more powerful four-engine jet, the **TU-110,** carrying 100 passengers, has also been announced by the Soviets (*see* "What's New With Red Airpower," *page 20*).

■ "I have a ringside view of the heavens—and it's indescribable."

That's how Air Force **Maj. David G. Simons** reported to radio listeners on the ground his record-breaking balloon flight to a height of 102,000 feet, the very rim of the stratosphere, where he spent thirty-two hours August 19 and 20.

The Air Force doctor, who divided his time between munching sandwiches, taking catnaps, and the vital business of the balloon's control, was the first man to witness at leisure a space phenomenon—stars do not twinkle when you are nineteen miles up.

His trip took him 400 miles from the take-off location in Minnesota to Elm Lake, S. D., where he landed. Only one man, **Capt. Iven J. Kincheloe, Jr.,** had ridden higher —126,000 feet—in the rocket-powered **Bell X-2.**

■ "Kids' Day"—the unique base visitation program that attracted 500,000 youngsters to nearly all 155 Air Force bases across the country last year—is scheduled for Saturday, September 28.

Now in its fourth year, "Kids' Day" is co-sponsored by Kiwanis International, the Civil Air Patrol, and the US Air Force. Kiwanis received an AFA Citation of Honor (*see page 78*) at last month's AFA Convention in Washington for its contributions to airpower through sponsorship of "Kids' Day" and its "Living in the Air Age" program, which, through high school seminars and lectures,

(Continued on following page)

Maj. Samuel W. Tyson, veteran MATS pilot who safely landed his damaged C-97 Stratofighter with sixty-seven people on board, is presented his third DFC by Gen. Thomas White.

stimulates teen-age interest in gearing career planning toward the air age.

■ AWARDS . . . His third Distinguished Flying Cross, to AF Maj. Samuel W. Tyson (*see cut*) for safely landing a crippled C-97 with sixty-seven aboard after a harrowing 1,000 miles with two engines out en route from Travis AFB, Calif., to Hawaii. . . . 1957 Harmon International aviation award to AF Col. Frank E. Everest for his 1,900-mph-plus flight in the **Bell X-2** in July 1956. . . . The AF's **Mackay Trophy** and **Cheney Awards,** presented at the AFA Convention, to **Capt. Iven J. Kincheloe, Jr.,** and **M/Sgt. Leonard J. Bachetti.** Captain Kincheloe's award was for his record flight in the **Bell X-2** and Sergeant Bachetti was honored for heroism in the rescue of personnel from a C-124 crash at Charleston AFB, S. C.

■ STAFF CHANGES. . . . **Maj. Gen. Daniel S. Campbell,** Deputy Chief of Staff, US European Command, will report to Baghdad, Iraq, as Deputy Director, Combined Planning Organization, and Chief, US Element, Baghdad Pact, September 15. . . . **Maj. Gen. Sory Smith,** Chief of Staff and Vice Commander in Chief, Pacific AF, assumed duties as Commander, Fourth AF, CONAC, at Hamilton AFB, Calif., September 1. . . . **Maj. Gen. Romulus W. Puryear,** Commander, 25th Air Division, ADC, became Chief of Staff, ADC, Ent AFB, Colo., August 20. . . . **Brig. Gen. John R. Sutherland,** Chief of Staff, 15th AF, became Commander, 3380th Technical Training Wing, ATC, at Keesler AFB, Miss., September 1. . . . **Maj. Gen. Daniel W. Jenkins,** Commandant, USAF Ground Operations School, became Deputy Commander, 9th AF, TAC, Shaw AFB, S.C., on September 1. . . . **Brig. Gen. Bruce K. Holloway,** Deputy Commander, 9th AF, was assigned to duty as Deputy Commander, 18th AF, at Waco, Tex.

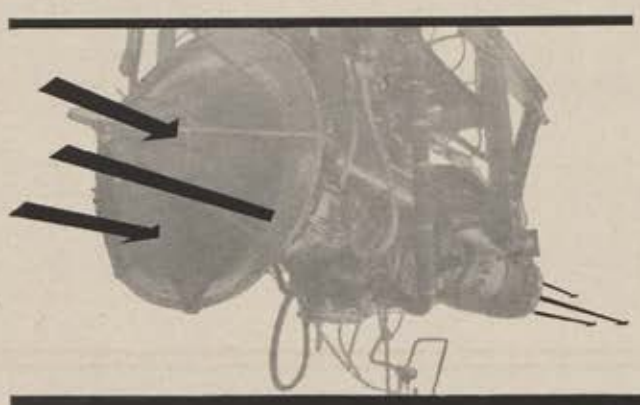
Maj. Gen. Benjamin J. Webster, Commander, 30th Air Division, reassigned, effective September 1, as Director of Programs, Office, DCS, Plans and Programs, Hq., USAF, Washington, D.C. . . . **Brig. Gen. Dale O. Smith,** Hq., Second Air Division, USAFE, assigned as Commander, Second Air Division, effective July 25. He remains Chief, US Military Training Mission, Saudi Arabia. . . . **Brig. Gen. Kurt M. Landon,** Assistant Chief of Staff, Materiel, Hq., Pacific AF, became Commander, Hawaiian Air Defense Division, August 2. . . . Replacing General Landon as Assistant Chief of Staff, Materiel, Hq., Pacific AF, is **Brig. Gen. Harry C. Porter.** . . . **Lt. Gen. Charles T. Myers** moved September 9 from Scott AFB, Ill., to Randolph AFB, Tex., with continued assignment as Commander, Air Transport Command. . . . **Brig. Gen. Bertrand E. Johnson** continues as Judge Advocate General, Air Transport Command, having moved September 3 from Scott AFB, Ill., to Randolph AFB, Tex. . . . **Brig. Gen. Thomas E. Moore,** Chief of Staff, ATC, also moved, September 3, from Scott AFB to Randolph. . . . **Brig. Gen. William A. Matheny,** Commander, 31st Air Division, has been assigned as Chief of Staff, Allied AF, Northern Europe.

Brig. Gen. William K. Skaer, Instructor, National War College, assumed new duties August 7 as Director of Staff, Inter-American Defense Board, in the Central Control Group, Hq., USAF, Washington. . . . **Brig. Gen. Henry G. Thorne, Jr.,** DCS/P, Hq., MATS, became Commander, Iceland Defense Force, on August 12. . . . **Maj. Gen. Charles B. Stone,** retired, advanced on the Regular AF list to lieutenant general. . . . **Brig. Gen. Hoyt L. Prindle,** Deputy Commander, 18th AF, TAC, has been assigned Special Assistant to the Commander, 18th AF, effective September 1, at Donaldson AFB, S. C. . . . **Brig. Gen. Frederick Sutterlin,** Hq., USAF, Washington, is further assigned to Office, Deputy Chief of Staff, Operations, as Deputy Director of Operations, effective August 12. . . . **Brig. Gen. Cecil E. Combs,** Deputy Director, Personnel Procurement and Training, DCS/P, assumed new duties September 3 as Commandant, AF Institute of Technology, Wright-Patterson AFB, Ohio. . . . General Combs was replaced by **Brig. Gen. Bertram C. Harrison,** who had been Commander, 72d Bombardment Wing, SAC. . . . **Brig. Gen. Kenneth H. Gibson,** Commander, 11th Air Division (Defense), AAC, has new duties, as of September 1, as Commander, AAC, APO 942, Seattle, Wash. . . . **Brig. Gen. Frank P. Corbin, Jr.,** Hq., Pacific AF, JAG, continued his assignment, after moving from Fuchu Air Station, APO 925, to Hq., Pacific AF, APO 953. . . . **Maj. Gen. John J. O'Hara** will assume new duties as Chief, MAAG, Italy, on October 30. He had been Assistant for Mutual Security, 1171st Foreign Mission Squadron. . . . **Brig. Gen. Ralph W. Wassell,** Director of Nuclear Systems, became Assistant Deputy Commander, Research and Development, at Hq., ARDC, Baltimore, on September 3. . . . **Brig. Gen. Von R. Shores,** Commander, 58th Air Division (Defense), reports September 15 to Hq., Eastern Air Defense Force, ADC, Stewart AFB, N.Y., as Deputy for Operations, Eastern Air Defense Force.

■ **PROMOTIONS:** To major general: Edward W. **Suarez,** Oliver K. **Niess,** Daniel W. **Jenkins,** Daniel S. **Campbell,** John W. **Persons,** Thomas L. **Bryan,** Jr., John J. **O'Hara,** Pearl H. **Robey,** Norman D. **Sillin,** John H. **Ives,** Alfred F. **Kalberer,** Thomas C. **Darcy,** Eugene P. **Mussett,** Romulus W. **Puryear,** Harold C. **Donnelly,** Donald R. **Hutchinson,** Charles W. **Schott,** Benjamin J. **Webster,** William T. **Thurman,** James C. **Jensen,** Joseph D. C. **Caldara,** William M. **Canterbury,** Arno H. **Luehman,** Stanley J. **Donovan,** Turner C. **Rogers,** Augustus M. **Minton,** Bruce K. **Holloway,** Maurice A. **Preston,** John S. **Hardy,** T. Alan **Bennett,** David **Wade.**

To brigadier general: George E. **Keeler,** Jr., Travis M. **Heatherington,** Theodore G. **Kershaw,** Frank P. **Corbin,** Jr., Paul L. **Barton,** John K. **Cullen,** Dwight O. **Monteith,** Conrad F. **Necrason,** Bernard M. **Wootton,** Homer A. **Boushey,** Sheldon S. **Brownton,** Jack N. **Donohew,** Curtis R. **Low,** Willard W. **Smith,** Robert J. **Friedman,** Robert A. **Breitweiser,** William K. **Skaer,** Prescott M. **Spicer,** Virgil L. **Zoller,** Henry G. **Thorne,** Jr., William B. **Keese,** Frederick J. **Sutterlin,** Delmar E. **Wilson,** Glen R. **Birchard,** John W. **Carpenter** 3d, John B. **Bestic,** Jack G. **Merrell,** George B. **Greene,** Jr., James C. **McGehee,** Don **Coupland,** Edgar W. **Hampton.**—END

CHECK!



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Lunar craters as seen through an astronomical telescope.
The puzzle of what's on the other side may soon be answered.

World's oldest mystery soon to be solved

Ever since man has had the imagination to ponder *any* problem, he has wondered what lay on the dark side of the moon . . .

Now, engineers predict that rockets carrying cameras or TV will circle Luna within five years and show us her other face.

At Douglas Aircraft, where one of the first rocket and missile projects was set up in 1941, practical investigations have helped show the way to lunar circumnavigation. They have led to more effective missile guidance systems . . . helped establish basic principles of air-to-air rocket fire . . . led to use of such heat-resistant materials as titanium, ceramics, and plastics. Douglas engineers have investigated *space physiology and psychology*—how man will react in the weightfree glare of space—and even investigated new kinds of power, engines that may use ions or light rays to reach the stars.

Wac-Corporal, an early Douglas rocket, takes off in the nose of a captured V-2 to set what was then a world altitude record. Douglas has since developed such weapons as *Nike*, the new *Nike-Hercules*, and the Army's potent *Honest John*, which can carry a nuclear warhead. Even more exciting projects—still classified—are going full speed ahead at Douglas.

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Editorials

★ No Time for 'Wait-and-See'

IN ITS 1957 Statement of Policy (*see page 44*) the Air Force Association states:

"They [the Soviets] lead us in the development of long-range ballistic missiles."

At the time the Policy Statement was ratified by AFA delegates, on August 2, the conclusion as to the Soviet lead in the ballistic missile field might have been open to argument, in spite of mounting evidence that it was a true assessment of the facts. But within a month the Soviets themselves confirmed the statement.

Tass, the official Russian news agency, on August 26, said:

"A super long-distance intercontinental multi-stage ballistic rocket was launched a few days ago. The tests of the rocket were successful. They fully confirmed the correctness of the calculations and the selected design.

"The rocket flew at a very high, unprecedented altitude. Covering a huge distance in a brief time, the rocket landed in the target area. The results obtained show that it is possible to direct rockets into any part of the world."

Official administration reaction was perhaps best summarized in a carefully worded statement by Donald A. Quarles, Acting Secretary of Defense. Mr. Quarles said the Tass story was "not surprising, although the timing of it was doubtless significant."

Mr. Quarles went on to say, "As to the validity of the Soviet claims and their relationship to our own work, I can only say that we have for some time credited the Soviets with substantial progress in the long-range ballistic missile field and have made it clear that our own work in this same field is being pressed forward on a broad front and with a high priority.

"Time differences in terms of operational readiness will probably not be very great one way or the other, and the immediate military significance of the so-called race has been greatly exaggerated."

But there was a great deal more to it than "military significance," as the New York *Times* immediately pointed out in an editorial. Said the *Times*:

"It is clear that the immediate import of the Soviet achievement is likely to be primarily psychological and political. The Soviet rocket will now make it possible for the Kremlin to wage a war of propaganda terror against us and our allies. . . . The Free World's statesmen will need stronger nerves than ever.

"Within our country the Soviet revelation should cause a serious re-examination of past ideas and past policies. The comforting illusion many have tended to believe, to the effect that we must always—by some law of God or the like—be the most technically advanced country in every field, is now destroyed. That is probably a good thing, and the Soviet announcement has vindicated those, such as Senator Symington, who tried in past years to shatter the complacency born of this illusion.

"But beyond that it is clear that a re-examination of our military policy is required. Is this the time to be cutting military budgets and to be winding up complex organizations involved in the missile field, such as the recent wiping out of the Navaho missile project?"

The Washington *Evening Star* voiced similar concern. The *Star* noted editorially that official Washington reaction to the Soviet announcement ran "true to form." This reaction, said the *Star*, "is marked by a certain note of reservation, a certain skepticism, a certain suggestion, colored perhaps by wishful thinking, that maybe it isn't true. . . .

"[But] our real concern should not be with what the Russians have done. What should concern us is where we stand in this business relative to the Russians. . . . In short, if the Russians have forged ahead of us in this critical field, and if they have substantially perfected their own defenses against conventional air attack, the essential foundation of our defense policy has been undermined. . . . It seems to us that this Russian claim should be taken with the utmost seriousness by the men responsible for the security of this country. If they cannot tell the American people what the facts are, they can at least make up their minds to spare no effort, or money, to perfect our own missile program with all possible speed. In the past, we have not made the maximum effort of which we were capable. And today's news from Moscow may be a way of notifying us that that was a very serious mistake."

In general, the discussion of the Soviet ICBM claim centered around these points:

1. Is it actually true?
2. What does it mean?

As to the truth of the announcement, the path of wisdom would be to accept it at its face value. History offers little backing for those who would belittle the Soviet capability in weapons development. The story of American underestimation in this field is long and inglorious. Following is only a partial list:

- Experts said the Soviets could not duplicate our B-29 in less than six years. It took them two.
- Experts said Soviet technology could not turn out jet aircraft in quantity. Yet the US has long since surrendered quantitative superiority in jet aircraft to the USSR.
- Experts said we had a six- to ten-year monopoly in nuclear weapons following World War II. The Reds built and exploded their first atomic bomb within three years after they began working on it.
- Experts greeted with familiar skepticism the Soviet announcement in August 1953 that they had solved the problem of the hydrogen bomb. Four days after the announcement they exploded one.

In the face of this record, it is difficult to understand the President's doubt of the truth of the Soviet statement.

Let us assume, therefore, that the Soviets meant what they said. What are the implications for the United States and its allies?

Psychologically, the Soviets have beaten us to the punch. The road is open for a campaign of terroristic propaganda against our allies who live under the Soviet gun and against the wavering and neutralist countries. The timing of the announcement with the Syrian coup and the breaking off of disarmament negotiations was calculated to exploit the fears of those nations in the middle and to encourage those on the fence to jump toward the "winning" technological camp.

Militarily the Soviets may or may not have gained the

jump. A successful missile firing is not necessarily an indication of either a production or an operational capability, as anyone familiar with our own ballistic missile program must admit. But there are several reasons why the Reds should push their ballistic missile program at full throttle, and the fact that they are this far along is more than a little disturbing.

For one thing, a Soviet intercontinental missile capability could close the main military gap which presently exists between the two world blocs. Our present strategic advantage in manned aircraft is now the main deterrent to aggression and it could be seriously threatened by the new development.

For another, the very nature of the ballistic missile—its relative unstoppability once launched—makes it a weapon ideally suited to the aggressor. This is true both in the sense of initiating a world war or of hoarding the capability as a weapon for ballistic blackmail. Soviet achievement of an intercontinental ballistic missile capability, therefore, would almost inevitably mean Soviet monopoly of diplomatic and military initiative regardless of what our capability may be under our present national policies.

There is one slender ray of hope in all this gloom, however. The nation has been served with a warning. If the warning is heeded, if our own missile programs are intensified, if more, rather than less, money is made available for national defense, then the Free World may yet be able to pull its security out of the fire of Red rocket blasts.

The New York *Herald Tribune* put it succinctly:

"The need here is for more funds, not less. A matter of balanced budget simply cannot be allowed to override the national security. What is needed right now is to get moving with redoubled speed on the defense program, to provide plenty of fiscal assistance, and to insist that missiles have all-out priority.

"There is no time for wait-and-see tactics. Where the balance of power is at stake, the Free World must stay ahead or perish."

★ History Will Be the Judge

IF MORE money is needed to counter the Soviet threat in intercontinental ballistic missiles, it is not to be found in the Air Force budget as legislated for fiscal year 1958. The Congress slashed deeper into the President's original requests than it had in many a year. Here's the box score (in millions):

	President's Budget	*Authorized*
Aircraft & Related Procurement	$ 6,200.0	$ 5,886.0
Procurement other than Aircraft	1,225.0	1,171.5
Research & Development	661.0	661.0
Operation & Maintenance	4,225.0	4,092.1
Military Personnel	3,840.0	3,801.6
Reserve Personnel	57.0	55.0
Air National Guard	263.0	263.0
Total (not including military construction)	$16,471.0	$15,930.2

The Congressional cuts are not crippling in and of themselves. The deep bites had been taken, as usual, before the budget was submitted, out of the $20 billion plus which Air Force leaders had determined was the minimum needed. And even more ominous in implications for the future was the expenditure ceiling of $38 billion annually for the Department of Defense. This latter has been the motivating force behind the rash of cutbacks and stretchouts which will leave the Air Force completely out of shooting distance of a 128-wing force goal (or indeed of any force goal at all) and will result in unconscionable delays in modernizing whatever number of wings the Air Force may wind up with. Best indications at the moment are that we are actually building for a force of little more than 100 combat wings and that these may never be truly modernized in terms of the state of art.

Nor can Congress be harshly blamed for the cuts it did make. The Administration course in support of its own budget was, to be charitable, vacillating.

The President's budget message in January endorsed the full defense program as the minimum consonant with national security. Within a month the Secretary of the Treasury was inviting Congress to cut. The House of Representatives took him at his work and made significant slashes. Then the Senate, led in a bipartisan effort by Senators Symington and Saltonstall, made a valiant attempt to restore the money which the President himself said was needed. Then, when Secretary of Defense Wilson came forward with further cuts, the Senators figuratively threw up their hands in despair and said, "So be it."

Meanwhile, long-term legislation that promises real savings without cutting our defensive capability—such as the Cordiner Committee recommendations—must wait action by the next session. Hearings are being held but they are proceeding slowly.

We can no longer be assured we are ahead in new weapons. Both the size and quality of the force-in-being are eroded by false economy. And we lack the means to keep the skilled men we need to man the weapons we have.

History will be the judge as to whether the year 1957 marks a key point in the decline of the mightiest nation the world has even seen. Let us hope that when the history of these times is written it shall be by unfettered and objective scholars of a free society and not by brainwashed servants of a Soviet dictatorship.

★ Our Crystal Ball

NEWS of the Russian ICBM should have come as no shock to veteran readers of AIR FORCE. A cursory prowl through our back issues reveals that an explicit warning of Red technological capabilities was issued in a two-part series called "The Atomic Illusion," by Ramsay Potts, Jr., in January and February 1951. Also in the February 1951 issue was a prediction of the race for the intercontinental missile in "The Four Freedoms of the Air Force," by (then) Maj. Gen. Donald L. Putt. As long ago as March 1953 we discussed the implications of the Soviet ICBM and warned that there was little doubt that the Reds could and would build an ICBM as quickly as we.

While we do take some pardonable pride in the accuracy of our editorial crystal ball, we take little comfort in what we've been seeing in it lately. Unless present trends are reversed, the future appears to hold an acceleration of Soviet capabilities coupled with a progressive slowdown and stretchout of our own. Should this prediction hold, as have others of the past, we won't even get a chance to say "I told you so."—END

TACAN unit shown with covers removed; plane is a composite model.

78-~~page~~ tube road map for jets

An 800-foot carrier may be as hard to find as a needle in a haystack, when the plane seeking it is at 20,000 feet and the time is 0200 hours.

To make the homing plane a homing pigeon, we build the "ARN-21" TACAN equipment illustrated above. Its 78 tubes and associated components add up to a self-contained transmitter and receiver, rugged in its ride-resistance and accurate to pin-point tolerances.

The manufacture of equipment as important and complicated as this demands *perfection*, and nothing less. On the military as well as the home front, Stromberg-Carlson has long displayed the ability to take such problems in stride.

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WITH THE EDITORS OF AIR FORCE MAGAZINE

SHOOTING THE BREEZE

With Asiatic flu very much in the news, the Air Force is readying for a worldwide program of inoculation of personnel (top priority and mandatory) and overseas dependents and civilians (next priority and voluntary) with a target date of mid-September for start of the program. Meanwhile a program of inoculation for ZI dependents and civilians is being planned.

According to Maj. Gen. Dan C. Ogle, AF Surgeon General, purchase of 1,115,000 cubic centimeters of Asiatic flu vaccine have been contracted for, with each cc representing a single inoculation. The Asiatic flu shot is being given in addition to regular flu inoculations.

The Asiatic flu outbreak, now pandemic, was first reported in China, last January, from which it spread to Hong Kong and Singapore, reaching North and South America by July. Symptoms are headaches, nausea, cough, chills, and high fever. The vaccine is expected to protect one week after inoculation and continue to do so four to ten months. Health officials credit it with approximately seventy percent effectiveness.

☆

Although he had learned to fly back in the days when he was a lieutenant colonel in the Philippines under Gen. Douglas MacArthur, it was a long time since Dwight Eisenhower had been at the controls of a plane—and he made history a few weeks ago when, for a few minutes, he flew the twin-engine Aero Commander taking him on the twenty-three minute flight to Gettysburg, Pa. It was the first time in anyone's memory that a President had been in actual control of a plane in flight. Pilot Eisenhower's technique was praised by plane commander Lt. Col. William Draper.

☆

Newest member of AIR FORCE's staff is Bill Leavitt, who joined this publication on August 1 as associate editor. Formerly an industrial editor and publicity specialist with General Electric, Bill served during the Korean War at Keflavik AB, Iceland, as an information specialist, working on military newspapers and for the Armed Forces Radio Service. A graduate of Northeastern University in his native Boston and Columbia University's Pulitzer School, he began his news career as a college editor and worked for United Press and the Boston *Traveler* during undergraduate days.

☆

The women of the Air Force have a new Director, Col. Emma Jane Riley, who pinned on her silver eagles September 1 as successor to Col. Phyllis D. Gray, now retired.

A native of Missouri, Colonel Riley has spent most of her fifteen years in the service with the Air Force. She received her commission during World War II at the WAAC Officer Candidate School, Des Moines, Iowa, and in 1943 was assigned to the Army Air Force, serving after the war as WAF Staff Director, Air Transport Command, and later in staff positions at Hq. USAF, Hq. MATS, and most recently as WAF Staff Director, USAFE, in Germany.

USAF personnel, celebrating their Golden Anniversary, were singled out for praise in print by Royce Howes, Detroit *Free Press* associate editor, in a recent issue.

Wrote Mr. Howes: "This is the Golden Anniversary of the USAF. Recently we spent forty-eight or so hours in intimate association with the Air Force, 1957 style, and got a close look at its best weapons. We also saw an impressive array of lesser weapons demonstrated on a Florida bombing range, but what really lifted our sense of security was that **number-one weapon . . . the officers and men of the Air Force.**

"As is inevitable with guns, bombs and rockets, a few little things went wrong on the range, but nothing went wrong anywhere with the Air Force's **people.** Whatever human skill and earnestness could assure was flawless.

"The sense of organization to be had by mingling with the USAF leaves no doubt about the human can-do. It's there—and big," he concluded.

(Continued on following page)

Something new in high-speed motion picture cameras, for use in plotting flight patterns of faster-than-the-eye objects like missiles and rockets, is demonstrated here by Donna Long. This Gordon Enterprises instrument combined a thirty-five millimeter motion picture camera with surveyor's transit and the modification by the maker involved installation of a special custom pulse generator, redesign of flasher lamp and dustproof sealing. Used with two or more instruments shooting at the same time, it allows determination of all dimensions in space of the object.

Philatelists who, amid the rush at the recent AFA Convention, were unable to get their first-day covers on the new Air Force commemorative stamp, are in luck.

Still obtainable from the **Fleetwood Cover Service, Pleasantville, N. Y.,** are:

Single covers, with stamp	$ .25
Five covers, with stamp	1.00
Stamps, blocks of four	.50
Stamps, plate number blocks	1.00

☆

The Air Force Drum and Bugle Corps, which made such a hit at the AFA-sponsored Andrews AFB Air Show just before the AFA Convention, now is touring Europe with its forty-five-minute program of music and precision marching. Led by Lt. Edwin L. Dougherty, the Corps' sixty-man aggregation, including a skirling bagpipe section, was scheduled to play Burtonwood AB, England, September 5; the Edinburgh Festival, Scotland, September 6-7; the London area, September 9-14; Toul-Rosiere AB, France, September 15; Bitburg, Spangdahlem, Trier ABs, Germany, September 17-22; Izmir and Istanbul, Turkey, Sepetember 24; Ankara, Turkey, September 25; Piraeus, Greece, September 27; Wiesbaden, Germany, September 29; and Rhein-Main AB, Germany, October 1.

☆

One of the busiest ladies at the AFA Convention was Mrs. Henry H. Arnold, widow of the World War II AAF commander, chosen by AFA to represent Air Force wives, mothers, daughters, and sweethearts at the Washington meeting. In that role she took her place in the Golden Anniversary portrait that framed air pioneers of the last fifty years.

An Air Force wife for thirty years, Mrs. Arnold founded the World War II National Association of Air Force Women to provide volunteers for hospital duty, nursery work and social service. Mrs. Arnold, an attractive white-haired woman, now lives in Sonoma, Calif., on a forty-acre ranch, from which she keeps track of her four children and six grandchildren, scattered across the US.

☆

Speaking at AFA's Airpower Awards Banquet, for the USAF officers who stood at ground zero underneath the potential of an air-to-air nuclear firing in mid-July, Col. Sidney C. Bruce, who holds the unlikely title of Mayor of Ground Zero, told a hushed audience: "We had to demonstrate to all concerned, by our own lives, that it was safe to stand underneath one of these atomic detonations. . . .

"Stop it, you're tickling!"

Lighter than Air

At Randolph Field, Tex., in the days before World War II, a flying cadet overshot on a landing at an auxiliary field one day. His plane stopped so close to the fence that he couldn't turn around and taxi back. He got out of the plane, calmly lit a cigarette, and waited. A few minutes later, another cadet overshot the field and ran through the same fence, taking most of it with him. The waiting pilot then reboarded his plane, taxied into takeoff position, and took off with all the room in the world.

MAJ. WENDELL F. MOSELEY
Air Command and Staff College
Maxwell AFB, Ala.

• • •

This chuckle-and-short corner is devoted to true unpublished anecdotes about Air Force life. Send us yours. We'll pay five bucks for each one published. All stories used become our property.

What we saw convinced us that this weapon is capable of doing what it's designed to do . . . disintegrate an enemy bomber in flight . . . but have little, if any, effect on ground personnel."

". . . The rest is up to you," he told AFA delegates, "you must accept this weapon as an everyday article . . . permit us to store it at operational bases . . . in readiness to be used."

"In the words of Dr. Teller," Colonel Bruce continued, "hazards associated with this weapon, if any, are not great when one compares the possible damage that may result from anything less than optimum air defense."

☆

Identified as possibly the original Air Force joke was this anecdote, told by Milton Caniff, who performed admirably as master of ceremonies, at the AFA Airpower Awards Banquet:

Buddy, to soldier who had just transferred from the Cavalry to the newly established Air Service:

"Why did you transfer from the Cavalry to the Air Service?"

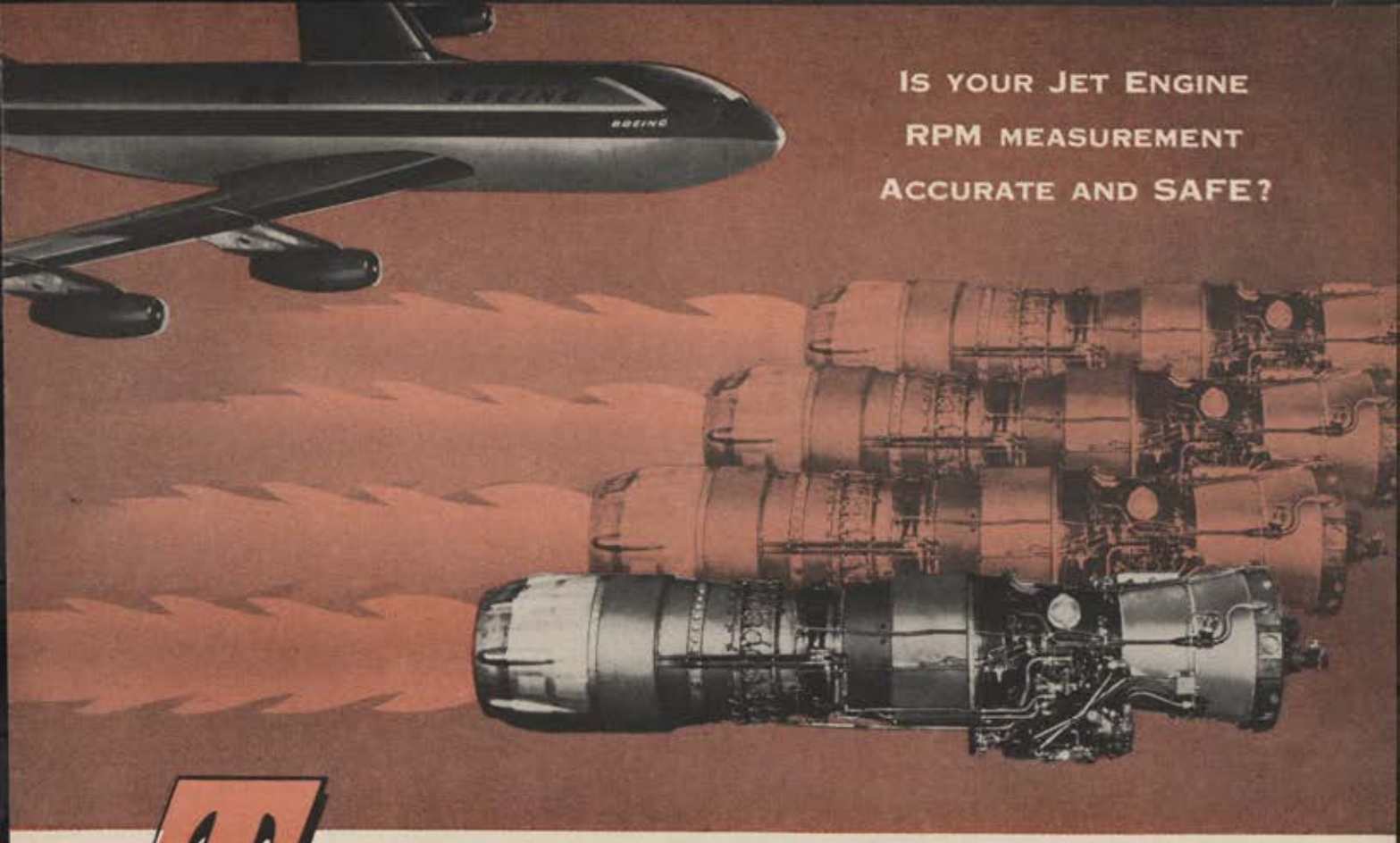
"Because, when an airplane throws you out, it doesn't generally walk over to you afterward and bite you, too."

☆

With these words, in moving tones, the hitherto jovial master of ceremonies at the Airpower Awards Banquet, Milt Caniff, closed the evening. Noting how infrequently this poignant verse of the Air Force song was heard these days, he read:

"Minds of men fashioned a crate of thunder; set it high into the blue.
Hands of men blasted the world asunder, how they lived God only knew;
Souls of men, dreaming of skies to conquer, give us wings ever to soar—"

and said, "You know the rest, of course. The people we miss tonight are those who aren't here, who 'gave their all, of old.' "—END



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The high frontier

Far to the north of settlements, roads and railways, DEW line outposts stand guard over America. They were built with the help of Fairchild C-123 transports, which flew in the men and the construction material—even the radar antennas which now scan the arctic skies.

The C-123 commuter service to the DEW line goes on at the rate of up to eight tons of cargo per plane—and at the end of the line the landing strips have proven too rough, too hazardous for any other heavy-duty transport now in service.

The members of this polar bear club have come to depend on the C-123—just as the U. S. Armed Forces everywhere. The C-123 shares these qualities with other Fairchild aircraft: ruggedness, reliability, and ever increasing utility.

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AIR FORCE
SEPTEMBER 1957

FOR THE RECORD

What happened in Washington

TO RECORD all of what actually happened in Washington from July 28 to August 4 would require a tome that would compare with the massive Anniversary issue we sent your way last month. It was a well-packed week, and our report on it does not pretend to be a complete one. However, we have attempted to hit all the highlights and to dwell at greater length upon the more significant aspects. As the finale to months of buildup across the nation in celebration of the Golden Anniversary of the Air Force, the 1957 Convention lived up to its advance billing as the greatest ever. For those of you who were fortunate enough to be present we hope this issue of AIR FORCE *will serve as a small memento of the Air Force birthday party. For those who were unable to make it, we trust this report will convey a small bit of the flavor of it all.*—THE EDITORS

AFA's 1957 STATEMENT OF POLICY

Unanimously adopted by the delegates to the Air Force Association's Eleventh Annual Convention, on Friday, August 2, 1957, in Washington, D. C.

AS WE mark the Golden Anniversary of the Air Force, the security of this country and of the Free World is dependent, as never before, on the military strength of the United States and on the American appreciation of the necessity for maintaining the strongest capability for air action in the world.

Government officials at the highest level have warned us that this country was never in greater danger than today. The Soviets already have achieved numerical superiority in airpower over the United States. They lead us in the development of long-range ballistic missiles and are fast approaching, if they have not already reached, technical equality in aircraft development. There is no reason to doubt that they have ample stocks of nuclear weapons. Their capability for wholesale destruction and the possibility of winning a war against us by a single all-out surprise attack from aircraft and missile-carrying submarines lying off our coasts is greatly increased, as our national policy gives them the tremendous advantages of both the initiative and surprise.

An analysis of the over-all situation indicates that the world is rapidly approaching the greatest climax in history and that unless we immediately take the most drastic steps to meet the coming emergency, the side best prepared to meet that climax will be the International Communists.

No matter how much we deplore and dislike it, we are in an arms race with the Soviet empire. It is a race which we did not initiate, but by abandoning it we cannot postpone or get rid of the threat of war. On the contrary, if we abandon this race or allow our opponent to win it, we merely hasten the outbreak of a war we cannot win. No nation can win a modern all-out war with a second best air force.

We note with alarm that national defense planning is now primarily predicated on present and continued technical superiority in arms over the Soviets. Official acceptance of this premise is already being advanced as justification for the surrender of numerical superiority in airpower, for new cutbacks and stretchouts in the modernization of the Air Force, for slowing down the development of an efficient air defense and a reduction of the personnel to man and maintain the Air Force.

Any defense plan which assumes that technical superiority alone in modern weapons is adequate defense is a house built upon sand—an unrealistic measure of the nation's relative security. The immediate requirement is adoption of a military plan shorn of all wishful thinking, and with no consideration—political or economic—overriding that of national security.

As an immediate first step we urge Congress to pass an appropriation large enough to bring, as soon as possible, our long-range striking force up to full strength in modern bombing and auxiliary aircraft, with personnel to man and maintain it; a speedup in our air defense capability; and an intensification of our research and development and antisubmarine program, particularly in the field of long-range ballistic missiles.

Concurrently, we urge objective evaluation, by a commission set up and responsible to Congress, of the nation's high-cost weapon systems and elimination of those which prove to be obsolete or even marginally efficient in providing for the national defense.

Objective weapon system evaluation, as a pre-condition to security with solvency, should be the foundation for realistic reorganization and modernization of the defense establishment. It is imperative that the defense structure be oriented toward the assignment of missions to meet the actual military threat and away from any perpetuation of traditional concepts and obsolete weapons. Only then can we expect to achieve maximum security at minimum cost.

To this end we dedicate our 1957 Statement of Policy.

Sheraton Hall, the huge ballroom of the Sheraton-Park Hotel, AFA convention headquarters, was jam-packed for the Airpower Awards Banquet, traditional climax of the week-long convention. Milton Caniff was master of ceremonies.

Airpower's Greatest Showcase

By Bill Leavitt and Dick Skinner

A GOLDEN Anniversary, by its very definition, must surpass all that precedes it, and AFA's eleventh annual convention at Washington marked possibly the most significant anniversary of this century—fifty years of the USAF. It was a time to look back and honor the progenitors of airpower, and to look ahead for answers to somber questions, questions of survival in a dangerous era.

Following is a chronicle of the highlights of AFA's 1957 meeting.

° ° °

The pace was set Sunday afternoon, July 28, at the AFA-sponsored Air Show, held at Andrews AFB, Md., about a dozen miles outside Washington. Here the Bendix Race F-102s roared in from Chicago, and the Air Guard F-84Fs in the Ricks Event finished their speed run from California. The Air Show is described and pictured on page 71 of this issue.

Tuesday, July 30, was the first day of the convention proper. The afternoon was devoted to the annual Reserve Forces Seminar, chronicled by AIR FORCE on page 112 and following. That evening Assistant Air Force Secretary David S. Smith spoke at the Reserve Forces Banquet. A condensation of his remarks begins on page 132.

Wednesday, July 31, was Industrial Associate Day, starting off with a Procurement and Logistics Briefing in the morning, moderated by past AFA president John R. Alison. The speakers included Air Force Secretary James H. Douglas, Assistant Secretary Dudley Sharp, AMC Commander Gen. Edwin Rawlings, and his Director of Plans and Programs, Maj. Gen. K. E. Tibbetts. Their presentations begin on page 82.

The Industrial Associate Luncheon speaker that day was the commander of the Air University, Lt. Gen. Dean C. Strother, whose speech is digested on page 81. Wednesday afternoon was devoted to a Research and Development Briefing, again moderated by Mr. Alison. The speakers included Assistant AF Secretary Richard Horner; acting ARDC Commander Maj. Gen. John W. Sessums, and ARDC Information Services Officer Lt. Col. Carlo Tosti. The report of this briefing starts on page 92.

Wednesday evening the Airpower Panorama preview attracted the AFA delegates and their guests to the National Guard Armory, scene of the big show described and pictured on page 74 of this issue.

The big day of the convention was Thursday, August 1—Anniversary Day—the fiftieth birthday of the US Air Force. It was fitting that the day started with a memorial service at Arlington National Cemetery where Gen. Thomas D. White, AF Chief of Staff, paid tribute to all the men and women of the Air Force who had died in line of duty.

At the National Guard Armory that morning, Postmaster General Arthur

(Continued on following page)

Above, Sister Mary Aquinas with AFA's 1956 Miss Airpower, Joanne Alford, smiling recipients of AFA's Citations of Honor, awarded for their work in the field of air-age education

Outstanding WAF S/Sgt. Mary Clarke, USAFE, right, enjoys a preview of "Fifty Years of Fashion," before the AFA Ladies' Air-Age Fashion Luncheon.

Poi, Hawaiian punch served in coconut halves, leis, grass skirts, palm trees, island music and dancers—the huge Sheraton Hall was transformed and every AFA member was a make-believe Hawaiian at the Luau given by Lockheed Aircraft.

Summerfield presented the first of the USAF commemorative postage stamps to AF Secretary Douglas.

At noon on Thursday came the climax of the Golden Anniversary celebration. Jimmy Stewart was master of ceremonies for the "Air Force Portrait" program, a moving tribute to the first half-century of the USAF and featuring men and women who best summed up the outstanding moments and eras of Air Force history.

These included retired Brig. Gen. Frank Lahm, oldest living military pilot; retired Brig. Gen. Thomas DeWitt Milling, another veteran pilot; Mrs. Henry H. Arnold, widow of the World War II commander of the AAF; Capt. Eddie Rickenbacker, top American ace of World War I; retired Cols. Oakley Kelly and John Macready, who made the first nonstop transcontinental flight in 1923; retired Brig. Gen. Erik Nelson, pilot of one of the first round-the-world aircraft in 1924; Col. Bernt Balchen, pioneer Arctic pilot; J. H. "Dutch" Kindelberger, board chairman of North American Aviation Co., representing industry's role in AF history; Roscoe Turner, representing private pilots; Miss Jacqueline Cochran, representing women in aviation; retired Maj. Gen. Claire Chennault, leader of the famed Flying Tigers in World War II; retired Gen. Carl A. Spaatz, air pioneer and first Chief of Staff of the independent USAF; retired Gen. George C. Kenney, one of the top air commanders in World War II; Col. Francis Gabreski, America's top living ace with victories in World War II and Korea.

Others included Col. Paul W. Tibbets, pilot of the plane that dropped the A-bomb on Hiroshima in World War II; Robert Lovett, former Secretary of Defense; Lt. Gen. William H. Tunner, representing the men of the Berlin Airlift; Maj. James G. Gallagher, pilot of the first nonstop round-the-world flight in 1949; Sen. Stuart Symington, first Air Force Secretary; Lt. Col. James Jabara, history's first jet ace; Gen. O. P. Weyland, top air commander during the Korean War; Dr. Theodore von Karman, the dean of aeronautical engineers; Maj. Charles E. Yeager, first man to fly faster than sound; Donald A. Quarles, former Air Force Secretary; Gen. Thomas D. White, USAF Chief of Staff; James H. Douglas, Air Force Secretary; M/Sgt. Horst W. Tittle, at seventy-three, the oldest man on active duty in the USAF, with forty-nine years of service; Miss Edna M. Adkins, representing the AF's civilian employees;

Beaming for the photographer at the Anniversary Ball was this quartet, left to right, new AFA Chairman of the Board, John P. Henebry; Morton Downey; Lt. Gen. Emmett O'Donnell; and top living American ace, Col. Francis S. Gabreski.

Gen. Nathan F. Twining, now Chairman of the Joint Chiefs of Staff; and Air Cadet Dennis R. LaFarlette, most recent graduate of USAF flight training.

During the ceremony Cadet LaFarlette was sworn in by General White, thus becoming the 235,950th man to earn Air Force wings. His wings were pinned to his chest by General Lahm, and Mrs. Arnold fastened new lieutenant's bars to his tunic.

Secretary Douglas then read to the Anniversary Day audience this message of greeting to AFA from President Eisenhower:

"To the members of the Air Force Association assembled in their eleventh national convention, I send greetings and welcome to the capital city. In this fiftieth anniversary year, the United States Air Force is a key element in the nation's 'power for peace.' With vigor, imagination, and a keen sense of duty, the Air Force has achieved a splendid tradition of service in defense of the Free World. Best wishes for a memorable convention."

Thursday evening delegates had their choice of three Anniversary Balls to attend—each representing one of the major theaters of operations during World War II. Singers Morton Downey and Eddie Fisher were but part of the show that made the rounds of each of the hotels.

The following noon was Ladies' day, the Air Force way, with the Air-Age Luncheon and Fashion Show at the Mayflower, addressed by Col. Barney Oldfield of CONAD. The audience also met the famous "Flying Nun," Sister Mary Aquinas, who received an AFA award for her work in air-age education. Mrs. Carl A. Spaatz made the presentation.

Wowing the crowds at all three Anniversary Balls was singer Eddie Fisher.

Same day at the Sheraton-Park saw the Airpower Symposium Luncheon, addressed by Gen. Thomas D. White and the Symposium that followed, with tough-minded analyses of today's airpower problems by top figures (for a report on the Symposium, see page 56). Speakers included Eliot Janeway,

(Continued on following page)

Gen. Thomas D. White congratulates Lt. Col. John J. Reuttgers, commander of the 512th Fighter-Interceptor Squadron, based in England, who accepted the Hughes Trophy, presented annually to the outstanding all-weather unit in the USAF.

Maj. Gen. David Wade, Col. James H. S. Rasmussen, Rep. George H. Mahon (D.-Tex.), John A. McCone and panelists were Marquis Child, Richard Witkin, and Ernest K. Lindley, with W. Barton Leach as Moderator.

One feature of the AFA convention was, as usual, the presentation of awards. AFA's top trophies were awarded at the banquet Saturday evening (see pages 78 and 79 for winners), in the traditional climax to the week's activities. The previous Sunday, at the Air Show at nearby Andrews AFB, the Ricks and Bendix Trophies had been presented to the winners of those two events (see page 73 for details). On Tuesday, July 30, AFA President Henebry and Gen. Carl Spaatz made the presentations of the Reserve Awards (see page 131).

AFA Citations of Honor this year were presented at Friday luncheons, instead of at the Awards Banquet as in the past. Two of the citations were presented, by Mrs. Carl A. Spaatz, at the Ladies' Air-Age Luncheon, while the other five were awarded by AFA President Henebry at the Airpower Symposium Luncheon. Winners of these Citations are listed on page 79. And at the final event of the convention, the Airpower Brunch on Sunday morning, the "family awards" to AFA members were announced. A complete list of these people is on page 141.

Among the other awards presented during the convention were four plaques given by AFA in recognition of accomplishment in Air Force materiel. These awards, presented by AFA Board Chairman Gill Robb Wilson, went to Maj. Gen. William F. McKee, vice commander of AMC; Gordon H. Tyler, deputy director of procurement and production at Mobile AMA; Col. Joseph O. Fitzgerald, director of supply and services, Hq. Oklahoma City AMA; and Maj. Phillip C. Nickel, director of quality control, Rushmore AFS, S. D.

A gratifying press comment on the convention was Wayne Parrish's August 12 editorial in *American Aviation*:

"Anyone who paid even the most casual attention to the Air Force Association convention in Washington early this month could scarcely fail to be impressed with the enormous vitality behind this showcase for airpower. Timed as it was with the Golden Anniversary of the Air Force, AFA did itself proud as a platform and a forum for expounding of authoritative airpower policies and programs.

"Quite apart from its own sessions, AFA did an immensely effective job for the public with both a topflight outdoor air show at Andrews Field and an indoor Airpower Panorama in Washington's Armory. Industry participation set a new high. . . . Another record was most surely the Golden Anniversary Luncheon, a masterful and moving program reflecting fifty years of USAF flight with a host of old-timers in reflected glory. . . . So to Convention Chairman Carl A. (Tooey) Spaatz and AFA staffers Jim Straubel and Ralph Whitener, our heartiest applause for the most outstanding and best planned aviation affair in memory and one which performed a great deal of good for all, including the public."

Throughout the business sessions, delegates were busy voting on resolutions. Here's a roundup of policy and other resolutions introduced by the National Airpower Policy Committee and several field organizations. (A report on AFA organization resolutions and constitutional changes may be found on page 142.)

"Mayor of Ground Zero," Col. Sidney Bruce, stood unprotected directly under the first atomic rocket explosion.

Regular AFA convention-goers, movie men Vince Barnett and Joe E. Brown in their Alphonse and Gaston routine.

In the area of US defense policy, the delegates, in resolutions offered by the National Airpower Policy Committee:

- Endorsed the Cordiner Committee's proposals for armed service compensation revisions on the basis of individual skills and contributions, looking toward improvement of com-

bat capability in the nation's force, savings in cost of defense, reduction in the number of necessary personnel, and a long-term solution to manpower problems.

- Called for maintenance of an Air Force superior in both *quality* and *quantity* to the Soviets, to offset potential aggressors' advantage of surprise attack.
- Asked for a re-examination by the government of current security policies on intercontinental ballistic missiles with a view to giving the public more adequate information on progress and capabilities.
- Pledged high priority to an AFA program of providing maximum information to the public on the need, for its own security, of storing nuclear weapons in populated areas of the nation.
- Called for proposal by the Defense Department of legislation to provide government-furnished housing to enlisted men with grade of Airman First Class or higher with *less* than the presently required seven years' service, to provide reenlistment incentive and ease the trained manpower retention problem.
- Endorsed construction of the National Air Museum, which was authorized by Congress in 1946, to

(Continued on following page)

Pilgrimage was made during Arlington Cemetery tribute to the simple grave of late Gen. "Hap" Arnold by these airmen—symbols of USAF's future.

An event that attracted crowds during preconvention program, the USAF Band gave a public concert on the Washington Monument ground on July 30.

Gen. Nathan F. Twining, Chairman, Joint Chiefs of Staff, cuts a Golden Anniversary cake at the USAF Anniversary Banquet, as former Defense Secretary Robert A. Lovett (left) and North American's James H. Kindelberger look on.

Solemn moment during the convention was the memorial service for Air Force's fallen in all wars, held at Arlington National Cemetery on Thursday morning. Gen. Thomas D. White, USAF Chief of Staff, made principal address.

inspire youth toward careers in aviation.

A resolution calling for establishment of a Cabinet level office to deal with matters of aviation policy was introduced by the Syracuse Squadron, and endorsed by the delegates. In that area, the delegates also passed a resolution, offered by the California Wing, urging establishment of a National Advisory Committee for Aviation Education as a governmental function to provide leadership and coordination for a program of aviation education for state and local school authorities.

Attention was given, too, to Senate Bill 656 which would discontinue federal licensing requirements for aircraft and engine mechanics. The Michigan Wing, Queens Squadron, offered a resolution, which was passed, that the AFA study the proposed legislation to determine if passage would result in improperly trained personnel and danger to air passengers.

The delegates, passing a resolution offered by the Syracuse unit, also planned to urge the Special Presidential Adviser for Air Traffic Control, the Civil Aeronautics Board, and Civil Aeronautics Authority to exercise restraint in restrictions on private flying activities and to provide for maximum private flying freedom.

Surprise guests at the AFA meeting were four of the five men who had, a few weeks earlier, stood at "ground zero," directly under the blast from the first successful firing of a live atomic rocket from a manned aircraft: Col. Sidney C. Bruce, Lt. Col. Frank Ball, Maj. Donald Lutrell, and Maj. John F. Hughes. They, as well as the crew of the Northrop F-89 Scorpion that fired the atomic rocket, were honored by Northrop Aircraft and the Air Defense Command with plaques presented by Gen. Earle E. Partridge, commander in chief of the Continental Air Defense Command.

Also on Saturday, two trophies were given to outstanding all-weather units, in conjunction with the annual meeting of the Night Fighters Association being held concurrently with the AFA convention. The Hughes Trophy, given annually to the best all-weather unit in the US Air Force, went to the 512th Fighter-Interceptor Squadron, based in England, and to the 179th Fighter-Interceptor Squadron, Duluth, Minn., went to the Winston P. Wilson Trophy, awarded to the best all-weather outfit in the Air National Guard.

The weekend was busy, too. Saturday afternoon saw the delegates poll-

Climax of the Golden Anniversary Banquet was the unveiling of the gold-bordered "Anniversary Portrait" of the men and women who embody the history, the growth, and the strength of airpower and the US Air Force over the past fifty years. From left, front row: Dr. Theodore von Karman, M/Sgt. Horst Tittle, Gen. Nathan F. Twining, Brig. Gen. Frank P. Lahm, Air Cadet Dennis R. LaFarlette, Mrs. Henry H. Arnold, Gen. Carl A. Spaatz, Maj. Charles E. Yeager; second row: Brig. Gen. Erik H. Nelson, Lt. Col. James Jabara, Gen. George C. Kenney, Miss Jacqueline Cochran, Gen. Thomas D. White, Capt. Edward Rickenbacker, Col. Oakley Kelly, Col. John Macready; third row: Col. Francis S. Gabreski, Miss Edna M. Adkins, Sen. Stuart Symington, Hon. James H. Douglas, Maj. Gen. Claire Chennault, Maj. James G. Gallagher; top row: Col. Paul W. Tibbets, Col. Bernt Balchen, Lt. Gen. William H. Tunner, Brig. Gen. Thomas DeWitt Milling, J. H. "Dutch" Kindelberger, Gen. O. P. Weyland, Roscoe Turner. Missing from picture: Hon. Robert Lovett, Hon. Donald Quarles.

ing for their national officers and directors (see story, page 137). They elected Peter J. Schenk of Santa Barbara, Calif., their new President for 1957-58, while outgoing President Henebry became new Chairman of the Board.

Saturday night marked the climactic Airpower Awards Banquet in a brightly decorated Sheraton Hall, emceed by the patron cartoonist of the Air Force, Steve Canyon's creator Milton Caniff. For a full report on the Airpower Awards Banquet, see page 78.

Sunday morning was the Farewell Brunch at the Sheraton-Park, a time to say goodbye to new friends and old, to pledge continued hard work throughout the year for the airpower the nation needs, and to plan for next year's convention . . . in Dallas.—END

Gen. Carl Spaatz, asked by Emcee Jimmy Stewart about the significance of airpower, said, "We must control the sky above the earth or join the worms below."

Of Money and Weapons

Hon. James H. Douglas

SECRETARY OF THE AIR FORCE

I ALWAYS welcome a chance to report on the Air Force and to discuss its problems. A chance to do so with its best friends—as tonight—is doubly welcome, even though I shall talk money and weapons.

I undertake the task humbly, since our Air Force and our national security are so intertwined; and since—diversified as the Air Force is—no Secretary can know it as thoroughly as he would like.

Our problems would have been easier to discuss several months ago, before we realized that we faced an immediate revision of our programs. From December '53 until December '56 we were able to plan our personnel, our weapon systems, and our bases on a stable program, to reach 137 manned wings by July 1, 1957. During those years, our expenditures increased from about $15 billion in fiscal 1953 to more than $18 billion for '57. When we prepared our budget for '58, it became obvious that we would have to reduce our force structure if we were to absorb the costs of new activities. To mention only a few, we were then in the midst of converting our heavy bomber force from B-36s to B-52s with their companion jet tankers. We were preparing to activate the northernmost early warning line, and were planning its western and eastern extensions. We were constructing the SAGE control system for our interceptors and defense missiles. We were making rapid advances in missiles and had entered the testing phase of the ballistic missiles.

To meet these high priorities without substantially higher expenditures, we presented a budget for '58 which was based upon a reduction in wings from 137 to 128. About three months ago it became clear that Air Force expenditures for fiscal '57 would exceed estimates by over a billion dollars, and that we had underestimated expenditures for fiscal '58 by a similar amount. In order to keep defense spending within the $38 billion estimate that accompanied the President's budget, we will have to tighten our belts again and sweat nearly a billion dollars out of '58 expenditures.

Plainly, the public has a growing concern about federal spending. The defense program is not exempt from this concern, and it now appears that the Congress will give the Air Force some $500 million less than requested in the President's budget.

To reduce our spending to show substantial reductions in the current year will demand the postponement of some programs and the elimination of others. It will demand increased efficiency in every area. It will demand brains, guts, and patience from headquarters down to base level and throughout our supporting industries.

The problem is tough for two reasons. It is tough because, though there is evidence of economic and political strains on the Soviets, there is no evidence that they have relaxed their efforts to modernize their long-range air force, to develop long-range missiles, and to strengthen their air defenses. It is tough because at the same time that we are modernizing our manned aircraft forces, we have to establish operational missile forces.

It distresses me, of course, that we have to postpone or eliminate certain programs, but I am not apprehensive about our ability to provide a great Air Force. The resources still available will permit the Air Force's highest peacetime expenditure except for '57, and one only slightly less than that peacetime high.

Let us be realistic. We can hardly expect more for the future, unless our share of defense funds should be increased, for it will be difficult to maintain a defense level of $38 billion, to say nothing of raising it.

I emphasize this point. Maintaining such a level will require an appropriation for fiscal '59 of some $2 billion more than the Congress is likely to provide for defense this year. If we are to convince Congress of our true needs for '59, we shall have to make every dollar count.

Now, as to our task. Our first priority, as always, is to increase our readiness and our strategic striking power. We must also develop for air defense essential warning, fighter-interceptor, and missile systems. In the tactical field, we must provide advanced fighter-bombers, tactical missiles, and adequate airlift. We must do all this while we continue to develop, test, and produce our defense and strategic missiles. In seeking these broad objectives, we have to weigh readiness against future capability. Present effective weapons must never be sacrificed for new weapons until the new ones are fully proven. We must move forward in balance, recognizing the fluid technology of airpower and keeping our supporting industry strong. We must continue building manned aircraft of ever higher performance and we must reach out for missile capability.

At the same time, we must never be so preoccupied with our own Air Force that we forget our responsibility for cooperating with the air forces of our allies. A recent and most encouraging example of this cooperation is the joint decision of Canada and the United States to integrate their air defense forces. As for many other air forces in the Free World, we have become their partner. We must continue in this role.

Can we do all these things and yet keep expenditures at a level rate? We can, unless inflation increases. True, the structure will creak a bit, and some parts of the aviation industry will contract a bit. There will be some stretching out of both production and development programs, and some screening out. However, our expenditures for aircraft and related procurement, including missiles, is estimated at $7 billion for fiscal '58 as against $7.5 billion for last year.

To minimize the disruption of modernization and development work that results from cutting research and procurement, we are searching the whole Air Force for economies. Military personnel is being trimmed. Civilian personnel is being carefully examined. We hope to find further savings in better management of inventories and increased efficiency at every level of operation. Industry, of course, has its part to play, too, in helping us get more defense for fewer dollars, and I am heartened to learn of the efforts of our principal suppliers to reduce overhead, overtime, and inventories.

Although an increasing share of our resources now goes to missiles, for some years to come we will continue to rely mainly on manned aircraft for retaliation. In this connection, strategic delivery systems are one area where careful judgments in selection and balance involve billions of dollars. In manned aircraft, our largest production program is still that of B-52s and tankers.

Backing up the improved B-52 will be an air-to-surface missile to be carried by the B-52. Already the medium-range, supersonic B-58 is in flight test and is doing well. Looking to the future, development work is under way for an advanced heavy bomber and for a nuclear-powered aircraft. The extent and character of the development of these more advanced systems will depend considerably upon the growth and development of the B-52 and B-58, and upon how soon fully reliable long-range missiles come into our inventory.

Among our strategic missiles there is, first of all, the Snark, a long-range pilotless aircraft. But our highest priority objective is an operational ballistic missile for firing from land sites. To this end, we assigned the task to a special organization; and to help insure a successful outcome, we charged it with developing two intercontinental missiles, Atlas and Titan—and one intermediate-range ballistic missile—Thor.

Of the two ICBMs, Titan backs up Atlas. Although its schedule is a year behind Atlas, its design is more advanced. As for the IRBMs, the fact that Thor is being developed by the Air Force and Jupiter by the Army has led to some confusion. The Air Force's mission still includes, as in the past, the operation of an IRBM. Only one of the two now under development will go into operation. The Air Force's only concern is to get the best missile at the earliest date. Whether this will be Jupiter or Thor, we don't yet know.

What I have said is, of course, indicative of our selection problem only in respect to strategic systems. The over-all problem is far more complex, in that it involves three types of choice: between missiles that promise substantially the same capabilities; between missiles of varying capabilities; and between missiles and manned aircraft. A further complication is that the choices must be made in the light of four essential factors:

- The nature of the threat;
- The capabilities we require—for general war and less than general war—with due regard to capabilities of the Army and Navy, and our allies;
- The feasibility of making the particular system operational; and
- The cost of completing the system for inventory.

Much the same considerations apply to all our weapon systems under development. For example, in air defense we have, on the one hand, new types of manned fighter aircraft and, on the other, we have ground-to-air missiles, Army, Navy, and the Air Force Bomarc. As part of the aircraft interceptor systems there are various air-to-air missiles for use on interceptor aircraft. Here, too, we face the problem of selection and timing with the background factors I have just mentioned.

A transition will be made from one major system to another. No one can yet determine either its best timing or its precise nature. The importance of missiles will increase and they will change military organization and strategy. Manned aircraft, however, will continue to be essential for the foreseeable future.

All this emphasizes that the new age in which we are moving will require, above all, the possession of technical skills, among both officers and airmen. For that reason the attraction of skilled personnel to an Air Force career becomes ever more important in our planning.

We are beginning to have success in retaining the average enlisted man, but our record in retaining the skilled man is far from reassuring. No doubt it will improve as we carry out in a limited way certain recommendations of the Cordiner Committee—recommendations which we hope to apply more broadly in the future. Granted that we still need better housing and a great deal of it, plus replacement of World War II structures, and many recreational facilities, we have accomplished wonderful improvements in both operating and living conditions on our bases and most of them today offer better living than ever before.

The problem of expenditures, selection of weapons, and the introduction of missiles all affect our reserve forces, although to some extent reduction in force level of the active Air Force has the effect of making modern equipment available to the Guard and to the Reserve earlier than would otherwise have been possible.

The Air National Guard is successfully completing its conversion from a tactical force to an air defense force. In this new role it is acquiring a high degree of readiness. The Air Force Reserve is building up in its airlift capability and provides an important broad base of supporting personnel for the active force. Our reserve forces, as individuals, make countless contributions to the daily life of the Air Force, through professional advice on service activities and friendly gestures to people in the active force. Our reserve forces are integral parts of the Air Force.

As to the Air Force Association, I am not going to say that it is an integral part of the Air Force, as I think it is important that it should not be. It is independent and should remain so in carrying out its task of alerting and educating the people of the United States as to the nature of airpower and to the needs and role of the Air Force. It should do this to the point sometimes of being critical of the position of the Air Force or of its Secretary. If I should have difficulty in thinking of myself apart from you, it is perhaps because I am one of the early Life Members of the Association. See that you have no difficulty in expressing your views to me whenever you disagree with me.

We are trying to put first things first—to see that our retaliatory strength is such as to convince even the most foolhardy that aggression against the United States could not profit. In short, we aim to keep the peace by ready airpower. And in the words of Gill Robb Wilson we must have: "A heart for the unknown, a courage for the unexpected, and a will to see over the next hill."—END

JAMES H. DOUGLAS. *Now the Secretary of the Air Force, Mr. Douglas is a graduate of Princeton and the Harvard Law School. He practiced law in Chicago from 1925 to 1932, when he was named Assistant Secretary of the Treasury. During World War II, he served as Deputy Chief of Staff of the Air Transport Command. After the war, he returned to law practice and later became a Director of the Metropolitan Life Insurance Company, American Airlines, and the Chicago Corporation. He was named Under Secretary of the Air Force in 1953, and succeeded Donald Quarles in the AF's top civilian job.*

WE MUST GIVE TOP PRIORITY TO SURVIVAL

Gen. Thomas D. White
CHIEF OF STAFF, UNITED STATES AIR FORCE

THIS IS my first appearance as Chief of Staff of the Air Force on such an occasion. I feel a brief and generalized report on the role of the Air Force, as I see it, is appropriate. In doing so, I will outline the threat to the United States and its effect on the Air Force structure.

It is probable that much of what I say will have a familiar ring to you. In fact, I hope it does. Because if you have heard it at other times and in other forms it is logical to conclude that the concepts and strategy of the Air Force are well established, the implementing programs are consistent, and people in the Air Force, government, and industry are pulling together toward a common goal.

It will not come to you as a revelation that all military forces are costly and growing more so each year. The increases are due in part to the same circumstances that have acted to increase the expenses of corporations, families, and individuals everywhere. The essentials—in our case, materiel, equipment, and talent—cost more. But in the main the continued rise is tied to greater responsibilities that center on the Air Force. The challenge to the Air Force is greater. The Soviet competition is tougher.

The Soviets have made tremendous efforts to create a long-range air force, atomic capable and highly effective. Modern bombers now, intercontinental missiles later, and an ever growing stockpile of atomic weapons are the basis of the Soviet force structure. Coupled with this force structure is the evident will to dominate the world. This combination is a threat to the *survival* of all free nations.

With the advent of nuclear weapons, and their marriage to the air weapon system, the United States and our allies have developed the principle of deterrence. Defense of the Free World by deterrence is based on the concept of maintaining indigenous forces, supplemented as necessary by small United States forces. These forces must have sufficient strength to maintain internal security and resist overt aggression until Free World power can be brought to bear. A large proportion of this Free World power would be airpower.

The basic element of Free World deterrent power is the nuclear capability of US forces. There is no doubt as to the role of nuclear weapons in our strategy. Secretary of Defense Wilson declared in 1957: "Our basic defense policy is based on the use of atomic weapons in a major war and is based on the use of atomic weapons as would be militarily feasible and usable in a smaller war. . . ." At the same time Admiral Radford, Chairman of the Joint Chiefs of Staff, stated that: "Our whole military program is based on the use of atomic weapons in global war and on the use of atomic weapons in accordance with military necessity in situations short of global war. In other words, we have built our programs to integrate atomic weapons into our offensive and defensive capabilities."

It is a fact of life in the atomic age that nuclear methods of warfare have become conventional.

This deterrent concept and capability was summed up by the present Deputy Secretary of Defense in 1956, when, as Secretary of the Air Force, Mr. Quarles said: "Our military strategy must now be based upon convincing a potential aggressor by our strength in being that he cannot hope to gain anything by starting a war, big or little, against us—that such a war would in fact leave the aggressor worse off than when he started."

To put teeth into this concept the United States and its allies have built an effective deterrent force with airpower as its dominant element. This force is recognized as a first priority force. However, the maintenance of such a force does not automatically result from this recognition, even in the face of new and ever greater enemy capabilities. In fact, together with the deterrent force, the US and some of our allies continue to maintain forces designed to counter threats of an historical nature. When resources are critical, forces must be tailored, with survival forces, in whatever service, holding their priority at the cost of other forces. These other forces must continue to exist, but on an austere basis, tailored to their contribution to the survival force.

Recognition of this fact has forced changes in the Air

Force structure. This process, *within the Air Force*, is the proper result of the harsh application of priority. We cannot look to the outside for help until we have demonstrably done our best to help ourselves. We must do so even at the cost of sacrificing some elements of capabilities which are desirable, but not vital, in support of the survival force.

We have had to face the fact that the perfect air defense system is in the realm of theory; that no air defense in being or presently possible can completely stop a determined nuclear attack. We have faced this fact and are building as effective an air defense as we can afford without running into the law of diminishing returns. We are striving for improved early warning to minimize delay in launching the retaliatory force, as well as to permit more timely civil defense action. We want active defense to complicate the attacker's problem, slow him down, weaken his effort, and disrupt his offensive campaign. Above all, the defense system must permit engagement of enemy bombers as long before they reach our cities as possible.

The Air Force structure is constantly under adjustment to meet changing times. We have pared the tactical air forces. We may have to pare them further. There will remain a significant capability, but as we enter an era of intense competition for funds between various weapon systems the tactical requirement must be very carefully screened to insure that we retain only essential forces. We have made a very significant investment in allied tactical air forces and it is realistic to expect a return on this investment.

The Tactical Air Command, with its ever growing atomic capability and increased mobility achieved through the use of in-flight refueling, is a potent force. As Army atomic weaponry develops, it logically reduces the close air support function of tactical air forces.

Within the total strength of Free World forces there is a world-wide deterrent to aggression. Allied forces have been furnished extensively with effective weapons. Sufficient time has passed since we started our assistance programs to permit training and development of allied forces. In NATO especially, there has been a maturing of forces operating under unified direction within a common deterrent concept.

I think it logical that we recognize the military potential and good faith of our allies and plan accordingly. Since no fourth power presently possesses an atomic capability, reliance on our allies should be principally in non-atomic areas. We must *assess* this capability and use a realistic evaluation of it to *reassess* the essential forces which the US must maintain to complement strength of our allies. US duplication of allied strengths will not advance the collective security.

This assessment process will permit us to devote the higher and required proportion of our own resources to the maintenance of those elements of military strength which are our survival forces.

Tactical airlift forces have also been critically examined in the light of the nuclear age. As other forces are curtailed to meet the demands of the survival force, so must tactical airlift forces be curtailed.

Air Reserve and National Guard forces are subject to the same close scrutiny. We must tighten the reserve program to provide better support for fewer wings instead of lesser support for a greater number of wings.

As one examines the threat today to US security, one immediately senses the impact of that threat on the US Air Force. We know our task and we have faced up to it in the light of today's realities and tomorrow's expectations.

What of the impact of this threat and our agreed deterrent strategy on the entire military establishment?

The other services have had some rigorous self-examination to do and face still more in the future, just as we do.

I cannot say with candor that an over-all adjustment to the present era, equivalent to the Air Force adjustment, has been made. I believe it will be made, however, and I hope in good time.

The direction this adjustment should take is clear.

In a future general war the survival of our people and our institutions will depend on the ability to neutralize the Soviet nuclear air threat. If we have such survival forces secure, and in a state of healthy growth and improvement, the chances of general war will be drastically reduced. A similar deterrent to lesser upheavals is implicit in Free World military strength and determination. Such deterrence is particularly effective where the would-be aggressor understands that nuclear weapons will be involved if required. This does not mean wholesale devastation. Free World strengths are adequate and must remain adequate to cope with local aggressions without precipitating the general war we strive to deter. This very fact is the basis of our deterrent strategy.

This process of examination, evaluation, and resulting action to tailor the military establishment to the needs of the present and the future is not easy. It is a continuing process which once accomplished requires constant redoing, for change is rapid and constant. There are many problems, some at the surface and current, some buried in the future. I will mention but a few, both specific and symptomatic.

- Ballistic missiles versus manned bombers.
- Point defense versus area defense.
- Carrier aviation versus land-based aviation.
- Ready reserve forces versus mobilization reserve forces.
- Adequate compensation for competent personnel.
- Realistic military assistance programs.

These and many other problems must be resolved without compromise with two fundamental principles. First, the need to serve present security requirements while simultaneously developing an adequate force for the future. And second, the need to meet enormous and competitive costs within a budget that will not strain the nation's economy.

In working for solution of the many problems incident to national security, the Air Force will continue to state minimum force requirements as we see them. This process in itself will bring us face to face with other difficult and disagreeable problems which we will not shun.

The Air Force sees a pressing need for the elimination of needless duplication, and for control of the cost of the military establishment. We will do our share of the job internally, while enthusiastically joining in the curtailment of defense costs not truly justified and provable under critical examination.

In this endeavor the Air Force needs, above all else, true understanding of airpower. Public understanding of the harsh realities before this nation is essential. Through your future efforts, as in the past, this understanding can be bettered.—END

GEN. THOMAS D. WHITE. *Chief of Staff, USAF. General White is a 1920 West Point graduate who entered the Air Corps in 1927 after completing the Air Service Primary Flying School Course at Brooks Field, Tex. A veteran of attache assignments in Peiping and Moscow and Rio de Janeiro, he served in World War II as assistant chief of staff, AAF Intelligence and as deputy commander of the 13th Air Force in New Guinea and the Philippines, later assuming command of the Seventh Air Force. He was Vice Chief of Staff, USAF, prior to his present assignment.*

National Need Versus Personal Wish

W. Barton Leach, Moderator

PROFESSOR, DEFENSE STUDIES PROGRAM,
HARVARD UNIVERSITY

Since the first AFA Symposium in Detroit in 1952, this event has come to be looked upon as one of the most important and informative items on the annual convention agenda. Each year a specific attempt has been made to concentrate on the most pressing defense issue of the day. Hence, it was no accident that the 1957 Symposium should focus on "The Economics of National Defense." The budget cuts, the ceilings on defense expenditures, the cutbacks, and stretchouts make it obvious that national defense policy is taking a back seat to national fiscal policy. The reports by the experts who so kindly gave of their time to inform the convention represent a valuable frame of reference for discussion and interpretation.—The Editors.

WE ARE in a period of decreasing armaments, a process which is not new to this nation. And this symposium has been organized to examine one important facet of this matter.

Justification for reduction of armaments may be offered on several grounds.

First, the threat may diminish, but no military leader as of the present time, nor no public official on either side of the political fence, has suggested the communist threat has diminished as of this date.

Second, our forces may clearly be of such large size and of such a high degree of combat readiness that they exceed the military requirement to meet the existing threat and are, therefore, a needlessly burdensome expense. I have yet to hear any responsible person declare that this is true.

Third, the economy of the United States may not be capable of supporting the forces which are militarily required to give adequate protection against the existing threat. We all agree that the country must remain solvent, that the economy must not be destroyed, and that communism must not be handed its easiest victory by permitting us to spend ourselves into national bankruptcy on military forces.

But is this threat real? That's what we want to know. In a word, must we reduce defense expenditures below their present level to avoid a depression that "will make your hair curl"?

It is possible that the economy of a country simply cannot support the military strength needed to protect it. An example at the present time, with which we are all familiar, is the Republic of Korea. The ROK now has 700,000 men under arms in addition to the 80,000 US troops there deployed together with the Fifth Air Force and the Seventh Fleet. We are supporting these forces, and the ROK couldn't do it. If we, or somebody else, didn't support the forces, the ROK would simply have to give up and make such terms as it could with the communists.

A serious but less extreme case is the present situation of Great Britain. I dare say everyone here is familiar with the general terms of the British White Paper on Defense put out last April. AIR FORCE Magazine had an article on it [*June '57 issue*], and Sir John Slessor discusses it in the current issue of *Foreign Affairs*. The British make no bones of the fact that their economy is close to the edge of serious trouble. To avoid disaster they have had to cut all their forces far below the point where they are adequate to provide national security or any serious support to a flexible foreign policy.

It is not for me to say whether the British have gone too far in this, or whether their economic troubles are as serious as they believe. But it is for us to discuss the issue whether any similar limiting factors exist in the national economy of the United States which force us to take similar risks with our national security. Is it true that we are faced with the choice between security and solvency?

As the pressures for tax reduction build up, our leaders must bear it in mind that the American dream of two chickens in every pot and two cars in every garage is constantly with us, but that in matters of national defense, the memory of the people is short and its sense of danger and urgency ephemeral. It is one thing for the voters to applaud heavy defense expenditures on occasions when our troops are being shot at in Korea, when Dien Bien Phu is falling, and even when Soviet tanks are slaughtering the patriots of Budapest. But this impulse to self-protection quickly subsides when the guns stop roaring and when Mr. Khrushchev appears on an American television program looking rather like a mild-mannered general practitioner from the Middle West, or perhaps like Dr. John Bodkin Adams of Eastbourne, England.

This means that a particularly heavy burden is placed on our national leadership, an obligation to stimulate and sustain public support for such long-range defense programs as we need. Our leaders must lead; it is not enough for them to follow the fluctuations of public opinion. And they must help the public to steel itself against the siren song of the tax cutters. They must keep before the eyes of all of us the words of Thomas Paine that, "Those who expect to reap the blessings of freedom must, like men, undergo the fatigue of supporting it."

In discussing these questions, it is important that we should recognize the difference between a national economic necessity and a cherished personal desire for lower defense expenditures and therefore lower taxes. Everyone likes to pay as little in taxes as possible; and it is the proper function of our political leaders, both in the executive branch and in the Congress, to keep our federal expenditures down to what is required for the national security and welfare.

But I particularly want to separate the personal desire from the national necessity because of the insidious tendency to express the first in terms of the second. The personal desire is rendered much more respectable if it can be expressed as a national necessity. If a political leader simply says, "Vote for me, boys. I'll get you tax cuts by laying the axe to the Pentagon," this is a rather inglorious type of vote-catching. But if the same leader can say, "I know that all of you sincere people would like

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to pay more taxes for a sound national defense, but I am bound to tell you that the national economy cannot stand it, and you mustn't do it,"—why, this is statesmanship, with the happy by-product of making the leader equally popular with the taxpayers. He makes them feel not only richer but nobler. They are patriots because they are protecting the national economy.

We here are all familiar with at least two wars—World War II and Korea. Both of these were preceded by defense economy moves which proved disastrous, one in England and one in the United States. And it is useful for us to examine this record. If we cannot learn from these lessons of history, Heaven help us!

The first episode deals with England in the 1930s.

In Winston Churchill's book dealing with this period, the theme of the volume is as follows: "How the English-speaking peoples through their unwisdom, carelessness, and good nature allowed the wicked to rearm."

In 1934-35, Churchill had repeatedly warned that the Germans were developing armed forces, and particularly air forces, at an alarming rate. These assertions were at first denied, but finally were conceded by Prime Minister Stanley Baldwin in his famous confession in open Parliament on May 22, 1935, when he said:

"I was wrong in my estimate of the future growth of the German Air Force. We were completely misled on that subject." During this period the Royal Air Force had been getting along on a budget of nineteen million pounds, which we can take as being the equivalent of about $60 million. And what was the reason? Presumed requirements of the national economy. In one year the Secretary of State for Air said: "This level of air expenditure can only be justified in the light of the continuing need for exceptional measures of economy; and the postponement of a number of important services has again been inevitable." And the Under Secretary for Air admitted in the House of Commons: "We have deliberately allowed ourselves to sink to fifth place among the air forces of the world and have postponed for ten years a program which in 1923 was declared to be the minimum one for the safety of these islands."

Even after the growth of the German Army and Air Force had become acknowledged by all, the government ruled that, purely on economic grounds, there would be a ceiling of 300 million pounds—say $1 billion—on total defense expenditures annually for defense, it being known at that time that the Germans were spending at least three times that amount.

Well, we know the result. The tragedy of Munich was directly caused by Chamberlain's knowledge that the German Air Force had superiority. And the ease of Hitler's victory at Munich led this sordid little man to believe that nothing could stop him. So we were all in World War II—and the British are where they are today.

Were there economic troubles in England in the 1930s? Certainly there were. This was the depression, and there were troubles everywhere. But Germany was rearming despite economic difficulties, and it was sheer folly for England not to do the same. The failure to do so on economic grounds proved to be very uneconomic, indeed.

This brings us to the Korean War. From the end of World War II up to June 1949, the United States maintained a substantial armed force south of the thirty-eighth parallel in the Republic of Korea—enough of a force to convince the communists that the full power of the United States would be brought to bear to resist any attempt to take over the ROK.

But then came the economy policies of 1948 and subsequent years. The total defense budget went down from $14 billion to $13 to $12. And why were we doing this? Repeatedly there came from the White House the statement that "This is all we can afford." And listen to the following testimony by Secretary of Defense Louis Johnson on October 22, 1949, a month after the Soviets had fired their first atomic bomb:

"Next, I would like to refer briefly to the rather obvious fact that the strains and stresses upon the national economy which we have with us at the present time make it impossible for any service to get all that it wants, whether in dollars, in manpower strength, or in material.

"Thus all of us would have liked to keep in commission during fiscal 1950 the eleven carriers which the Navy had in commission last year, but it was impossible for us to do this under the $14.4 billion budget ceiling which considerations of the national economy imposed upon us; all of us would have liked for the 1950 budget to have made provision for a seventy-group Air Force, but under the $14.4 billion budget this was impossible; and the same sort of factor operated also to reduce the size of the Army to a figure less than that we would like to see."

I call your attention to the fact that neither the President nor the Secretary of Defense explained just why the national economy required lower defense expenditures. This was simply asserted—dogmatically, without argument, and without support in fact or professional opinion.

Once again we know what happened. The financial squeeze on the Army required that our last 7,500 troops be withdrawn from Korea in June 1949; and almost exactly one year later, in June 1950, the communists attacked. Our weakness, induced by our false economies, had led our enemies to believe that we would not resist or that, if we did, they could defeat us. And we must all agree that during July and August 1950, it was a close thing whether we were going to be pushed right off the peninsula.

And, in fact, was the economy of the United States so weak that it could not stand the strain of increased defense expenditures? Let's look at the appropriations for a series of fiscal years: In 1950, which was the last pre-Korea year, $13 billion; in 1951, $48.4 billion; in 1952, $59.4 billion; in 1953, $48.5 billion. And since 1953, we have been running at a rate somewhere around $35 billion —or $40 billion if you count atomic energy and foreign aid.

And take a look at the national economy now and reach your own conclusions whether these expenditures, running between two and four times the amount we were told was "all we could afford," have damaged the nation's economic health.

The simple fact is that we were handed from on high some shotgun economics as the basis for producing the tax reduction of the Revenue Act of 1948—all at the expense of the security of the country and at the ultimate cost of the casualties and financial outlay of the Korean War.

So, let us take warning from these episodes—Great Britain's loss of air parity to the Germans in the 1930s, and our own loss of necessary armed force prior to Korea—and let us determine to examine with patient, analytical care these assertions that we must again weaken ourselves to avoid economic disaster. Let us not confuse the normal desire of all of us to pay less in taxes with an asserted national economic requirement.

And let us determine that we shall not provide, for those who come after us, another example of folly in needless pennypinching on defense in a hostile world. Let it be said of us by our children in the words of Rudyard Kipling:

"All we have of freedom, all we use or know,
This our father bought for us, long and long ago."

W. BARTON LEACH. *A graduate of the Harvard Law School, class of 1924, Mr. Leach started his career as secretary to the late Supreme Court Justice Oliver W. Holmes. In 1929, he became an instructor at Harvard Law and was named assistant professor in 1930. Since 1931 he has been a full professor at Harvard. An AFA national director, he served in World War II and is a brigadier general in the AF Reserve. Since 1947 he has served as consultant to the Secretary of the Air Force. He was the first director of the Harvard Defense Studies Program.*

ECONOMICS OF NATIONAL DEFENSE

Fiscal Policy Hamstrings Defense Policy

Eliot Janeway
ECONOMIST

PRESIDENT Conant, of Harvard University, used to refer to a certain speech of his as his "Texas longhorn speech"—two sharp points and a lot of bull in between.

Now, Professor Leach has recalled certain tragic and costly experiences in recent history. My first point invokes the statement of the late, great, perceptive James Forrestal: "It is obvious that defense policy should be continuously coordinated with the state of our foreign relations." What is not obvious, what is being tragically ignored today, is the prime Forrestal teaching, that defense policy requires continuous coordination, not merely with foreign relations, but with fiscal policy.

Forrestal fought his way through, at the expense of his own career, to the clarification of that concept a decade before. The technological revolution in weapons production landed us in the middle of what is anything from an eight- to fifteen-year cycle, from the consumption of drawing board paper to combat readiness of weapon systems in being. It's just taken us the better part of eight years and $800 million to find out that we don't know enough about

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a certain well-known missile to test it. But the money cycle can't run eight years.

Speaking of the enemy, you know the old saying, "Would that my enemy had written a book." Well, our enemy has. Karl Marx said, "I stood Hegel on his head." What has resulted from our forgetting that money policy should be coordinated with defense policy is that we have stood that relationship on its head, and defense policy is now being coordinated with money policy. And that's not only worse than it sounds, it is much more unworkable than anyone trying it yet realizes, for this reason: Money policy by definition changes with every gust of economic wind. If the new Chevrolet, which may or may not come with fins, is a flop, money policy will change accordingly. If there is bad weather over the Fourth of July, money conditions will change. People who participate in the money market not only count—they read. Whether they have confidence or lack of confidence, in one day can offset economies in the defense establishment which it will take a decade or more to assess.

For example, the last refinancing of the Treasury. If it had been a success, which it wasn't, the Treasury would have had in pocket $1.2 billion. But this financing, however ingenious from a mechanical standpoint, by the generosity of its offer, frightened the untrusting recipients of the new bonds so much that the Treasury has had to shell out $1.2 billion. I would like to know, and I suspect that both the Treasury and Defense Departments would like to know, whether the $2 billion taken out of the current situation in the Pentagon had been reckoned before the erosion of the $1.2 billion suffered through the failure of the last financing.

When the Treasury is obligated to pay four percent for money that is not long-term money, and when public utilities are unable to sell their bonds for over six percent, the taxpayer finds it cheaper, he finds it an economy, to bank his tax accruals with the United States Treasury by not paying his taxes and incurring a merely six percent interest obligation instead of going to the institutions, if the usury laws will permit, and paying more than six and a quarter percent. When that happens, the Treasury loses funds as surely and more swiftly than it can hope to recapture by whatever it does to the defense program.

In any event, my first point is that the defense program is an eight- to fifteen-year program at any given point. Money policy at any given point is a twenty-four-hour to a twenty-four- or thirty-six-month affair. You obviously cannot subject the long-term cycle to control by the short-term cycle.

President Eisenhower is being criticized, the administration is being criticized, for the defense steps that have been taken. I feel it appropriate to congratulate the President upon the appointment of Secretary Anderson to the Treasury, because it's high time, it's an appropriate time, it's a desperate time, to bring to the Treasury a man who has had a close and a working and a policy experience of the defense establishment, since the time when the defense cycle has come to be a two or three times longer affair than the money cycle.

Now, for my second point. We are told that the reason for what has been done on the defense side of the budget is that the debt limit must be respected. The logic of this proposition follows from the fact that our $70 billion budget is four-sevenths defense. Therefore, goes the reasoning, to control spending and stay within the debt limit, slice at the four-sevenths part on the spending side. I put it to you that the question about the budget is not whether we are going over the debt limit, and soon and fast; the question about it is not whether the spending level is going over $70 billion. The question is whether, for the inflation that we are involved in, and for the spending and the deficits that lie ahead of us in any case, we are going to get less defense or more defense.

I read in the paper that the Office of Defense Mobilization had pronounced zinc out of bounds for defense purposes. Well, of course it is. Let the price of zinc, however, do what the price of zinc has done and let the employment of people in the zinc business suffer what has happened to them and there will be, I promise you, indeed, I report to you, spending for zinc, not on defense account but on political account, on home relief account. Wheat, zinc, the automobile business, employment—are all interrelated. The Treasury is on a Chinese laundryman's basis with the economy. No tickee, no shirtee; no cash flow, no tax collections.

There are two ways in which a deficit grows. The first is by spending more than you collect. The second is by collecting less than you spend. The effect of the current decisions, coupled as they are and compelled as they are by the subordination of defense policy to monetary policy

THE PANEL

Adding immeasurably to the effectiveness of the symposium were the penetrating questions thrown at the speaker by a panel of distinguished journalists. The first panel member was Ernest K. Lindley, Director of the Washington Bureau of Newsweek *magazine and contributor of a weekly column to that publication. Mr. Lindley was selected by the Department of Defense to moderate a series of world affairs films for distribution to officers of the US armed forces. Second member was Marquis Childs, highly respected Washington correspondent for the St. Louis* Post-Dispatch, *whose syndicated column has earned him a place among the top reporters of the military and political field. The third panel member, Richard Witkin, Aviation Editor of the New York* Times, *was a pilot in the Army Air Forces in World War II with fifty combat missions to his credit. He recently wrote a series of articles on ballistic missiles for his newspaper.*

instead of their coordination, is going to spell failure to the speculative experiment which launched this policy.

Secretary Humphrey stated some months ago that the Treasury's tax collections would rise $3 billion annually. The basis for this speculation was that defense spending was rising at that rate. Collections are going to fall, not solely as the result of the defense decisions which are being applied, but also because of the governing monetary decisions which have put up the price of money.

Let the bond market fall, let the stock market fall—or merely not rise—let employment fall, let overtime disappear, and the Treasury's tax collections will fall. There is, in other words, a built-in valving system between defense spending and over-all collection—between, if you will, defense spending, or the defense component of the Treasury's situation, and the nondefense components. Let the defense component valve out, cut off, deflate, or depress—given the shortness of the money cycle for merely six months—and the Treasury will run into as difficult a situation as if the defense establishment were being enabled to fund, to budget requirements, and to spend in the only way that I know—or, if I may say so, that anyone knows—to achieve defense economy. And that is, as Mr. Baruch has put it, "by continuous respect for requirements which accrue whether they are put into the budget or not."

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Mr. Childs: We have heard a great deal from officials in the government and elsewhere about the very greatly increased cost of modern weaponry, and we are told that this is contributing to the current inflation. I would like to ask Mr. Janeway to appraise briefly what contribution this spending has made to inflation.

Mr. Janeway: It has made a very substantial contribution to inflation, for the reason that it has put out into the country a tremendous and continuous and geographically diversified flow of purchasing power without correspondingly creating merchandise wanting to be taken off markets or slowing down prices. It has, in other words, contributed a net of purchasing power. But that is of the essence of all research and development and construction and capital investment, whether in the defense establishment or whether conducted by IBM or General Motors. So that if, for the sake of argument, there were to be entire disarmament and an even sharper squeeze on margins than there is today, and there were to be renewed pressure on corporations to get their costs down, they would be doing exactly the same thing. It's not because of defense, it is because of the investment process at a time of high development of the technological arts and lengthening of the technological side of it.

Mr. Witkin: Is there not some qualitative difference between defense spending of this sort, where you are dependent to a great extent on government purchases from industry, and the type of consumer growth of technological products that would be ordinarily developed in times of disarmament and relative calm of the international situation?

Mr. Janeway: I'm not too sure. I don't believe that commercial airlines would be thinking of spanning the world, as they are doing, if they had to get up the ante themselves.

Mr. Witkin: Well, that's one example. But what about the broad spectrum of industry?

Mr. Janeway: To the extent that, for example, to use a relevant name, General Clay in his annual report to the stockholders of Continental Can is able to speak of a simple, little old can company, as if it were just another coupon, X of our products, Y of our revenues now come from what was merely a source of consumption for very thin drawing board paper ten years ago. The only defense that the corporation has is to create purchasing power for the MIT graduate—I don't mean to give Cambridge a degree of monopoly—for the Ph.D. product of the Case School in Cleveland. And to the extent that a higher ratio of production that is not for direct consumption obtains all over the world and not simply in the defense arts, there is a built-in cushioning to activity.

Mr. Lindley: Is it not true at least in '55 and I believe in '56, that the real income per capita in the United States, after all taxes, was the highest in our history?

Mr. Janeway: No, sir. In the event real income in '57, final take-home pay for everyone, is quite capable of rising due to the consideration our moderator emphasizes, namely, a lower tax burden, even while the defense establishment is being burdened with higher costs through purchasing more, and more, and more overhead, and through paying for termination, because people are recapturing their past taxes and the country is increasingly on a pay-as-you-go basis with the Treasury. So the net tax burden is falling, and therefore the real disposable income to the taxpayer, corporate and individual, is rising.

Mr. Lindley: How can anyone seriously maintain that the federal budget, particularly defense expenditures, is an insupportable burden when, as I understand, the real income of the American people has continued to rise during this period and, as far as I can see now, will continue to rise?

Mr. Janeway: It's going to rise in spite of any, or perhaps because of any, ceiling imposed on defense spending, due to this built-in cushioning of the tax system. And also bear in mind that, if there is any interruption in employment anywhere other than in Southern California, if there is any interruption to overtime, then the pot of soup available for the Secretary of the Treasury to dip his ladle into is a smaller pot of soup.

Mr. Lindley: As an economist, do you have any percentage of the gross national product or of the national income, whichever figure you want to use, that you have regarded as a ceiling?

Mr. Janeway: Absolutely not. In fact, what is being done now is going to raise the burden on the Treasury. It's going to raise the burden on the Treasury because here we have a short-term debt. The debt limit is $275 billion. It takes not many months to get the entire debt up to the level of the current interest rate. Four percent of $275 billion is $11 billion. The budgetary request for interest for fiscal 1958, measured in the dollars that existed before this summer's wage increases, and before this summer's nondefense spending for postal workers, and zinc and wheat, and the like, was $7.4. Put $7.4 into something a little above $11 billion, and you are going to be overspending on interest account by $4 billion, substantially over what is being rubbed into the defense establishment. And that's before taking account of the fact that, as the short-term debt is progressively, month by month, upgraded to this four percent—a higher level—that will rise and there will be progressive erosion in these quarterly refinancings. Therefore, the Treasury will lose cash very much faster than it pays interest, and very much faster than lower ceilings can be pressed down on the military.

ELIOT JANEWAY. *A long-time student of economic and political trends on the American scene, Mr. Janeway is president of Janeway's Publishing and Research Corporation in New York City. Prior to establishment of his firm, he was business editor of* Time *magazine and a special business trends consultant for* Newsweek. *A frequent writer on economic affairs, Mr. Janeway has contributed articles to the* Christian Science Monitor, Iron Age, *and the New York* Times *and has often spoken at forums concerned with the American economy and its impact upon the citizenry.*

Economics of Manpower

Col. James H. S. Rasmussen
DEPUTY DIRECTOR OF PERSONNEL, SAC

IN THE mission handed down by the Joint Chiefs of Staff, it is written this way: "SAC Commander in Chief is to organize, man, equip, and train a combat force capable of conducting strategic air warfare at any time on a global basis designed to destroy the enemy's ability to wage war." The key phrase in this mission is "at any time." SAC is on the alert twenty-four hours a day, seven days a week, for an entire year, year after year. This is one of the reasons why SAC does not rely within its own force on the reserve components. The only people that we can count upon to do our job are the people we have on duty the day the bell rings.

Now, to do this mission requires three things. First, you've got to have the planes. Second, you must have the bases and all the facilities that are connected with a base. Finally, you must have a professionally qualified labor force. Now, if you don't mix these things together in the proper proportion, you are not going to be able to do the mission that has been assigned to you.

Let's look at SAC and find out how it stacks up in comparison with the rest of the Air Force. First of all, SAC is twenty-one percent of the over-all Air Force, the over-all Air Force being, roughly, a little over 900,000 military personnel. The other two portions of the Air Force which comprise a substantial part of the force are the Training Command, consisting of twenty-three percent of that 900,000, and the overseas and the other various commands taking up another twenty-seven percent of the strength. Now, in these three portions right here, you will find out that we have got cornered seventy-five percent of the Air Force strength, SAC being roughly one-fifth of the over-all force.

We think we do pretty well in SAC in utilizing the people that have been authorized us. First of all, we only put about two percent of the over-all force, which is roughly 200,000 people, into our headquarters business. I think you will find that, in any civilian business comparable in size, you talk about between six and ten percent of the people being in similar type duties. We've got forty-four percent of the people fairly close to the operation and fifty-four percent of them who are directly working on the airplane itself, which is the basic product that we are looking for, the ability to get that airplane in the air, bound for a target if need be. As I said, we think that's a pretty good percentage.

Right now within SAC we are filled up in officer strength —about 29,000. But of these 29,000 people, only sixty-two percent are qualified. These are the people that we can count upon to do their job without any supervision, without any further training. Of the remainder of the force, thirty-eight percent are not qualified. This results from policies which dictate that we accept certain people for a period of three years. We refer to these as our "DOS officers," Day of Separation officers. They come into the Air Force and most of them will be gone three years from now. Obviously, three years is not sufficient time to train the people to the degree we need to have them trained in order to have them perform their jobs.

We have three components within the Air Force. We've got regulars, we've got career reservists, and we've got DOS—fifteen percent regulars, sixty-two percent career reservists. We can count on the career reservist the same as we can count on the regular man; he has already told us he is going to stay with us as long as we need him. But of the DOS officers—twenty-three percent of our force—we are only keeping about twenty-five percent. When their three years are up, seventy-five out of every 100 of them say, "I'm going back to school, I'm going back to civilian industry, or I'm going to some other place."

This hurts us. We have two definite peaks in our officer personnel. First, the twenty-four- to twenty-six-year-old bracket. These are mainly DOS officers. The second peak includes men between thirty-three and thirty-five years old. These people are getting pretty old.

In the rated force, people who fly the airplanes that carry the bombs that go to the target, we find that about ninety percent of our aircraft commanders are about thirty-eight years of age. Now, obviously, these people are going to get too old some day to fly every day. When that will be, we don't know, and the medics can't tell us. But the day that happens, it is going to be disastrous. We are a little worried about this picture, so we projected it to 1964.

The only change we could foresee was that the DOS officer peak would get a little higher but these people aren't staying with us. The people that we must rely mainly upon to do our job are seven years older. We must replace them. The amount of time that it takes to train an officer who has just completed pilot training, to get him qualified to be an aircraft commander, is well over three years; and it costs about $618,000 for each man. Unless we do something about this problem today, we are going to find ourselves in an even worse position in 1964.

Relating these figures specifically to the combat crews, twenty-five percent of our crew force is not ready to go to war today because of inexperience. We don't keep them long enough to train them.

Here is how the DOS officers on these various crews affect us. Fifty-three percent of our total crew force has one or more crew members on it who have a date of separation. We know when they are going to get out. When they get out, we have to put an inexperienced man in. This causes crew regression; it goes from a combat-ready status to noncombat-ready status. Specifically, at the end of this year, we are going to have a quality regression on 923 different combat crews. We have plowed into this figure the twenty-five percent retention rate that we already have in the DOS officers.

Let's go down to specific airplanes and take a look at the B-47. It's a high-speed, six-engine, jet bomber capable of carrying atom bombs, the one we rely upon as the backbone of the force. We are going to lose twenty-three percent of the aircraft commanders and pilots in this plane. In observers, we are going to lose twenty-six percent.

Let's take a look at the KC-97 force. This is a four-engine, prop-driven air refueler. Without this airplane, it is most difficult to extend the range of the B-47 to the point where you can go where you want to go. We're going to lose about thirty-two percent of the pilots. The observer is just as much of a key member of this crew as any other member of it. And we are going to lose, if we don't do something about the problem, seventy-seven percent of these men.

As of the end of this year—October rather—we are expecting a loss of 3,000 officers within SAC. We have to retain these men to retrain others. This not only costs us money, it costs us time. The money we have to have to train replacements for the people we are losing amounts to about $346 million.

The airman is just as integral a part of our force as the officer. Without the proper ratio of both, you can't do the job. Experience is the real answer. We measure experience in terms of years in SAC because SAC is the only user of the B-47, the B-52, and the KC-97. Forty-seven and five-tenths percent of our total airman force, roughly 170,000, are in their first year in SAC. We have 27.7 percent second year men. Seventy-five percent of the airmen in SAC have less than two years' experience. Only one-tenth of the force has over four years in SAC. That's a pretty rough supervisory ratio, one to ten.

In the four years that a man spends with us, what happens to him? Is he productive for four years? Let's take a K System maintenance man. The K System is a highly complicated electronic gear, used for navigation and bombing. Without it we can't do our mission. It consists of about forty-four black boxes on each airplane, at a cost of about a quarter of a million dollars per plane.

First of all, let's put five guys in at the beginning of the pipeline and see what happens. In the first and second years and the first part of the third year, these five men go through a training process. About the middle of the third year we start letting this man go out, let him look inside the airplane—but he's looking over the shoulder of a man who has already trained in the business. At the beginning of the fourth year, we are trusting him a little bit. He gradually learns a little bit more. At the end of the fourth year we trust him to go into one of these black boxes, take it apart, find out what is wrong with it, and fix it. But, about that time most of them change the old "blue suit" and put on civilian clothes. Only one out of four stays with us.

This situation is not restricted to the K System man, but we find it throughout the highly technical, skilled field that we require within SAC. How much does it cost? The first term, the first four years, costs us about $26,000. And this man is not fully productive for sixty-eight percent of his time and fully productive for thirty-two percent. If we could keep this man for a second term of four years, we'd get a ninety-two percent productive period out of him and costs would be much lower because for another $15,000 he can go to a higher level, supervisory technician level. Reducing this to cost per year of production, you will find out the first year it's around $16,000 and the second term it's reduced tremendously. If we keep him a third and fourth term, the savings are even greater.

Last year, in SAC alone, we lost 38,000 airmen. Now, 8,000 of these people didn't leave the Air Force. They went overseas. But 30,000 of them returned to civilian life. And the cost of replacing those 30,000 people is $453 million. The time loss cannot be measured in dollars. Basically we can boil the problem down to two things, retention and training. The higher we can get our retention on a selective basis, the less training we will have to do for replacements. The only training that will be required is for the newer equipment that comes into our inventory.

Now, we have done a lot about this problem internally. We have made considerable progress. The reenlistment rates here for the period 1953 to 1956 are gradually increasing, from twenty-three percent to a high of thirty-five and five-tenths percent. For the first month of this calendar year, we have about a forty-one percent reenlistment rate. We don't think we can go much higher within our own capability. We maintain that we must have a sixty-five percent selective reenlistment rate. When you look at our reenlistment rate, it looks pretty good. But who did we reenlist? Mainly personnel types, transportation types, food service types. These people don't cost you very much to train. These are skills which for the most part are identical with the ones that you will find in civilian industry. The highly skilled people, the radio and radar technician; the armament technician, the man who takes care of the B-47 and its engines and all allied equipment are not staying with us because they know that they can get out and fill the tremendous demand outside of the Air Force, where they are going to get some kind of recognition—more recognition than we can give them at the present time under existing law.

We must have a professional force. The reasons are obvious.

There has been a committee established which has been trying to do two things—first of all, to increase our defense capabilities; and, secondly, to reduce the cost of the national defense budget.

This committee is familiar to most of you as the Cordiner Committee. The findings of this committee are basically these: First of all, vast sums of money are being expended for improved weapons and equipment. Secondly, that the equipment is not being fully utilized. Due to the increased complexity of equipment, the man who maintains it becomes even more important. Obviously, there's no sense buying costly equipment if you don't have the people to run it.

The proposed program does these things: Gives us a modern plan to provide adequate pay according to the

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contribution he makes to the over-all effort. Right now we have no way of doing this. We must have the flexibility and control over distribution of skills. If we require a highly skilled man to run the business, we must be provided with that highly skilled man. We can't be given someone who is untrainable and spend a lot of money trying to train him when we know before we start that it just can't be done. And in conclusion, the whole program is designed to emphasize quality rather than quantity. In our business it is impossible to substitute quantity for lack of quality.

Along with these things, the Cordiner group proposed two things which we are heartily in favor of. We must have a selective reenlistment and retraining into critical skills program. We can't let the man whom we can procure off the streets with no training, continue to stay on our rolls and increase his pay unless he is materially contributing to our effort. The second thing, we must have a strong "selection-out" policy and procedures for weeding out the man who doesn't produce. Without these two things, the program will not work.

What are the gains we expect to get from these proposals if they are adopted? First of all, we predict that we will get a fifteen percent improvement in combat capability in our present defense forces. Or you can get a savings of up to five billion dollars a year starting in 1962. We can have a sharp reduction in training expense and many other related things, which add up to a substantial increase in effectiveness, decrease in cost, which I am sure everybody is looking for.

We would increase airmen retention from thirty-five to sixty-five percent. This is what we need to do our job—sixty-five percent on a selective basis. Officer retention would go from twenty-five to fifty-seven percent. The last major item which we would increase would be our aircraft in-commission rate. We'd go from twenty-five to sixty-five percent.

We could reduce our manpower by eighteen thousand people. We would decrease training load sixty percent and we could save annually $304 million within the Strategic Air Command itself.

Today thirty out of every forty-five airplanes in a B-47 wing are ready to go on a moment's notice. If we can go to a sixty-five percent reenlistment rate of skilled people, we can increase our in-commission rate to eighty-two percent. In the whole SAC force we can increase our striking power by 198 B-47 atom-bomb carriers. To set up 198 more B-47s, we would have to set up six and one-half more B-47 wings. Each wing costs the taxpayer about $376 million. So we can get a savings of $2.4 billion out of this proposal.

We feel that by adopting these proposals, we can retain our trained manpower, we can reduce the cost of the largest single item in the federal budget, which is defense, and at the same time improve the defense capabilities of our nation.

COL. JAMES H. S. RASMUSSEN. *A 1940 graduate of West Point, Colonel Rasmussen, entered military service in 1932. Now Deputy Director of Personnel in Headquarters of SAC, he served during World War II as commander of a combat cargo squadron. He has 136 missions in the China-Burma-India Theater to his credit. Since the war, he has served a three-year tour at Headquarters, Far East Air Force, as Director of Management Analysis. During 1953-1955, he was comptroller for Second Air Force. He moved to SAC in August 1955.*

Unification and New Concepts Needed

Hon. George H. Mahon

CHAIRMAN, DEFENSE SUBCOMMITTEE, HOUSE APPROPRIATIONS COMMITTEE

ECONOMICS OF NATIONAL DEFENSE

THE BATTLE of the budget has been the real McCoy in 1957. What will it be next year and thereafter? If there is a war scare next year, there will be no major battle of the budget in defense next year. But the international situation is a bit calmer and a war scare is not generally expected, though no one can be absolutely certain of the future. The fact that the Department of Defense has recently called our troops home from Japan and reduced military manpower by 100,000 men cannot be ignored as an important straw in the wind.

Excessive rivalries among the services, each fighting for a place in the sun, cannot be disregarded in evaluating budget trends. This rivalry is understandable, as a man who is giving his life to a career in one of the services cannot be complacent if he sees the time approaching when his branch of service may go into decline. This situation causes the services to request funds and programs which they may not require. It has a tendency to increase the defense budget. It does increase the defense budget.

On the other hand there is a counter effect. Many members of Congress, knowing of these rivalries and the duplication of effort which they generate, have a tendency to discount budget requests and take the claims of the services with large grains of salt.

The defense budget was cut sharply this year, though not drastically, in the face of an appeal from President Eisenhower, a very popular leader whose judgment is supposed to be the final authoritative word in evaluating a military situation. It was claimed by the President that we were gambling with the nation's security. What would the situation have been with a less popular President who had no outstanding military record? We tried to cut the budget with care and caution. We cut it in the hope that our efforts would enforce—would compel—better management, more unification, more value for the defense dollar.

There are conflicting trends in the military budget picture. Inflation is on the march and prices are going up. There is also a steady growth toward more complexity in weapons. These two factors add up to an ever increasing defense budget. If the natural cost trends prevail, the defense budget will edge upward during the next few years. Defense spending was $38.3 billion last year and during the latter part of the fiscal year military spending was at a $40 billion rate. Despite efforts of the Defense Department to keep spending at the same rate this year as last, it is going to be hard to do. If natural trends are followed the defense budget will edge up to $40 billion annually, then perhaps to $42, $45, $48, and $50 billion within a period of a few years.

But unless the international situation worsens, the people of the nation who already feel the pinch of high taxes will not stand for this. Congress will not stand for it, in my opinion, and the administration in power will not stand for it. A ceiling will be imposed. In fact, that is what we have now. This makes it very urgent that we get better unification and compress more defense into fewer or the same amount of dollars.

What I fear somewhat is a public revulsion against high defense spending which might cause Congress to reduce defense budgets to the point of danger to our security. We must prevent a recurrence of the pre-Korea situation.

What the defense people need to do is to gain the complete confidence of the people in the field of economy and management. A lot of improvement has been made through the years in the operation of the military services, but Congress and the country are convinced that billions of dollars could be saved by more unification, less duplication, and better management and utilization of money and manpower.

Widely publicized acts of waste, mismanagement, and bad judgment inflame the people and hurt the cause of national defense. It is most imperative if we are to maintain a strong defense posture that the services and the people like many of you here today who hold contracts with the services, shun the very appearance of evil.

We cannot afford the luxury of each service having the men and the weapons to fight the whole war. A degree of unification never heretofore achieved in peacetime is mandatory. The time has come to tear down the costly iron curtain which separates the services.

Many people have lost faith in the organizational setup. The dramatic progress in weapons development is largely responsible for this situation. The President, at a press conference last May, said that considerable saving could be made if we could get rid of rivalries and unnecessary duplications in the three armed services. He expressed lack of complete faith in the present defense organization. We certainly do not have the type of defense setup that was advocated by General Eisenhower when the unification bill was before Congress after World War II.

If we are to make large savings and reductions in the defense budget they will, in my opinion, have to come through greater unification and the acceptance of new concepts. Here is the area of greatest promise. I hope the President will move aggressively into this field at once, at this time when the budget for next year is under active consideration at the Pentagon. The President is the one man with the background, prestige, and position to get the job done.

The missile programs, of course, are principally responsible for the confusion and controversy over roles and missions.

Developments in missiles and atomic weapons have shaken military thinking in terms of strategy and organization to the degree that many of the old reliable fundamentals of military science no longer appear to be valid. These developments are forcing a re-evaluation of the traditional roles and missions among the services. But our top defense people have not yet fully faced up to these

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facts. This re-evaluation is inevitably being forced upon us because we can no longer continue to carry all of the old along with the new. The costs are simply too great.

All three branches of the service have been preoccupied over the past few years with technological progress in the development of military weapons, both defensive and offensive, and particularly in the missiles field. The 1958 defense budget contains $3 billion for missiles. The military services have wanted to explore all possible angles in developing acceptable and satisfactory weapons designed to increase our defensive and offensive capabilities, and each service wants a big part in the missile show. The services in many areas have been working independently on the development of weapons with similar characteristics, with identical mission uses, and apparently with very little knowledge of what the other services were doing along similar lines. The most notable and most highly publicized competitive development between the two services, of course, has been the competition between the Air Force and the Army in the area of the intermediate range strategic ballistic missile—the Air Force Thor and the Army Jupiter. The Secretary of Defense has been attempting to bring this competitive situation under control with some degree of success, but certainly he and his associates and the military services themselves have a long way yet to go to get this and similar problems settled and our military efforts in all the services into a coordinated team effort.

In the 1958 defense budget we provided considerable additional sums for the Central Weapon Systems Evaluation Group under the Office of the Secretary of Defense. This group has been in existence for a number of years but has had little impact on important decisions. Herein lies considerable hope toward finding a solution to our major military problems if this group does the job.

I believe the efforts of such a group must be much broader than a mere evaluation of a particular weapon such as a missile, airplane, or tank. The efforts of this group must be directed toward challenging the entire concepts behind the assignment of roles and missions, and the employment of specific weapon systems to carry out those missions. I mean by this that such a group should evaluate the role of the supercarrier in modern atomic warfare, as well as the value of the manned bomber and the ballistic missile.

It is my firm belief that solutions to the complex problems of military organization, assignment of roles and missions, and weapon systems evaluation must be found and found quickly. We are at a critical stage in national defense, a stage of transition. The taxpayer, in all probability, will not stand for skyrocketing defense costs which would be adequate to give every service about everything it wants. I repeat, we must compress more defense into the same number of dollars.

My thought is that if there is no dramatic change in the international situation, the level of defense spending for the next few years will be in the area of $35 to $39 billion per year—about the present level. That sum expended annually ought to provide us with a reasonably adequate defense program, but it will not do so, in my opinion, unless we take the necessary steps to acquire more in value in the expenditure of the defense dollar.

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Mr. Witkin: Congressman, a few minutes before you spoke, I heard a rather convincing presentation by SAC about how a lot of money could be saved by a system of pay incentives that was drawn up by a rather successful man in private business, Mr. Cordiner of General Electric. Can you tell me what the thinking was in Congress that has impelled Congress up to now to reject or ignore the Cordiner Committee proposals?

Congressman Mahon: Congress, I believe, will hold some hearings on it. The Cordiner report does not have the unqualified support, as you know, of the Secretary of Defense or the President. It calls for a lot of additional spending. I think, personally, it ought to be very carefully studied, but I think there are a lot of things in it that would tend to create a bad impression and hurt public relations for national defense, such as some of the higher salaries, et cetera. I think, generally, the idea is good and we've got to pay these technical people more money to keep them in the service. And I think it will be to the advantage of the taxpayer in the long run. But nobody has taken the ball and been willing to run with it because it doesn't have all the recommendations. I have been working with about $36 billion of the regular budget on my shoulders, and that has left me little time myself.

Mr. Childs: You talk about economy in defense spending and I don't think anyone will disagree with you on that, but doesn't Congress have a very serious responsibility here, too? In every other area of spending, appropriations go constantly up every year, Mr. Mahon.

Congressman Mahon: Well, Secretary Wilson, working as a representative of the government, has decided on a $38 billion spending level for the Department of Defense this year; it was $38.3 billion in fiscal year '57. We in Congress cannot absolutely control those expenditures. The Department of Defense, in the defense bill, and in previous sums, which was approved by the Senate yesterday, has available for expenditure $70 billion. And the Secretary says that, of that sum, $38 billion will be spent. Of course, much of it is for long-term items—missiles, ships, et cetera.

Mr. Childs: Why must economy always be on defense spending and not in other areas?

Congressman Mahon: The largest amount of the tax dollar goes into defense spending. There's a lot more waste because it's a big operation. It's inevitable. We are not so much interested in economy in a way, as you may think of it, as we are in getting a dollar in value for a dollar spent. And the reason why we made those cuts stick was that we were convinced that the Congress and the majority of the country can get more if we knock some heads together and have new concepts and don't have everybody trying to carry the same ball all the time and have one service trying to fight the whole war.

Mr. Lindley: Don't you think that some of this grass roots sentiment, if it exists, is due to the fact that so many politicians and journalists go around "bleeding" and weeping over the poor taxpayer instead of reminding him he has more left after taxes than he ever had before in his history or the history of the country?

Congressman Mahon: That might be true, but I want to point out that we are not making any drastic slashes. For instance, we are still providing the Department of Defense with $70 billion in total availability for this fiscal year. Our spending level is going to be far above the $65 billion, which was higher than we had in the year before Korea or for the first or second year of the Korean War. So we haven't done anything drastic toward serious retrenchment.—END

GEORGE H. MAHON. *Now the Chairman of the Defense Subcommittee, House of Representatives Appropriations Committee, Mr. Mahon was elected to Congress from Texas in 1934 and has been returned to every Congress since then. A Democrat, he started his public career in 1926, when he was elected county attorney in Mitchell County, Tex. In 1927 he was named district attorney for the 32d judicial district in his state. Educated in Texas, he is a graduate of Simmons University, Abilene, and received his LL.B. degree from the University of Texas in 1925.*

Organizing Efficiently for National Defense

John A. McCone
PRESIDENT, JOSHUA HENDY CORP.

REORGANIZING the military has become a national pastime.

Those who are devoted to the military join in the sport almost as enthusiastically as do those who suspect and fear the military. Change suggested by the administration in office is followed by change suggested by the opposition of the hour.

And this is understandable. Two great wars in a lifetime, not to mention Korea, have given men from all walks of life an intimate knowledge of national defense issues.

Defense itself, in its economic and political aspects, is one of the most pervading elements of our existence. It consumes about ten percent of our gross national product and accounts for approximately sixty percent of our federal expenditures.

Now a singular thing has happened. At an hour when the national economy is at record levels, and with no visible change for the better in the world situation, the American people seem to have concluded, quite on their own, that defense is costing too much. That judgment, reflected by Congress, is the explanation for what has happened recently on Capitol Hill. The people have rejected—but within careful limits—the case for a higher budget presented by the military.

In preparation for this talk, I sounded out a number of senators and representatives in both parties. Without exception, they were convinced that the national concern over the rising costs of government, and especially of the military, is no mere ripple. The wave runs deep.

If this analysis is true—and I, for one, accept it as true—then those who are directly concerned with national defense must now adjust to this new controlling circumstance.

We must face up to this circumstance for the reason that the public attitude, whether right or wrong, has hardened. High taxes are undoubtedly a root cause of the people's worry. So is the draft. So, too, the government's demand on materiels, engineering, and technical skills and labor. And, finally, the example of several of our allies substantially reducing their military expenditures on a straightforward economic argument. Not to mention a deepening belief at home and abroad that the danger of war has receded.

We are witnessing a profound change in the national psychology. A change made after a full disclosure and warning of Soviet capabilities by highest governmental officials. A change which tells us that, subject to convincing evidence to the contrary, the American people are determined, for the time being, to hold down the costs of their security to what they judge to be a reasonable level—that is, a level within the spending range established during the past two years.

(Continued on following page)

Is this a bad decision? Not necessarily. The American people have not said that they want to pull down the national power. Quite to the contrary, no one of influence, so far as I know, has called for anything less than a continuing United States military superiority in those areas where superiority is truly meaningful.

The meaning I read into the actions of Congress—and most conspicuously from the House debate on the appropriations bill presented by Representative Mahon is this—the people have expressed their conviction that an effective strategy can be provided at less cost. By resorting to its control of the federal purse, by holding back on money, Congress is attempting to force wiser planning and more efficient operations upon the military.

All this, in my opinion, is to the good, provided we do not engage in another general shrinking operation of the kind that was practiced during the barren years before Korea when a little was taken from here and a little from there, and no service was left with sufficient means to function effectively.

What Congress seems now to be bidding the military to do is altogether different. This time it wants not just economy for economy's sake, but rather an economy achieved by a sensible marshalling of the national resources behind a strategy it can understand and justify.

In this sense, Congress has supplied a cutting edge to the too-long neglected case for reforming our strategic apparatus.

Our particular problem is to decide what really needs to be reformed. This question, I find, brings sharp disagreement. I have recently read again the Hoover Commission's 1949 analysis of the military establishment. This, as you know, was a bipartisan study. Mr. Dean Acheson, for example, was Mr. Hoover's vice chairman. The Department of Defense had been established only two years before. The military budget of the day was $15 billion, and this was regarded by the committee as "enormous."

The major fault, the commission found, appeared to be that the consolidation of the three services under a single administrative roof, far from promoting the desired unification of purpose and policy, had in fact given rise to a "rigid structure of federation."

As for the "centralized civilian control" which the original act had sought to copper-rivet within the administrative structure, the Hoover group found it strangely missing. In the words of the report, it "scarcely exists."

In discussing the military structure, strong voices on the committee, though in a minority, came out resoundingly for a single chief of staff, who would function as *the* chief of staff for the entire military establishment.

It all sounds quite as fresh as this morning's newspaper.

In justice to dedicated men in the Pentagon it must be said that enormous improvements in almost all activities have been made during the years that have intervened—but the same fundamental fault pointed out by the Hoover Commission remains. Unification in the central intent remains federation.

Meanwhile, too, immense changes have come to pass in the realm of weaponry. In 1949 A-bombs were few and large and heavy; only our largest bombers could transport them. Now nuclear weapons are plentiful. They come in a wide variety of sizes and shapes and all of the services are organized to use them. Then, the H-bomb seemed at best a speculation. Now it is in our arsenal. Missiles, both short and long range, were only study projects. Now they are in the military inventory.

Important changes have also taken place in enemy capabilities. When Mr. Hoover rendered his report, the United States held a monopoly on nuclear weapons. It was later that the Russians exploded their first device. At that time the first Russian jets were appearing as experimental models. Now the Russians have jet planes in all configurations and great numbers are in combat units. Their radar capabilities, and indeed their whole air defense systems, have dramatically improved. Submarines have been built by the hundreds and the Soviets are pressing us hard in missile weaponry.

This onrush of new military technologies, combined with a Korea which produced a shocking though inconclusive climacteric in the Soviet postwar surge toward world conquest, has lifted our entire military apparatus to an altogether novel plateau for a United States at peace.

In consequence the planning, administrative, and control problems that perplexed the late and gallant James Forrestal and have likewise perplexed each of his successors, have been compounded and intensified by the raw, new problems of bending forces and strategy to the new and ever costlier means. The significant areas of trouble appear to be:

First, the services are obviously deadlocked over their conflicting opinions of the primary requirements imposed by the strategic situation.

Second, the services are thrusting into one another's area of responsibility by developing more or less identical weapon systems to the neglect, in some instances, of other essential functions.

Third, the civilian authority and the Joint Chiefs of Staff have been unable, by and large, to compose these conflicts or to reconcile the standing definitions of services roles and strategy with the logic of the new technologies.

In a word, a unified approach to strategy and a logical division of resources is not yet with us.

Recognizing this the public has asked for something better. To be sure this year's budget cuts were modest. They serve, however, as unmistakable warning that the level of future appropriations of forty-eight billions or more as indicated by the service chiefs before the Symington Committee will not be tolerated.

Our strategy should be shaped to meet the danger the nation faces. The problem is to identify the greatest danger and plan our military resources for neutralizing it. If this is done, then the lesser challenges, whatever form they may take, should be manageable.

All agree that the Soviet Union, while failing to close our technological margin of advantage, has come into possession of a heavy destructive power of their own. Their nuclear stockpile and air delivery capability, which one day might be recklessly used, is sufficient to do grave damage to this country. Barring a genuine and enforceable agreement on disarmament, this is a danger we must endure throughout the indefinite future. And this, I conclude, is our greatest danger.

Technology has not yet come up with a leakproof defense. Therefore, we must protect ourselves by continuing to reinforce our capacity for instantaneous and effective retaliation, both massive and not so massive, both unlimited and limited, the weight of our response to be governed by the circumstances of the particular attack.

Arguments that our capacity for nuclear retaliation has been stalemated do not impress me. Neither we nor the Soviets can afford to lay aside weapons of great technological advantage as doing so would mean an investment of manpower and resources in outmoded forces. That would be fatal.

Likewise, it is difficult for me to accept a companion theory of redirecting our strategy toward supporting a declared policy of limited war or wars. Exactly what is meant

by a limited war? My belief is that the consequences, political, strategic, or commercial, of losing a local or limited war important enough to be fought, would inevitably draw the contestants steadily toward unlimited warfare.

Therefore, I hope that our strategic policy has insofar as its general weight and direction can be measured, will concentrate our resources primarily on the capacity to put down a general war. By so doing, we will do two things: first, deter general war and secondly, establish ample capability to win a local war should one be forced upon us. In saying this, I am not suggesting that the deterrent rests alone in strategic bombers and strategic missiles, along with these there must be other forms of airpower, sea forces, and land forces of greatest possible mobility.

The importance and complexities of these basic problems of military planning brings into vivid relief the need for a redefinition of the roles and missions of the services.

The old boundaries of responsibility were almost Biblical in their simplicity. The Navy should concern itself with the things of the sea, the Army with things of the land, and the Air Force with things of the air, and plans and weapons were arranged to suit.

The trouble is that new technologies are forcing the emphasis upon entirely new strategic systems and all three services are struggling for solid positions in these new areas. I will not deal with dreary examples. One only has to read the daily papers, trade journals, the services' own magazines, or the *Congressional Record* to document the case. I for one favor reasonable duplication as offering both healthy competition and good insurance. The question is, "How many ways should we equip ourselves to do the job?"

There is really no mystery about how duplication and overlapping came to pass. It resulted from certain organic weaknesses in the Department of Defense so clearly pointed out by Mr. Hoover nine years ago.

The central administrative problem of the Department of Defense rests obscurely in the language of the founding act. Under the 1947 language the secretary was empowered to "establish general policies—exercise general direction—supervise and coordinate budget estimates."

This sounds like a grant of sovereign authority.

However, the act elsewhere states that the Departments of the Army, the Navy, and the Air Force "shall be separately administered by their respective secretaries." The practical effect of so walling off the services, each secure in its functions and administration, was to reduce the Secretary of Defense to a coordinator of policy.

During the past decade, the act has been amended by Congress several times, each change intended to center authority and control in the Secretary of Defense. But always that original qualifier of his fundamental authority —the autonomy of the services—survived the tinkering, and as long as it stands in the law, the hardening of service lines will continue. For the law further stipulates that the combatant functions assigned to the services—meaning roles and missions as they can be interpreted under the existing loose definitions—cannot be transferred, reassigned, abolished, or consolidated.

The true starting point, then, for resolving the conflict over the means of strategy should be another amendment to the National Security Act transferring to the Secretary of Defense the administration of the Army, the Navy, and the Air Force. This would give practical force to the statutory "direction, authority, and control" which now are his.

To preserve the traditions and identities of the services in the absence of the respective service secretariat and, while advancing a unified administration there should also be created three Under Secretaries of Defense—one for the Army, one for the Navy, and one for the Air Force. The Under Secretaries would function in staff capacity having cognizance over their respective services and be responsible for executing the policies and orders of the Secretary of Defense. Finally, they would sit with the Secretary and Deputy Secretary as members of a policy board, the ranking civilian group of the department.

To deepen the unification process, I would also suggest reorganizing the next echelon of the secretariat by giving the Assistant Secretaries of Defense complete operating authority in the diverse areas—manpower, finance, procurement, research and development, facilities, and so forth—where they now have only a coordinating responsibility. Thus the Assistant Secretary for Research and Development, for example, would have the authority, with the approval of the Secretary, to lift the competing missile programs bodily from the services, and merge them into a comprehensive development effort, under the most competent military or civilian directors. Thus, too, an Assistant Secretary for Procurement, as the civilian head of all major purchasing, would be empowered to merge buying programs wherever a common agency would be most economical, and to establish common practices and procedures.

What I propose does not abolish the existing mechanisms of the service commands and bureaus as they relate, for example, to finance, personnel, procurement, research and development, and the like. These military organizations would remain intact. The significant change proposed is that all the services would take policy direction and civilian administration from a secretariat responsible to the department as a whole, rather than from its own service secretariat.

Otherwise, the principal effects of the change would be three.

- The Secretary of Defense would be the final authority in all matters including administration of the services.
- The Under Secretaries for each service would serve him in staff capacities at the highest and nearest level of influence.
- The Assistant Secretaries of Defense would have line responsibility in their assigned fields.

Obviously, such an arrangement still leaves unanswered the question of how the Secretary, for all his increased authority, acquires competent and responsible advice for military decisions. Being a civilian, he must depend upon professional military counsel, and the counsel of the Joint Chiefs of Staff as presently constituted, and for reasons known to all, tends inevitably to be a counsel of compromise wherever service interests are at stake.

I am, therefore, of the opinion that the position of Chairman of the Joint Chiefs of Staff should be abolished and in its place be created the office of "Chief of Staff for the Department of Defense." The officer holding this post would automatically preside as Chairman of the Joint Chiefs, be presumably of five-star rank, and would be the principal adviser to the Secretary and the President in military matters. He would be the senior officer of the military establishment. Additionally, he would cast a vote as a member of the Joint Chiefs—a privilege and responsibility now denied him by law.

To know what he is about, he would need a staff of his own which would make for him careful and objective analyses of matters at issue. As an ideal, this entails providing him with a staff composed of able men, innocent of what has been called service "parochialism." With some changes in concept, the Joint Staff should fill this need.

A staff composed of officers assigned from the several

(Continued on following page)

services would always be subject to the influences of deep service convictions or pulls of service allegiance that are marks of any good officer. These could be satisfactorily mitigated if Joint Staff officers were assigned for a production period—in minimum, say of four years, and perhaps in certain instances for a longer period. Furthermore, promotion and fitness reports of Joint Staff officers should be the responsibility of the Chief of Staff and, by executive order, given the same weight as the service fitness reports when reviewed by promotion boards.

And, then, with the encouragement of the President and the Secretary of Defense, there could be, in the British term, a more general seconding of officer-specialists to a sister-service.

Finally, there is the question of fitting specific military policy to the over-all national policy at the presidential level. By law this is the province of the National Security Council, over which the President presides and to whom the council is only advisory. Its membership otherwise includes the Vice President, the Secretaries of State and Defense, Director of Office of Defense Mobilization, and other cabinet members whom the President may designate.

Two weaknesses have appeared through the years in the functioning of this body. In the first place, its members are all enormously busy with their statutory tasks. Most of them are heads of departments or agencies. Furthermore, as policy-framers in other sectors of national activity, they must, in their deliberations over broad strategic policy, weigh the impact of any course of action upon their area of special direct responsibility. These considerations rightfully must enter into the final balancing, but it seems to me that a leaven in the form of an injection of independent and unencumbered individuals would be of advantage.

Therefore, I suggest expanding the council by adding three more members, to be appointed by the President, with the consent of the Senate. These men would be permanent members of the NSC, but they would have no other governmental duties. They would be civilians of high reputation or retired officers of great distinction. They would serve substantially on a full-time basis, receive appropriate compensation and be entitled to modest staffs. The addition of three such men would bring to the NSC deliberations not only detached and independent points of view, but something perhaps even more important—the sense of continuity and of broad purpose that comes from exclusive and undisturbed reflection on grave matters.

In conclusion, let me add what scarcely needs saying, that organization, by itself, cannot be counted upon to produce a successful strategy. That can only come from a correct appraisal of the enemy's changing capabilities, and the marshalling of those resources that will continue to deter him. For us the technological margin of advantage is the fateful one. It must never be eroded.

Mr. Witkin: Have you made any effort to bring these proposals before the Congress, or are the people in the Pentagon doing anything now about them to bring them into being?

Mr. McCone: No, I have not.

Mr. Childs: First, let me say I think it was a very useful and interesting presentation, but why, in Mr. McCone's opinion, has President Eisenhower waited nearly five years before initiating these changes that are so evidently needed, he being a military man with great understanding of these matters?

Mr. McCone: I cannot speak for President Eisenhower.

Mr. Childs: Well, I just ask your opinion.

Mr. McCone: As to why he has not done so. I do know, in revealing matters and particularly his position in 1947 and 1948, that he endorsed, or at least he put forward, a great many of what finally appeared as a conclusion of the Hoover Commission. You will recall he was quite in favor of a single Chief of Staff; and I don't know that he went so far as a single service, but he tended in the direction of merging the services in all activities where it was practical to do so. I think that he was drawing from his experience of the war, when he had, as you know, not only all of our services under his command, but the services of many other nations.

Mr. Childs: Well, I wonder if you would agree, if any President, past or future, has the capability and authority to carry out the kinds of reforms you suggested, it is the present President.

Mr. McCone: Yes, I think that's right. Of course, you must initiate legislation. He has initiated two amendments to the 1947 Act since he has been in office, but he has not gone so far as to propose to the Congress the type of legislation I have suggested.

Mr. Lindley: I have some difficulty in thinking of even one or two questions that would get to the heart of it, but have you had opportunity in recent times to discuss with political leaders in allied countries, from NATO all around the world, and the friendly neutrals, how they feel about a military policy on the part of the United States which makes the use of nuclear weapons inevitable in the event we intervene in a military way?

Mr. McCone: Yes, I have discussed that with a great many people over a period of several years, and what we have witnessed is quite a change in their position. When NATO was first established, as you so well know, there was a dread of the atomic bomb. The popular statement in Europe was that we bomb Russia and then they will turn around and bomb Europe. Now the attitude has changed very materially. There is a recognition that the atomic bomb is not necessarily and exclusively a weapon of mass destruction, but that it has brought down to the battlefield. As it has appeared in its various configurations, or sizes and uses, there has been a recognition of the fact that it is here as a weapon and it must be used and it is effective in practically all forms of modern warfare.

Mr. Lindley: Do you think that is accepted pretty well around the world by our allies and friendly neutrals?

Mr. McCone: I think so. I think it's accepted by the NATO people. I'm more familiar with their attitude than I am the Far East.

Mr. Lindley: Can you visualize situations in which the use of an American military force might be essential, in which the political-psychological barriers to the use of nuclear weapons even on a limited scale might result in a decision not to use it if we had any alternative?

Mr. McCone: Well, I think that all who will be sharing responsibility for that decision will recognize the gravity and the extreme consequences and, of course, will be very, very careful. And it certainly would not be a decision that any responsible leader of this country would take lightly. And the same is true of other countries.—END

JOHN A. McCONE. *One of the architects of the 1948 Finletter "Survival in the Air Age" report, Mr. McCone was Under Secretary of the Air Force in 1950 and 1951. Now President of the Joshua Hendy Corp., he is a 1922 graduate of the University of California. After college, he worked as a construction superintendent in Los Angeles and rose to the executive vice presidency of Consolidated Steel in 1933. During World War II, he built the Birmingham Modification Center for B-24s and B-29s. He is a member of the President's Air Policy Commission.*

Here's part of the crowd of nearly 100,000 who enthusiastically filled Andrews AFB for the AFA-sponsored Golden Anniversary Air Show held on July 28. On display here is a Martin B-57 jet bomber, one of many static displays.

AFA Air Show . . . 'Greatest Yet'

SPECTACULAR was the word for it, whether you were a seasoned air show veteran, or, uninitiated, had driven over to Andrews AFB, Maryland, that bright blue Sunday, July 28, to show the family "something different."

Sponsored by AFA to mark the Golden Anniversary of the USAF, the show at Andrews had something for everyone. From supersonic speed thrills to barnstorming nostalgia, there were thrills for the crowd estimated at nearly 100,000 that turned out to help celebrate the Air Force's birthday.

Possibly the most sensational feature of the day at Andrews was the heralded unveiling and flight demonstration of the Ryan X-13 Vertijet.

To the thousands watching, the X-13—until it did its stuff—looked fairly conventional for the jet age. But then the launching truck raised it on end and suspended it by its nose to its special "clothes hanger" with the tail about four feet above ground. Pilot Peter Girard started the engines, disengaged the craft from its support, backed it, still on end, climbed vertically to about twenty feet, leveled it off, and flew away.

He flew the X-13 past the crowd at high speed and then came in slowly again, tilted the Vertijet on end, hooked the nose to the hanger and left it suspended there.

The X-13 had been built by Ryan for the Air Force to meet the need for aircraft requiring no runway for takeoff or landing.

Supersonic speed spiced the show as the excited crowd watched both the Bendix and Ricks Trophy race winners streak in across the Andrews finish lines. The Bendix race was won by Korean War veteran Capt. Kenneth D. Chandler, who set a new record in his Convair F-102, and Maj. Peter R. Phillipy, in his F-84F, topped the Ricks classic (*see boxes on page 73 for race details*).

For those who could remember, there was an old-fashioned World War I "dogfight" between a French Nieuport—flown by Americans during World War I—and a German Fokker of the same period. The Nieuport won, hands down. Both planes had just completed an eight-day cross-country flight from Los Angeles to Washington.

USAF progress through recent years was demonstrated for the crowd with an impressive aerial review of World War II and modern jet bombers. In the flying family were the North American B-25, used in the Doolittle Tokyo raid, the Boeing B-17 Flying Fortress, the Boeing B-29, the Martin B-57, the Douglas B-66, and the Boeing B-47.

Today's latest supersonic advancements were dramatically revealed to the crowd as it watched the new Republic F-105 Thunderchief fighter-bomber roar by. After demonstrating the new craft's spectacular rate of climb and streaking by the crowd in salute, the F-105 shot off to Wright-Patterson AFB, Ohio, on the first leg of a delivery flight to Edwards AFB, Calif., for further testing.

Demonstrated with the F-105 were the famous World

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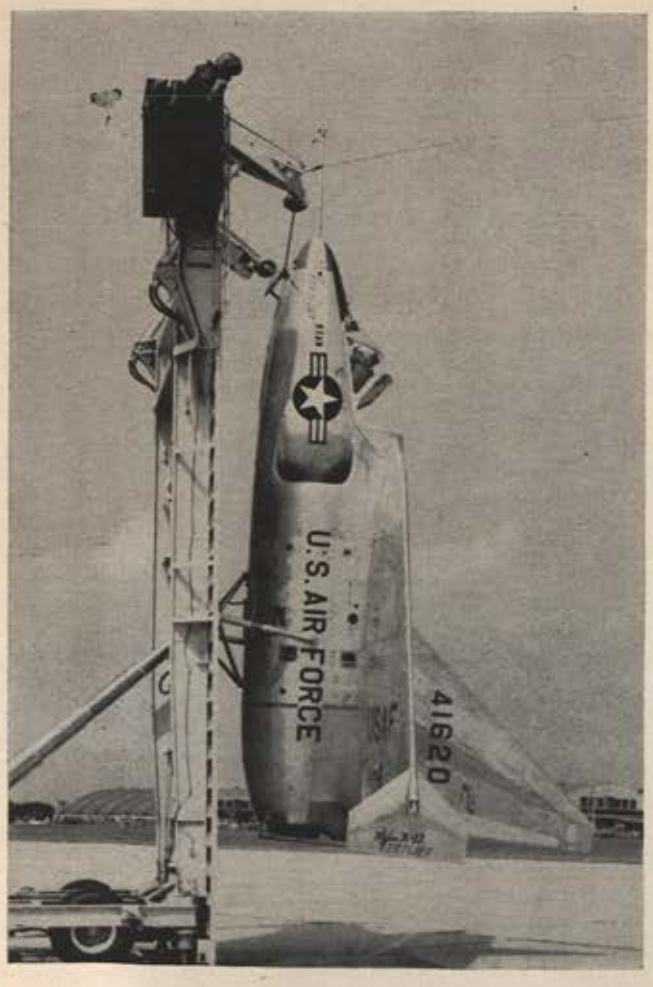
This formation of Douglas B-66 jet bombers thrilled throngs at the Andrews air show who watched the flight as part of the complete cross-section of planes dating back to the early "pusher" craft displayed by the USAF.



Exciting feature of the day was the unveiling of the Ryan X-13 Vertijet, shown prior to straight-up takeoff.

War II fighter, the North American F-51 Mustang, and the entire USAF Century series of supersonic aircraft—North American F-100, McDonnell F-101, Convair F-102, and Lockheed F-104.

The crowds watched another jet-age item they had been reading about—the USAF "gas station in the sky," mid-air

On reviewing stand, from left: Army's Chief Signal Officer, Maj. Gen. J. D. O'Connell; retired Brig. Gen. Frank Lahm, first military pilot; AFA's Jock Henebry.

Back to barnstorming days. Daredevil Frank Tallman re-created thrills of yore with wing-walking demonstration.

Against background of a Fokker D-VII: Frank Tallman, Early Birds Tiffany and Keane, and Cliff Anderson.

refueling techniques. Three North American F-100s were refueled in mid-air by a Boeing KB-50 tanker. Topping that off, a Boeing B-52 Stratofortress came over locked up to a Boeing KC-135 jet tanker.

For added nostalgia, there was a demonstration of old-fashioned wing-walking, so vividly remembered by aviation enthusiasts who lived through the great barnstorming days.

Extra memorabilia, so fitting at a Golden Anniversary celebration, included a "high speed" race between a 1909 French Bleriot and a 1910 Curtiss "Pusher"—won by the Bleriot, and going back even further in the chronicles of flight, was a demonstration by an 1896 Chanute Glider and an old-time "flying circus" act that drew heavy applause.

So much went on in a single day that many observers wondered at the tight scheduling which allowed such a panoply of airpower in so short a space of time.

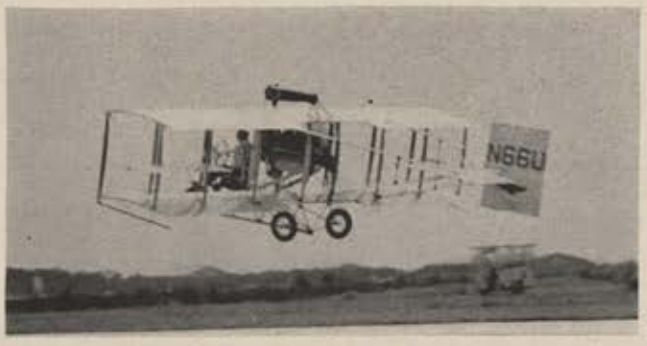
On hand to bring further aerial pageantry to the show were the Thunderbirds, the AF's official demonstration team, in their North American F-100 Super Sabres. Their flight demonstration drew heavy crowd approval.

Providing music were both the USAF band, direct from a tour of the Far East, and the USAF Drum and Bugle Corps, which had been packing them in at New York City's Radio City Music Hall.

Before, after, and during the events, a gigantic display of modern aircraft and missiles was shown in the exhibit area, attracting large throngs.

Spectacular was the word for it.—END

Into the air chugs a Curtiss "pusher" craft, taking off for the closed-course race during aerial display.



RICKS MEMORIAL TROPHY

Ricks event winner, Maj. Phillipy, right, receives the coveted trophy from ANG's Maj. Gen. Winston P. Wilson.

FLYING a Republic F-84F jet fighter, Ricks Memorial Trophy winner ANG Maj. Peter R. Phillipy, thirty-three, of Pittsburgh, Pa., made his victorious 2,680-mile flight from Fresno, Calif., to Andrews in four hours, thirteen minutes, and forty seconds, with an average speed of 648 mph. Phillipy and the nine other Air National Guard pilots who finished refueled at Tucson, Ariz., Dallas, Tex., and Marietta, Ga. Each stop took thirty minutes, but ground rules did not count fuel stops as part of the over-all time. Runner-up in the classic, which was sponsored by the Air Force Association, was Capt. Shirley V. Drum, who averaged 632 mph with clocked time of 4:19.

BENDIX TROPHY

Capt. Kenneth D. Chandler, left, Bendix Trophy winner, was congratulated by Bendix president, M. P. Ferguson.

USAF CAPT. Kenneth D. Chandler, thirty-three-year-old Korean War jet pilot, set a new Bendix Air Race record of 679 mph as he roared in his Convair F-102 across the Andrews finish line at the air show. He made his run from Chicago's O'Hare Field, 620 miles away, to Andrews in fifty-four minutes, forty-five seconds, and had measured his fuel load so carefully that he landed nearly out of gas, with "just the fuel left in my lines." Captain Chandler's new record topped that set by Maj. Manuel Fernandez—666 mph. Runner-up to Chandler was Col. Robert L. Gould, Baltimore, with a time of 55:16. All entrants in the race flew F-102s.

Honored guests, retired Brig. Gen. Frank P. Lahm, oldest living service pilot, and Gill Robb Wilson arrive at show.

Airpower's Greatest Showcase

AFA AIRPOWER

THE PAST, present, and future of aviation and a glimpse of its child —astronautics, the science of space flight—were dramatically unfolded to the public at AFA's Airpower Panorama, held August 1-3 at Washington's National Guard Armory in conjunction with the AFA Convention.

Largest aviation exhibit of the year, the Panorama, which drew nearly 50,000 air-minded citizens and officials during its three-day stand, filled a city block's space with exhibits by more than 115 industrial firms and the USAF ranging from tiny transistors to modern jet aircraft and missiles.

The display that excited the youngsters most was Astro Station T-30, a simulated space station of the year 2,000 A.D., which gave visitors a spaceman's view of the planet Earth and the moon, relegated in that not-so-far-off future to use as an "atomic waste station."

Official opening of the Panorama was marked by presentation by Postmaster General Arthur Summerfield to Air Force Secretary James H. Douglas of the first sheet of the new six-cent airmail stamp especially designed to commemorate the Golden Anniversary of the USAF (*see cuts*).

On display, too, were Aeromedical Research animals, live white mice—one wearing a miniature space suit—and stuffed monkeys, simulating those which had ridden as high as thirty-six miles to obtain data on the effects of acceleration, subgravity, and cosmic radiation on living organisms.

Visitors saw, too, as part of the chronicle of aircraft history, a display

Famous French Bleriot, like the one that crossed English Channel in 1909, was outstanding memento at Panorama.

Ryan X-13 Vertijet, left, was unveiled at the Panorama after performing at Sunday's Air Show. At right, also on display, the USAF Northrop Snark missile.

Air Force Secretary James H. Douglas accepted AF commemorative stamp.

Postmaster General Arthur E. Summerfield spoke at the stamp presentation.

PANORAMA

of World War I vintage planes, and the French Bleriot, first plane to cross the English Channel back in 1909.

Nearby, to warm the memory of everyone who had ever, as man or boy, shouted "Hey, Lindy!" to a passing "aeroplane" during the 'twenties and 'thirties, was a display of flying clothing and gear of "barnstorming days."

In contrast to the historical exhibits were such items as the huge Lockheed X-17 ballistic missile that has successfully soared hundreds of miles up with

At the dedication ceremony for the AF commemorative stamp, left to right, AFA's Pres. Henebry, designer Alexander Nagy, Jr., and the Postmaster General, Arthur E. Summerfield.

its fantastically smooth nose cone that has endured the searing heat of atmospheric re-entry. The cone is made of special alloys, polished to uncanny smoothness by processes that are still secret.

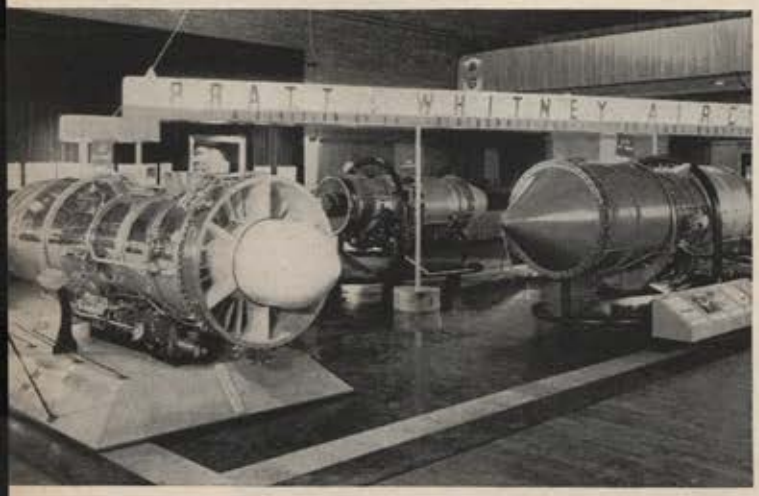
A three-stage test missile, the X-17 is described as the largest and most powerful of its kind using solid propellants. Its second stage, a cluster of three, produces a 2,000,000-hp thrust —equivalent to 10,000 automobiles— to take the six-ton missile on its looping trajectory through the heavens.

Also on display was the jet-age version of the post-Civil War Gatling Gun, General Electric's Vulcan, being manufactured for mounting on jet aircraft. A 20- and 30-millimeter direct descendant of the Gatling Gun, the Vulcan uses a rotating cluster of six barrels with external power sources and electrical drive. It is said to be capable of firing up to 6,000 rounds a minute, as compared to the 650 to 800 round-a-minute capability of the M-3 20-millimeter machine gun and the smaller-capability 30-caliber air-cooled light machine gun used by the Army.

Unveiled, too, and attracting large crowds, was a model of the USAF's newest all-weather navigation system, being produced by Sperry Rand's Ford Instrument Division. The system, called ASN-7, automatically and continuously keeps a pilot informed on his location, distance from his destination, and direction he should follow.

The crowds saw, too, at close hand the new Ryan X-13 Vertijet, especially developed to meet present-day

A camera's eye view of just part of the crowd of nearly 50,000 that saw the Panorama during its three-day stand.



Pratt and Whitney's J-57, J-52, J-75 engines on exhibition.

Martin Company's exhibit dramatized Air Force's history.

Avco's Lycoming division had striking display of turbine engines.

These youngsters had fascinating time seeing the wonders of air age.

Lockheed X-17 ballistic missile drew throngs.

needs for planes requiring no runways. The Vertijet had done its stuff the Sunday before, to the fascination of the throng at the Andrews AFB AFA-sponsored Golden Anniversary Air Show.

Twice as large as last year's exhibit, held in conjunction with the AFA Convention at New Orleans, the Panorama had a total of 76,000 square feet of exhibits, with the USAF display alone occupying 160 feet wtih its depiction of Air Force growth from 1907 through 1957.

Special feature of this year's Panorama was the arrangement, by many exhibitors, of their displays, in a manner precluding walls and heavy boarding, to give an ultra-modern feeling to the show and facilitate close-up viewing by visitors.

Prominent in the crowds this year were youngsters, made ever more conscious of the jet age and space age to come by today's television programs and the encouragement of science-minded teachers. One delegation of youngsters included a cross section of children from overseas who were fascinated by the spectacular displays at the show.

Almost all of the youngsters took home samples of the flood of literature on aviation and astronautics, and two teen-agers, John Bailey and friend, Andy Elgin, both of Washington, dispelled the doubts of guides who asked them what they were going to do with their armloads of pamphlets with the firm statement that "We're taking them home to read because we're going to be jet pilots when we grow up."—END

Five Trophies and seven Citations of Honor . . .

AFA AIRPOWER AWARDS

THE signal honor of being named "Aviation's Man of the Year" in the year of the USAF's Golden Anniversary went on August 3 at AFA's Airpower Awards Banquet to Edward P. Curtis, who received the coveted H. H. Arnold Trophy for his contributions to airpower through analysis and planning of a climate in which US airpower can grow and flourish.

Mr. Curtis, a vice president of the Eastman Kodak Company, headed President Eisenhower's study group on aviation facilities planning during 1956 and part of 1957 and recently finished that assignment.

A World War I flying veteran who served with the 95th Aero Squadron in France, he was a founder of AFA. During World War II, he was Chief of Staff to Gen. Carl A. Spaatz during the Northwest African and Italian campaigns and later served as Chief of Staff in the US Strategic Air Force in Europe, leaving active service as a major general.

The citation accompanying Mr. Curtis' award read:

"As aviation leads the nation into the jet age, it has created a requirement for intelligent analysis and far-seeing plans to create a physical and cultural climate in which American airpower can grow and flourish. The President of the United States chose Edward P. Curtis to organize and direct an exhaustive study to fulfill this requirement. He did so with a rare combination of wisdom, prudence, and vision. His accomplishment will serve as a blueprint for years to come, providing the nation with the basis for wise decisions in this all-important field."

Honored with Mr. Curtis:

● **Gen. George C. Kenney** (USAF, Ret.), past president and chairman of the board of AFA and now president of the National Arthritis and Rheumatism Foundation, who received the Hoyt S. Vandenberg Trophy for 1957 in recognition of his contributions to airpower through air-age education work.

One of the outstanding air combat leaders of World War II, General Kenney was named first commander of the newly formed Strategic Air Command in 1946 and prior to his retirement served as commander of the Air University. His AFA citation lauded him for traveling "untold miles and speaking to thousands of people in a self-imposed mission dedicated to the airpower story," and added ". . . He has done so with keen wit, blunt sincerity and unmatched dedication."

● **Dr. Charles S. Draper** of the Massachusetts Institute of Technology faculty and a member of the Air Force's Scientific Advisory Board, awarded the AFA Science Trophy for 1957 for distinguished service to airpower in the field of science. Dr. Draper has made great contributions in research on antiaircraft fire control for both the Air Force and Navy and is credited with expansion of the MIT curriculum in the fields of instrument engineering and fire control.

● **Mrs. Neville Fleming,** widow of the late **Col. Patrick D. Fleming,** of SAC, who was killed in the first crash of a B-52 on February 16, 1956, accepted the posthumous award of AFA's David C. Schilling Memorial Trophy in recognition of Colonel Fleming's distinguished service to airpower in the field of flight.

Colonel Fleming's citation read:

"Modern air weapons are made effective through the imagination, daring and skill of the men who employ them. Col. Patrick D. Fleming was a skilled pilot, an inventive tactician and inspiring leader. He put these qualities to work in devising operational techniques and tactics which contributed significantly to the training of the first B-52 wing of the USAF. It was in fulfillment of these duties that he met his untimely death. To Col. Patrick D. Fleming, the Air Force Association awards the 1957 David C. Schilling Memorial Trophy for distinguished service to airpower in the field of flight."

Edward P. Curtis, left, "Aviation's Man of the Year" for 1957, is congratulated by Gen. Carl A. Spaatz.

Gen. George C. Kenney, left, accepts Vandenberg Memorial Trophy from AFA President Henebry in recognition of his work in air-age education.

MIT's Dr. Charles S. Draper, here with Gen. Nathan Twining, won the Science Trophy.

The Schilling Trophy, formerly known as the AFA Flight Trophy, was renamed this year to commemorate the late Col. David C. Schilling, World War II fighter ace and SAC in-flight refueling pioneer, who died in an auto crash in August 1956.

● **Joseph and Stewart Alsop,** nationally syndicated news columnists, who received the AFA 1957 Arts and Letters Trophy in recognition of their high service to airpower through analysis of the nation's need for maximum air strength. Both regular contributors to national magazines, and authors of books on military and political problems, the brothers Alsop have been a newspaper writing team since 1946 when they started their column "Matter of Fact" in the New York *Herald Tribune*.

Awarded AFA Citations of Honor were:

● **Sister Mary Aquinas,** the famous "Flying Nun," science supervisor for the Roman Catholic Diocese of Green Bay, Wis., cited for her "contributions to airpower through air-age education." Sister Mary developed a nationwide air-age science program for grade schools, which now involves more than 500,000 children. A teacher since 1911, she earned her nickname after taking flying instructions to give her background for her work. With sixty-eight flying hours to her credit, she conducts workshops on the Air Age for teachers throughout the country.

● **M/Sgt. Robert F. Anderson,** president of the Mesa, Ariz., Kiwanis Club and first active-duty airman ever to head a Kiwanis group, was cited for his contributions to airpower through encouragement of broader public understanding and development of air-age community relations. Active in the organization of Mesa's CAP squadron and a top AF recruiter, Sergeant Anderson has been in the Air Force since 1940.

● **AFA's "Miss Airpower of 1956" —Joanne Alford**—came in for additional honors this year as she received an AFA Citation of Honor for air-age education, exemplified by a nationwide speaking tour during which she traveled more than 30,000 miles and spoke to 125,000 students on science and engineering. Miss Alford's tour was co-sponsored by her company, Martin of Baltimore, where she is employed as an engineer, and AFA. Her talks stressed opportunities open to students in science and engineering.

● **Perry Wolff,** producer of the CBS television series "Airpower," was awarded a Citation of Honor for his accomplishments "in the field of public entertainment and education by presenting to millions of Americans, through the medium of television, the accomplishments and concepts of American airpower." His award was accepted on Mr. Wolff's behalf by Sig Mickelson, CBS vice president for news and public affairs. The "Airpower" series represented a search through more than 300 million feet of film and was produced by CBS in cooperation with the US Air Force. The series told the story of flight from its early development and its impact on twentieth-century man.

● **Brig. Gen. Sam Maddux, Jr.,** deputy commander of the newly reorganized Flying Training Force at Randolph AFB, Tex., was cited for his outstanding contributions to "broader public understanding of the problems of the air-age through community relations." Before his recent reassignment to Randolph, General Maddux was commander of Mather AFB, Calif., and it was there that he demonstrated outstanding leadership in development of community-Air Force relations during the period before B-52-type aircraft arrived at Mather. An airman since 1936, General Maddux served in the Far East during World War II.

● **Kiwanis International,** a service group devoted to aiding crippled and underprivileged children, received an AFA Citation of Honor for its large contributions to airpower through air-age education, symbolized by its co-sponsorship, with the Air Force and Civil Air Patrol, of "National Kids' Day" at Air Force bases across the country, and for its national "Living in the Air Age" educational program, which through seminars and lectures on the high-school level, stimulates youth interest in careers adapted to the Air Age. The Kiwanis award was accepted by Claude B. Hellman, past president of Kiwanis.

● **The Harvard University Defense Studies Program,** conducted in an effort to bring about better understanding of all aspects of national defense, earned an AFA Citation of Honor. Cited for "distinguished service through pioneering in the field of graduate school study and discussion of all facets of national defense." Started in 1954, the program's founder and first director was Prof. W. Barton Leach, of the Harvard Law School, who is a director of AFA. The award was accepted on behalf of the University by Dr. Edward L. Katzenbach, current director.—END

Mrs. Neville Fleming, center, accepts posthumous award of AFA's Schilling Memorial Trophy for her husband, the late Col. Patrick D. Fleming (see inset). The citation accompanying the AFA award was read by AF Chief Gen. Thomas White.

Stewart Alsop, right, co-winner of Arts and Letters Trophy, is congratulated by Milt Caniff, who emceed program.

USAF's outstanding airmen, here with AF Secretary Douglas, were among AFA's honored guests at Washington convention.

AFA Honors Outstanding Airmen

THE highest form of recognition—unanimous approbation by colleagues and superiors—came to the twenty airmen and the WAF listed below, as they received 1957 USAF Outstanding Airmen Awards at the AFA Convention. And when they were introduced at the Symposium Luncheon on August 2, there was a warm pride in the audience that to a man rose to applaud them.

VIPs all, this year's group ranged from a medical technician at the Air University to a crew chief in the Alaskan Air Command, each exemplifying the skill and devotion to the Air Force mission that qualified them for the high honor of representing *all* of the Air Force at the AFA Convention.

This year there was a lady, too. Representing the WAF was S/Sgt. Mary F. Clarke, 497th Tactical Reconnaissance Squadron, USAFE, and proudly she stood with the men.

Presentation of the Outstanding Airmen, now a tradition at the AFA Convention, especially helped stress this Year's Golden Anniversary theme.

And as one delegate put it after the ceremonies: "More than planes, more than equipment, people—people like these airmen—are our greatest airpower asset."

ANTHONY, JESSE O., *M/Sgt., Chateauroux AMA, France, Air Materiel Command.*

BELL, THOMAS F., *M/Sgt., Naha AB, Okinawa, Pacific Air Forces.*

BLACKMON, JASPER F., *M/Sgt., West Virginia ANG, Charleston, W. Va., Air National Guard.*

BUCHANAN, CHARLES E., *M/Sgt., Palm Beach AFB, Fla., Military Air Transport Service.*

CLARKE, MARY F., *S/Sgt., Wiesbaden AB, Germany, Women in the Air Force.*

COMMONS, HOWARD D., *M/Sgt., Little Rock AFB, Jacksonville, Ark., Strategic Air Command.*

EDENFIELD, JOHN N., *M/Sgt., Eglin AFB, Fla., Air Proving Ground Command.*

EVANS, ROSCOE C., JR., *M/Sgt., Orlando AFB, Fla., Tactical Air Command.*

FISHER, ALBERT S., *M/Sgt., Williams AFB, Ariz., Air Training Command.*

FLEMING, RICHARD L., *T/Sgt., Getete Air Field, Madrid, Spain, Sixteenth Air Force.*

GEISLER, CLAUDE S., *M/Sgt., Air Reserve Center, Des Moines, Iowa, Air Force Reserve.*

JACKSON, CURTIS L., *M/Sgt., Geiger Field, Spokane, Wash., Air Defense Command.*

LEE, CHESTER E., *M/Sgt., Norton AFB, San Bernardino, Calif., Headquarters Command.*

LONG, LYMAN C., *T/Sgt., Gunter AFB, Ala., Air University.*

LYNES, EARLE S., *M/Sgt., Lowry AFB, Colo., Air Force Academy.*

MORAR, GEORGE, *M/Sgt., Sembach AB, Germany, US Air Forces in Europe.*

PODRABSKY, ERNEST L., *T/Sgt., Elmendorf AFB, Anchorage, Alaska, Alaskan Air Command.*

POST, GEORGE A., *M/Sgt., Wright-Patterson AFB, Dayton, Ohio, Air Research and Development Command.*

SOMMERVILLE, EUGENE S., *M/Sgt., Albrook AFB, Canal Zone, Caribbean Air Command.*

WAGUESPACK, VERNON G., *M/Sgt., Air Reserve Center, Richmond, Va., Continental Air Command.*

WOLF, LEONARD, *M/Sgt., Chicksands AB, Sheffield, England, USAF Security Service.*

Knowledge, Imagination, and Vision

Lt. Gen. Dean C. Strother

COMMANDER, AIR UNIVERSITY

I APPRECIATE this opportunity to present some of our professional educational philosophy and activity at Air University and its place in the Air Force mission. Many of you are acquainted with our program, but more of you are closer to the activities of ARDC, AMC, and other elements of the operating Air Force. Whereas these other commands are involved in the daily operation of the Air Force, the Air University has the unique opportunity to place selected officers in an environment designed to stimulate their thinking and to afford them an opportunity of professional development, through an educational program. It might be well here to point out the difference of mission between Air Training Command and Air University. Air Training Command is primarily concerned wth skill training—whether it might be pilot, navigator, mechanic, or radar technician—while Air University's mission is that of professional education.

Broadly speaking, Air University provides a coordinated program of professional education for officers of the United States Air Force within one integrated school system. This program is designed to equip officers with the knowledge and techniques necessary for assuming progressively more important assignments in command and staff positions throughout the Air Force. To us this means the development of knowledge, imagination, and vision in the present and future employment of airpower.

Our program at Air University is designed to provide two major objectives at all levels of officer education. The purpose of one is to provide student officers the tools of their trade, to teach them techniques, to acquaint them with standardized methods, and in general—to equip them to perform their future responsibilities as senior commanders and staff officers and meet their obligations in the air age. The other objective is to stimulate thinking. It involves the development of officers who must formulate the valid air doctrine as the realistic foundation for sound strategy, and that sound strategy serves as the basis on which to program weapon systems. With these objectives, we live with both a challenging and an important responsibility that is centered on the conviction that as communist technology begins to close the qualitative gap in weapon systems the professional quality of men is at least as vital as ever before in our history.

With these as our general objectives, what are some of the basic concepts under which we operate? *First*—is the principle of academic freedom to assure freedom of thought, of expression, and creative imagination. *Second*—that we avoid traditionalism, rigidity of thought and doctrine, standardization of instruction, and the provision of dogmatic answers to problems of the future. *Third*—that ours is not a postwar system, but a prewar system. *Fourth*—broad use of the best civilian educational methods and thoughts. *Fifth*—the practice of student contribution. Our successive student bodies represent thousands of man-years of military experience in both war and peace. This rich source of experience is one of our most valuable resources. *Sixth*—the Air University seeks to truly educate, rather than to merely train or instruct, and *seventh*—that the Air Force is an instrument of maintaining peace, but must be instantly ready to perform its wartime mission.

The Air University is meeting these obligations through an integrated system of educational activities beginning with the Air Force ROTC program, which is in over 180 colleges and universities, and extending up through the Squadron Officer School and Command and Staff School, to our senior school—the Air War College.

The many complex medical problems unique to modern flight are studied in the School of Aviation Medicine. Many valuable contributions have been made to aviation and to the aviation industry. Many more will follow. The uniformed scientists and engineers of the Air Force are developed through our Institute of Technology, which maintains a resident course at Wright-Patterson and a much larger program in cooperation with American colleges, universities, and industry, in which many of you participate. Since we maintain an active research and development program in concepts and doctrine, we have a splendid military library. A Research Studies Institute is constantly at work trying to fill in vacuums in knowledge in the geophysical sciences. Very active courses are conducted in the latest developments in weapon systems.

To prevent working in a vacuum, Air University is in close contact with the other commands of the operating Air Force which we serve, with industry, the academic world, research groups, and others. Periodically we are looked at by an educational board consisting of the major commanders, our customers, for the purpose of determining the adequacy of our coverage and analyzing methods of improving the quality of our graduates. Our entire program is under continuous review, and changes are incorporated to maintain the curricula completely up-to-date.

In summing up—this substantial effort is dedicated to the support of national objectives, to anticipate and prevent, where possible, and to win in war should it be necessary.—END

LT. GEN. DEAN C. STROTHER. *A 1931 West Point graduate, General Strother transferred to the Air Corps in 1933. In World War II he was staff fighter officer of the USAAF in the South Pacific in 1942, later became commander of the 15th Air Force in Italy. In 1950 he was appointed Assistant Deputy Chief of Staff for Personnel, and later commanded the 12th Air Force in Europe. General Strother became Air University commander in 1956.*

Slowdowns, Stretchouts, and Ceilings

Hon. James H. Douglas
SECRETARY OF THE AIR FORCE

IT HAS been a little more than a month since I last had the opportunity to talk with representatives of the aviation industry. Much has happened since then in our explorations of ways and means to meet possible expenditure ceilings of the sort that we discussed and then recognized as demanding our best thinking—if we are to stay within these ceilings with a minimum of damage to Air Force programs and to industry. There are still many areas where no final decisions have been made. The outline and shape of solutions to our problems, however, have somewhat clarified.

Three developments in the situation are particularly worth noting. First: the Senate restored substantially all the reductions in the Air Force appropriation made by the House, but the bill agreed to in conference reduces the amount requested by the Air Force by more than $500 million. Second: with respect to expenditures, it is necessary that the Air Force take such actions as are necessary to reduce our most recent expenditure estimates for 1958 by nearly a billion dollars. Third: our authorized military personnel ceiling has been reduced by 25,000 and the new ceiling is effective December 31. We are endeavoring to attain this goal through normal attrition and in a manner to effect a minimum of inconvenience to all concerned.

Since our meeting in June, I have talked with several of you and have received a number of very interesting reports with respect to actions that you have taken looking to the achievement of new economies in overhead and overtime and also in the reduction of inventories. This is all-important and can be of immense assistance in meeting our joint problem, but I find that those of you with whom I have talked feel that much more can be accomplished.

In the Air Force we have been looking at every activity to avoid any unnecessary outgo of dollars and to slow up spending where it appears possible without serious adverse effect on readiness and modernization. We have taken a number of actions to reduce future production rates that were called for in earlier schedules. Although with respect to some of the aircraft affected this may tend to postpone modernization, we will certainly get a better product into the inventory and the companies concerned can expect greater stability than under the previous schedules. We have, of course, been asked for detailed information on schedule changes. It seems to me that in the light of security considerations one cannot justify stating present and future rates of production on a number of production aircraft, although at times in the past it has been necessary to disclose a rate with respect to a particular aircraft.

I am willing to say, however, under present planning and the adjusted schedules, Air Force production at McDonnell should remain relatively stable; that production of the F-105 at Republic will be at a very low rate until we are able to secure the improved model that we require; that the production rate of the F-104 at Lockheed should increase considerably but not to the rate contemplated in the old schedule. The new schedule will have little or no effect on the production of the Convair F-106 for more than a year.

We are in the process of screening development projects on a priority basis as it is certain that a number of the less urgent ones must be postponed, and there are undoubtedly some that will fall by the wayside sooner than might have been the case except for the present need

to find savings in all areas of our activity. Two items involving many hundreds of millions of dollars are receiving careful attention and in each we need help from industry. One is modification of aircraft and the other is new facilities. I believe our modification work can be well justified. There is a certain amount, however, that does not maintain or contribute a capability that is commensurate with the expense. Also, we must move quickly to slow down major production when necessary to avoid taking aircraft off the line that demand extensive modification before they are acceptable for inventory. There is no need to emphasize the fact that we will necessarily be very cautious in authorizing new facilities unless an essential project cannot be carried out in existing facilities.

We are trying to find savings through doing necessary things more economically and through postponement of things which we can sensibly and safely postpone.

In the year just closed, Air Force expenditures were higher than in any peacetime year, and '58 will be the second highest year for Air Force spending. Aircraft and related procurement expenditures are estimated at $7.5 billion for the fiscal year just closed and $7 billion for the new fiscal year of 1958. These expenditures are part of a program which assures orderly progress in increasing our readiness and striking power. The character of airpower is certainly changing as we move into a period of test and production of missiles, but the Air Force and its supporting industry have met fundamental and rapid changes in the past and we can do so again. One thing is certain and that is that the Air Force is dependent upon the aviation industry, and, in varying degrees, members of the industry are dependent upon the Air Force. We shall continue to work together, and I, for one, look forward to working with all of you during the coming year.

Tailoring To the Size Of the Job

Hon. Dudley C. Sharp

ASSISTANT SECRETARY OF THE AIR FORCE (MATERIEL)

THERE is no question that we are entering an area of increased and tougher competition. There will be increased and tougher competition between weapon systems, as to their survival for our inventory. There will be increased and tougher competition between the minor contractors for the privilege of manufacturing these weapons which do survive. There will be increased competition and tougher competition between the vendors, and increased and tougher competition between the subcontractors for the work which is available. There will be an enormous number of dollars spent in fiscal 1958, but these—each one of these dollars—must somehow produce more effective hardware and inventory.

We must be able to buy them, in some cases at a slower rate of production, and at the same time we must buy these items at a cost equal to what we have planned to pay at a higher rate or perhaps less. I know this is a tough thing to do, but it can be done and I am sure it will be done.

We will end up having better equipment in the inventory sooner, and we will have an opportunity in the Air Force to better stimulate these complicated and difficult items of our inventory into our operating units. This will result, I am convinced, in a more effective fighting force sooner than we would have had otherwise.

(Continued on following page)

To accomplish this and to keep expenditures within the bounds of reason, industry and the Air Force must do everything they possibly can to cut their expenditures and their costs in every way.

There is a general belief that overhead, percentagewise, must go up with a reduced budget. I do not believe this is necessarily true. Many of you here have trimmed your expenditures, trimmed your overhead since you became cognizant of the situation, but there is still room for much more. I sense the fact there was an atmosphere of planning for an ever increasing future, a sort of hoarding of capability for a future increase in business beyond the actual need of the business at the moment.

This might fall in the field of engineering, technology, of floor space, or maybe even of vice presidents—I do not know.

The atmosphere, I think, is changing to one of tailoring to the size of the job to be done. I believe that this can be done.

I believe there is also a better way of doing business. I believe if all of you and all of us in the Air Force will look hard, we will find these ways—there are many.

Also, I am afraid there are many here who feel there may be a tendency to pull back work into the larger contractors because of this decrease in volume. I am sure it is true, there will be these tendencies. I also feel sure the tendencies should be resisted; a sound subcontracting structure and a large competitive basis is essential; competition breeds efficiency.

You are just as interested as the Air Force is in adequate defense, to provide for the survival of this country.

So, you of American industry, with your wonderful and invaluable traditions of free enterprise and ingenuity, can, I know, solve these problems, and I am sure that you will solve these problems.

DUDLEY C. SHARP. *A graduate of Princeton, class of 1928, Mr. Sharp, after business and industry experience, became president of the Mission Manufacturing Company, Houston, Tex., in 1946, producers of petroleum industry equipment. Now Assistant Secretary of the Air Force for Materiel, he is a naval veteran of World War II, in which he served from 1942 to 1945. He was administrative manager of the Applied Physics Laboratory at Silver Spring, Md., prior to assumption of his present Air Force post in 1955.*

DISCUSSION PERIOD

After Secretary Sharp's remarks, the meeting was turned over to a discussion period, preceded by the brief opening statements reprinted below. The first is from Lt. Gen. C. S. Irvine, Deputy Chief of Staff, Materiel, Hq. USAF. General Irvine's views are followed by those of Gen. E. W. Rawlings, Commander of the Air Materiel Command, whose further presentation is on page 86.—The Editors.

° ° °

I WOULD like to talk to you just a moment about what we are doing and how and maybe give you a little market analysis. Our mutual problem now, in this era of changing methods, changes in manufacturing procedures and tooling, and automation, is to get more out per manhour. This must be our national objective. We are going into a period of new materials and new uses and better uses of old materials, and into an era of new engineering solutions of our military missions, and new uses of the so-called conventional weapons.

All these add changes in our thinking and the necessity for flexibility and understanding in the industry and the Air Force, and the closest possible contact with the people who will fly our airplanes and handle our missiles.

In a period of this kind—another industrial revolution—efficient management, really first-class engineering, designing engineering, production engineering should prosper and grow and pay great dividends under an expenditure level of $7 billion a year. In the Air Force it is our objective to maintain the most stable possible level of both engineering and production and to do this, as your secretary has said, we have to be selective. We have to pick the best source as we go along.

° ° °

WE certainly do have a change in pace in that we have new controls that we have to become familiar with in this particular period of time, working against expenditure ceilings as well as obligational ceilings, which means we need new techniques of control that we have never had before. It will take very close cooperation between contractors, people in the contractual business, and production business if we are going to work these things out.

We have not planned our procurement and production activity on the basis of trying to run a contractor's business, no matter how some of you might have felt about it from time to time. We certainly intend insofar as possible to continue in that general direction. We do believe in the free enterprise system in America. We do believe in a minimum of interference on the part of our people with your business, but on the other hand, as you can see from some of the directives that we have, we do have a very difficult task of carrying out some of these tasks and at the same time keeping out of your business.

I trust you will bear with us and understand what this over-all problem really is. We are trying to seek a solution. We intend to continue to work as a team because we certainly cannot do it alone.

I think there is one thing we should keep uppermost in our minds during this period. We still have a very difficult international situation. We are in the atomic age. Our force in being makes it difficult for our opposition and we must protect that combat capability no matter what happens during this period.

Obviously, this gets into the selection of weapon systems, their reliability, their maintainability, the cost of support. All the way through we will try to keep that in mind because we are trying to produce the maximum combat ability and therefore the deterrent force of the American Air Force.

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Mr. Alison: Mr. Secretary, I would like to ask you to

look a little bit further down the road and try to tell us what this means for industry. We all understand the requirements, but defense is getting more complex and more expensive all the time. There has been a slight trim downward in the expenditure rate. Can you tell us what you would expect over the next four or five years?

Mr. Douglas: I think it is worthwhile making some observations in reference to that question. We have for three years, or at least until the 1958 budget was prepared, been able to build the Air Force on a fairly stable program. During these years expenditures increased from about $15 billion to over $18 billion.

Now, we have come into a period where a great development project is almost ready to go into production, and we are faced with building a missile force on top of a manned Air Force without relaxing our efforts on the manned Air Force until the missiles are proven.

The Air Force pressure for funds is going to be very great. However, it is worthwhile to recognize the fact that it may be very difficult even to maintain the $38 billion level of defense spending that is now set for fiscal 1958.

There are two reasons for this. One is the apparent increasing concern of the public over federal spending. The other is that with the $2 billion taken out of the defense appropriation request this year I would expect that it might be necessary for the Congress to appropriate for '59 $2 billion more than it appears will be appropriated for '58, in order to maintain a $38 billion level in '59.

Until there have been major accomplishments toward disarmament the defense spending should be maintained at not less than a $38 billion level. To justify that level we are all going to have to be very convincing that we are using the dollar well.

Press: I was a great admirer of the War Production Board and I believe they had a system which would work very well in trying to make industry more cost minded. They published every six months the figures of the major contractors on the basis of cost per pound of empty waste. I know this is used now but it is not generally published and I was just wondering if we couldn't bring the light of public relations a little better on this cost per pound of waste?

General Rawlings: I think you know how we used those reports and we, by agreement with the industry, are not passing those around to everybody because we feel we shouldn't. There may be a change in the situation in Washington that might change this, but this is a problem that I am not adequately prepared to cope with before this group.

Mr. Sharp: I would like to add to that. During the war everybody had more business than they could handle and everybody was expanding. During this period of expansion competition, commercial rights, patents, had a lot less importance than in a period like we have now where the competition is very keen.

I think most of your manufacturers would not like to have their manner of performance, good, bad, or indifferent, published for the benefit of their competitors and this is the reason both General Rawlings and I have kept this matter confidential.

Press: There has been much said about the transition from manned aircraft to missiles. Figures have been quoted and I am sure many of you have asked questions about this and I have heard discussions come up from time to time and I would like to ask General Irvine if he'd comment on this for us; the change from aircraft to missile technology.

General Irvine: I think there has been too much conversation about the so-called transition. We do not change the problem particularly when we take the man out of the vehicle because you still have all the propulsion, aerodynamics, and so forth to deal with.

To begin with, our missile programs have made very great contributions to the solution of our manned aircraft problem. In some cases the manned airplane may be better for certain interceptor tasks. In other cases the interceptor missile may be best. For the long-range offensive there is some doubt that a ballistic air missile would be better than the aircraft. There are other tasks that will continue to require the manned airplane. Looking down the road for the next fifteen years, I am sure we will have both kinds of equipment. The decision between them is a difficult one. It is going to take time, engineering, and production ingenuity and intelligence to solve these problems.

Mr. Alison: General Rawlings, I have a question for you. This is another question which I know is in the minds of many of our industry members because over the past several years you have put lots of private industry, both large and small, into the business of maintaining Air Force aircraft. I would like to ask this question: What effect will the present budget level have on the Air Force policy for over-all maintenance now being carried out by private industry?

General Rawlings: We think we must have in our own system a capability to handle first-line equipment in order that this force can be ready to go every morning, seven days a week, twenty-four hours a day. The only way you can do that is to have that capability within our own hands. Obviously, as resources are reduced those tasks which are less urgent in maintaining of our combat readiness are the first ones to go. This means, obviously, there will not be as much maintenance business for the maintenance industry as such. It has been said that we are pulling work back into our depots. This is not true. We are not doing second-line aircraft work in our depots. If I recall, out of seven or eight thousand, we had something on the order of twenty-four and they were special missions jobs that we did in our own depots and that sort of thing we may have to do because of the particular nature of the work. In general, we are not building up our depots. We are not adding actually in terms of people, which is the measure of this activity. You will find that since Korea, although we have been continually building up in numbers of wings, we have reduced our civilian personnel some 25,000.

Press: Mr. Douglas, as a result of your briefing with industry you say you received many reports from industry. What is the nature of the recommendations generally that you received from these people?

Mr. Douglas: I have not received recommendations. I have received reports of things that were being done by the companies. In some instances it was a closer supervision over travel and entertainment and in others it was advice as to the results of investigations as to whether or not engineering overhead was high. In other instances it was a report on a change in production, in all—overhead, direct labor, and so forth. Those were not recommendations. They really were reports of various companies to analyze their own situations.

Press: Mr. Douglas, in view of meeting the budget, which is now on its way to being reduced by $2 billion, did the Air Force or has the Air Force been apportioned funds originally earmarked for the other services?

Mr. Douglas: I do not think so.

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Press: Mr. Secretary, would you care to comment on the rumor that the $10 billion carryover for the Air Force has been impounded?

Mr. Douglas: No, there is no impounding of money or unobligated balances. The figure that you referred to includes both expended balances that are obligated and unobligated carryover funds. There has been no impounding of those funds.

Press: Mr. Douglas, is the $38 billion spending figure a figure which takes into account inflation?

Mr. Douglas: It has to be. We have had a good deal of inflation. Inflation of wages and prices has been part of the cause of having to revise expenditure estimates downward and for having to revise programs.

Press: Well, if the inflation continues as is now anticipated, does that not mean a further cut in programs?

Mr. Douglas: It would, if we had to live within a level-dollar figure; and I think that is a very serious part of the whole problem, because if prices and wages and all costs continue to rise, even slowly, and we try to keep the defense program let us say at a $38 billion level, the program will have to change against the inflation. So it would be my expectation that the pressure to increase defense spending in line with further inflation would be very great and it would, therefore, necessarily receive careful consideration.

From the floor: Mr. Secretary briefly mentioned the future of various interceptor aircraft. I am particularly interested in asking what the future appears to be for the B-52, the B-58, and specifically the J-57 engine.

Mr. Douglas: That question, to me, sounds as if the gentleman has a very particular interest in this matter.

Well, obviously it is not possible to answer a question like that in any detail. One could say the J-57 engine perhaps has made a unique contribution to the Air Force within the last few years. Our retaliatory capability will center in the B-52 for some years ahead. A decision as to whether the B-52 program will be enlarged will have to be made in connection with the formulation of the fiscal year 1959 budget. The B-58 is a very promising airplane and I think I can say it has lived up to and has perhaps exceeded the expectations in its testing. The Air Force program with this supersonic medium bomber will be worked out over the period of testing.

Logistics for A New Kind Of Air Warfare

Only new techniques will allow the logistician to bridge the gap between manned aircraft and missiles

Gen. Edwin W. Rawlings
COMMANDER, AIR MATERIEL COMMAND

HISTORICALLY, logistics have always limited air combat operations. There have been a number of reasons for this. Ever since the early days of combat aircraft, the air vehicle itself has been far more mobile than the logistic support necessary to nourish it. The trend of combat air vehicle performance has been toward higher altitudes and faster speeds. The appetite of our evolving weapon systems for quantities of materiel has kept pace with this rising metabolism of performance. Only in recent years have new techniques given the logistician a hope of closing the gap between the fast, flexible, global range of the combat air vehicle and the necessarily slow, ponderous means of moving quantities of materiel support.

Most of us here today are familiar with these new techniques—airlift, rapid communications, high-speed data processing. In Air Materiel Command we have been concerned to exploit them to the maximum. Even as we progressed in this, however, scientific breakthroughs in the art of weaponeering have pushed the goal ahead. We are now developing a complete new family of combat air weapons which demand a logistical support posture substantially different from that of our most sophisticated manned systems. This dual combination of air weapons, spawned from the nuclear age in which we live, poses new imperatives. It has brought us in the Air Materiel Command to the realization that we must redouble our efforts to see our future direction at long range, to see it clearly and wholly and then to shape our progress for optimum results.

Recognizing this, we created, about a year ago, a new organization within our headquarters. It is charged specifically with the long-range planning required to fully exploit modern techniques of providing logistic support to our manned combat weapons for an indefinite period. Concurrently, it is responsible for advance planning for this new "breed of cats"—the missile systems. We want to be certain that we do not fail in our responsibilities to our current forces and, at the same time, ensure our ability to support the new weapons as they are phased into our air arsenal. The only practical way of getting far enough ahead of this new family of weapons in our support planning has been to live with the scientists developing them, with the industrialists producing them, and with the combat air commanders who are to employ them. We have been steeping ourselves in all possible knowledge about operational concepts, operational plans, deployments, intelligence estimates, target selection—in short, the whole gamut of a new kind of air warfare that is implicit in this new hardware.

Our studies have revealed that our missile force will impose upon us logistics requirements even more stringent than anything we have heretofore imagined. In our strategic arsenal of the near future we will have giant birds irrevocably committed to fixed launch complexes of tremendous size and complexity. Like our manned aircraft, they will be cast in a strategic role that is intended for immediate reflex retaliation against attack upon our homeland. But the reaction time of these weapons from decision to launch, to missile liftoff will be compressed to a fantastically short time. Therefore, our missile materiel support must be responsive to the needs of the operational users to a degree never yet experienced in our air logistics.

Additionally—as in the case of our most modern manned aircraft—our logistics effort must necessarily be directed toward keeping the largest possible number of these weapons in an operational status every morning of our lives. Serious thought about the nature of this logistic support leads us to conclude that our primary task—if we are to keep this force poised for full deterrent effect—lies within the pre-D-day time period. The timing and the tempo of weapon reaction at H-hour will not permit the logistician to significantly contribute to its success or failure in the immediate post-D-day period.

For these reasons then, for the first time in history, the air logistician can strive to make military effectiveness synonymous with economy. There is no need to husband mountains of supplies to support a large force over extended periods of time, and at a rising tempo of activity, during the post-D-day period. We can agree that the most efficient, responsive peacetime operation that we can devise is also the most militarily effective. This transition from a physical structure that has been created over the years to support an entirely different philosophy must necessarily be by evolution and not revolution. The Air Materiel Command is too large and its responsibilities are too great to permit shutting the plant down for a model changeover. We can, however, introduce bold new concepts in support of this entirely new family of weapons because they are in themselves revolutionary. The question is whether this revolutionary approach, on a relatively small scale, permits us to establish a target toward which we can evolve the entire logistics system. We think it can be done.

Our principal Air Materiel Command presentation this morning will give you an idea of our plans for the entire system during the next ten years. At the present time we are in the early phases of a transition period. The major elements that will make up the logistics of the future are already with us in some degree. As they develop we shall test, prove, check, and recheck each of these elements feature by feature before incorporating them into our basic logistics. The transition will be complete when operational unmanned systems push the manned systems from our inventory in the only way they can—by doing the job better.

GEN. EDWIN W. RAWLINGS. *General Rawlings started his military aviation career as a flying cadet back in 1929. Now Commander of the Air Materiel Command, his materiel experience began in 1935 when he was assigned to the Materiel Division at Wright-Patterson AFB, Ohio. He later served as Chief of the Procurement Division, Air Technical Service Command, and became Deputy Chief of Staff, Comptroller, at Hq. USAF in 1949. He received his appointment to his present post in AMC in July 1951.*

Elements of Tomorrow's Logistic Job

Command control, high-speed communications, electronic data-processing, and high-speed transport are keys to success

Maj. Gen. Kingston E. Tibbetts
DIRECTOR, PLANS AND PROGRAMS, AMC

MY CRYSTAL ball is probably no clearer than yours, but I hope today, using some of the hard, cold facts of which we all are aware—plus a couple of over-the-shoulder glances at the past—to predict for you a possible posture that the Air Materiel Command might achieve in the next ten years. In order to do this, I believe we must look at the nature of the tasks that will confront us during this time. I am the first to admit that my vision in even identifying these tasks becomes cloudy at times. But one real fact, I believe, stands out crystal clear. Manned combat aircraft will be with us, in quantities large enough to demand recognition, during the whole period under consideration.

It has always been difficult to persuade people to adjust to change. During the past year or so, we of the Air Materiel Command have fought a vigorous battle to convince our people that the missile era is almost upon us and that we must necessarily gear our thinking to accept the different way of life that will be imposed by the advent of this new family of weapons. In some areas we still have this difficulty, and we are still prodding our people into facing up to the realities of this new condition. However, there is always the other extreme which we must guard against, and that is the reason for my making such a firm statement about manned combat aircraft. We can never relinquish the bird in hand until we have our fingers firmly entwined about the one that is still in the bush.

Unmanned systems are on their way. They will be with us, in spite of all the technical difficulties that must be overcome. However, they must force their way in, as General Rawlings has previously said. I say *force* advisedly, because they must prove that they can do the same job as the manned systems do and do it better, before they win a permanent place in our arsenal. We can coax and cajole them. We can, and we will, lavish large sums of money and the best brains of the land on them, to see them through their birth and growing pains. We will *not* push them in. They must fight their way in through superior performance.

Some of you may know the history of an Air Force computer that has been developed for use in connection with manned weapon systems. Some of its characteristics, in the light of current computer hardware that's available to us, are quite startling. It has an unlimited internal memory, and all of it is of the random access type. The major hardware manufacturers today are quite envious of this feature. It has a virtually unlimited number of external input stations. Its output is selective. It can be made to produce either audio or visual products. It communicates readily with other computers of the same series, without a requirement for intervention or reprogramming. With all these characteristics, its size is about 200 pounds. Even in the giant configuration it rarely goes over 250 pounds. It is completely portable. It will operate on power from multiple sources. The initial cost is reasonably high —about $250,000—but it is fairly economical to maintain, since its direct operating cost runs to about $20 per day. We get about eight hours a day utilization from this piece of gear, on a single shift basis, but it has been operated twelve to sixteen hours per day over extended periods with only minor deterioration.

What is this electronic marvel? Simply the typical Air Force pilot.

I tell this story, and draw these comparisons in computer terms, only to point up the competition that unmanned systems must deal with in achieving their rightful place in the Air Force arsenal. The problems of electronic reliability and flexibility that must be faced up to, and overcome, are truly staggering. By now some of you may be thinking that I am an anti-missile advocate. Nothing could be further from the truth. I only want to emphasize that the problem with which we deal in the process of achieving "push-button" warfare is one that will not be easily or quickly solved.

What, then, are the tasks to be performed in keeping the muscles of this mixed, missile-manned Air Force in tone? Since all of our quality weapons cost more, fly higher, farther, and faster, we must attempt to do these jobs more cheaply, but we must not sacrifice quality of combat support in the process. I like to characterize every attempt we make to modernize our logistic system by comparing the system itself to a boy flying a kite in an open field. The length of his string represents to me the flexibility and mobility that is inherent in the Air Force combat vehicle itself. The kite can go in any direction, and to any altitude quickly, subject only to wind conditions and length of the string. The logistic system is the boy himself. All of our efforts are directed toward putting this boy on roller skates, so that the logistics of modern airpower has the same mobility as the combat air vehicle itself, and does not become a restraining factor.

Let's take that quick glance over the shoulder of which I spoke, and see what sort of an environment this boy has been living in in our recent past. We have had several kites in the air, representing our major combat weapon systems, and we have had several boys on the ground, representing the major segments of our worldwide logistic structure. Each boy has had a string to his own kite, but there have been second or third strings to one or two of the other boys' kites also. The interlocking nature of logistic support behind the various weapon systems has put us in the position of having approximately forty kites in the air, fifteen boys on the ground, with maybe a hundred or more crisscrossing strings. Does this paint a complex picture? There is more to come. These boys have not even been in an open field. They've been in a stockyard where the cutting pens have prescribed definite cubicles in areas of responsibility. The crisscrossing strings ran under or through the stockyard fences, and the kites were getting bigger, the winds were getting stronger, and the strings were getting longer, all the time.

How did this situation come about? It is very easily explained. The conditions I have just described only look deficient in the spotlight of hindsight. Remember that it has only been in recent years that we recognized, so to speak, that one of these stockyard cubicles was not the open field. Global range and flexibility of airpower are of relatively recent origin. Kites were smaller and strings were shorter in the recent past. This picture did not look nearly so difficult. Actually, by now, the kites have become so complex and so fast that they are no longer kites, but have turned into something akin to the most sophisticated model airplanes. They can no longer be controlled by simple strings, but demand multiple wires, connected to a control bridle that can be manipulated with one hand.

I had better not take this crude analogy further, for fear it will break down. I hope it has served, however, to illustrate the point I am attempting to make. Our efforts have been dedicated to connecting as many of these logistic support control wires as is possible to a single bridle, and handing that bridle to a single man. At the same time, we have been hacking vigorously at the fences around the cubicles that have limited the authority and responsibility of our support managers.

The characteristics that I am about to describe, which we believe should be the objectives of the Air Materiel Command for the next ten years, are nothing more than logical extensions of our current efforts. Their aim is to

(Continued on following page)

clarify and strengthen the authorities and responsibilities of our people, and to place in their hands the most advanced tools of management we can devise.

First, let's examine the command structure. In this period we will have evolved to a truly global logistic posture. The arbitrary area boundaries of continents, regions, countries, etc., now recognized in varying degrees will have largely vanished. The lines of logistical authority will stem directly from the Commander, Air Materiel Command, through a ZI-based complex of weapon support managers, directly to the combat units which employ the manager's weapon system. Within the framework of the broad logistical policy emanating from Headquarters, Air Materiel Command, and within the framework of agreements negotiated between support managers and the major air commanders involved, the combat unit commander will deal directly, on all logistical problems affecting his weapon system, with a single man—the AMC weapon support manager.

Second, each manager will be provided with a communications network designed expressly to reach those points on the globe to which his weapon system is deployed. This will provide the fastest possible flow of direct information between the manager and his customers. Back of the support manager will be extensions of the communications system into all the necessary facets of the industrial complex that produced his weapon system in the first place. Laterally, there will be communication links to all the elements of the logistical system, both military and industrial, that provide him the resources for maintaining his weapon. These communications nets will be designed and employed for the purpose of transmitting logistical type of information.

Third, the weapon system manager will be provided with a high-speed data-processing center of the appropriate size, and with the necessary characteristics, to receive, digest, and analyze the logistical information which is the life blood of effective combat support. Each center will be so organized that all pertinent raw data can be initially loaded into it and, to the highest degree possible, the updating of such raw information will be done at predetermined time cycles, automatically. The support manager will be able, by simultaneously passing large segments of this raw data through his processing center, to siphon off in distilled, properly related form, the information necessary to make management decisions.

We envision that the manager will be able to make quantitative item requirement computations, construct dollar budgets, determine warehousing, personnel, and transportation requirements, for any given Air Force program concerning his system—all within a period of about one week. We expect that he will have the further capability of assessing the impact that changed programs will have in any of these areas—also in a matter of about one week, subsequent to his receipt of the program change. This gives him the ability to test quickly the feasibility of any program, against a *fixed dollar and manpower limitation*. He will also be able to determine, quickly, the minimum dollar and manpower requirements of any *fixed program*.

The weapon support manager's data-processing center, in addition to providing him with these internal management tools, will automatically accept and process all demands made upon him for logistic support by his customers. Processing can be accomplished in minutes or hours, according to predetermined desired reaction time.

Fourth, the weapon system manager will have available to him two speeds of transport capability, in moving the materiel support from source to where it is needed. There will be a transport capability called "routine," and there will be that capability labeled "high speed." Reasonably large quantities of items of low dollar value and common application will be established at the site of the combat units. Resupply transportation on these items will be on a routine basis. Extremely small quantities of high-value, specialized, or insurance type items, will be stocked with the combat unit; high-speed transportation will be used in the resupply of these items. Where units are deployed to overseas areas, high speed will be synonymous with airlift. For units in the United States, airlift may or may not be used. The fastest appropriate mode of transportation, economy considered, will be applied in this area.

Fifth, the size of the Air Materiel Command physical structure will have shrunk substantially in the period we are discussing. The four characteristics we have talked about so far will have made this shrinkage practicable, by providing us the tools we need to furnish first-class logistic support from drastically reduced stockpiles. Aeronautical supply and maintenance activities will have phased out of the overseas depot structure. Specialized storage depots, as we know them today in the United States, will have passed from the scene. The management functions now associated with such specialized depots will have largely reverted to the group of weapon support managers. The touch labor force now engaged at such depots will have migrated either into industry, the remaining AMAs, or the complex of weapon system storage sites established to facilitate service to the customer.

Variations and refinements on this basic general theme will, of course, develop. But they will be the results of circumstances and environment, the nature of which cannot be accurately predicted now. We will endeavor to identify and assimilate them as quickly as they become apparent. With the basic structure that has been described, we believe we will be flexible enough to react to them quickly, and with a minimum of waste motion.

That, briefly, is how the air logistics future looks in the crystal ball—from where we stand today. Stripped to its essentials, the picture includes:

- First, a truly global logistical command, organized along weapon system support lines;
- Second, a high-speed communications system for the rapid transmission of logistical information;
- Third, an electronic data-processing capability, to provide timely and effective internal management, and the fastest possible reaction to customer demands;
- Fourth, a high-speed transport capability to complete the dynamic cycle of the logistic system response.

No one of these elements will in itself be a radical departure from today's logistics. Each has already begun to evolve in our present system. What I have attempted to do here is to embellish the basic trends, to visualize some of the muscle we must put on these bare bones during the forthcoming years.

So far we have looked at the tasks surrounding the manned aircraft systems that must be logistically supported for some indefinite time. We have also looked at the logical extensions of current logistics planning, to see where they might ultimately take us, and have described some of the major characteristics of such a system. We must now do one other thing—examine the nature of the tasks that will be imposed upon us by the missile force when it arrives. When we weigh these tasks against the logistics structure we have described, the

balance must be true. If imbalance develops, we have not done a good job. We must remember that this system is going to have to support a mixed inventory for an indefinite period of time.

The different nature of our tasks that will stem from this new family of weapons is determined basically by a single fact: A missile, whether it is large or small, is an unmanned aircraft. It has all the components—an airframe, a propulsion system, a guidance system, provisions for carrying a destructive device, and an array of ground support equipment. All of these systems have changed so radically, however, that the principles of logistically supporting manned aircraft weapon systems must also be drastically modified. Instead of turbojet engines designed for hundreds of hours of operational flying, we now have a multiple bank of liquid rocket engines, with a designed life expectancy measured in seconds. Instead of a relatively cheap, high explosive bomb we have a family of warheads that carry destructive power, greater than any envisioned, except at Armageddon.

When we took the guidance responsibility away from the pilot, we created an innovation that demands the greatest change of all. The smallest of our current missiles, the Falcon, helped immeasurably by our Air Force pilot, and required to find its own way for just a few seconds at very close range and toward a target as big as a bomber, has more than 5,000 parts packed into a case just over five feet long. During its peacetime life, at the fighter base to which it is deployed, it requires constant "go" or "no go" checks, with replacement of faulty minor subassemblies. It gets a periodic depot level overhaul, with major modification and rebuild, just like a manned aircraft, when major troubles are encountered. One logistics task here is to keep the operating base stocked with a small number of minor parts for both the bird and the checkout equipment. The biggest task is to keep the central system poised to immediately replace a malfunctioning missile with a good one, and bring the sick bird back to a general hospital for treatment.

Why not gear up to fix these sick birds on the spot and save all the rushing back and forth? Because a set of tooling and test equipment for this major surgery runs just over two million dollars. We can't afford that at every fighter base. Then why not build a few hundred extra birds and give each base a few spares so we can move at a more leisurely pace in hauling the little package back and forth? Dollars again provide the answer. These little beasts cost quite a bit per copy, even in quantity lots. Again, we can't afford it. We must buy as few as we can, and keep the "down" time to a minimum.

Now, how about the big bird? The tasks are basically the same, but the technique varies. These packages grow to be real monsters. They are destined to make a long journey—some 5,000 miles. They carry a big payload. All of this adds up to a tank car or two of fuel. They have to be big. Yet, with all this increase in size, the guidance system must be infinitely more refined. Our big baby has to hit a hoop in space in exactly the right attitude and with exactly the right speed if it is to be on target at the end of its journey. Remember we have left the pilot on the ground for this one. Our guidance system has to compensate for the lack of that phenomenal Air Force computer we described earlier. The gadgetry necessary for that compensation occupies acres of ground. The fuel for this bird is different, too. This is not a simple, solid, stable rocket propellent. We are dealing here with huge quantities of liquid oxygen, and this demands special logistics consideration. You can't keep the missile tanks filled over extended periods of time while this big watchdog sits silently, poised to strike at the heartland of an aggressor. It would freeze all of the delicate gadgetry in the monster's vitals, yet, when the time comes to launch, this bird must fly faster than any of our manned aircraft systems has ever flown. How do we do this? The answer lies in a fantastic array of automatic ground-handling equipment that must be geared to operate with the speed of lightning and without human intervention.

This, then, is a substantially different picture from that of our small missile. In this case, logistic support is largely a matter of moving the depot to the launch sight. Our big boy squats solidly in the midst of complex equipment that defies us to move him around very much. We bring the major teardown equipment forward. We evacuate only components for overhaul and modification. Small cities with a single purpose grow up around a missile launch complex. It is as if we covered a sizable portion of the Mall here in the nation's capital with a town that existed only for the care and feeding of the Washington Monument. It has to be this way. Our basic objective is again—as it was for the small missile—to buy as few as possible, and keep the "down" to an absolute minimum. It is a simple tradeoff of dollars.

Now, keeping these tasks and this environment in mind, let's review again the major points of the logistic system we have described and see if they fit. We emphasized a strong control by a single logistic support manager over all the assets behind his weapon system. We emphasized speed in finding or fixing these assets, through the media of electronic data-processing machinery. And finally we have stressed high-speed transportation in the movement of all of these assets. We believe this basic structure will respond to the missile task, as well as to the manned aircraft problem. We must only remember that such a system is highly desirable for manned aircraft. It is mandatory for missiles.

The objectives I have outlined here are the backbone of the total system as we see it evolving over the next ten years. In actual fact, many of these developments have already begun to take shape within today's logistical system. Remember my boy and his kite? At the present time we have stripped away many of the fences that impeded his mobility. We have put him on roller skates and given him the most sophisticated bridle available to us for controlling the logistics aspects of his weapon system. Even the field itself has been hard-surfaced so that he can move at maximum speed.

We will watch his efforts closely in the forthcoming months and years. The effective features of the new logistics we will integrate into the evolving system, refine to the sharpest cutting edge. New problems will inevitably, of course, call for new and possibly unforeseeable solutions. But we believe that we have now established a reasonably precise target toward which we can work to involve the entire logistics system of the AF.—END

MAJ. GEN. KINGSTON E. TIBBETTS. *General Tibbetts, now Director of Plans and Programs for the Air Materiel Command, won his commission in 1929 and was a flying instructor at the Air Corps Primary Flying School, Brooks Field, Tex. In 1941, he was named Assistant Engineering Officer, Hawaiian Air Depot, later serving as operations officer and test pilot. He was at Pearl Harbor when the Japanese struck, and served during the war at Funafuti, Tarawa, and Saipan. He joined AMC in 1952 and assumed his present post in 1956.*

Management Challenges for Tomorrow's AF

Reducing costs while improving quality will require tough research management decisions

Hon. Richard E. Horner
ASSISTANT SECRETARY OF THE AIR FORCE (R&D)

RESEARCH & DEVELOPMENT BRIEFING

ONE OF the most difficult problems that the Air Force faces and shares with the aeronautical industry is the initiation and conduct of the research and development program in an environment which inevitably associates high risk effort with worth and is critical thereof. Faced with the necessity of insuring the compatibility of our fiscal policies and our defense needs, the satisfaction of our military requirements within the availability of our economic resources, while carefully avoiding damage to either our economic structure or our military capabilities, is the real challenge. Finding the solution to this problem I am sure will tax the ingenuity and affect the working lives of most of us in this room.

It is probably erroneous to discuss the research and development management problem in a singular sense, for in actuality it is made of many, many problems which arise frequently and must be solved on an individual basis. Such solutions take their place in the context of the overall program. Unfortunately, very few questions arise to which there are positive categorical answers. From the statement of a research or development requirement to the point of successful introduction of new equipment into the useful inventory of the Air Force, literally thousands of questions arise which require the careful and experienced judgment of some level of R&D management.

Since most problems are significantly influenced by the relative availability of financial resources, it might be well to review our course in arriving at the present situation. With the first blush of organizational independence in 1947, the Air Force encouraged what then appeared to be a vast expansion in scope and magnitude of its research and development program. Development seeds were broadcast in all the technical areas, and system studies were initiated in response to all of the stated requirements stemming from the Air Force mission.

In the lean years immediately preceding the Korean conflict, many of the embryonic development projects withered almost to the point of disappearance and a few were actually canceled. However, the system had been energized and many development possibilities had been identified to the point that when financial resources became available as a result of the 1951 mobilization, the organizational and program framework was prepared to make some truly remarkable progress.

All of our missile programs, most of our new aircraft now going into the operational inventory, and many of the present models of older aircraft which have seen useful operational service, resulted from the development program of the Korean and post-Korean period. In addition, the technical development program and the fundamental research program have come of age for the first time as fully integrated parts of the research and development effort, providing building blocks upon which new weapon system efforts may be based. Concurrently, the present physical structure of the Air Research and Development organization was firmly established and technical facilities provided which in many fields of interest are equaled no place else in the world.

All of this was accomplished during a time when the Air Force had as its goals a force structure of 137 wings, intercontinental weapons capability, augmentation of our overseas effort, and vast improvement of our air defense with sophisticated ground environments and automation. It is now obvious that these goals were extremely helpful in setting a course and directing the growth of the Air Force as a military machine. To a large degree the goals have been reached, although it has been increasingly evident in recent months that some modifications to the force structure might be necessary.

We might, for planning purposes, consider that we have come to the end of the buildup era, and we should rightfully select in the era ahead new goals to be characterized by refinement of the force and improvement of its military capability. Along with the rest of the Air Force, we in research and development are certainly going to have to take a hard look at our programs, review our policies that have functioned during the buildup period, and test their applicability for the period ahead. The pressures are unrelenting and promise to become increasingly severe. The intelligent recognition of this environment is absolutely essential.

Let us look at its characteristic elements. For the past five years the trend of expenditures for support of the Air Force has been upward. Each year's costs have been larger than those of the preceding year.

Each year the combat force structure has been increased with the addition of new units. Each unit as it is brought in has been equipped with modern and sophisticated, highly effective but expensive weapon systems. Perhaps even more important than the initial cost of these weapons has been the steadily mounting cost of unit operation as

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fuel consumptions increased, more highly trained technicians were required, facility expansions became necessary, and so on and so forth.

Concurrently, with the commissioning of new units an extensive program of modernizing the equipment of existing units was carried on. This modernization effort also had its reflections in the research, development, and procurement requirements for the Air Force. And then, over and above the direct needs of the new units in the force structure and the progressive modernization of existing units, the growth of the supporting systems became an important factor.

It has also been frequently mentioned that the resources versus capability question is further complicated by the missile and aircraft relationship. There is no question that, in many areas of interest, unmanned weapon systems offer potential improvement in performance that we need and must seek as rapidly as we can. On the other hand, it is generally conceded that the prospects of world peace are greatly enhanced by the deterrent quality of our Air Force. The only force that affords this deterrence is a force that is in being, one that we know will work when needed, and preferably one that any prospective aggressor is confident will work should he be so ill-advised as to test it. Thus, it appears to be unavoidable that we will go through a period of making substantial investments in unmanned weapon systems, both for development and procurement, while we at the same time retain equipping scheduled for manned aircraft.

Today we find that the dictates of our economic system require that the trend of recent years of steadily increasing expenditures for national defense be stopped, if not reversed. So, we face the years ahead with a decreasing portion of the Air Force dollar available for improving the quality of the Air Force with very little prospect of an increase in the number of dollars to offset this decreasing share. Obviously, the Air Force needs to give careful consideration to the proper balance between support of the force in being and resource investment toward maintenance of the qualitative superiority we now enjoy. For world peace might very well be dependent upon this qualitative margin. Certainly one of the considerations is the size of the force.

It might be more productive, however, to recognize that some retrenchment in the research and development program will be necessary. Furthermore, we would be less than realistic if we did not also recognize that it is much more difficult to reduce the program than it is to expand it. I would like to mention some of the dominating problems from the management policy point of view and suggest some of the possible solutions.

First, I am convinced that a research and development program can be formed, even on a reduced scale, that will be effective in maintaining qualitative progress in the Air Force, and furthermore, will support the technical elements of the aeronautical industry. The formulation and implementation of this program will require our combined efforts.

Many of you have heard me speak before on the theme of selectivity in the operation of our materiel program. However, I would like to review some of the related principles here. Briefly stated, the modernization program may be defined as the spectrum of activity extending from fundamental research on one extreme through the elements of applied research, technical development systems development, test and evaluation, and finally procurement for the inventory on the other extreme.

Now the heart of the selectivity thesis involves the recognition that the limits of selection become narrower as we proceed from the research end toward the procurement end of the cycle. Taking the extreme cases, we only procure in quantity those equipments for which there is an operational requirement in the context of the total program we afford; while in the fundamental research program it is necessary to study, at least in a cursory manner, all of the areas of scientific endeavor which might provide leads for improvement in military developments.

Fortunately, and certainly not purely by coincidence, this philosophy of research and development operation is entirely compatible with economic necessities when it is properly implemented. The individual projects and studies in the fundamental research program are far the least expensive in that stage because they usually involve only the payment of an investigator's salary. Thus, it is entirely feasible to support a program of some considerable scope which is probably limited primarily by the availability of competent scientific talent to perform investigations.

As the studies identify channels worthy of further support, experimental projects are born which require increasing investment in laboratories, experimenters, and facilities. At each step of advancement, it becomes necessary to apply additional tests of relative military promise and let the lower quality projects fall by the wayside. This method of selection inherently provides the best assurance for proper selection of the projects to be carried through the entire cycle, for each selection process must be based on the information flowing from the broader scope of program behind it.

Now, of course, this has been an oversimplification of the rules to follow in formulating a modernization program as complex as that of the Air Force. I have not mentioned such difficult questions of judgment as the value to be placed upon diversified weapon systems in the inventory, the relative balance of forces between the offensive and defensive role—and many other such questions. However, after all other considerations, one will always come back to the fundamental elements of project selection.

Disregarding the numerous obscure factors which might influence such decisions, the major apparent factor is changing force objectives. Obviously, any revision in force structure goals, however modest, must have a feedback in the selection of development projects. The important thing that we must recognize, however, is that a reduction in the resources that are available for our modernization program must be reflected in a more discriminating application of effort across the entire spectrum. If you assume a balanced program to begin with, it is not practical to make all of a necessary saving from the procurement end of the program, for example, while retaining "business as usual" in research and development, and still achieve a balanced program as an end position. Thus, we will have a reduction in the resources available to research and development. We cannot justify filling the shelves of our research and development "supermarket" with components we cannot afford to integrate into developed weapon systems. Nor can we develop weapon systems which we cannot afford to produce, maintain, or operate. This may sound as though it borders on heresy coming from a manager of the research and development program. In actuality it is acknowledgment of the situation which presents the real challenge to all of us.

A few minutes ago I mentioned rather lightly the acceptance of research and development management and the proffering of expert judgment in such matters as the favorite avocation of the day. Despite my lightheartedness in this matter, I think we should recognize that the situation offers both advantages and disadvantages. Of course, it is

somewhat flattering to those of us who try to earn our living in this manner, to have chosen such a popular field of endeavor. At least some of this feeling must be discounted, however, because it seems to be human nature to pose as an expert in areas where a knowledge of the facts hasn't introduced too much confusion. Certainly, an advantage with more real qualities is the contribution of ideas that stems from an almost unbelievable number of sources. We have learned by experience that it is not prudent to be premature in laughing at what appears at first glance to be a crackpot idea. Such ideas are an important source of ingenuity, which is an ingredient that does not always come as a natural byproduct of scientific acumen.

I am increasingly concerned, however, over an apparent disadvantage which may stem from what one might call "the over-management of research and development." Recently I have had occasion to listen to several industry representatives reveal to me company proposals, some of which indicated considerable investment in technical manpower and financial resources, which were in response to requirements brought to them from many diverse sources.

Now a good sales pitch is certainly not unattractive. It is the very essence of our economic and social systems and I would not expect it to be ill-prepared. But I have certainly received the strong impression on some occasions that the salesman was considerably shocked to learn that the requirement on which the proposal and the attendant effort was based did not really fit into the context of the Air Force modernization program. We must certainly acknowledge the fact that there are many opportunities for interchange of ideas between the Air Force and industry. Most of the large defense-related industrial concerns have Air Force plant representatives on their premises.

In addition, there are many needs for visitations to industrial facilities by personnel from all echelons of the Air Force. Likewise, company personnel frequently visit operational commands and other Air Force headquarters for various purposes. These frequent contacts serve a purpose in providing a necessary interchange of information and ideas. But they do not afford a useful channel for disseminating to the industry the established requirements for development of equipment. The emotional expression of a squadron engineering officer concerning the debris on the runway is not adequate justification for the development of a flying runway sweeper.

The formulation of research and development requirements for the Air Force is a complex and necessarily formalized process. It includes full consideration of the operational necessity as stated by the operating unit, proceeds through the assessment of available techniques as reflected in the aeronautical industry, and culminates in the publication of documents made available to industry upon which they may base their proposal for future effort. I am sure that you are all familiar with this procedure of dissemination of requirements. We do not claim that the published requirements are not subject to improvement and we certainly welcome any suggestions or new ideas which might be incorporated in them. We do say that they are the recognized requirements and suggest that they be used for your guidance.

As we begin the process of program reduction, we find an increasingly severe problem in the alignment of industrial capability and facility capacity with individual project needs. Extensive investments have been made in industrial facilities by both the government and manufacturing companies. In addition, many industrial concerns have assembled impressive teams of scientists, engineers, technicians, and production specialists which constitute an important asset of this country. These facilities and organizations are in many cases highly specialized. In the presence of a decreasing program, we find that it is impossible to fully use all of these resources.

We are, therefore, understandably reluctant to create new facilities and new organizations. At the same time we have no intention of abandoning our competitive methods of evaluating technical proposals and seeking the best possible engineering solutions for our weapon systems requirements. Thus, it can be seen that a contradictory situation might be created where one company might propose a superior technical solution whereas preponderance of the necessary facilities and technical manpower might be located with another company. There is no completely satisfactory solution to such a dilemma. The loser of a technical evaluation is rarely convinced that his proposal was not, in reality, the best solution and it is very difficult for the winner to understand why he is not given full opportunity to exploit the fruits of his ingenuity, regardless of the over-all cost of the program to the government.

It appears, however, that one of the most satisfactory compromises may be in the increasing use of multiple-source contracts for development; where two or more companies are invited to jointly contribute to the accomplishment of a project, each providing the services for which it is best fitted. This solution in itself can be very difficult to administer and we recognize our deficiencies in officiating at such a marriage. The problem of protecting proprietary information, negotiating cross-licensing agreements, and awarding follow-on procurement are examples of the considerations which must be taken into account.

There is increasing evidence, however, that the aeronautical industry is willing to recognize the necessity of such arrangements and reach satisfactory company-to-company agreements. I would like to commend the several firms that have found it possible to objectively assess their own capabilities, and complement them by mutual agreements for the benefit of the defense effort and, I am sure, for their own ultimate benefit. I would like to announce that, as a general policy, the details of inter-company working agreements will be, within the purpose of the agreement, left to the judgment of the companies involved.

There is some danger of being too pessimistic and too glum about our present situation. We are going through a period of program readjustment. The most important requirement is an understanding by all of us of today's necessities. There are many indications that there is this understanding. One sees an increasing interest in reducing overhead costs, using technical achievement to temporize resource requirements and increasing the quality rather than size of technical staffs. We all know that more can be done in these lines of improvement. Herein lies the real challenge to Air Force and industrial management. With our joint, cooperative efforts I am sure that we can exploit the rapidly expanding scientific frontiers and with the resources that are available assure the qualitative future of the United States Air Force.

HON. RICHARD E. HORNER. *Now Assistant Secretary of the Air Force for Research and Development, Mr. Horner was commissioned in the Army Air Corps in 1940 and during World War II was commanding officer of the 86th Bomb Squadron and operation officer of the 47th Bomb Group in North Africa. In 1944 he joined the Air Materiel Command and was released from active duty in 1949, later working as a civilian in the AF Flight Test Center, Edwards AFB, Calif., from 1949 to 1955. He was named Deputy Assistant Secretary for R&D in 1955.*

Future Success Depends on Today's Planning

Industry-Air Force cooperation in research and development shows steady improvement

Maj. Gen. John W. Sessums
VICE COMMANDER, AIR RESEARCH & DEVELOPMENT COMMAND

THE KEY to success in the future is sound planning today. The importance of long-range planning is evident when we consider where we are in our guided missiles development program today. As far back as 1946 we recognized the need for such advanced weapon systems as ballistic missiles. It was then that we began our program with Convair for the development of a ballistic missile. This was Project MX-774—the forerunner of the Atlas ICBM project as we know it today.

Another interesting fact is that the Air Force started almost a decade ago to plan and to build a long test range for guided missiles. This plan has taken form as the Air Force Missile Test Center which is in operation today and at which the ballistic missiles of the Army, Navy, and the Air Force are or will be tested.

We have also built a technology which is bringing ballistic missile weapon systems to the point of operational reality. For reasons of security we cannot divulge details of the individual launchings of our ballistic missiles now

in a development stage. We can assure you, however, that each missile test launching has great technical value and that we have full confidence in the planning we started over a decade ago and the strong industrial team which has been assembled to carry out this important development program.

Our flight test program today is not one which visualizes the launching of fully operational guided missiles at the first try. Instead, it is one which is planned to test in a logical and a progressive fashion the various components and subsystems which combine to produce an operationally successful guided missile.

The undertaking of high cost development programs, such as the ballistic missile program, limits the effort we can invest in many other important areas of military research and development today. Consequently, we cannot do all of the things we would like to do in exploiting the scientific and technological capability of our nation.

Although our research and development program is expensive, it is essential to our future national survival. Too often, the public may feel the payoff in this program is only military. All of us can play a constructive role in allaying public fears and helping to promote a more enlightened understanding of military research and development, if we will point out the important contribution which it makes to our daily life and standard of living.

Today we enjoy the finest standard of living in the world. Today we live in a world which has been contracted greatly by means of improved and advanced transportation and improved and advanced communications. Much of this has been made possible by military research and development.

Radar grew up in World War II. Radar has had a number of offshoots. One, for example, is the development of a GCA system which has greatly facilitated commercial aviation. Another is the wide use of radar on commercial vessels—from transoceanic liners to pleasure boats. Military radar made the television industry possible—by supplying everything from tubes to technicians.

Antibiotics became an industry with military-sponsored research and development. The fall in price of penicillin is perhaps the most dramatic example.

The art of welding aluminum and magnesium was improved as a result of military needs. The Air Force heavy press program, started after World War II, has improved the technology of cold forming metals.

High-speed air foils, jet engines—almost everything that goes into a high-speed commercial airplane is the result of military research and development.

Atomic energy has had numerous peacetime applications. The use of radioactive isotopes for therapy and diagnosis is one. The use of atomic energy to produce commercial electrical power is another.

So, also, the products which will come from our research as we go to the future will have an important part to play in our national growth and in our way of life.

The progress which we have seen in the past fifty years has been phenomenal. It is progress which has been made not by the Air Force alone but by the team of Air Force, industry, and science. For the past several years we in the Air Research and Development Command have tried to take positive steps in improving our teamwork. We have done this by passing out the signals to all the team members through special briefings, technical symposia, and documented development needs so that we would all be working toward common objectives.

Many of you were present at the AFA convention two years ago. At that time the then Assistant Secretary of the Air Force, Mr. Trevor Gardner, and our former ARDC Commander, Gen. Thomas S. Power, made a plea that industry join more closely with the Air Force in solving the problems facing us in the defense of our nation.

As a result of the response to this plea, a program known as the System Requirement Release Program was initiated. Some of the goals of this program were to shorten the over-all weapon system development cycle, to conserve the limited engineering potential of the United States, and to identify areas for weapon system study which may significantly improve the operational capability of the Air Force.

The program officially got under way in January 1956. Over the course of the past eighteen months executives of 120 companies have discussed with us the willingness of their companies to assist in the solution of these problems. As a result of these executive discussions, 133 study groups are actively at work.

Such a program, by permitting a better forecast of the "future military market" and providing a single point of contact for guidance in future weapon system studies, permits the saving of corporate advance planning resources. The use of industry weapon system thinking and the closer Air Force-industry teamwork provides the basis for better inputs to general operational requirements for future weapon systems.

As a result of this team effort, the 119 problem areas originally facing us have been reduced to seventy-one, and many of these are new problems that have arisen during the past year. The impetus behind this program has been growing continually and I think the advantages and benefits to us both are becoming increasingly apparent. It has been very gratifying to note the enthusiastic response of industry to the System Requirement Release Program which I feel will continue to assume an even more important role in the future.

Besides the program of system requirements, we have also produced Technical Program Planning Documents. These are staff studies in specific technical areas, such as bombing and navigation, and aeronautics and propulsion, in which we point out the capability which we visualize will be required ten or fifteen years in the future; compare it with where we stand today in the state of the art; and indicate the possible technical avenues to be followed if we are to achieve the required operational capability of the future.

We hope soon to have completed Research Planning Objectives. These will take several important areas in research, pointing out the problems that we must think about, and scientific approaches and actions we might take to assure future progress.

The past two years, in particular, have seen a closer and more enlightened relationship develop between the Air Research and Development Command and you, the representatives of science and industry of our nation. As we approach flight parameters of greater speed and greater altitude this teamwork must be continued.

MAJ. GEN. JOHN W. SESSUMS. *General Sessums, vice commander of ARDC, received his commission in 1929 and is a veteran of twenty-two combat missions with the 22d Tactical Air Command during World War II. He was the senior USAF officer on the team that delivered surrender instructions to German General Headquarters in Italy in May 1945. He became the first Director of Development, Air Research and Development Command, in 1951 and was appointed ARDC Director of Development in 1952. That same year he served a tour as commander of the Thirteenth Air Force.*

A Long Look At Airpower's Unsolved Problems

The frontiers of basic knowledge must be rolled back at an ever increasing pace during the next fifty years

Lt. Col. Carlo R. Tosti
DIRECTOR, INFORMATION SERVICES, ARDC

WE MUST start today to think in terms of performance beyond that of the first fifty years of Air Force operations.

We must exploit our scientific and technological potential. If we are to stay ahead qualitatively, we must make tremendous progress; however, our first fifty years is symbolized by an upward curve of progress which is at an ever increasing rate.

It ranges from the Wright Flyer which was delivered to us at nearby Ft. Myer, Va., in 1909 and which had a speed of forty-four mph and a range of 125 miles, to the high performance weapon systems of today such as the supersonic F-102 armed with guided aircraft rockets which is now in our air defense forces; the supersonic F-104—soon to enter our Tactical Air Command—which has been referred to as the "missile with a man in it"; the intercontinental B-52, which with the technique of aerial refueling can deliver a nuclear warhead to any point in the globe; and the first supersonic bomber, the Convair B-58.

This progress has not been confined to manned weapon systems. It has produced unmanned weapon systems—or guided missiles—as well.

In the area of guided missiles also, our experience goes back many years. The "Flying Torpedo"—our first guided missile—was developed during World War I by a team headed by General "Hap" Arnold, "Boss" Kettering, and Orville Wright.

The product of our technology over the past fifty years has brought us to the ballistic missile development program. The Air Force ballistic missile program includes the development of two intercontinental ballistic missiles (ICBM)—the Convair Atlas and the Martin Titan—and an intermediate-range ballistic missile (IRBM)—the Douglas Thor. Our interest in this area is not a new one.

Our thinking and activity in this type of development, however, goes back to 1946 with project MX-774. The MX-774 vehicle, which underwent a successful testing program, proved the feasibility of such interesting innovations as swiveling rockets for flight control.

Impetus was given to the program by the thermonuclear breakthrough in 1954. This breakthrough gave us the capability of producing a small but devastating warhead, thus allowing less stringent accuracy requirements for the missile system.

Under the chairmanship of the late Dr. John von Neumann, a committee of distinguished scientists and military leaders laid the foundation for our present ICBM development program.

The past three years have seen a research and development program of unprecedented magnitude.

From two major contractors—for airframe and engine—it has spread across the country with prime contractors for alternate airframes, engines, guidance systems, and nose cones. When one adds to this picture the many governmental agencies and Air Force research, development, and test centers, and further superimposes the large number of subcontractors engaged in this program, the size of this program is readily apparent.

Roughly, a half billion dollars has been invested in new test installations and plant expansion alone—a substantial share of this being privately financed. At Convair in San Diego a vast plant area was created virtually overnight for production of Atlas airframes and, within one year, pasture land at nearby Sycamore Canyon was converted to a complex for captive testing of the Atlas.

Similar expansion has taken place in the engine development program at North American's Rocketdyne facility near Los Angeles and the Aerojet-General Corporation which expanded its complex of facilities at Sacramento, Calif., to develop and produce engines for the Titan ICBM. And so it goes with General Electric, AVCO, Lockheed, Burroughs, Bell Telephone Lab, Remington Rand, MIT, AC Spark Plug, Arma, and others.

These few examples make it clear that the Air Force ballistic missile program represents a concerted effort of unprecedented magnitude being jointly pursued by the most competent and widespread government, science, and industry team ever assembled on a single project.

Out of this tremendous effort will come a wealth of design information and components that will be useful for other things beyond those for which they were designed. The airframe, propulsion, and guidance subsystems developments and the data which will become available as ballistic missile test flights are made, will make possible a whole gamut of follow-on projects.

The flow of important design data has already begun with the Lockheed vehicle, the X-17. The X-17 reentry tests, and other hypersonic test vehicles, have provided valuable research data on heating and other problems that will be encountered when a warhead or airframe reenters the earth's atmosphere at hypersonic speeds.

While the ballistic missile program is providing an invaluable impetus to the exploitation of flight technology, the expansion of our operational performance parameters for both manned and unmanned flight requires an orderly approach to the acquisition of basic or fundamental knowledge in many areas of research.

Some of the problems which face us are apparent when we consider the flight limitations which delineate a narrow corridor for the extension of future flight performance.

On one side, we are restricted by an area of "too hot," an area in which we are traveling too fast and too low. Because of aerodynamic heating, skin temperatures of 2,000 degrees Fahrenheit or greater will be generated—temperatures which cannot be sustained for prolonged periods of time with our present structural materials.

To obtain such research data on materials and aerodynamics design, we must have research tools. One of these research tools is the "Hotshot Tunnel." The operating principle of Tunnel Hotshot is basically simple, but it has involved some unique design and fabrication problems because of the extremely high pressures and temperatures generated during the brief test run.

We have under development with the Cornell Aeronautical Laboratory a facility designed to provide an airflow of 10,000 miles per hour and temperatures of 9,000 degrees Fahrenheit for periods sustained to fifteen seconds or more. Popularly referred to as "Big Rollo," the device is a unique arrangement of shock tubes capable of producing the continuous flow of high-speed, high-temperature air. It is able to operate at temperatures well beyond the melting point of all known materials.

Another tool that we need in our materials research is one which will give us very high temperatures for prolonged periods of time. Although we can generate superheats, equaling and even surpassing those found on the sun's surface, we can do so for only very short periods ot time. In an atomic fireball, for instance, and shock tubes, as we have just talked about, these temperatures

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can be produced for only a fraction of a second or, at best, a fraction of a minute; however, we need to control and apply these heats for extended time periods if we are to explore in depth the "thermal thicket."

For this, the sun itself can be put to work through the "solar furnace." With this test facility the sun's rays are focused on a test section by a large parabolic reflector. With this harnessing of sun heat we will be able to concentrate temperatures of 8,000 degrees Fahrenheit on the test section for long periods—governed only by the appearances of the sun itself. Furthermore, it will produce pure uncontaminated heat; that is, heat generated without the detrimental byproducts of combustion or electrical charges. Although quite a valuable tool, this is an expensive facility, one whose construction has just been undertaken.

Another valuable tool in learning about materials is the "ion field emission microscope"—or electron microscope. With this instrument we can actually look at atoms—once considered invisible.

Still another approach in our high-temperature materials program has been the use of ceramics as coatings over metals or ceramic and ceramic-metal bodies. Ceramics have many desirable properties such as ease of working and great temperature resistance. They have one big disadvantage, which anyone knows who has ever dropped a plate—they don't bend. They break!

This brittleness of ceramics has prevented their use in many applications where their otherwise desirable properties could be exploited. ARDC's Air Force Office of Scientific Research, located in Washington, D. C., has been sponsoring an investigation on ductile ceramics which promises to change this.

An example of a preliminary result is a crystal of magnesium oxide, which melts at 5,000 degrees Fahrenheit, but which can be bent at room temperature without breaking. This one research effort may open the door to an entirely new family of materials capable of retaining structural integrity at extreme temperatures. While this development promises a fabulous payoff, the cost of this program is less than that of three conventional 2½-ton trucks.

You might well ask what happens to air at these very high speeds, temperatures, and altitudes. We suspect that air is no longer air, as we know it, either at extremely high temperatures or altitudes. At high speeds, for instance, we find that the theoretical basis for much of our aircraft and missile design no longer holds. We haven't the means of predicting how craft will behave or how they should be designed for these speeds. To get answers in the transonic and supersonic area, the wind tunnel is an important tool.

While the wind tunnel is valuable in establishing aerodynamic design, at very high altitudes and speeds we must learn more about the characteristics of air itself.

What happens to air as it gets hotter? It changes from its normal condition as stable molecules and as it goes through higher energy states the molecules break down into atoms, and finally the atoms into ions, or charged particles. In the research program, a great deal of theoretical analysis and experimentation is being applied to understand these changes and their effects.

In addition to the charged particles, or ions, which are obtained at high mach numbers, there are also charged particles in the upper atmosphere. Can we put these ions to work? Can we use the charge of these particles for lift or for thrust?

This has led to the expansion of an area of scientific study known as magneto-hydrodynamics. Can an electrically charged wing or aerodynamic body passing through a sea of ions attract these charged particles on the one side and repel them on the other to produce lift? This possibility is one that deserves further study.

Another possibility is the use of ions for propulsion, particularly for vehicles operating beyond the heavy air layer at lower altitudes. Many scientists believe an ion rocket engine can be developed with present know-how requiring no scientific breakthrough.

The fuel for an ion rocket might be an alkali metal such as cesium or rebidium which yield large quantities of ions when vaporized and brought into contact with a hot platinum or tungsten surface. The ions would then be harnessed in a stream and accelerated by a magnetic field to produce thrust.

While the concept of an ion rocket is an interesting possibility for advanced phases of high-altitude flight, we are still dependent upon the chemical type of rocket, as developed in conjunction with our ballistic missile program, to blast off from earth. Over the coming decade, there is promise that the efficiency of chemical rockets may be increased significantly. If this is accomplished, the size of the missile could be appreciably reduced.

One approach to the development of fuels of higher specific impulse is in the area of free radical chemistry.

Free radicals, as ultra-energy fuels, have theoretical specific impulse values ranging from 400 to 1,200 as compared to the average value of 250 for present-day fuels, or in other words, have from about two to five times the "oomph" or "kick" of present-day rocket fuels. With free radicals, the energy of recombination, rather than the energy of combustion as in hydrocarbon and boron fuels, supplies the heat output.

An interesting fact is that, essentially, free radicals exist in the high atmosphere. You may have noticed that at night there is always *some* light in the sky. It had been suspected that the sun's energy could break down oxygen into its atoms and the energy thus acquired by these atoms could be released under proper conditions.

To confirm our theory by carrying out experiments in the high atmosphere, a rocket was loaded with a chemical believed to be deficient in the upper atmosphere. The chemical was released above 200,000 feet. In this case, the small quantity of gas we sent up released enough energy to glow visually twice as bright as Venus, the brightest star, and half as bright as the moon. Thus we have confirmed that there is stored energy at these altitudes which can be released and which may possibly be put to use for propulsion.

Another approach in the area of propulsion development is the use of nuclear energy. We've heard of the fission process applied to the submarine *Nautilus*. In the Air Force, we have had under way for several years a program for the development of atomic engines for nuclear-powered aircraft.

An interesting long-range prospect, however, is the application of the fusion process to propulsion and electrical power generation. In a fusion reactor there will be nothing comparable to the critical mass of chain-reacting material that makes a fission reactor a potential hazard. Furthermore, it is possible that at least a portion of the energy from fusion can be converted directly into electric power, thus short-circuiting the present cycle of heat-to-steam-to-turbine-to-generator. It probably will be many years, however, before the capability of the fusion process can be developed and demonstrated to the point that we will be able to apply it to air vehicles.

Obviously, as future vehicles, such as scientific satellites, fly in space for prolonged periods of time, we must provide for certain electrical power requirements for instrumentation and telemetering equipment or other needs. Therefore, we must have secondary power sources to provide for these needs.

One type of secondary power source to provide long-term power needs with a small fuel load will undoubtedly be the nuclear reactor.

Another type of system, however, is one which converts solar energy. In other words a solar battery to efficiently convert solar energy into electrical energy. This is a capability which has been demonstrated commercially by the Bell Telephone Laboratories which developed a solar battery several years ago and has been using them as boosters along their power transmission lines. Our Aeronautical Research Laboratory at the Wright Air Development Center has been carrying on work which has successfully demonstrated the conversion of light to electrical energy through the photovoltaic effect of cadmium sulfide crystals.

As we place satellites on orbit during the International Geophysical Year and as we hurl ballistic missiles into space in our test program, we have the important jobs of guidance and navigation, communication, and control to perform. Furthermore, if these vehicles are to operate effectively in this advanced area of flight, we must know more about such things as meteoric dust, cosmic radiation, and other phenomena which will have a bearing "across-the-board" on our capability to operate in an extra-atmospheric environment.

The area of science which directs its efforts to a study of these phenomena is geophysics.

With respect to the atmosphere, we must obtain more information concerning its composition. The parameters of temperature, pressure, density, wind, and chemical composition can be expected to become increasingly important in the design of future space vehicles.

How much data do we have on the atmosphere today? Beyond 200,000 feet we have very little data on the characteristics of temperature, pressure, density, and wind. And yet, if we were to compare the earth to a baseball which we hold in our hand, the altitude of 200,000 feet would be a point about one-fiftieth of an inch above its surface.

There are several tools which can be used to get these answers. At the low altitudes, of course, we have the balloons with which we can get information with respect to the temperature, pressure, density, and winds. We can use sound techniques, also, and light-beam, and radio, and radar techniques to conduct upper air investigations.

One of our best tools, of course, particularly at the higher altitudes, is the research rocket. However, with all the rocket flights that have taken place in the past decade, we still have relatively little data because of the short duration of these flights.

The International Geophysical Year, with the launching of such vehicles as the satellite, opens a new era in which we visualize research tools which will be flying at altitudes of several hundred miles for prolonged periods of time. These will be invaluable research tools in learning more about this essentially unexplored region.

As we look to the future, we must learn more about the effects of geomagnetic storms, of the ionized layers of the atmosphere, of the aurora, and of meteors on Air Force operations. We must be able to predict operationally important variations in these parameters, and we must, if possible, use these phenomena to our own advantage.

An important approach that is being taken in the area of space communications is that of employing the earth's magnetic field in space.

In this area of investigation we have been listening to signals called "whistlers." The discharge of a lightning stroke sets up an electromagnetic signal which is propagated along the earth's magnetic field, comes back to the earth in the opposite hemisphere, and then is reflected and guided back to us along the magnetic lines once again. Although this occurrence might have some interest in itself, it is important because it provides us with a means for studying some of the properties of outer space. Since these whistlers are affected by the earth's magnetic field, the ions in the upper atmosphere, and other phenomena we are interested in, we can use them to learn more about these phenomena. In fact, rather than depending upon lightning as our source of whistles, we are constructing a transmitter which will be used to generate these signals. Thus, we will have some control and know more about the signal that we started with. Then we can learn more about the properties of outer space that act upon it.

We have spent a considerable amount of time discussing the hardware needs and scientific know-how which must be developed to give us extra-atmospheric flight.

If we are talking about manned flight, however, we have yet to discuss the important problems of the man. Some of these problems we have with us today even though we have barely penetrated the vast continuum of space which surrounds us.

The Wright Air Development Center has been making preliminary studies of full pressure suit components. This full pressure suit will be quite different from old-style suits. It will be loose fitting and will inflate only at altitude, similar to the partial pressure suit. This suit, if it provides the mobility expected of it, will be superior to the partial pressure suit in that it will provide an environment man is accustomed to—air pressure around him comparable to ground level pressure.

All of our problems are not at high altitude. We have an important problem on the ground or low altitudes—the problem of bailout. Improved methods of emergency ejection of air crews during takeoff and at low altitude are being studied at the Wright Air Development Center as an important aspect of the AF's flying safety program.

A new system, using standard Air Force equipment, permits emergency escape on the runway. This system eliminates parachute timing. Parachute opening is immediate, and time of separation from seat has been cut in half.

Another aspect of high performance vehicles of the future is that of stress—the "G" forces to which man will be subjected under severe maneuvers. Probably the most direct experiments in this area are being conducted on the human centrifuge.

The centrifuge serves to answer many questions concerning the effect of "G" forces on the heart, circulation, and brain waves—data vital to man's effort to fly farther, faster, higher, and more safely.

Another problem affecting the man in extra-atmospheric flight is the danger from primary cosmic radiation.

There have been fears that the penetration of these cosmic particles into the body of a traveler in the stratosphere might cause the formation of cataracts of the eye lens, damage the skin, or permanently destroy nerve cells which cannot be replaced in the body.

To get answers with respect to these hazards, huge plastic balloons were used to expose living animals to

(Continued on following page)

radiation. These balloons can maintain altitudes higher than 90,000 feet for at least twenty-eight hours—long enough to expose these experimental subjects to primary cosmic radiation in the stratosphere.

Of particular importance in these experiments was the determination of the effect of cosmic particles upon the central nervous system, because dead nerves are not replaceable.

Monkeys were sent aloft and exposed to cosmic radiation and their performance was observed closely before and after the balloon flights. After watching the exposed animals for six months following the experiments, the tentative conclusion was that cosmic particles may have been overestimated as hazards to the nerve system and that a traveler in the stratosphere should be able to perform duties normally with no serious after-effects.

Also, it had been feared that cosmic radiation might cause cataracts to form on the eyes. For this experiment albino mice were used because of their supersensitive eyes. After being exposed to radiation, no cataracts were observed in the eyes of the mice.

Other flights indicated that none of the specimens lost hair or suffered permanent injuries from exposure to primary cosmic radiation, except that black rats incurred some damage to hair follicle pigment cells, causing the affected cells to produce white hair. This was the only experiment which indicated that a test subject had been affected by exposure to cosmic radiation.

Recently, you have heard about the work of men at the Holloman Air Development Center in learning about more of the answers to the problems of man at high altitudes. This is Project Man High. Its purpose is to study the effects on the human body and mind at high altitudes over an extended period in a sealed cabin environment.

The studies will be made by taking observations and gathering data by ascending in a balloon-gondola system to a height of approximately 100,000 feet and remaining at that altitude for twenty-four hours prior to descent.

We have traveled quickly across a wide range of scientific and technical problems that face us as we approach the second fifty years of the Air Force.

I'm sure that you will conclude that we are far from having reached the end of aeronautical progress. New horizons stretch before us.

As we turn our attention to the future—to the next half century with its tremendous challenge—we look to you to build a lean and hard, but yet an imaginative and creative design and production operation.

Our confidence in meeting the future is built on the phenomenal performance of our Air Force-science-industry team during this, the first half century of military aviation. —END

LT. COL. CARLO R. TOSTI. *Colonel Tosti, now Director of Information Services for ARDC, received his commission in the Army in 1942 and was assigned to Wright Field, Ohio. Since 1946 he has been associated with development programs in jets and guided missiles. A graduate of the Air Tactical School, Tyndall AFB, Fla., and the Air Command and Staff School, Maxwell AFB, Ala., he served as assistant executive officer to the ARDC commander before his present assignment in Information Services, to which he reported in July 1957, succeeding Col. Albert A. Arnhym.*

QUESTION PERIOD

Mr. Minor: Is there a way that a small manufacturer, such as ourselves, can participate in this problem of development on a test basis?

Secretary Horner: There is a way. The Air Research and Development Command has facilities throughout the country in different areas of specialization. If any small manufacturer has developed a piece of gear which he feels is superior to gear that is now in use or under development, by application to the Air Research and Development Command Headquarters, the technical people of the command will review the development, unless it is clearly inferior to the gear that is now in use, and they will use their own facilities and conduct tests on the equipment. If these tests reveal that it is superior, the inventor will be advised and assisted as much as possible in the qualification problem. This does not completely avoid the qualification problem, but it certainly provides a degree of assurance.

Mr. Minor: But the initial evaluation must be carried out?

Secretary Horner: The initial evaluation can be carried out by the government in its facilities unless the equipment is clearly not superior to the equipment that is now in use. Perhaps General Sessums would like to add to that.

General Sessums: We have instituted what is known as the Qualified Products List for small business concerns. As Secretary Horner stated, we will test these gadgets and if they qualify they will be placed on this list.

We have already had trouble with this new procedure. One company comes in and goes to considerable expense to qualify this product. Then they wonder why they do not get some business right away.

We reserve the right to not qualify certain items based on the fact that there is no foreseeable procurement. Our plan, of course, is if any procurement is coming up within a year we will notify the respective people interested through the various facilities of the Air Research and Development Command so that they can get their items qualified for such procurement.

From the floor: This is rather a question that seems to come up quite a bit now with companies of say 300 or 250, who have financial capability, and that is the joining together of programs of Army Smaller Weapon Systems. If a company does get together, say with three or four others who have strong capabilities researchwise and also productionwise and financially, will the research and development group look upon them in a strong manner if they really can show they can carry this program through in an economical way?

Secretary Horner: The final selection of a source for research and development is based on many factors, the most important one of which is the technical proposal.

Some of the other factors, however, can be governing, in that if a company obviously does not have the corporate structure to carry on to fruition their ideas, then it is of little use to award the contract.

Now these are the two extremes of the situation. We, in research and development, will consider very favorably the superior technical solution if there is a reasonable possibility that it can be carried out.

If it is an inventor with no capability for carrying out the idea, then, of course, we suggest the idea be sold to a company that can carry it out.

Fundamentals of National Defense

Leverett Saltonstall
US SENATOR, MASSACHUSETTS

Senator Saltonstall, left, chats with Senator Symington as the two make an unscheduled appearance before an AFA business session to discuss defense spending problems.

YOUR Air Force Association is an important one. It is an important one for those of us who are in government today because it stimulates civilian interest and civilian knowledge in the problems of flying and in the problems particularly of the Air Force that is guarding our country.

You stimulate not only civilian knowledge but also strengthen the morale of our Air Force by giving it the backing of people who are familiar with its problems and its objectives.

Then, finally, your Association is important because it supports and encourages our Air Force reserves to become efficient flyers in the modern airplanes of today.

For all those reasons and so many others, you are an important organization.

Recently, we witnessed a tremendous exhibit of our Air Force when General Twining was honored with a review here within the past two or three weeks. As General White told me afterward at the reception, although some of the planes came from California, some came from the far northern section of Maine, and all intermediate stations, the schedule was carried out absolutely on time with the one exception of a one-minute delay in the B-52 that was fueled in front of the reviewing stand by a tanker.

In the last year, Senator Symington and myself have been through some very long hearings. Last year I sat under his chairmanship in a subcommittee of the Armed Services Committee that studied American airpower, and this year, we have been through the long hearings that attend our appropriation bill for the Defense Department for fiscal year 1958. I personally have heard much discussion on the subject which is of great interest to you here today.

It is my feeling that at the present time we have an Air Force that is superior in quality, superior in striking force, and superior, I hope, in defensive strength to the Soviets. It is agreed that will continue at least until 1958.

Certainly, there must be a constant reappraisal of the situation. It is my strong feeling we can never engage in a numbers race with the Soviet. Our defensive strategy is not based on numerical equality. We haven't the manpower, and we haven't the unlimited economic resources to engage in a numbers race with the Soviets. But surely, we must do our utmost always to be superior in quality.

First, we must have sufficiently large appropriations to maintain and to operate the forces we now have. This applies to the Army, the Navy, or the Air Force. If we cannot operate the equipment we now have, then the new equipment we are producing will be of no value to us. If we cannot train men who can operate the equipment that we now have, the equipment is no use to us.

If we fail to maintain our equipment and facilities then we are not giving the personnel the proper backing that they must have.

Another fundamental is the question of keeping our new production coming along. As to how fast it should be, we may have differing views. New production must be as even as possible, with the lead time that is necessary to keep it coming along smoothly. Yet, we don't want to build up such a large inventory of equipment, whether it be strategic bombers or tactical fighters, that we haven't room for it or will have to declare it obsolete.

So, as I say, one of the most important parts of our appropriation bill this year, in which I am sure Senator Symington is as disappointed in the final result as I am, is the amount of money available for new production to keep our B-52s coming along, to produce the new B-58s, and perhaps to maintain the B-47s until they are phased out.

While we are doing that, we also want to have enough money in our development and our research accounts so that we can continue the development of new and more efficient defense capabilities.

In the appropriation granted this year, we have been successful in giving the departments what they have asked for in R&D money. Whether they asked for all they should ask for in research and development we will know more about it in another nine or ten months.

We certainly want to go forward with our guided and ballistic missile development. But it seems to me that it is equally clear that we cannot put sole reliance on our guided and ballistic missiles for our defense at the present time. We have still got to rely on our B-52s in the strategic Air Force. We have still got to rely upon our tactical planes for our defense.

(Continued on following page)

In that connection, I have read and heard your Statement of Policy for 1957. With the large part of it I would agree. I would not agree for one moment that the Russians were ahead of us today in the development of our ballistic missiles.

Finally, we come to the economic problems that are involved. Today we know that everything is costing more. We are finding that contracts that were made a year ago are costing more than when they were originally made. We must not weaken our security by overspending. We in the Congress have been faced recently with the problem of keeping down our expenditures for defense within the amounts that the present administration feels are the amounts to which they can go but not beyond.

In the President's budget this year was the figure of $38 billion to be spent for defense next year. On the basis of what they were spending for the last three months of fiscal year 1957, they found expenditures were being made at an annual rate of somewhere nearer $42 billion rather than $38 billion. Senator Symington can take great credit in bringing out a problem in connection with the cutting back, if you will, of Air Force expenditures.

The Air Force was running, according to the Department of Defense, at too great a figure so that it would be one of the larger offenders, if you will, in the increased expenditures estimated in the coming year. It had to be cut back. To do this, a directive was issued which was later clarified as a result of Senator Symington's efforts. I think I am correct in saying the Air Force has it satisfactorily adjusted up through January of next year. The problems concerned first, lead time and present production costs. The Air Force was spending money on preproduction costs and running up their bills before they made firm contracts for building the plane or whatever the equipment might be.

Third, was the question of obligating funds before they were apportioned. I think I am correct in saying that where there is an appropriation allotted to the Air Force, we will say for production of a plane, that appropriation has to be apportioned by the Bureau of the Budget to the Department of Defense and then apportioned again to the Air Force by the Department of Defense. The question came as to whether the Air Force, knowing it had the appropriation, could spend money before the full amount was apportioned by the Department of Defense to the Air Force. That, as I say, has been straightened out until next January.

I can truthfully say that I, for one, was disappointed in the final 1958 budget that we will probably act upon in the Senate. But it was an improvement over what the House did, particularly in the Air Force. We will have to re-examine the situation next January and determine then whether it should be increased.

Again I say it is your understanding and your influence that can be extremely helpful to us as members of Congress and to the administration. You who are in industry know what type of equipment it is wise to have and how we can maintain our superiority in quality.

We must have sufficient military strength that no nation will dare to attack us because of our retaliatory power.

That ability to retaliate quickly is the foundation on which our defenses must be built up.—END

Let's Give the Public The Truth on Airpower

Stuart Symington
US SENATOR, MISSOURI

I AM reminded of a story told about Bill Knudsen during World War II. Many of you knew him; all of you who did respected him and loved him.

One day in his Danish accent he said to a friend of mine, "Fred, I have been wondering what this status quo meant. Now I know. It means we're in a hell of a fix."

I would like to try and prove to you in a few minutes how apt that is as regards the situation today. If he were here he would undoubtedly agree.

First, this is not a partisan matter. Defense should never be a partisan matter. Many of you in the audience were around when we had the Group fight. That was nearly ten years ago.

Secondly, the point is not that we want more money, but rather that we want a defense establishment which, as Field Marshal Montgomery said, should be based on progress instead of tradition. Otherwise, the Free World will go broke.

This administration has just thrown into the ash can, figuratively speaking, the report of the Cordiner Committee. Ralph Cordiner, president of the General Electric Company, and his committee worked over a year in preparing their report, which they said would save $5 billion or more a year by 1962.

You all probably know more about the Hoover Commission recommendations than I do. But I do know that they claim in their reports that billions of dollars could be saved if the recommendations of this commission were adopted.

I was delighted to have your great president put in your platform this year recommendations about a weapon systems evaluation program. It is sort of a lie detector test. I think we ought to have it because here is how, I believe, we could save much more money than by any other means in our military establishment. Instead, how-

(Continued on page 107)

tuned to the tempo of tomorrow

Open ears lead to the open thinking that made possible today's rocket powerplants. They are alert ears—ears acutely sensitive to the unsolved problems that must be conquered in designing powerplants for the vehicles of the future.

RMI puts a premium on just such thinking. Its engineers and scientists form a talented, alert team, efficiently and effectively meeting the rocket power needs of tomorrow.

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Brand new! RCA "Telemite" (model JTV-1) a 1-pound ultra-miniature television camera, makes possible direct observation of sites and events never before accessible by TV

It fits lightly into the hand; it can be carried in a pocket; it weighs about a pound; it will go places too small for ordinary cameras, too dangerous for man; it will observe without being conspicuous; it may be mounted on a tripod, fastened to wall or bulkhead, hand-held by a pistol grip. Size: 1⅞" x 2⅜" x 4¾".

By means of a transistorized circuit and the new RCA half-inch Vidicon, the "Telemite" actually surpasses standard Vidicon-type industrial TV cameras in sensitivity. It produces clear, contrasty pictures with a scene illumination of 10-foot candles or less.

The "Telemite" operates with up to 200 feet of cable between it and the control monitor, and this distance can be further extended by using a repeater amplifier. This is the first TV camera to employ photoelectric sensitivity control, which provides automatic adaptation to widely varying scene illumination.

DEFENSE ELECTRONIC PRODUCTS

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ever, of doing that, of really going to work on the big, broad savings, we are having meat-axe cuts across the defense board. After the defense appropriations bill had been heavily cut, much of that cut was restored in the Senate. During the extensive debate on the Senate floor there was much talk and time devoted to such important items in our national defense as whether some military use tile bathrooms instead of concrete bathrooms.

There was little attention given in the discussion to the basic issue of our relative strength as against that of the possible enemy.

There are a couple of points with which I would perhaps disagree in your Statement of Policy. The statement is made that we are in an arms race with the Soviet empire. I am not so sure of that. In the Disarmament Subcommittee of the Senate, a joint committee, we listen each week. We are briefed in executive session. This administration is stressing the importance of bilateral disarmament in the London negotiation.

At the same time we are cutting our research and development programs heavily. We are cutting our procurement appropriations heavily. We have just announced the lay-off of a hundred thousand military personnel, and in maintenance and operations funds.

The question is why should the Russians agree to bilateral disarmament while we are contributing to their objective of world conquest by our own unilateral disarmament.

Another point in your president's statement is that planning is now primarily predicated on present and continued technical superiority in arms over the Soviets. With that statement I would have to disagree entirely. Our national defense planning now is not predicated on anything except money. I am certain of that.

There is no question about it. Last year we were told that we were passing over to the Soviets numerical superiority because we had qualitative superiority. But that time of our qualitative superiority has now passed.

Although I have great respect and affection for my distinguished colleague from Massachusetts, I take exception when he says he does not believe that the Soviets are ahead of us in the ballistic missile field. The ballistic missile field can be divided into the IRBM and the ICBM as well as the shorter range missiles. As one who is devoted to the Air Force Association, I want to give you my personal word of honor that I have read everything I could on this subject; that I have had special studies made; that I have been briefed frequently. As a result, it is my opinion that the Russians are ahead of us over-all in the ballistic missiles field.

I wanted to talk today, if I may, a little bit about waste. You have seen a lot of criticism of the Air Force, the Army, and the Navy about waste.

People without the profit motive are prone not to care for money as they should. It is very important that we get into this question of waste, and see what our government has done to reduce costs and eliminate waste.

Twenty-five years ago, a company of which I was the president made the original car installations of radio sets for General Motors. We quoted so close that they would not allow us to quote a price. When you cost a product, you have labor, material, overhead, royalty fee, if any, and profit, if any, and that is your cost. I used to quote on the basis of labor, material and a sum of dollars which would cover any possible profit or absorption of overhead and that was it. In fact, the whole quotation was given in money on that basis—so many dollars for labor, so many dollars for materials, etc.

The point I want to make is that after we agreed on a program, after we agree on a program, one change in that program would wipe out any possible profit.

The other day I said to one of the leading people in the Air Force, you have gotten to a point where you are getting a major change every two or three months. He said, "Every two or three months! There have been seventeen major changes because of budgetary decision in the last year." That is considerably more than one a month.

Now just figure what that means. Every bin, every maximum-minimum card in an inventory bin, has to be changed. Millions of man hours go down the drain. How can a price be made, a price on a quantity. You cut that quantity, you change it again, then you change it again. It is probably the most fantastic display of planned waste that there has been in history.

In addition to that, we see these incredible decisions made purely on money grounds. We put $93 million in a modern airplane for airlift. If airlift isn't important in the next war, especially if it is a limited war, then I don't know what is going to be important.

After we put $93 million cash in a program it was scrapped. Why? Just because of lack of willingness to spend the money.

That is not the worst one case.

In my opinion, there is no development in weapons more important for a limited conventional or limited nuclear war than a guided missile which a ballistic missile, in essence, is not. We put about $700 million in a particular missile called the Navaho. Then, strictly because of the lack of money, it was canceled out.

I recommend that you all read a column written by one of the more informed columnists about this whole situation. It was published on July 22, 1957, and was written by Stewart Alsop. Its title was "Who Is Looney, in Seven Acts."

I have been trying to find the answer to the question. There can be no doubt that someone is.

In 1953, we had in effect an atomic monopoly. In 1957, that situation has changed drastically. We can destroy them but they can destroy us especially because of the surprise angle.

In 1953, fiscal year 1952-1953, we were spending 13.8 percent of our gross national product on national defense. Nearly fourteen percent.

During the past four years, wages have gone up twenty-two percent, corporate profits have gone up thirty-three percent after taxes, and the common stock price index on the New York Stock Exchange has gone up seventy-seven percent. We are the richest people in the history of the world. Yet, today we are spending less than ten percent on national defense and we are given as the reason that we cannot afford it.

From the standpoint of intelligence and common sense that is bad enough. But there is also the question of sincerity.

Here is one illustration of the confusion.

On the sixteenth of January, 1957, the President of the United States sent his budget to the Congress. He said this budget has been carefully balanced, that it was the very best he could do, and that anything less would jeopardize the security of the United States.

The next day, his Secretary of the Treasury said that there were a lot of places the budget could be cut and, if it were not cut, we might see a depression that would make your hair curl.

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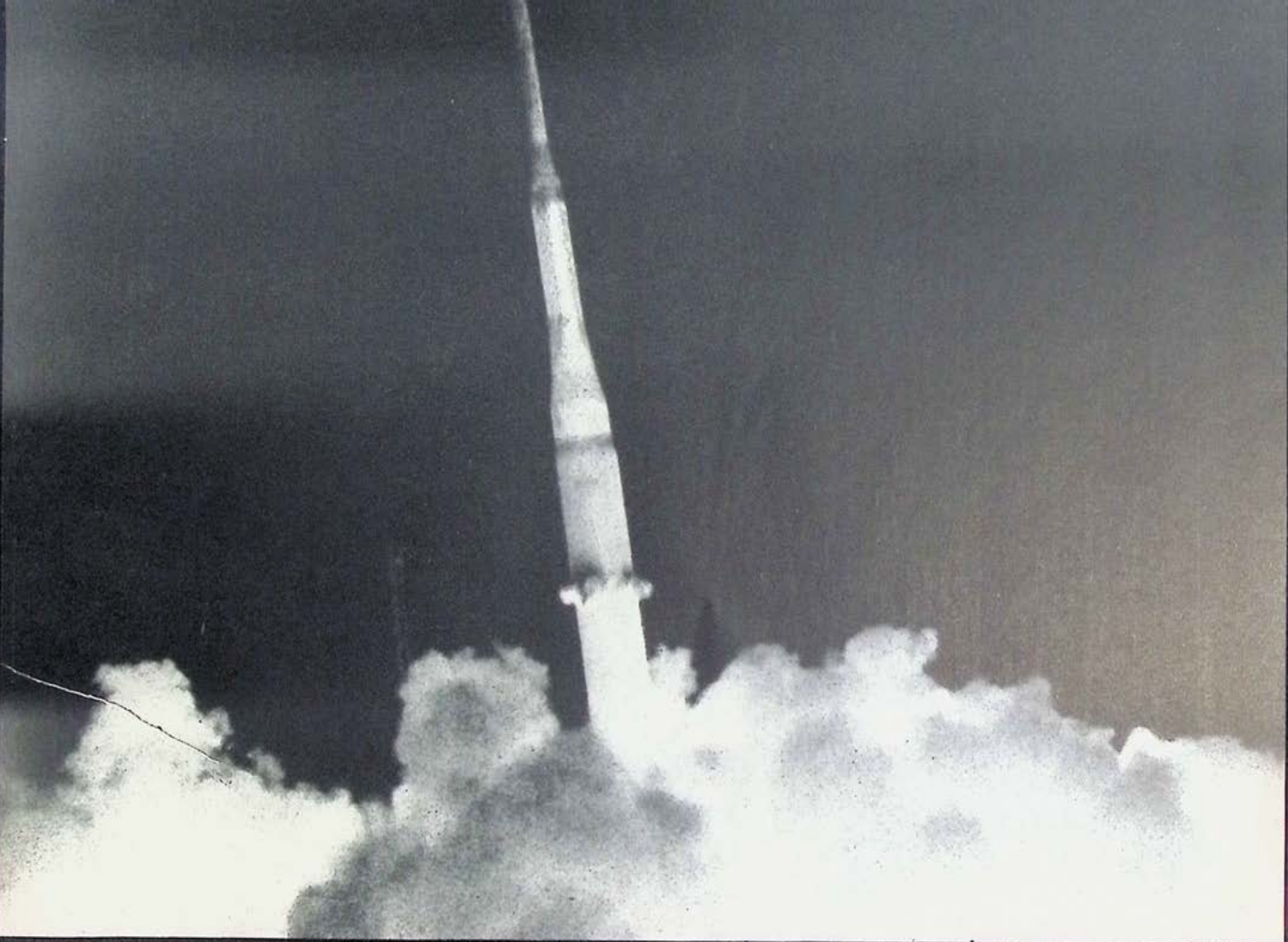

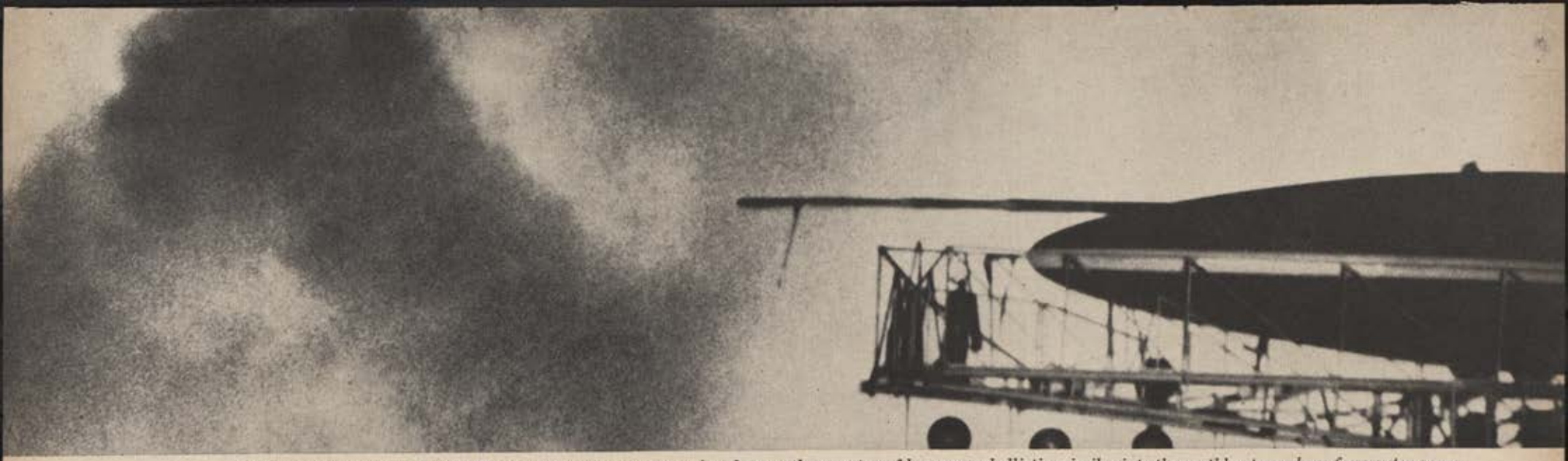

The X-17's mission in the Air Force missile program: to gather data on the re-entry of long range ballistic missiles into the earth's atmosphere from outer space

DEVELOPED BY LOCKHEED'S MISSILE SYSTEMS DIVISION FOR THE U. S. AIR FORCE, THE X-17 RESEARCH ROCKET WEIGHS 6 TONS AND IS TALLER THAN A 4-STORY BUILDING. THE X-17 HOLDS THE RECORD FOR THE FASTEST INSTRUMENTED FLIGHT EVER MADE.

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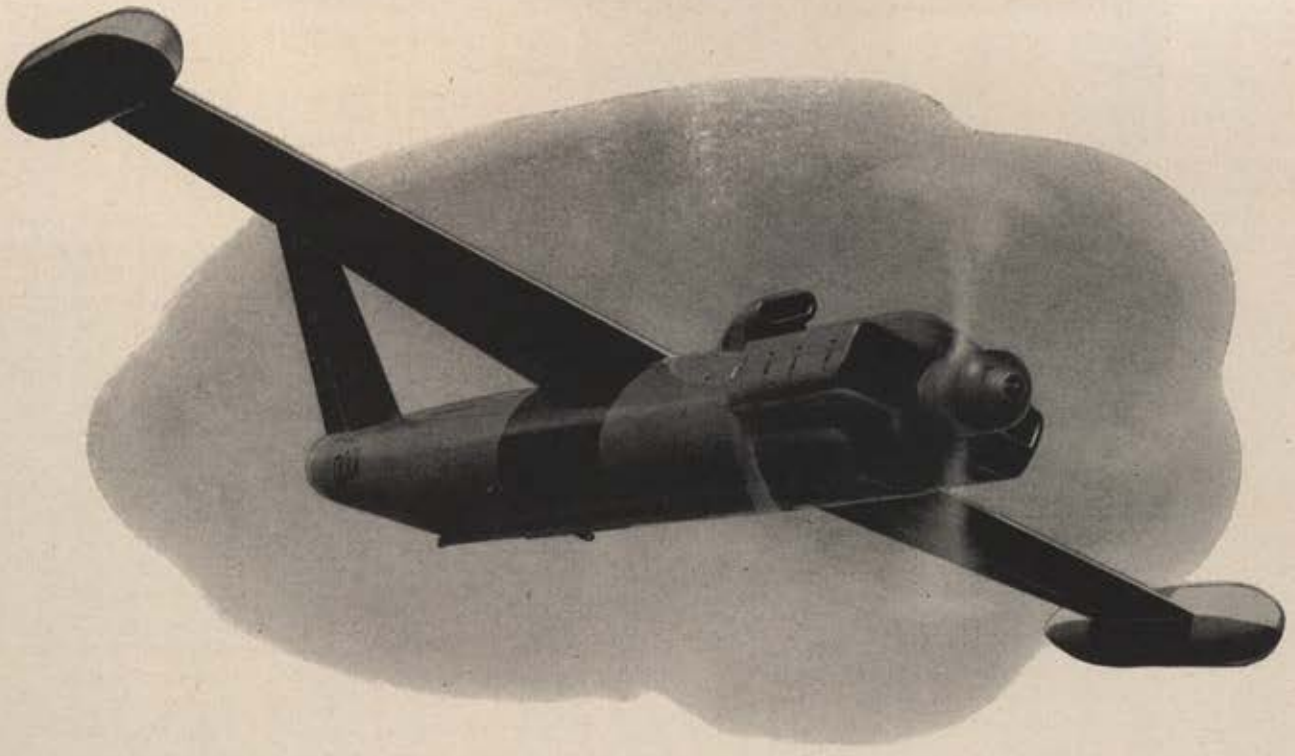

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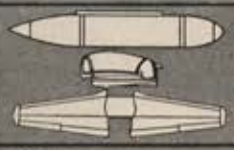	TANK-WING-MAJOR SUBASSEMBLY SUBCONTRACT PRODUCTION
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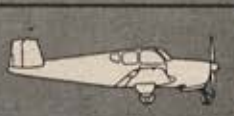	4-PLACE BEECHCRAFT BONANZA
	6-PLACE BEECHCRAFT TWIN-BONANZA
	8-PLACE BEECHCRAFT SUPER 18

This is the Navy XKDB-1 target plane, parent to a whole family of rocket and turbo-jet powered drones being developed by Beechcraft engineers.

The newest member of this famous family is the Model 1013 designed for photo and television reconnaissance application. With multiple camera installation, the remote controlled Model 1013 can be used for both day and night observation.

Beechcraft is also engaged in research and development work on launching and recovery systems for missiles, drones and manned aircraft; engineering test programs on aircraft emergency escape systems; and classified projects in the advanced fields of aerodynamics, cryogenics, thermodynamics, and aircraft range extension.

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Then at his press conference, the President said he and the Secretary were in full agreement on the budget, that it was the best possible budget.

Unfortunately, a few days later the Under Secretary of the Treasury said the budget should be cut $2 or $3 billion. So you can pay your money and you can take your choice.

Now the House was briefed by the Treasury Department instead of by the White House. These are all facts. I wish more facts were given to the people.

The House took the recommendations of the Treasury Department. They cut the budget $2,006,000,000. The administration looked over that cut and what they said frankly surprised some of us as they had been so certain the original budget request was right. The President accepted $1.4 billion of the cut and said they must have restored $1.2. In fact, the President of the United States on May 14, 1957, in a national televised broadcast said, "I earnestly believe that this defense budget represents in today's world the proper dividing line between national danger, on the one hand, and excessive expenditures, on the other. If it is materially cut, I believe the country would be taking a fearful gamble. For myself, I have seen unwise military cuts before. I have seen their terrible consequences. I am determined to do all I can to see that we do not follow that foolhardy road again."

Secretary Wilson on May 23 backed him up with a statement along the same lines as did Admiral Radford on May 23, Secretary Brucker on May 24, General Taylor on May 24, Secretary of the Navy Gates on May 28, Admiral Burke on May 28, Secretary Douglas on May 29, General Twining on May 29.

Inasmuch as we, most of us, know General Twining and all of us have great respect for him, I will quote his short, firm statement. "The Air Force budget as presented to you today has already been reduced to a point which lies in what I consider to be a danger zone."

Well, we took those statements as sincere statements of dedicated men. So the distinguished Senator who just left here and I closed ranks on a bipartisan basis.

In the Subcommittee of the Senate Committee on Military Appropriations, we got nearly all the money back that the President of the United States said it would be foolhardy not to have. When last week the House and the Senate met in conference, we find to our dismay that a letter is in from the Secretary of Defense stating that he does not need a lot of that money because he is cutting the military establishment, Army, Navy and Air Force, a total of a hundred thousand men.

With this situation, many thousands of people are being laid off throughout the country without even knowing why. There has been no real information given out. In fact, I would say the information that has been given out is pretty close to misinformation.

A recent issue of the *Aviation Daily* reported that the Air Force last week had announced production stretch-outs for more aircraft.

This action was disclosed in a cautiously worded announcement which avoided reference to any stretch-out. It merely stated that the United States Air Force is "advising the three companies in question of certain changes in future production rates" of some fighter aircraft.

Here is where this organization can really pitch. You people represent the best in your communities. You are the ones that can carry public opinion, and I think that public understanding is the only way to straighten out this mess.

These particular decisions and indecisions are biting deep into many parts of our country. I would be the last to want to build anything of any kind unless it was needed for the security of the United States.

Against that, I have never seen the wisdom of planning to be the richest people in the graveyard. Nobody denies the fact that the Russians are way ahead of us in numbers.

In our Department of Defense we are scrapping our airlift development. I asked Secretary Quarles why he was canceling out the C-132s. He said it was because they were concentrating on the C-133s.

Well, I knew what they were doing. So I asked him how many C-133s they were planning to build. He said, "Well, I am not quite sure." He checked it and then said, "None."

In other words, as long as we understand the Alice in Wonderland we are in, we are canceling the C-132s and throwing $93 million down the drain except for some small salvage.

Our justification for it is that we are going to concentrate on C-133s. We concentrate on the C-133s by deciding not to build any of them.

Now you work that one out.

I previously mentioned that I had seen with deep regret this new cut in maintenance and operations funds. I want to just close these few words with a story that Curt LeMay told me in Omaha. It was verified in Germany last spring. I said, "You are always complaining about not having enough money. Give me a typical illustration of how you are being hurt because of arbitrary fiscal restrictions in this great rich country of ours."

He said, "All right, I will. A couple of weeks ago, one of my best officers, I have got a fighter wing out here, revved up to take off in a fighter plane. His ejection seat went off. He was thrown forty feet in the air. I was with his wife, his two little children in the hospital when he died the next morning. So I said, 'Get the crew chief.'"

This was LeMay talking.

"A boy came in nineteen years old. I said, 'I don't want to see you. I want to see the crew chief.' He said, 'I am the crew chief.'" LeMay said, "I asked him, 'Did you inspect the ejector pin?' He said, 'Yes, I did, sir.'" So then General LeMay said, "I had them even putting the magnets on the field. I wanted to get that pin." He said they couldn't find it. "So I had a hunch. I got the boy back. He said I was right. Under interrogation he broke down and confessed that he had never inspected the pin."

I asked General LeMay "What did you do?" "Well," he said. "That boy had no right to be a crew chief at nineteen. He was not trained. So I put an arm around him and said, 'You have cost the life of a good airman, now go out and try to learn how to be a good airman yourself.'"

When you hear stories like that, when you know that we are the richest country in the history of the world, you get worried about exactly where we plan to go.

So President Henebry, and all of you members of this great Association, I hope you will go back home after this convention is over and talk to your friends, including the publishers and editors, and ask them to start a campaign to get and give you the truth, the facts, in order that we can do whatever is necessary to remain strong so we can also remain a free people.—END

Senators Saltonstall and Symington, who are both members of the Senate Armed Services Committee, made unscheduled appearances at the first AFA business session of the 1957 Convention. The two foregoing articles are condensations of their remarks to the AFA delegates on security problems.

Reserve Forces Have Priority

Lt. Gen. William E. Hall

COMMANDER, CONTINENTAL AIR COMMAND

On the following pages appear the highlights of the Reserve Forces Seminar, opening feature of the AFA convention, held on Tuesday afternoon, July 30. The moderator was Col. Charles Sweeney, commander, 102d Air Defense Wing, Mass. ANG. Panelists included Col. Gerald Spurlock, Col. Carroll Geddes, Col. Joseph Benedict, Col. Robert Ahern, Col. Fred Huish, Col. Edward Haseltine, Col. Jack Blanchard, Col. Downs Ingram, Col. Philip Tukey, Brig. Gen. Clayton Stiles, Brig. Gen. Philip Ardery, and Col. Howard Markey. Because of the limited space available, we have been unable to include the transcript of panel discussions or question periods.—The Editors.

THE reserve program today has a very high priority in Air Force thinking. The entire Air Staff is fully aware of Air Reserve roles and requirements. As I have emphasized before, the ready reserve forces play a prominent part in current Air Force war planning. As never before we are getting the facilities, aircraft, and equipment with which to do our job. That places the burden on all participating reservists and especially upon us of Continental Air Command.

CONAC has a complex, many-sided mission. Its main efforts are directed toward the reserve forces. It is responsible for the administration, support, and training of the Air Force Reserve. It must, in addition, supervise the training of Air National Guard units and conduct periodic inspections to measure their compliance with Air Force standards.

To me, the maintenance of well-trained and dedicated air reserve forces is one of the most compelling needs of our nation. Everyone is aware of the terrific turnover of personnel in the armed forces. As wages continue to spiral upward in civilian life, the problem becomes worse.

The meaning of this to CONAC is readily apparent. It is our job not simply to train and administer those who choose to remain on board the reserve program. We must ever strive to make reserve participation more attractive and more rewarding. There is certain always to be attrition in the reserves as well as in the active establishment. We cannot afford to stay in the same place. We need far more men in the ready reserves—that is, men who possess skills required by the war plan—than we have at the moment. The most likely way to inspire them to serve is to provide modern facilities, better aircraft and equipment, and the most interesting, up-to-date training available. This is a difficult operation but one so essential to adequate military airpower that the Air Force is giving it wide-out support.

Introduction of the Air Reserve Technician Plan in the Air Force Reserve—similar to the plan which has already proved itself in the Air National Guard—should be a big step toward improving over-all efficiency in training and administration. This plan involves the replacement of present permanent party personnel with civilian employees who will also be members of the reserve unit for which they work. This system will result in each unit having a permanent hard core of approximately twenty percent of its strength. It will provide substantial savings in the manpower required to support the flying wing program.

The Air Reserve technician plan, long under study, has now been officially approved. I am confident that the result will be greater stability and greater combat potential all along the line.

A current trend in CONAC is to increase the mobility of units as well as their mobilization potential. This is being done by tying them closer to their gaining commands—that is, the commands which will employ them in emergency. Gaining commands and reserve combat units are cooperating in all stages of mobilization planning.

A word now as to operational readiness. It is a pleasure to report that the reserve forces are showing a steady rise in capability in almost all aspects. We are nearing our objectives in assignment of personnel, in participation, and retention. The input of equipment, excluding aircraft, is steadily upward and is meeting our current operating program objective. More and more aircraft are being made available, including some of the most modern types of fighters. Reserve facilities construction has had a sharp rise, with about $33 million being apportioned in fiscal year 1957 and another $20 million probably to be apportioned for fiscal year 1958. Aircraft utilization and in-commission rates are rising. The number of air crews assigned is not satisfactory but the operational readiness of those on board is improving.

Perhaps the most significant indication of current combat capability is the radically sharp drop in major aircraft accidents, despite the fact that, generally, the number of

(Continued on page 115)

Power for the world's mightiest weapons:

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These are the names of the great new missiles of America—defense systems of unprecedented speed and striking power. To feed their monstrous thirst for power, a new kind of engine had to be created—an engine with enough propulsive thrust to drive tons of projectile in a colossal arc upward from the earth's surface to the bounds of atmosphere, and on through space itself at thousands of miles per hour.

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The possession of such weapons is of crucial importance to America. Free men everywhere are entitled to know that the power for our major missiles is being delivered—on schedule.

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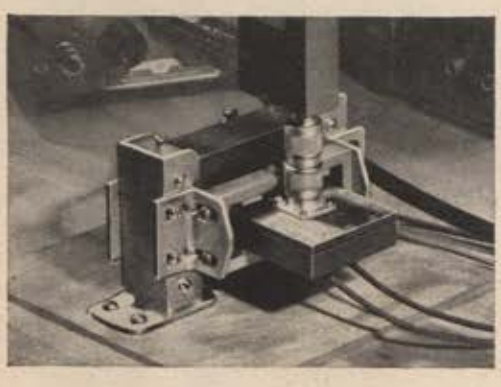
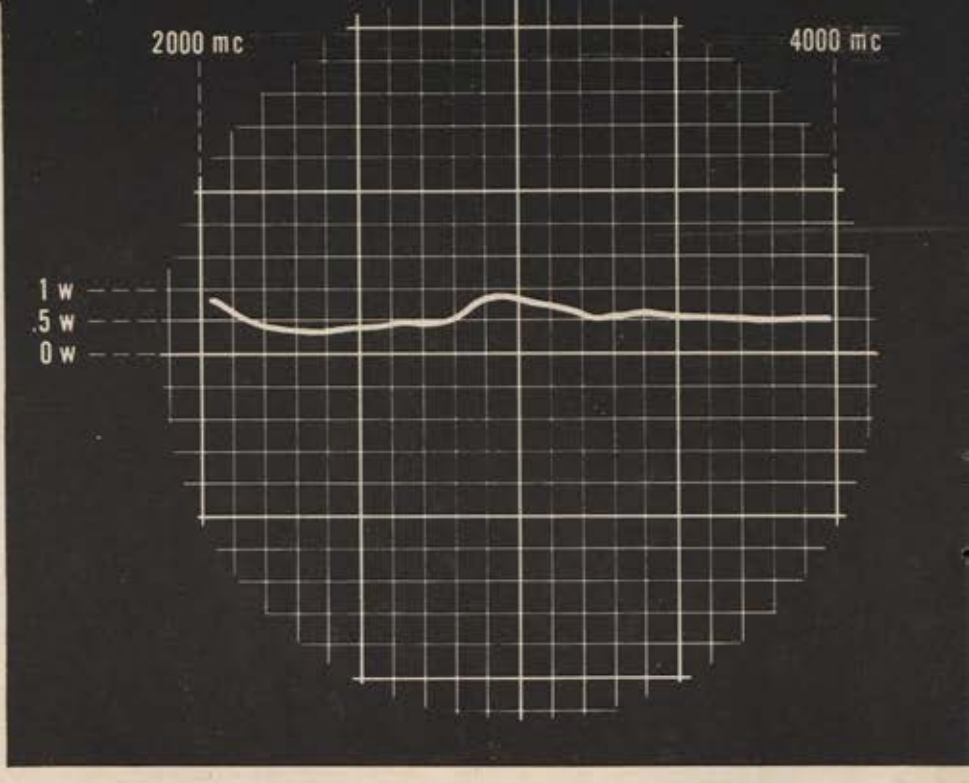
ABOVE: the GL-6917 voltage-tunable magnetron is extremely small and compact—only ⅝" high and less than ¾" in diameter. **BELOW:** complete cavity and magnet assembly for the GL-6917 has been developed to assist equipment manufacturers.





▲ Observe from the scope presentation above (actual photograph made with a production GL-6917 on test) how power over the entire 2000-mc tuning range is substantially constant, varying only .5 w. Because tube frequency, with voltage-tunable magnetrons, is a linear function of anode voltage, an r-f signal can be tuned at will to any frequency in a wide spectrum.

New GL-6917 voltage-tunable magnetron combines wide-range tuning, steady output, dependability!

General Electric's GL-6917 voltage-tunable magnetron—first of a new series in development—offers to designers of military and other microwave equipment a simple, efficient means of changing output frequency rapidly with no important reduction in signal power.

The tube is a major breakthrough in circumventing enemy radar-jamming and in other counter-measure work. Also, the GL-6917 finds direct application in missile tracking and other telemetering . . . . . in air navigation . . . . . broadband test equipment . . . . microwave communications generally.

Construction is extra-rugged. Fundamentally compact and sturdy, the GL-6917 is a hard-solder type and is metal-ceramic for even greater strength. The tube is designed to operate unpressurized up to 60,000 feet altitude.

General Electric has developed a special cavity and magnet assembly for the GL-6917, to assist designers in applying the tube to equipment on the boards. For full information on Type GL-6917 and accessories, call your regional G-E power-tube representative! *Power Tube Department, General Electric Company, Schenectady 5, New York.*

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flying hours accomplished in the Reserve and Guard have been well above those of previous years.

To sum up the situation as to operational readiness, it may be said that about fifty percent of the Air Force Reserve and Air National Guard units have a limited but nevertheless real and immediate combat capability. As I said at the outset, our great aim in the reserve forces must be to achieve instant combat capability among all units and individuals. Without such readiness, we would have a house built on the sand.

GENERALS HALL AND WILSON. **Lt. Gen. William E. Hall** *was Assistant Chief of Staff for Reserve Forces before being named CONAC commander this summer. A 1929 West Point graduate, he served as chief of the American Mission to Bulgaria in World War II and in 1946 was Air Member of General Eisenhower's Advisory Group.* **Maj. Gen. Winston P. Wilson** *(below) is Deputy Chief of the National Guard Bureau. He began his military career in 1929, served in the Pacific in World War II, and in 1953 was named Chief of the AF Division, NGB.*

RESERVE FORCES SEMINAR

Quality, Not Quantity in ANG

Maj. Gen. Winston P. Wilson
DEPUTY CHIEF, NATIONAL GUARD BUREAU

THE past twelve months represent the most successful year the Air National Guard has experienced.

It was a year in which the Air Force-Air Guard Air Alert Augmentation Plan was expanded to include twenty of our fighter squadrons and three Aircraft Control and Warning Units. The latter, on a full-time basis, man radar sites in Hawaii, Denver, and Salt Lake City.

Fiscal year 1957 was a year, also, in which the last of our conventional fighters and many of our obsolescent jets were retired. They were and are being replaced, in ever increasing numbers, by aircraft with performance capabilities much more closely matching the assigned mission responsibilities of our air defense and tactical support units.

The impact of such wholesale aircraft conversions upon training can readily be imagined. Nonetheless, it was a year, too, in which the Air National Guard approached a total of more than one-half million flying hours. At the same time we established a flight safety record which many thought to be unattainable by a reserve component.

Despite these performances, I must admit that our combat capability has suffered and will continue to suffer until the transition into our new equipment has been completed. In this regard, however, I am considerably cheered by the progress of the units involved. I needn't explain the rifle-shotgun difference between firing 2.75 rockets and multiple machine guns.

We are capable of operating and maintaining highly complex, all-weather equipment. And this is the basis of my first positive prediction of things to come.

First, the Air National Guard, as is generally known, is going to receive more and more all-weather airplanes as they become available to us from Air Force inventories.

Second, we are going to increase stress upon the importance of instrument training as the very foundation of the all-weather, intercept mission.

Third, the emphasis in Air National Guard recruitment and retention of personnel, already swinging widely in that direction, is going to shift from quantity to quality.

We already have reached the position where our unit commanders can be selective. New enlistees in the Air Guard will have to be able to fulfill highly technical assignments or, at the very least, be able to do so with a minimum loss of time.

We are going to demand that more of our people take advantage of the Air Force's hospitality with respect to its "open-door" technical school policy. Our need for skilled specialists, particularly in the field of electronics, is urgent at this moment and it will be more so by the time this day is ended.

But these are references to our immediate intentions. What about the years to come?

A study group from Air Research and Development Command currently is conducting an investigation to determine if the reserve forces, and the Air Guard in particular, can operate the Bomarc interceptor missile.

Early findings indicate the employment of this weapon appears to be well within our capability. Indeed, by virtue of the Air National Guard's geographical dispersion and the high skill level among our technicians, we seem to be remarkably well adapted for that mission.

But the point in time at which the missile may entirely replace the manned interceptor is indefinite. I believe, in the interim, that the manned fighter units of the Air Force and the Air National Guard will have a vital backup role in our defense system for some years to come.

(Continued on following page)

Don't Bypass The Individual

Brig. Gen. Daniel DeBrier

COMMANDER, 9072d AIR RESERVE GROUP, N. J.

IT IS indeed appropriate that we consider the Individual Training Program, and render a deserved accolade to those in authority who have wisely insisted that the program be maintained at all cost.

We have been told that if another war comes, we shall not enjoy the luxury of time to get ready. Hence, we have soberly concluded that the only type of reserve worth its salt, is a ready and effective reserve, capable of meeting the mobilization requirement.

Accepting, as we should and must, the validity of that statement, we are brought head-on to the next inquiry—*What is the mobilization requirement?*—and in particular, *Who is to determine that requirement in terms of trained individuals?*"

I say that the stating of that requirement, number-wise, grade-wise, and specialty-wise, is not only the accepted responsibility, but the assigned function of the Air Staff. No inactive duty reservist, or body of inactive duty reservists, however well intentioned and dedicated, is currently equipped to do that job.

Now that the Air Force has stated its requirement for trained individuals in the form of the war plan requirement, the next natural and to be anticipated step was the assignment or matching of our reserve personnel resources against that requirement. This project enjoys the euphonious, oft-quoted, oft-debated, and frequently damned title of "match-merge."

Match-merge, I believe, has had the unfortunate effect to date of lowering the morale of many reservists—particularly because so many could not be aligned against a specific mobilization requirement. This situation, as you know, is particularly true among our majors, lieutenant colonels, and colonels.

What can we do? The best solution would be to find a way to align these people. As long as match-merge is tied to a mobilization requirement, it is tied to a changing and variable element.

What we possibly can do is to restate or project our human resources requirement over a longer period of time than one or two years. I think this is one fallacy with the present plan—its short scope.

What I have in mind was pointed up by Lt. Gen. Charles B. Stone's Air Reserve Forces Function Review Committee. General Stone's committee was entrusted with the responsibility of examining current and long-range requirements for the reserve, to determine those functions which can be accomplished to a substantial degree by the reserve forces, and to make recommendations to the Chief of Staff "as to the *utmost long-range* utilization of the reserve components."

Having examined the current WPR, I am of the personal opinion that it does not, and perhaps should not have been expected to coincide with or conform to the Stone Board's objectives. Necessarily, it was prepared well in advance of its effective date. If, however, based upon the Stone Board's recommendations, as to long-range utilization of the reserve forces, we recast our individual requirements, on a long-range basis we will come up with an entirely different, individual requirement, than we now have.

When we talk about the limited capability of the regular establishment to train individual reservists, I become a hearty and vigorous joiner in support of contract training for our inactive duty personnel, as distinct from training by use of military personnel.

This entire problem was given a searching and exhaustive scrutiny by CONAC in 1956 by the Individual Reserve Training Program Board.

Our experience in individual training during World War II showed civilian training facilities have certain advantages, provided their selection is preceded by effective surveys and planning.

I agree with our experience in World War II and with the Individual Training Board report that our training objectives can be satisfied by better and increased emphasis on utilization of *civil educational* institutions for individual training, in at least technical fields, of airmen and squadron grade officers.

What I have in mind particularly is contract training in the technical fields for airmen and squadron grade officers fashioned in the manner of the academic atmosphere and administrative form of our Air ROTC program.

I know that well disposed and sincere critics will object particularly as to the inadequacy of present civilian educational personnel and plants to provide this type of technical training, the overcrowded condition of many colleges, the remoteness of many excellent reservists from existing civilian educational institutions, and similar arguments. In answer to this, I admit that my suggestion is not the panacea for all our problems, but I state that it is *workable*.

Now, this brings us to a new consideration—what shall we do to keep gainfully occupied and interested the unfortunately large number of reservists who, because of inability to be match-merged, have now been dropped from specialized training?

Should we permit them to be dropped from the program? Is this type of forced attrition desirable?

The first plan was to put non-aligned personnel in general training. This, however, now appears to be only a very temporary expedient, in view of the fact that I am informed that general training courses will be discontinued as such by December 31, 1957. Under present plans standby reservists will then be authorized to enroll in specialized training courses within the support capability of the center, only under certain defined conditions, which some centers may not be able to meet.

What we should first do, as an interim measure, to relieve the immediate sensitive situation caused by match-merge,

(Continued on page 119)

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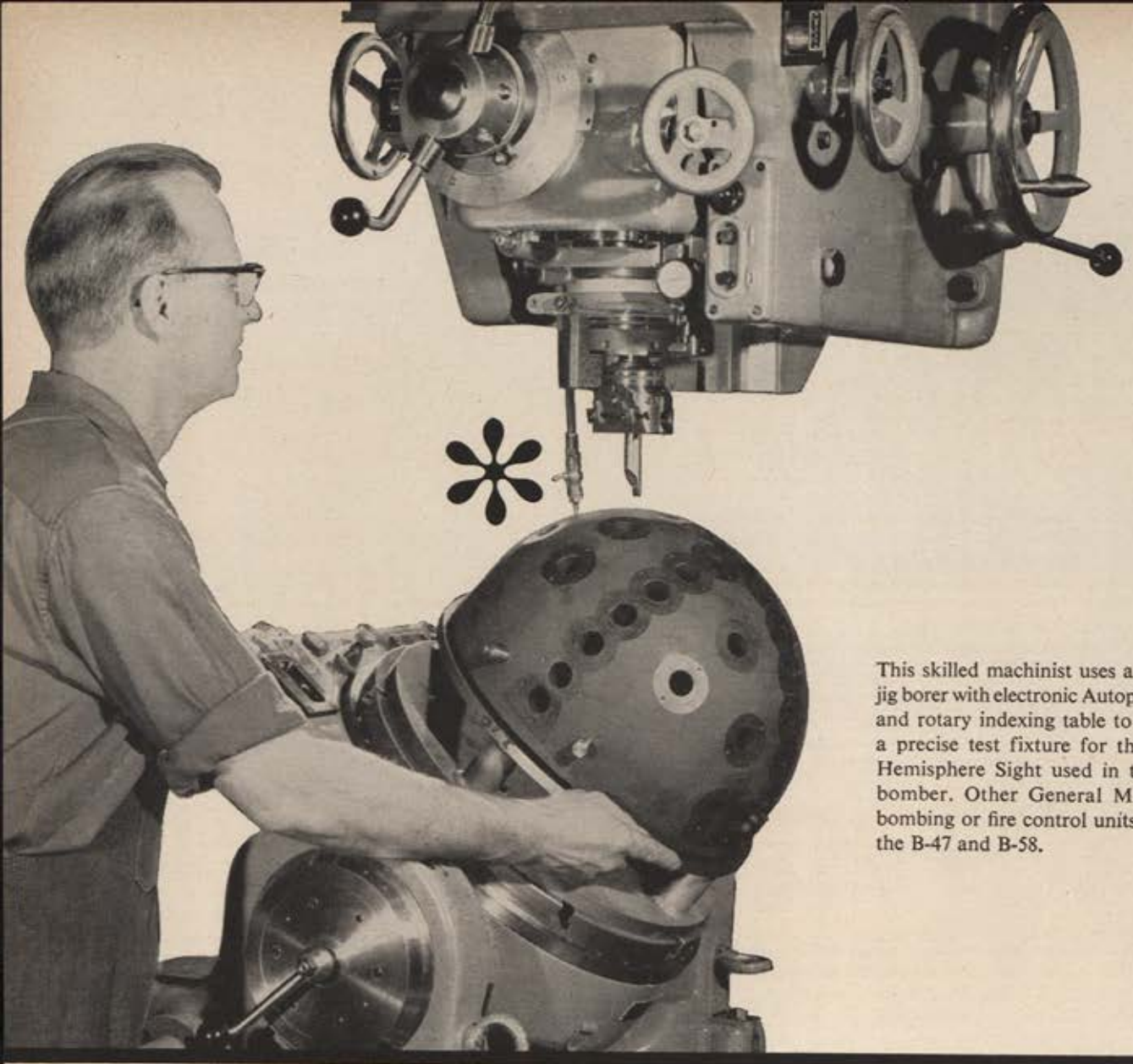

This skilled machinist uses a Lindner jig borer with electronic Autopositioner and rotary indexing table to produce a precise test fixture for the MD-9 Hemisphere Sight used in the B-52 bomber. Other General Mills-built bombing or fire control units fly with the B-47 and B-58.

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Maintaining accuracy of the MD-9 Hemisphere Sight for the tail defense system in B-52 bombers calls for unusually close tolerances. Holding these tolerances requires exacting test fixtures. We designed, engineered and built many of them.

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The optical device in the picture has flat, microfinished surfaces with angular accuracy within two minutes of arc surrounding lens openings. The critical flat areas and openings are located from bearing holes that are held within +.0002", −.0000".

Test fixture in place on MD-9 Hemisphere Sight which we build under subcontract for the Crosley Division of Avco.

MECHANICAL DIVISION General Mills

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is to permit any standby reservist to participate in a specialized training course, subject only to the limitation, that there be a specialized training course actually in operation.

With our field grade officers, who have not been match-merged, a different remedy may be required. Let us keep the interest, the know-how, and the dedication of these people, for their specialty, which may be excess or unnecessary in view of today's requirements, may become an essential ingredient to a prepared Air Force and its victory under tomorrow's requirement.

We must keep before us the pertinent and valid fact that under present budgetary limitations, every dollar spent for the reserve is spent at the expense of the Air Force in being, and therefore must be capable of being one hundred percent justifiable. Let us, therefore, spread the reserve training dollars in an equitable "across-the-board" manner.

We render an immeasurable service to the republic if we insist, as good citizens must, that our military establishment not be required to sacrifice reasonable safety for budgetary considerations alone. And national security may be impaired by impairing the strength of our reserve.

On July 15, 1957, the National Security Training Commission, appointed to inquire into many phases of reserve military training, reported to the President and to the Congress. The New York *Times* emphasized the following significant quotation from the report:

"A warning for the future—

"Now that the momentum has been gained, it would be a grave mistake if the reserve program were permitted to lag because of lack of funds or any other reason.

"Therefore we urge that extreme caution be exercised in any decisions relating to the budget or other aspects of the program for training our reservists."

AFA can do well to reemphasize that grave warning of extreme caution.

In any military activity, the importance of continuous research is not to be overlooked. The field of training is no exception.

The Air Staff and CONAC have done a magnificent job in continuing basic research in reserve training. Their continuous scrutiny of training plans and programs is excellent. AFA's factual reporting and editorial comment on these plans and programs brings to the scene a dedicated and objective "grass-root" viewpoint, sometimes inadvertently overlooked by the professional closely geared to the immediate problem before him. The close attention given by AFA's Reserve Affairs Council to the problem also affords the regular establishment desirable and understanding collaboration.

AFA's significant contribution to each, particularly by making available source material and testimony, and by giving the reports the benefit of fair, objective reportorial treatment, explanation and support, represents a vital and well-performed service by AFA to our reservists.

BRIG. GEN. DANIEL DE BRIER. *Now Commander of the 9072d Air Reserve Group, N.J., General DeBrier is a member of the Air Staff Committee on Reserve and ANG Policy. His military experience began in 1936 when he joined the New Jersey National Guard. In World War II, he saw active service in the Army Air Corps' Inspector General and Training Commands. A member of the Ready Reserve since 1947, General DeBrier was in command of all AF Reserve training units in southern New Jersey until July of this year. He is an attorney, specializing in corporation law.*

RESERVE FORCES SEMINAR

Training Needs More Research

Brig. Gen. Ramsay D. Potts, Jr.

COMMANDER, 459th TROOP CARRIER WING, WASHINGTON, D. C.

WHAT I say today will be based upon my experience in organizing, and commanding for the past two years, the 459th Reserve Troop Carrier Wing.

Since activation, this wing has grown from one squadron of 222 people to its present size of approximately 1,000 active, participating officers and airmen. About three-fourths of this number train in units based at Andrews Air Force Base. The remaining one-fourth train in a detached tactical squadron of the wing located at Richmond, Va.

During the first two years the wing operated and trained in C-46 aircraft. This summer we will complete transition training in C-119 Flying Boxcars. We now have twenty-one C-119s assigned to the wing—fifteen based at Andrews and six based at Richmond.

Throughout this period of organization and growth we

(Continued on following page)

have faced problems caused by such things as: lack of facilities, disinterest of prior-service airmen in joining a reserve unit, divided responsibility between the reserve wing commander and the Air Reserve flying center commander, and lack of time to accomplish desired training and administration. These problems and others are common in varying degrees to all of the reserve flying wings. None has been completely solved, but progress has been made in all of the CONAC flying wings, especially during the past eighteen months.

The reserve flying wings are manned now by two different categories of people: active, participating members and selective assignees. A selective assignee is a man who has returned to civil life from active duty with the regular Air Force with an obligation for further service in the event of mobilization. The Air Force assigns these men to position vacancies in a reserve flying wing nearest their place of residence. They have no obligation to participate in the reserve program but would be recalled to active duty in the event the wing is mobilized.

In an effort to tap this source of manpower we made a planned, concerted effort to contact the selective assignees to our wing, in order to induce them to become active, participating members. The results have been disappointing. Despite letters, telephone calls, and personal visits, only seven selective assignees out of more than 800 contacted have become active, participating members of the wing.

The difficulty in persuading selective assignees to participate is symptomatic of the over-all problem of recruiting and retaining airmen. After two and one half years of existence as a unit, our wing airman strength stands at forty-five percent of that authorized. This is not an impressive figure, especially in view of the fact that a great deal of recruiting effort has been put forth by the wing and by the personnel of the Air Reserve flying center. We think that we can safely conclude that radio and television appearances, talks to civic organizations, discussions with groups of high school seniors, posters, letters, and telephone calls, are all helpful, but that the most effective recruiting is done by individual personal contacts.

I believe that we have found, in the six-months non-prior-service training program, the answer to the problem. It took several months for the facts about this plan to reach out to parents, advisers, employers, and draft-eligible young men. But as soon as the program became understood the recruits signed up so fast that all quotas were filled, and we were ordered to suspend recruiting until the Training Command could digest the backlog of recruits waiting to go through basic training.

Under CONAC and Air Force policy, responsibility for recruiting and manning the wing is assigned to the wing commander. The Air Reserve flying center commander is directed to provide support and assistance, and ours has done this in full measure.

I would not recommend that the wing commander be relieved of this recruiting responsibility, but I do think that something should be done to strengthen the support available to him. Two things could be done. First, the Regular Air Force recruiting teams could be given credit toward their quota goals, for recruiting men for the reserve flying wings. Second, the unit manning document of the wing should provide for a recruiting section manned by at least one field grade officer and several higher grade airmen.

In our training program we have gradually moved in the direction of on-the-job training as opposed to formalized instruction. This is because we have found that formalized instruction is neither useful, nor likely to be well attended, unless expertly and authoritatively presented.

The most valuable and effective training exercises have not been those which we have planned for ourselves. During summer encampment, last year First Air Force put us through a concentrated five-day operational readiness test. This test strained our aircraft maintenance capability to the limit, pushed the aircrews hard, and forced the wing and tactical group operations staffs into all-night planning sessions. But we learned more, and advanced further, as a result of this test than we had in the entire preceding six months.

I have linked personnel and facilities together for discussion because we found during the first two years of operation that the greatest drag on recruiting, retention, and proper training was the lack of hangar, office, and shop space. Just recently these deficiencies have been largely cured. My conclusion from our experience is that no flying wing can build up its effective strength or function efficiently without having adequate facilities available.

In discussing recruiting and manning, I mentioned only airmen and not officers. This was because we have had no serious problems in recruiting and retaining officers in the wing. There are, however, two special problems connected with officer manning.

Under existing policy an officer in the wing who is promoted under ROPA and who thereby becomes overgrade in his position must be relieved of his assignment within ninety days. This is unrealistic and unsound, because there are not likely to be positions immediately open to which such officers can be assigned in their higher grade. If more time could be given, then, through process of attrition, a vacancy is likely to open up. Therefore, I recommend that wing commanders be authorized to retain in a position for one year officers who have become overgrade in that position through promotion.

The reserve flying wings have been operated under a system of divided responsibility. Under this system the reserve wing commander is responsible for the administration, training, and operational efficiency of his unit, but he must rely heavily upon the Air Reserve flying center commander for the support and assistance necessary to do his job. The flying center commander is independent of any command control by the wing commander. The system is cumbersome, but it has worked surprisingly well in our case.

The air technician plan is supposed to solve the problems caused by divided responsibility. But it will not be the cure-all that some expect it to be. To maintain efficiency and combat readiness we will still need undiminished support from the regular establishment. We look to the Air National Guard commanders for advice to help us anticipate the problems we will face under the air technician program.

(Continued on page 124)

BRIG. GEN. RAMSAY D. POTTS, JR. *A practicing attorney in Washington, D. C., General Potts is Commander, 459th Troop Carrier Wing, Andrews AFB. A World War II veteran, he participated in the raid on the Ploesti oil fields. Author of articles on airpower and allied problems in national magazines, he served as associate counsel last spring for the Senate Armed Services Subcommittee on Airpower and is a member of the Hoover Commission Advisory Committee on Defense Transportation. As an attorney, he specializes in transportation, defense, and aviation law.*

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Does the ANG Have too Many Aircraft Types?

Col. James M. Trail
CHIEF OF STAFF FOR AIR, IDAHO ANG

THIS talk deals with a subject which could be given by almost any pilot in the entire Air National Guard. The factual information has been derived from official publications of the National Guard Bureau and the USAF. The rest is in consonance with the terms of my invitation to make the presentation. I was asked to address the subject as I view it, or as it affects me. This is an unusual pattern, because any opinions worth listening to are supposed to originate in this city.

The first thing which comes to mind is the *requirement*. I must assume that the requirement is the basis for the entire Air Guard program. However, from personal experiences acquired in this city, I can well imagine that because of a number of other factors, the true requirement undergoes some pretty severe torturing. In any event, from where I view it, I gather that the Air Force has a requirement for augmentation in the broad areas of air defense, tactical recon, and tactical support. The exact type of air defense augmentation—that is, clear air mass or all-weather—is not altogether too clear to me. Neither is it clear to a number of my associates.

If one wanted to nail this point down, he should be pretty careful to which headquarters he went for the answer, because all echelons are not together on just which mission we should have. But be that as it may, somewhere in the diggings of various headquarters there is no doubt a hunk of paper which lays out the Air Guard program for the present and for a short while in the future.

Once this program is distributed to the states, this is the way it looks. In one sentence it could be said that the Air Guard flying program is real good. However, if everyone connected with the program feels that it is real good, the program lacks the proper base from which needed changes and improvements can be brought about. Therefore, I will address the subject with a view toward identifying areas which could bear improvement.

First off, a glance at the aircraft inventory reveals that we have in the program *seventeen types* of tactical aircraft and *six types* of trainers. This is quite a few. If these numbers could be reduced, many logistical problems would vanish. Yet, out of all the types we have, we possess no air rescue capability. Lack of air rescue coverage—during periods of field training especially—is a sore subject with me. In my area of the country we don't have to sweat the water hazard particularly, but much of our area is, by anyone's standards, remote and primitive. It seems to me there is adequate justification for having our own L-20s and helicopters for this purpose. As a minimum, the permanent field training sites should have good air rescue coverage.

Nor is it understood how the Air Guard gets its aircraft. The simple answer is that we get what the Air Force has available. I find no serious quarrel with this procedure, until such time that the USAF has everything it needs, because offhand it strikes me that the pros should have modern equipment before the semipros get it—if there isn't enough for both.

But I want to point out a few of the major things that

(Continued on page 127)

Vapor trails high in the sky will remind you that the 707 is flying its proving runs. Soon these fine planes, the first American jet transports, will come off production. American Airlines will be first to offer jet travel in the U. S. A. Early in 1959 American will use the 707's on transcontinental Mercury service.

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this brings about. The pros—the USAF—have modified and remodified every airplane the Air Guard has until two models of the same aircraft require different support equipment. For example, the D model has a different engine than the C model. It requires a different starting unit. Or the E model is the same as the A model—except one has an afterburner and the other does not. Afterburner parts may not be available. Or the dash 35 model of the engine requires one fuel regulator and the dash 40 model of the same engine requires a different one. Production of one type or the other has been discontinued. I know of one group which has one more airplane than it has canopies. The source of canopies? None. The canopy from a different model will not fit. And so it goes. I mention these things merely to point up the fact that the larger collection we have of different *types*, the harder it is to maintain an acceptable in-commission rate, which, of course, has a direct bearing on combat readiness. If arrangements somehow could be made whereby we could reduce the number of types, we'd be better off.

Then there comes the time when the next available aircraft has two engines and carries a lot more fuel. Larger refueling units do not accompany the aircraft. Why? The larger refueling unit is still needed by the USAF. There are not enough big refuelers to spread around. So we end up with small refuelers which are inadequate to turn around two aircraft.

In my opinion, a contributing cause to this situation is in the planning phase. Occasionally changes in aircraft come about quite suddenly, with little or no time for planning for support by the NGB. It is not clear to me why DCS/O, USAF, cannot predict more accurately the date when a new airplane will become available to the Guard. There are lots of people working on war plans ten years ahead and others cleaning up yesterday's mistakes, but nowhere can the man be found who has an accurate up-to-the-minute aircraft allocations program.

I can see no alternative to the present system of Air Guard's getting aircraft as they become available from the USAF inventory, but it seems to me that we could expect a higher degree of predictability of when they will become available. Should this be achieved, then the NGB could program for the required support equipment in a much more orderly manner. This planning could reach the point that the support items would arrive in the same crate with the airplane, or at least in the next shipment. No unit likes to go from a full set of combat-ready crews on one day to zero the next day. Yet most changes in unit aircraft produce just that result.

The next order of business, then, is to get the crews combat ready in the new aircraft just as quickly as possible. Apart from the combat readiness factor, sudden out-of-the-blue aircraft changes are serious to the poor commander who probably needs to acquire full-time technicians possessing different skills than those he has on board. This is no easy chore.

COL. JAMES M. TRAIL. *A member of the Idaho Air National Guard since 1946, Colonel Trail is Chief of Staff, for Air, Idaho ANG, and Assistant Adjutant General for that unit. A registered engineer in private life, he is a jet-qualified pilot. During World War II, he served in the Training Command, and from 1951 to 1955 he was on active duty in OSD with the Reserve Forces Policy Board. He is Wing Commander of AFA in Boise, Idaho, and at the Washington convention was elected AFA's Northwest Regional Vice President. He served as a lieutenant colonel in World War II.*

RESERVE FORCES SEMINAR

Let's Look At the Future

Brig. Gen. Hewitt T. Wheless
CHIEF OF WAR PLANS, DCS/O, HQ. USAF

YOUR invitation for me to talk here suggested that I talk on the mobilization employment of the reserve forces with particular regard to the possible future of the reserve components. Forecasting the future can be an unrewarding business. And right now, for reasons we shall touch upon, such forecasting is a particular problem. So, although even the best crystal ball won't tell all, within the limits of security, I think that we do have some fundamental concepts that will provide an area or two of interest to your symposium.

First of all, I would make it clear that I will frequently not talk about our military strength as it may be today. Instead, I would prefer to address myself to some developing concepts which must govern the shape of our national defense in the years to come.

And this raises a second point which will characterize my remarks. I must start by talking in terms of our national defense, of the entire national effort. Only by considering the total job and later relating the contributions of the component forces can we arrive at a reasonable appreciation of the possible contributions of those components.

One last point which I must cover at the start. You

(Continued on following page)

may find that I offer little in the way of specific solutions to some of the problems I will raise. The transition period we are going through today is not an easy one. There are many changes just over the horizon, and we are anticipating them just as quickly as careful evaluation will allow. Our first job is to define issues and establish principles. Once this is done, it is a shorter step to solution of these tough problems. We have made good progress in defining some of the important issues and establishing the significant principles. It is these, the issues and the principles—and some of the conclusions that appear now to derive from them—that I want to cover.

General war, if it ever again occurs, may come without warning and will probably be in two stages. First, there would be a relatively short but intense period of nuclear exchange. This first stage would be followed by a second of probably indefinite duration but of greatly lessened intensity. It may well be that the war will not be finally ended during the first stage, but the opponents will emerge in such relative conditions that one will clearly have the advantage. That one would be in the position to determine the pace of the remainder of the war in consonance with his own national policy and objectives. He would provide, at the pace he considers appropriate, whatever additional forces and equipment may be necessary to end the war on his terms.

This concept, as we have stated, applies to general war. However, we feel this same concept has obvious implications for local war. If we provide sufficient air forces—and I mean a combination of active and reserve air forces—to assure success in this first stage of a general war, we will also have the capabilities to prosecute successfully any local war in which we may become engaged.

Acceptance of this concept can have considerable impact on the air strength in our national defense structure. I repeat here that when I refer to the national defense structure, I include the reserve forces since it is our entire defense structure that we must mold within this concept. This is another way of telling you that we feel that we must gear our entire force, active and reserve, to the realities of modern war. The reserve forces must be developed to complement effectively the capabilities of the regular forces. If the reserve forces are to complement successfully, their development must harmonize with that of the Regular Air Forces in terms of readiness, training, equipment, and many other categories.

This leads us then to an important conclusion. In view of the increasingly high cost of air forces and in view of resource limitations that we must anticipate in the future, our concept would appear to require that we concentrate our Air Reserve unit effort on those which will be required during the first stage of a general war. If this conclusion is to be valid, however, there are some important considerations which must be introduced into present reserve programs. These considerations might be summarized with the statement that the reserve units we have must be fully combat-ready for employment with minimum notice. This must be understood to include a requirement for units that are fully manned and well trained; units that are fully equipped with effective weapons and support equipment that will permit them to accomplish their required combat missions; and finally, units which have available facilities necessary to their training, and for those units that remain at their peacetime locations to accomplish war missions, facilities there for the accomplishment of those war missions.

We all realize that this represents a big order and the attainment of goals such as these must take time. We realize too that a factor in determining just how soon goals of such far-reaching implications will be attained is the matter of resource availabilities. But these are goals that must be attained ultimately if our reserve strength is to make the contribution which it must make to the over-all defense posture. For myself I am convinced that there is far less advantage to a larger unit program with units of lesser capabilities than there is to a smaller unit program with units of the required capabilities. We have said that should war occur, the critical stage is the first and immediate stage. It is then that any maximum effort must be made. Reserve units, to be truly useful, to serve the nation as they have heretofore, must be ready then. This means we require quality units and it is to that end that our available resources must be applied.

What we have said about units applies broadly to the program for individual reservists as well. As you know, we have individual reservists in the two general categories of augmentation and replacement. The reservist in the augmentation category is required to bring our units to their required war strengths. Within the circumstances which we anticipate, it is apparent that this category of reservist must be instantly available, adequately trained—preferably by and in his own unit—and otherwise ready to help assure an effective capability in the unit to which he is assigned. There will be a similarly urgent requirement for a number of replacements in the initial stage of operations.

Both units and the categories of individuals I have been discussing belong, of course, to the ready reserve; and right here I would make it clear that we do count on the ready reserve to be precisely what its name implies. It is on the basis of this thinking that in the event of national emergency, major commanders have been given authority to order designated individuals and units to active duty. We are counting on the readiness, capability, and immediate availability of this complementary strength. We are convinced that it can and must effect an important addition to our over-all capability. This is an addition that we require, and as I think I have already stressed sufficiently, we require it at once upon the outbreak of hostilities.

I would impress upon you that the impact that we do experience must relate to the concepts we have talked about here today. To summarize those concepts and some of the implications for the reserve forces, we might say:

1. We must prepare first and most completely for the first phase of a general war.
2. We require help from the reserve forces to satisfy the resulting requirement.
3. We must identify the areas in which the reserves most effectively complement the capabilities of the Regular Air Force.
4. We must train, equip, man, and provide facilities for our reserve units and individuals so that they can make the required contributions.
5. Our ready reserve must be in fact all that its name implies.—END

BRIG. GEN. HEWITT T. WHELESS. *Commissioned in 1935, General Wheless served during World War II, in the Army Air Corps with the 19th Bomb Group, going in 1941 from the US to the Philippines, Java and Australia. After the war, in 1947, he was assigned to the Strategic Air Command at Andrews AFB, Md., later moving with the command to Offutt AFB, Neb., in 1948 and to Britain in 1951 with the Seventh Air Division. Now Chief of War Plans, Deputy Chief of Staff, Operations, USAF, Washington, General Wheless was assigned to his present post in April.*

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AFA President Henebry presents top ANG airman award to M/Sgt. Jasper Blackmon.

M/Sgt. Claude Geisler, top AFR airman, accepts award from President Henebry.

AFA'S RESERVE AWARDS

A FORMER paratrooper and a salesman received the Air Force Association's top individual awards to the Air National Guard and Air Force Reserve at the fourth annual Reserve Forces Awards banquet, which highlighted opening day of the convention.

AFA's award to the outstanding Air Guard airman in the United States went to M/Sgt. Jasper F. Blackmon (*see cut*) of the 130th Air Supply Group at Charleston, W. Va., who was wounded three times in World War II while serving with the 82d Airborne Division.

The award to the outstanding Air Force Reserve airman in the United States went to M/Sgt. Claude S. Geisler (*see cut*) of the 9687th Air Reserve Squadron at Des Moines, Iowa.

Two additional awards were presented by AFA President John P. Henebry—one to the most outstanding Air National Guard unit in the United States, and the other to the most outstanding Air Reserve unit in the country.

The Guard unit award was won by the 188th Fighter-Interceptor Squadron of Albuquerque, N. M., one of the units in the 140th Fighter-Interceptor Wing. The squadron is commanded by Maj. Francis Williams, who accepted the award.

The Reserve unit award was won by the 452d Troop Carrier Wing of Long Beach, Calif. The wing is commanded by Col. John R. Alison, a former president and chairman of the board of AFA, who received the award.

The Association instituted the awards three years ago to recognize the outstanding contributions made by the Air Force Reserve and Air National Guard to national security and, in addition, to salute members of these components for their volunteer work in behalf of airpower.

The Guard selections were made by a board convened in the Air Force Division of the National Guard Bureau. Sergeant Blackmon was chosen over hundreds of nominees for his continuous demonstration of leadership qualities. The 188th won the unit competition by compiling 895 points out of a possible 1,000 allotted for such diverse organization activities as flying proficiency, ground safety, attendance at training assemblies, administration and combat effectiveness.

The individual award to Sergeant Geisler marked the first time that a Midwestern airman had won this competition since the award was instituted. A board convened at Continental Air Command headquarters selected the Des Moines airman for his leadership in squadron activities and his outside efforts in behalf of the Reserve program. Colonel Alison's Long Beach wing was selected by the CONAC board over all other Reserve wings on much the same basis as the Guard unit winner. The 452d flew more than 15,000 hours without an accident last year, had more officers and airmen than any other wing, and had the best attendance for the year at training sessions.

The awards to the Guard and Reserve airmen are individual plaques which recipients keep permanently. The unit awards, large silver bowls, are retained by the winning Guard and Reserve units for one year, then surrendered for presentation to the new unit winners, at which time they are replaced with replicas.—END

Three Areas of Reserve Effort

Hon. David S. Smith

ASSISTANT SECRETARY OF THE AIR FORCE
(MANPOWER, PERSONNEL, AND RESERVE FORCES)

THERE are three major areas of effort facing the air reservists, both in your capacity as organized participating reservists, and also in your capacity as leaders in your community. My *main* purpose this evening is to place these before you, and to ask you to give them your fullest support.

Today we are spending about half a billion dollars a year on Air Force Reserves and Air National Guard. As we move into an era of increasingly austere manning of the active force, it becomes more and more important that we get the most return possible in combat capability from every dollar invested in the reserves.

The first major role for the air reserve units, then, is to increase their augmentation of the active-duty forces. Recently, we made a survey of Air Force functions to determine those in which you could best assist.

Generally, it was recommended that your units participate in the Bomarc mission; assist in accomplishing certain normal and nuclear logistic functions; continue to perform the alert identification fighter function in those geographic areas where ADC needs such assistance; augment the regular Air Force in handling troop-carrier and airlift functions through operation "Swift Lift"; aid as needed in air rescue work; augment the Air Force in accomplishing fighter-bomber and tactical reconnaissance; and, near your home bases, assist in carrying out tactical control, radio relay, communications construction, and communications maintenance.

On a long-range basis, it was also recommended that the Air Force direct your peacetime training toward productive Active Force missions, but in such a way as not to compromise unit training for its wartime mission.

Looking into the future, it would seem to be a logical extension of these proposals for the air reservist to man defense missile sites near his hometown. Such a plan would help us meet our accelerated defense reaction time, and further improve our total effectiveness.

For instance, after an electronics specialist has served four or more years with the active-duty Air Force and is back at home working and participating in the reserve program, it would be very logical for him to spend one day a week in uniform to assist in making required electronic check-outs of the missiles sited near his hometown.

The over-all purpose of these recommendations is to increase the effectiveness of the entire Air Force without burdening the national economy with an over-large full-time force structure.

Implicit in the recommendations, then, is your recognized need for modernized air weapon systems and incentives to keep your experienced personnel. Before I pass on to the other two main areas in which it seems to me you can make your greater contributions, I would like to tell you a little about *current* developments in the reserve forces which should better enable you to perform these tasks.

Regarding modernized aircraft, during the fiscal year just ended we introduced the F-86D, the F-94C, and the RF-84F into reserve units. We are programming F-86Hs for all fighter-bomber squadrons—a few units already have this aircraft. And some of our troop carrier wings will convert from the C-46 to the C-119.

During fiscal year 1958, forty-six Air National Guard squadrons will also receive these more modern fighters as well as F-89Ds and F-84Fs.

As to the personnel side of the picture, we have proposed a number of amendments to the Reserve Officer Personnel Act (ROPA), as an outgrowth of a comprehensive study made a few months back. We believe that these proposed amendments will be best in the long pull for the service and for the individual reserve officers. They will give Reserve and Guard forces promotion and assignment flexibility—necessary incentives for participation in ready units. Also, they will help support a balanced reserve structure and retain the vitalization features necessary to a sound promotion system.

In addition to these efforts, we are placing increasing emphasis on air reserve construction programs. As a point of proof, during last fiscal year, the Bureau of the Budget apportioned $33,150,000 to provide much needed facilities at fifteen locations. This amount, by the way, is a greater expenditure that has been made available for this purpose in *all* the preceding years that the air reserves have been functioning. With congressional approval, we mean to continue this effort by providing additional substantial funds for your much needed facilities.

This, then, is your primary area of effort for the immediate future: to continue as an integral, functioning part of the over-all Air Force to the end that we retain our ability to deter aggression, or if attacked, to retaliate decisively and at once.

The second major area in which I believe you can make a major contribution to the Air Force and to airpower is in the field of community relations. When we think of community relations, we sometimes tend to restrict our concern to those specific cities and locations where active-duty bases and air reserve units are situated. I believe we should broaden our field of vision to include *all* of our populated areas and *all* of our citizens. For the real problem is a matter of acceptance by and support from every individual in the United States, to the end that our airpower program is not hampered through lack of understanding.

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(Continued on page 135)

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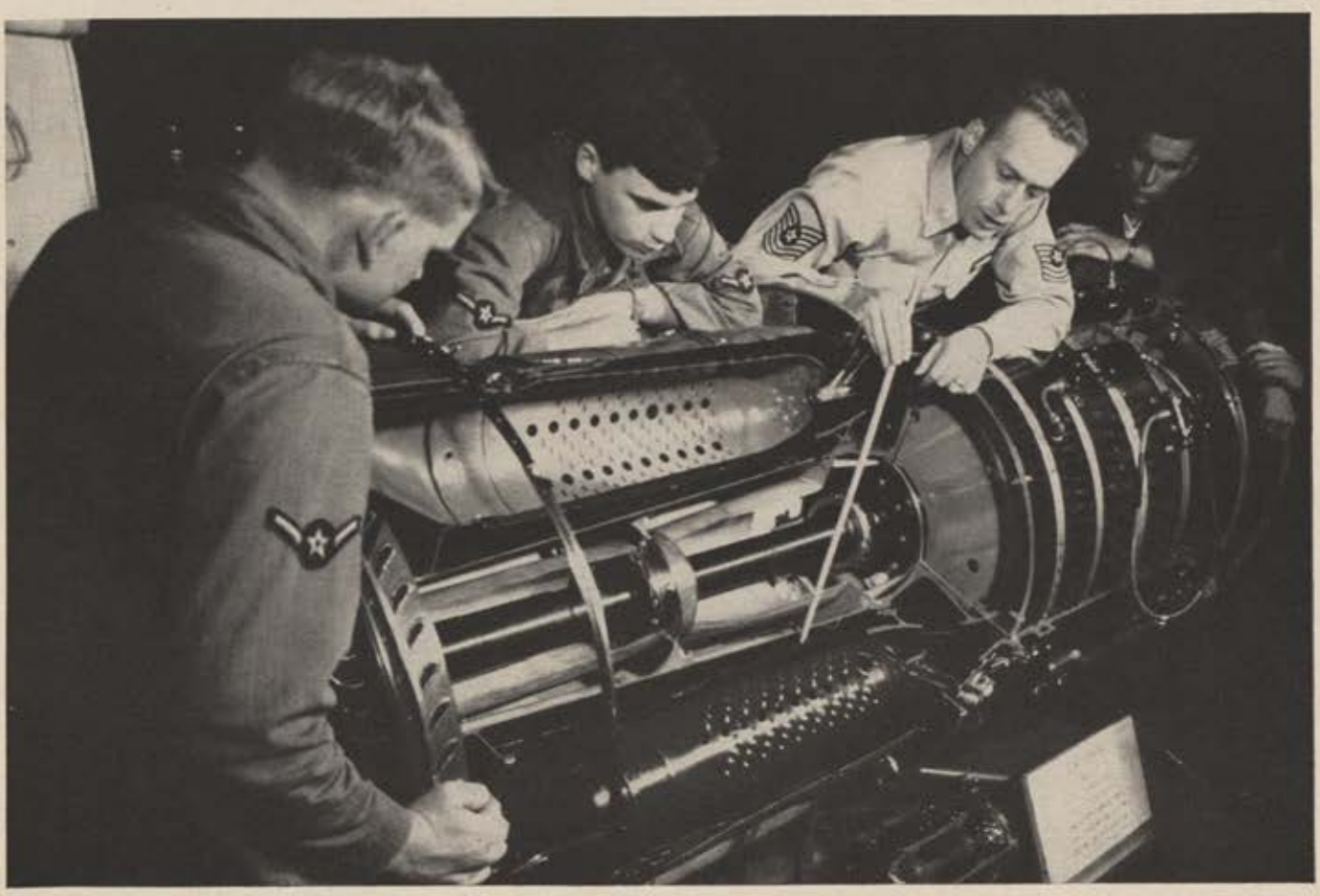

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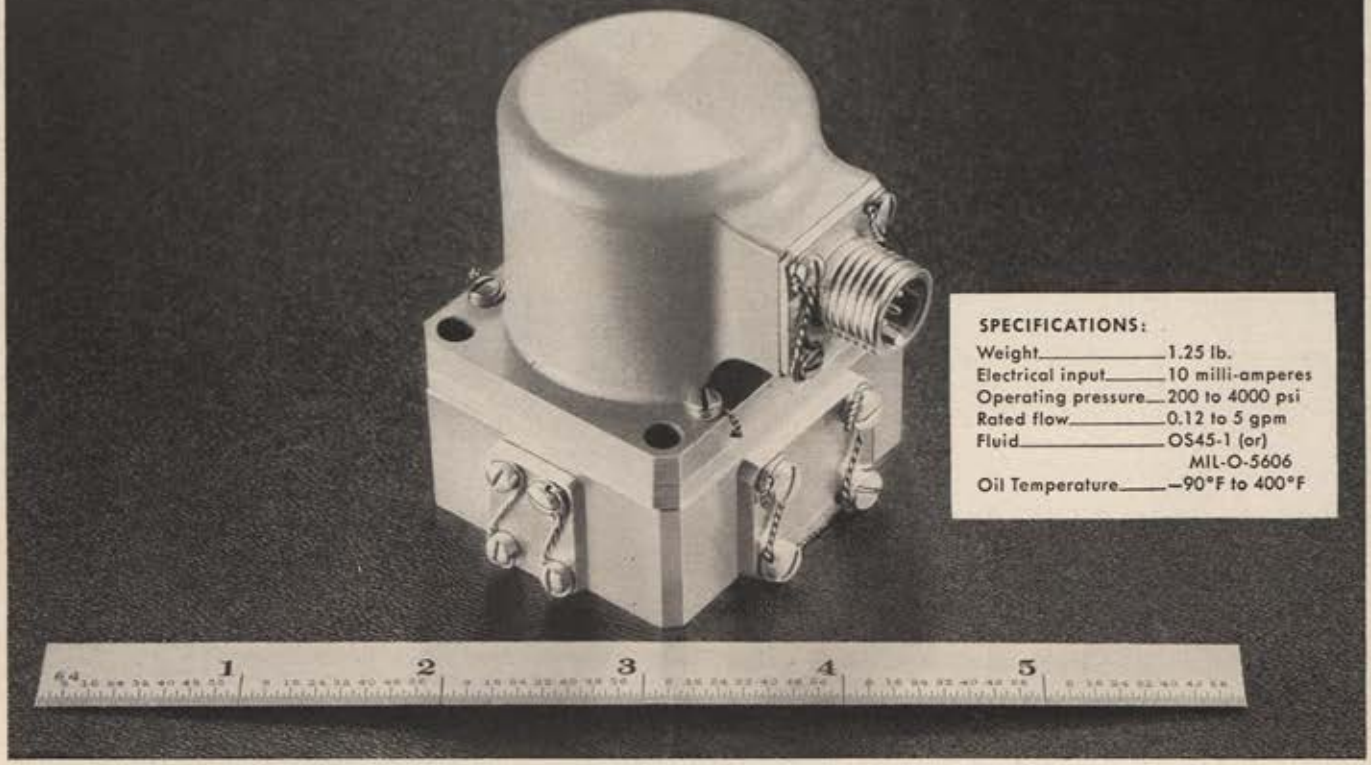

SPECIFICATIONS:

Weight	1.25 lb.
Electrical input	10 milli-amperes
Operating pressure	200 to 4000 psi
Rated flow	0.12 to 5 gpm
Fluid	OS45-1 (or) MIL-O-5606
Oil Temperature	—90°F to 400°F

New design results in high spool control forces with positive switching action

The AiResearch Time Dwell Servo Valve is a two stage switching type electro-hydraulic valve. It converts low level electronic signals into hydraulic energy which actuates mechanisms to steer or control missiles, aircraft, and ground control and similar equipment.

Weighing only 1¼ pounds, this AiResearch valve has the following characteristics:

Spool velocity rather than position is the control parameter.

Spool centering springs are not required.

Performance is maintained even with contaminated oil.

It is unaffected by accelerations to 50G in any direction.

It is insensitive to varying spool friction loads.

It has a wide temperature range of efficient operation.

In combination with a matched actuator, the Time Dwell Servo Valve gives true $1/s^2$ dynamic performance. This allows the servo systems engineer to achieve system response, resolution and stability previously unattainable.

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part of our socio-economic complex—something we will be living with from now on. We cannot close our eyes and minds to it any more than we can turn back the clock.

You know this as well as I do, for you are part of the jet airpower enthusiast segment of our population. But many Americans do not understand how far-reaching and complex air activities will be in the years to come; nor do they understand why bombers, fighters, and missiles cost so much.

You represent one of the most potent public relations sources I know of to make Americans jet-, rocket-, and air-minded. As we move toward space vehicles, satellites, and weapon systems that are now in the research stages, it is vital to survival that our citizens comprehend what we are doing and why, and give us their endorsement. I hope every one of you will assist the active-duty Air Force in this endeavor with the same enthusiasm that you augment the air defense and support missions.

The third and final challenge I want to place before you is slightly less general than community relations; but it is probably just as intangible. I am sure, however, that it ultimately holds the key to our ability to accomplish our technological goals. It is concerned with motivating young people into Air Force careers, and into the scientific and technical professions.

Clearly, the air vehicles and weapon systems envisioned for the future will demand a higher degree of operating and maintenance skills than we have encountered before. Right now, as we transition into the B-52 and supersonic fighters, we are feeling the pinch of skill shortages in certain critical areas, such as engine maintenance and electronics, to name a couple. As these tasks become more complex, and as even greater individual output will be demanded of aircraft and equipment operators, the pinch can become more severe.

The best way we can meet this problem and solve it is to provide incentives of the amount and kind necessary to develop and retain capable, experienced people. In the service, we are seeking to do this through both legislative and administrative actions. And we are trying to achieve a qualified, dedicated, professional corps through certain recommendations for further career benefits as proposed in the Cordiner Committee report.

I served on this committee and for a year worked very closely with the other members in development what we believe to be a practical, modern system of compensation for military personnel. Difficulties remain in the way of implementation. The Department of Defense, however, has the matter under continuing study; and I am hopeful that legislation embodying the basic principles of the Cordiner Committee recommendations will be enacted at a later session of Congress.

But here, also, the active-duty Air Force cannot do the entire job without your help. In your homes, your communities, and your cities you are in frequent contact with the young men of the age and caliber we need. As responsible Air Force people with a personal stake in our ability to accomplish our assigned missions, you are our most strategically located "recruiters." Your guidance, your counsel, and your close knowledge of Air Force aims and programs should be used, not only to perform your specific reserve tasks, but also to promote the Air Force to American youngsters.

Parallel to this problem, our ability to design and produce the advanced weapons of the future depends *directly* and *immediately* on our assuring continuity of the many engineering and research staffs throughout the nation. The only way we can assure this continuity is to motivate young people to study scientific and engineering courses, and to equip themselves to carry on the R&D and production work now being done.

It is our responsibility to apprise young people of the advantages of these professions—to themselves and to the nation. They are pretty capable—more so, I imagine, than we sometimes realize. If they are properly guided, I believe they will pitch in—and do even more than we have in advancing the state of the art and in producing radically improved hardware.

On first thought, this problem may seem to be unrelated to your reserve mission. If you examine it closely, however, you will agree that it is distinctly akin to your own purpose for being. For these youths are actually our potential reserve strength—our sole resource for meeting tomorrow's military requirements. They will augment our current technological forces just as surely as you augment the active-duty force. This is a problem facing all of us, and one that you must help solve. I cannot overemphasize how important its solution is to our country's future.

I would like to leave with you a few items of value to all of us at this time of our Golden Anniversary celebration. During these short fifty years we have seen the US Air Force grow from a tiny nucleus of four men to the mightiest military force on earth. We have seen dedicated men fight for their firm-fixed beliefs in the potential of airpower as a decisive military and diplomatic tool.

The year has been marked by the record round-the-world flight of three B-52s; by the roll-out of the world's fastest bomber; and by the appointment of an Air Force officer to be Chairman of the Joint Chiefs of Staff. All of these are most remarkable achievements.

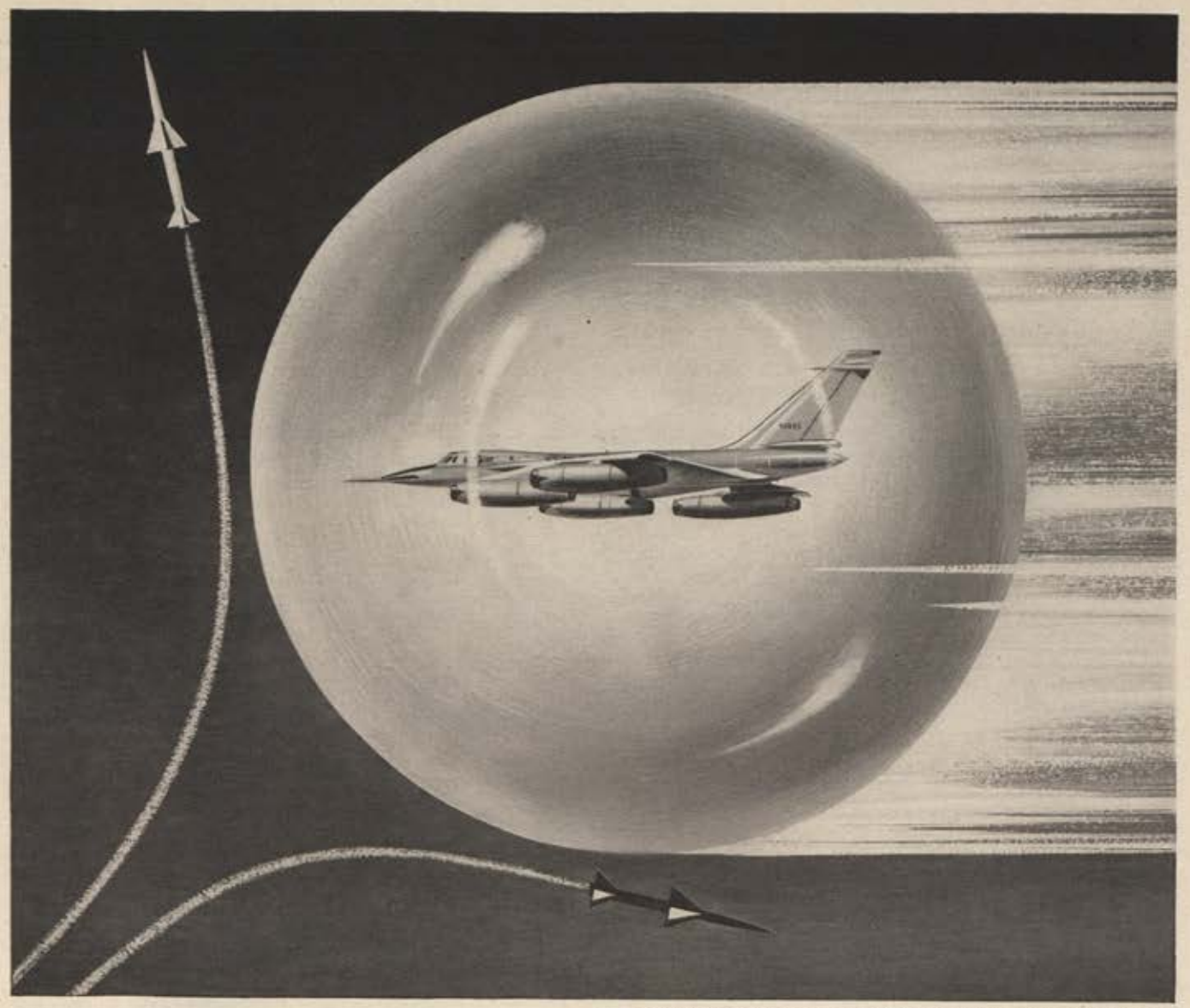
But 1957 must be considered significant for still another reason. It represents a transition between emphasis placed on *quantity* of airpower and emphasis on *quality*. This is not to imply that we did not need good items in the past, nor that size and numbers will be unimportant considerations in the future. It means essentially that for our air weapons in the years ahead we will insist on much higher performance factors than we have previously believed possible to achieve; on a much higher degree of reliability; and on vastly improved effectiveness of weapon system complexes.

It means that we must place increasing emphasis on trained young people who are, in the final analysis, our most important resource. And most important it means that our greatest emphasis in the manpower and personnel field must be on quality—on building up and maintaining an Air Force composed of dedicated career officers and airmen, backed up by well trained, ready reserves who are ready for instant mobilization.

The air reservists throughout the United States have contributed vitally to the USAF's current high degree of proficiency. Because of your proved dedication in past years, I am fully confident of your ability to meet the challenges that face us.

Make no mistake about it. Our national survival hinges not only on the effectiveness of the active duty forces, but also on the vigorous support of air reservists.—END

DAVID S. SMITH. *Now Assistant Secretary of the Air Force for Manpower and Personnel and Reserve Forces, Mr. Smith is a World War II naval veteran who served two years in the Pacific theater, participated in several amphibious landing operations. After the war, he returned to the practice of law and later was elected vice president of the Federal Bar Association of New York, New Jersey, and Connecticut. He was appointed to his present post in 1954.*



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THE DELEGATES WERE BUSY

AFA President-elect Peter J. Schenk, left, beams as he accepts congratulations of outgoing President and incoming Chairman of the Board, John P. Henebry.

By Bill Leavitt

AGAINST a mixed background of Golden Anniversary pageantry and widespread defense economy that caused concern to many of them, AFA's voting delegates to the Eleventh Annual Convention in Washington chose their 1957-58 slate of officers—headed by Peter J. Schenk of Santa Barbara, Calif.—and voiced some significant thinking on airpower needs today.

In the twelve months since the 1956 Convention in New Orleans, adequate airpower in the face of economy demands had become an increasingly debated public question, and the Association's 1957 Statement of Policy and Resolutions pointed up strongly the nation's need to maintain its vital deterrent power in constant readiness.

In blunt terms, the 1957 Statement of Policy recognized that "no matter how much we deplore and dislike it, we are in an arms race with the Soviets and that if we abandon this race or allow our opponent to win it, we merely hasten the outbreak of a war we cannot win."

The Statement attacked arbitrary budget-cutting and boldly asserted that "any defense plan which assumes that technical superiority alone is adequate defense is a house built on sand."

As the AFA Statement of Policy put it:

"The immediate requirement is adoption of a military plan shorn of all wishful thinking, and with no consideration—political or economic—overriding that of national security."

Toward that end, the Statement called for congressional action on appropriations large enough to bring, as soon as possible, our long-range striking force up to full strength in modern bombing and auxiliary aircraft.

To this, the Statement added a call for a speedup in American air defense capability and an intensification of research and development and anti-submarine program, especially in the field of long-range ballistic missiles.

"We urge objective evaluation," the Statement said, "by a commission set

(Continued on following page)

A cheerful group of AFA members from St. Paul, Minn., crowd around the registration desk to "Sign in, please."

up by and responsible to Congress of the nation's high-cost weapon system and elimination of those which prove to be obsolete or even marginally efficient in providing for the national defense."

With this objective weapon system analysis, the delegates, through the Statement, summed up in these terms:

"It is imperative that the defense structure be oriented toward the assignment of missions to meet the actual military threat—and away from any perpetuation of traditional concepts and obsolete weapons."

Opening the first business session in the Sheraton-Park's Exhibition Hall, after President John P. Henebry called the delegates to order, was the invocation by Msgr. William F. Mullally, AFA Chaplain, followed by addresses of welcome on behalf of the District of Columbia by Lt. Col. Robert F. Mathe, Assistant D. C. Engineer Commissioner, and for the Air Force by Maj. Gen. Reuben C. Hood, Jr., Commander, Headquarters Command, Bolling Air Force Base, who was Military Host.

The keynote address was given by outgoing Chairman of the Board Gill Robb Wilson. Mr. Wilson called AFA a vital instrument for the advancement of the airpower concept and told members that their activity in AFA

(Continued on page 141)

AIR FORCE ASSOCIATION'S NEW LEADERS

Elected for the Year 1957-58 at Washington, D. C.

SECRETARY

***Julian B. Rosenthal**
New York, N. Y.

PRESIDENT

Peter J. Schenk
Santa Barbara, Calif.

TREASURER

Jack B. Gross
Harrisburg, Pa.

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New England Region — *Philipe Coury*
Northeast Region — **Leonard A. Work*
Central East Region — **William W. Spruance*
Southeast Region — **Alex G. Morphonios*
South Central Region — **Fred O. Rudesill*
Midwest Region — **J. Chesley Stewart*
Southwest Region — *Hardin W. Masters*
Rocky Mountain Region — *George H. Van Leeuwen*
Great Lakes Region — *Howard T. Markey*
North Central Region — *William G. Kohlan*
Northwest Region — *James M. Trail*
Far West Region — *Curtis E. Christensen*
Pacific Ocean Area Region — **Roy J. Leffingwell*

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****John R. Alison** — *Hawthorne, Calif.*
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A. Paul Fonda — *Hagerstown, Md.*
***George D. Hardy** — *Hyattsville, Md.*
Samuel M. Hecht — *Baltimore, Md.*
T. B. Herndon — *Baton Rouge, La.*
****Robert S. Johnson** — *Woodbury, L. I., N. Y.*
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****Carl A. Spaatz** — *Chevy Chase, Md.*
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****Harold C. Stuart** — *Tulsa, Okla.*
W. Thayer Tutt — *Colorado Springs, Colo.*
***S. Ernest Vandiver** — *Lavonia, Ga.*
***Frank W. Ward** — *Battle Creek, Mich.*
Gill Robb Wilson — *Huntington, L. I., N. Y.*
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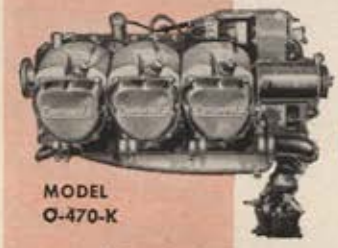

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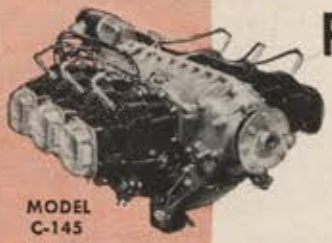

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was more than just "cards and dues"—it was "an expression of the greatest loyalty and love that is in the nation."

Out of the freedom that airpower protects, said Mr. Wilson, would come in time "an accurate evaluation of the potential that lies in man as a spiritual being . . . that the United States, this unique thing in history, will have a messiannic mission" in the world.

Guests at the first business session were Senators Leverett Saltonstall (R.-Mass.) and Stuart Symington (D.-Mo.), who offered their comments *(see page 103)* on the Statement of Policy after it was read to the Convention.

As their new president, the delegates chose Peter J. Schenk, Santa Barbara, Calif., who at the final Airpower Brunch voiced his feeling of particular honor at being named to the high post. As he entered office, Schenk told assembled delegates of his coming to the US from Austria, at the age of twelve, finding unparalleled freedom here—freedom assured by the airpower that has helped keep it alive.

A lieutenant colonel in the Air Force Reserve with more than twelve years of active duty to his credit in key research and development projects, Mr. Schenk now is projects manager for General Electric's Technical Military Planning Operation (TEMPO) at Santa Barbara, Calif. He has been an AFA member for six years and has served as a national director.

Succeeding past president Gill Robb Wilson as Chairman of the AFA Board is outgoing president John P. "Jock" Henebry, recently promoted to major general in the Air Force Reserve, who is an AFA charter member, a former AFA national director, and now president of Skymotive, Inc., Chicago aircraft maintenance and service firm.

As secretary, the delegates reelected Julian B. Rosenthal of New York City, an attorney who served in World War II as an enlisted man in the Air Materiel Command. Mr. Rosenthal has been AFA secretary since 1947, one year after the Association was founded.

Succeeding Samuel M. Hecht of Baltimore as treasurer is Jack B. Gross of Harrisburg, Pa., former AFA Wing and Squadron Commander, assistant treasurer, director, and a lieutenant colonel in the Air Force Reserve. Mr. Gross is a business executive in private life.

The Convention chose seven new AFA regional vice presidents and reelected six others *(for complete listing, see box on page 138)*.

New regional vice presidents are: New England Region, Philipe Coury,

(Continued on following page)

Secretary of the Air Force James H. Douglas congratulates AFA's Man of the Year, George D. Hardy, who received AFA President's Trophy for his service to airpower.

★ AFA FAMILY AWARDS ★

THE PRESIDENT'S TROPHIES

George D. Hardy, Hyattsville, Md., AFA's Man of the Year
H. H. Arnold Squadron, L. I., N. Y., AFA's Unit of the Year

UNIT EXCEPTIONAL SERVICE PLAQUES

Utah Wing, Ogden, Utah, Wing Programming
Ak-Sar-Ben Squadron, Omaha, Neb., Membership Development
Capital City Squadron, Sacramento, Calif., Aviation Education
Olmsted Squadron, Harrisburg, Pa., Squadron Programming
San Francisco Squadron, San Francisco, Calif., Community Relations

INDIVIDUAL EXCEPTIONAL SERVICE PLAQUES

John R. Alison, Hawthorne, Calif.
Robert W. Burns, Washington, D. C.
J. Alan Cross, Miami, Fla.
Clive E. Davis, Sacramento, Calif.
Lou Davis, Huntington, L. I., N. Y.
Stephen F. Leo, Alexandria, Va.
Carl J. Long, Pittsburgh, Pa.
Charles J. Russhon, New York, N. Y.
Donald W. Steele, Washington, D. C.

MEDALS OF MERIT

James R. Bonner, Ogden, Utah
Vince Barnett, Sherman Oaks, Calif.
Joe E. Brown, Los Angeles, Calif.
Curtis E. Christensen, Encino, Calif.
Joseph J. Dougherty, Drexel Hill, Pa.
Clifford E. Griffin, San Francisco, Calif.
Jack B. Gross, Harrisburg, Pa.
William G. Kohlan, Minneapolis, Minn.
Robert P. Knight, White Bear Lake, Minn.
William T. Lunsford, Jr., Harrisburg, Pa.
Maj. Frank L. Manning, Offutt AFB, Omaha, Neb.
Peter J. Schenk, Santa Barbara, Calif.
Nicholas J. Schwall, Jr., Northbrook, Ill.
James Snapp, Jr., San Diego, Calif.
William H. Stein, New York, N. Y.
Dr. John F. Victory, Washington, D. C.
William W. Walker, La Mirada, Calif.

DELEGATES — CONTINUED

Readville, Mass.; Great Lakes Region, Howard T. Markey, Chicago, attorney who served in the Korean War; Rocky Mountain Region, George Van Leeuwen, Ogden, Utah, AF civilian employee and past Utah Wing Commander; North Central Region, William G. Kohlan, Minneapolis, attorney and former Wing and Squadron Commander; Southwest Region, Hardin W. Masters, Oklahoma City, investment specialist and former director; Northwest Region, James M. Trail, Boise, Idaho, state aviation official and former national committee member; Far West Region, Curtis E. Christensen, Encino, Calif., insurance agent and former Wing and Squadron Commander.

A vacancy created in the Midwest Regional vice presidency when nominee Arthur Storz withdrew was later filled by J. Chesley Stewart, of St. Louis, Mo., the incumbent.

After ballots were counted at the election, new faces in the AFA directorate included: J. Alan Cross, Miami, Fla.; A. Paul Fonda, Hagerstown, Md.; Samuel M. Hecht, Baltimore; T. B. Herndon, Baton Rouge, La.; Robert P. Knight, White Bear Lake, Minn.; W. Barton Leach, Weston, Mass.; Charles O. Morgan, Jr., San Francisco; J. Gilbert Nettleton, Jr., Santa Monica, Calif.; Gwynn H. Robinson, Colorado Springs, Colo.; W. Thayer Tutt, Colorado Springs, Colo.; Frank W. Ward, Battle Creek, Mich.; and Paul S. Zuckerman, New York City. (*For complete list, see box on page 138.*)

This year's list of AFA "Family Awards" (*see box on page 141*) was led by George D. Hardy of Hyattsville, Md., who received the President's Trophy as "AFA's Man of the Year," for his devoted services to the aims of the organization. Chairman of the 1957 Convention, Mr. Hardy is a long-time airpower enthusiast, a past national director, and in private life is in the food brokerage business in Baltimore and Washington.

Honored as "AFA's Unit of the Year" was the H. H. Arnold Squadron of Huntington, L. I., N. Y., commanded by Lou Davis, who accepted the trophy in behalf of his unit. With Mr. Hardy the Squadron received a President's Trophy at the Airpower Awards Banquet Saturday night, while the other family awards were presented at the final Airpower Brunch.

With Dallas, Tex., selected as the site of the 1958 AFA Convention, the delegates got busy on resolutions. They voted to amend the national constitution with an increase of AFA membership dues to $6, except for Cadet Membership, which will remain at $3. The change also included an increase of refunds to Squadrons and Flights to $2.50 per unit member, provided refund criteria are met.

In addition, delegates voted amendments to provide that refund of 50¢ from the membership dues of all mem-

(Continued on page 145)

SPECIAL THANKS . . .

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Golden Anniversary Ribbons
First-Aid Station

Flight Refueling, Inc.
Motor Pool Service

Ford Motor Co., Aircraft Engine Div.
Asiatic-Pacific Theater Anniversary Ball

General Motors Corp.
American Theater Anniversary Ball
Motor Pool Cars

Lockheed Aircraft Corp.
Reunion Cocktail Party (Luau)

The Martin Co.
Airpower Brunch

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bers, except Cadet Members, in each established Wing be made to the Wing, payable quarterly, and that the Life Membership fee be increased from $100 to $120.

Delegates also resolved that the AFA Headquarters Staff in Washington be advised to expand the field organization to and in the forty-eight states and the Territories, supply the field organization with additional aids and operating materials, and coordinate efforts and activities of AFA units with Reserve components, civil aviation, industrial and civic affiliates to enhance the effectiveness of their combined efforts.

In one other resolution, the delegates moved that Section 5 of the National Wing Advisory Council recommendations for Squadrons and Flights be revised to provide that the voting strength of any Squadron or Flight placed on probation pursuant to Section 3, be computed as of the date, which shall be thirty days prior to National and Wing Conventions.

Backed up by 112 hard-working committeemen and the National Headquarters staff of twenty-five, 1957's Golden Anniversary AFA Convention was truly big—both in attendance (2,540) and in accomplishments—and a bright contrast to earlier days like the 1953 Washington Convention with its much smaller registration of 840.

Under the general chairmanship of Gen. Carl A. Spaatz, these are just some of the people who helped make the Convention possible and successful. With them, on the various committees they headed, worked many more AFA members:

Convention Chairman, George D. Hardy; Anniversary Chairman, Stephen F. Leo; USAF Project Officer, Maj. James E. Marquis; Information Chairman, Col. Paul Goodwin; Registration, Stewart and Mary Gill Rice; Arrangements, Stephen J. Lesieur; Functions, Reginald Martine, Jr.; Reception, Maj. Gen. Lucas V. Beau, USAF (Ret.); Transportation, Donald W. Steele; Airports, Martin W. Buckler; Special Activities, Andrew M. Ockershausen; Panaroma, Lt. Col. Robert F. Pike; Air Show Support, Louis J. Ciccoli.

The Convention closed on a rollicking note. With Dallas, Tex., chosen as the 1958 Convention site, delegates were treated to a colorful preview of that city's charm as they gathered for the Sunday morning, August 5, Airpower Brunch. And Dallas '58 was enough to contemplate as the choice between Miami Beach or Denver for '59 was weighed for the future.—END

THIS IS AFA

The Air Force Association is an independent, non-profit, airpower organization with no personal, political, or commercial axes to grind; established January 26, 1946; incorporated February 4, 1946.

OBJECTIVES

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

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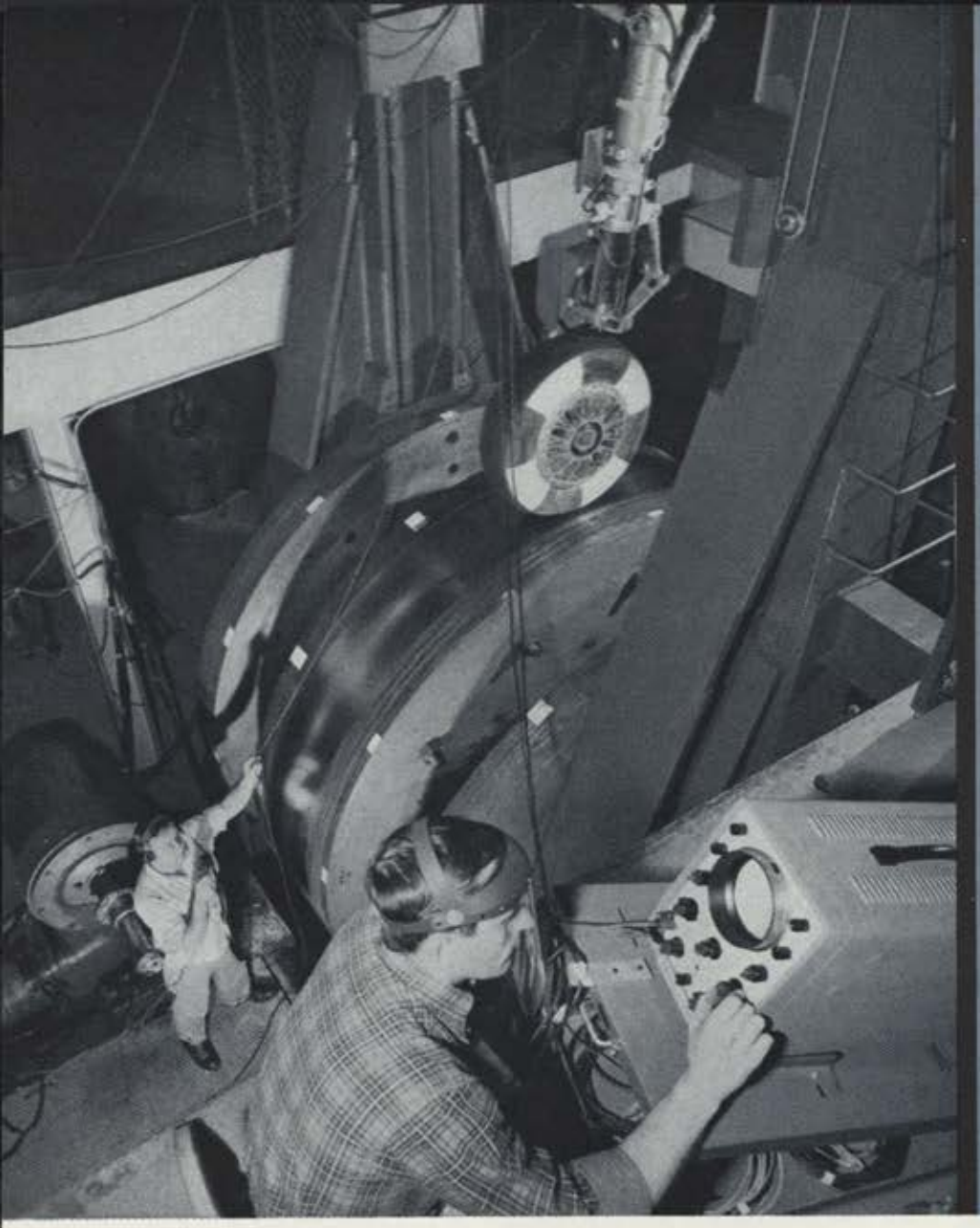

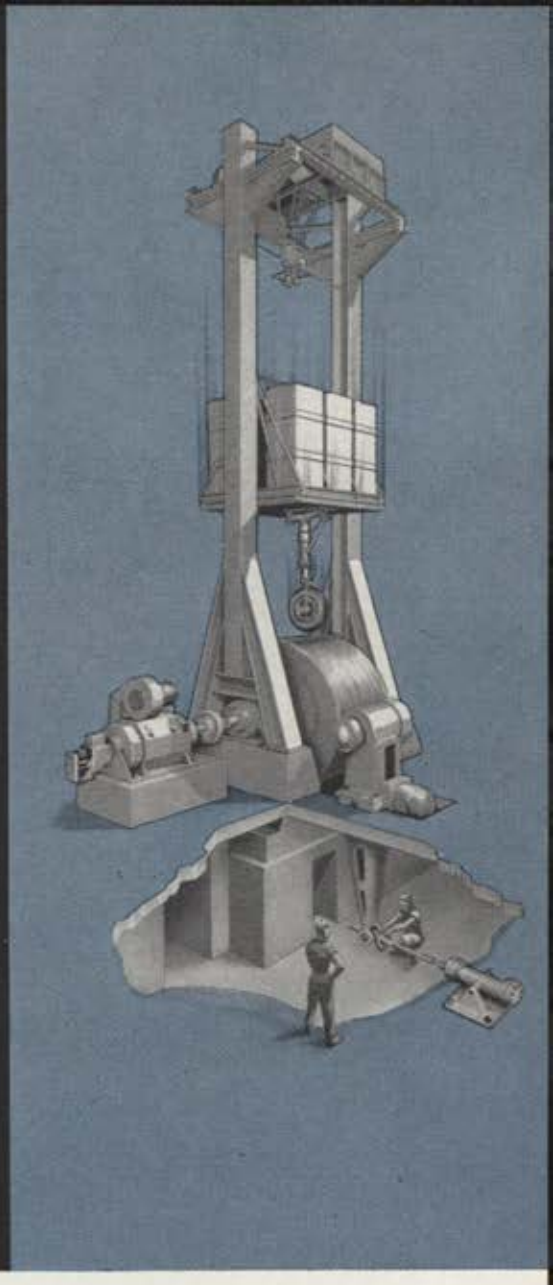

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